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THE CWC, THE NPT AND THE MIDDLE EAST PEACE NEGOTIATIONS

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With the end of the cold war, the passing of the former Soviet Union, and the ongoing Middle East peace negotiations, the proliferation of weapons of mass destruction—nuclear, chemical and biological—and their means of delivery has become a primary concern of the international community. It is coming to be recognized that reliance on military superiority and any kind of weapon of mass destruction as a deterrent cannot provide long-term security and stability.

Cooperation on a regional level and with the larger international community has now, more than ever before, become a norm of international behavior and responsibility. Deterrence is shifting to a search for measures to prevent conflict aims and threats from arising. Preventing regional war requires dealing with the underlying or potential sources of conflict. In the Middle East, these sources include refugees and displaced people, water rights and water resources, vast regional economic disparities, border and territorial disputes, environmental pollution, and the proliferation of weapons of mass destruction as well as conventional arms. With the pace of global and regional events increasing, the task of establishing regional peace and stability in the Middle East has grown more complex and challenging. The inter-relations between the various conflicts and disputes, and the increasingly interdependent nature of the region, mean that only a comprehensive approach can provide us with the means of developing long lasting solutions.

These topics are being dealt with in two parallel fora in the ongoing Middle East peace process: bilateral and multilateral. The multilateral forum encompasses a comprehensive effort in dealing with the principal issues to be settled. Consequently, after the first organizational meeting that took place in Moscow in January 1992, five working groups were formed: Water, Economic Development, Refugees, Environment, and Arms Control and Regional Security.

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DESTRUCTION OF THE US CHEMICAL STOCKPILE

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Prior to 1970, destruction of lethal chemical agent munitions was limited to obsolete or unwanted chemical munitions and was accomplished primarily by ocean dumping.

However, in the late 1960s, public furor primarily aimed at transportation from the storage installations to the port cities caused cessation of these activities. After review by the National Academy of Sciences, it was determined that destruction of these types of munitions should take place only in specially designed processes and plants where adequate containment and process control could be incorporated to provide maximum protection. Since that time, the United States has been involved in the systematic destruction of its lethal chemical stockpile.

In 1972 the first of these operations began at Rocky Mountain Arsenal (RMA) located at the outskirts of Denver, Colorado. The RMA facilities consisted of specially designed processes to destroy a multitude of nerve agent GB munitions including: M34 GB Cluster Bombs, Honest John GB Warheads, and Bulk GB, as well as bulk quantities of agent mustard. Table 1 presents the quantities and the methodology used to destroy the entire stockpile of munitions at RMA.

The Army recognized the need eventually to destroy the entire stockpile as early as the mid-1970s and initiated two major technical thrusts. First, plans were made to create a

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There have been several arms control initiatives and proposals put forward for the Middle East over the past four decades. However, all of these proposals failed to be agreed upon and implemented, owing to the fact that they were not linked to a political peace process. The ongoing Middle East peace process should provide us with the opportunity of addressing the threat arising from the proliferation of weapons of mass destruction and their delivery systems in a more comprehensive manner. This, in effect, will establish steps and measures for arms control in the region.

It has been nearly a year since the Chemical Weapons Convention (CWC) was opened for signature in Paris, in January 1993. The year 1995 will bring three further events of major importance for non-proliferation. The CWC will, very probably, enter into force; the Biological Weapons Convention will again come under scrutiny at a conference of its States Parties; and the nuclear Non-Proliferation Treaty (NPT) will have its extension/review conference.

The significance and aim of these three multilateral agreements is to give effect to the intentions of the parties, in the light of circumstances and political developments. In a fundamental way, these declared intentions are a political commitment and have become legally binding within the context of International Law. Consequently, region-specific technical military confidence and security-building measures as well as regional arrangements can be developed that will promote transparency and openness and put constraints on offensive military capabilities and activities. An environment of stability and converging security interests in arrangements such as implementation, verification, safeguards, and a zone free of weapons of mass destruction can be established. It is only through such an approach that the international community can move towards curbing the development of these weapons and stemming their proliferation.

The history of chemical and bacteriological weapons and attempts to abolish their use go back at least to the 1899 Hague Declaration prohibiting the use of projectiles intended to deliver 'asphyxiating or deleterious gases'. Later, the 1925 Geneva Protocol prohibited the use in war of 'asphyxiating, poisonous or other gases' and of 'bacteriological methods of warfare'. Most recently, under the comprehensive and multilateral CWC, each State Party undertakes never to 'develop, produce, or otherwise acquire, stockpile, or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone'. The Convention requires existing stockpiles and production facilities to be destroyed over a ten-year period and is backed up by detailed verification and compliance provisions. Certain chemicals and groups of chemicals, including chemical warfare agents and precursors, listed in the Schedules of the CWC, are to be the subject of routine reporting and on-site verification measures. Article XI of the CWC, Economic and Technological Development, specifically assures the right of State Parties to participate in 'the fullest possible exchange of chemicals, equipment and scientific and technical information relating to the development and applica-

tion of chemistry for purposes not prohibited by the Convention'.

Moreover, in a region such as the Middle East where suspicions are deeply rooted, the Convention applies a mechanism which allows suspicions to be transformed from bilateral concern to a multilateral verification concern. This mechanism can prevent possible unilateral action taken by a state which perceives a threat to its national security subsequently drawing the region into conflict. Finally, the political will and commitment of the nuclear-capable states that has developed in connection with the effort to eliminate chemical and biological weapons should help efforts to conclude measures of nuclear weapons control, including a Comprehensive Nuclear Test Ban.

In contrast to chemical weapons, nuclear weapons were non-existent in 1925. However, by the end of the second world war the devastating destruction and after-effects of nuclear weapons were witnessed by the international community. In 1968 the multilateral NPT, was completed and opened for signature. Its objectives are to prevent the spread of nuclear weapons from states that possess them to states that do not possess them and to provide for cooperation in the peaceful uses of nuclear energy. The NPT calls for its States Parties to accept international safeguards, through arrangements negotiated with the International Atomic Energy Agency. By January 1993, 150 states were members of the NPT, including the five nuclear-capable states who are also the five permanent members of the United Nations Security Council.

The Nuclear Suppliers Group (NSG) established a common set of guidelines for exports by the major nuclear suppliers, to help prevent the spread of nuclear weapons. After the Gulf War, the NSG met in Warsaw in April 1992, and agreed on further guidelines to control transfers of 'dual-use' equipment, materials and related technologies that can be used for legitimate commercial or research purposes but also for nuclear weapons development.

The Middle East region has a potential for peaceful uses of nuclear energy such as power generation and water desalination, vast petrochemical resources, and a need for chemical and biological equipment and technology for application in agriculture, industry and medicine. The economic benefits of becoming a party to the CWC and the NPT are therefore substantial. The signing of these two multilateral agreements will be necessary for any comprehensive economic cooperation in the Middle East region. This will assist economic development and stability, and promote peaceful existence within the region. Both multilateral agreements have restrictions on dual-purpose technologies, in trading and economic cooperation with non-party states. These restrictions would cause difficulties in promoting economic cooperation and development in the region if any state or states remain outside of them. That would create contradictions in relationships between the states, and put constraints on the type and scope of much-needed economic projects for the region. □

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pilot plant at Tooele Army Depot in Utah. The purpose of this capability was not necessarily to create new technology. Rather, it was to provide a 'stepping stone capability' to verify technology initiated at RMA prior to its incorporation into full-scale facilities. This verification step was required as the RMA experience with agents and munition types was limited. Secondly, a research and development program to examine technology both in munition processing and agent destruction was initiated by contracts with industry.

The Army had considered various treatment alternatives for the chemical stockpile with incineration becoming the technology of choice in the early 1980s. In 1984 the National Research Council (NRC) examined the Army's programs and concluded that incineration was the best available technology. This conclusion was reached upon an examination of all the stockpile disposal requirements, i.e. agent destruction as well as treatment of large quantities of energetics and metal components.

While these programs were progressing, the Army became concerned with the safe storage life of the M55 Rocket. These rockets are located at six of the nine sites where chemical munitions are stored: Johnston Island; Tooele Army Depot, Utah; Anniston Army Depot, Alabama; Blue Grass Army Depot, Kentucky; Pine Bluff Arsenal, Arkansas; and Umatilla Army Depot, Oregon. High priority efforts were placed on rocket processing studies at the Tooele Army Depot pilot plant, and designs for full-scale facilities were initiated.

Perhaps no site better exemplified the problems with the M55 rockets than Johnston Island (JI), a small atoll located approximately 700 miles southwest of Hawaii. There, the combination of high temperatures and humidity, coupled with corrosive salt air, was causing a significant increase in the incidence of leaking M55 rockets. Although the Army's monitoring programs were identifying these leakers and placing the leakers in sealed containers before a safety threat existed, it was decided to destroy the weapons before the problem became unmanageable.

Therefore, in 1982 a full-scale facility at JI was initiated. The facility was originally designed to house the equipment necessary to destroy the entire inventory of chemical munitions stored at JI, although the procurement was initially limited to the equipment required to process the M55 rockets. Subsequently, in response to later Congressional direction cited in the following paragraphs, equipment for the entire inventory was added.

The program changed dramatically in 1986 when Congress directed that the entire United States lethal chemical stockpile be destroyed by the end of 1994, approximately eight years from enactment of the Public Law. The original Congressionally-directed goal of program completion by 1994 proved to be unrealistic due to the magnitude of the effort. The current target for completion of the destruction program is 2004.

Table 1. Rocky Mountain Arsenal experience

<i>Agent</i>	<i>Munition type</i>	<i>Agent destruction process</i>	<i>Quantity (pounds)</i>
Mustard	Bulk	Incineration	6,200,000
GB	Bulk	Neutralization	4,000,000
GB	M34 cluster bombs	Neutralization	4,100,000
GB	Honest John warheads	Neutralization	77,000

To implement the Congressional direction a Programmatic Environmental Impact Statement (EIS) was initiated in 1986 pursuing four alternative. This Programmatic EIS considered the alternatives of construction of a destruction facility at each of the eight Continental United States storage sites; construction of a single central site with movement by rail from the other sites; a regional concept (Western and Eastern) for construction and transportation; and, as required by law, a do-nothing or 'just let the stockpile sit' concept. The programmatic document revealed that the worst case scenario threatening the general public revolved around munition storage events. It must be pointed out that the probabilities of storage accident events were low but the consequences of certain scenarios were catastrophic by any definition. The selected environmentally preferred alternative was construction of separate facilities at each storage site, incorporating the Tooele Army Depot pilot plant technology which included incineration.

After review of the EIS, Congress directed that, until the facility at JI was operational and had demonstrated the technology was safe and environmentally sound, no operations could commence at any site. That demonstration program was referred to as Operation Verification Testing (OVT) and included processing of the three major agents VX, GB, and H, as well as representative types of munitions. These tests were initiated in July 1990 and completed in March 1993. As one would expect, the 'first of its kind' plant went through significant growing pains. Several modifications to equipment, operating procedures and staff were made during this period. However, perhaps arguably, the summary of its performance can best be measured by the statement that during its operation no agent was detected from continual stack monitoring during the incineration operations. The lower detectable levels during this period differed depending on the agent, ranging from 27.0 parts per trillion for nerve agents to 4.6 parts per billion for mustard agent. There was single instance of agent emitting from the plant stack at approximately 25 per cent of the standard, but that occurred when the incinerator was shut down and was attributed to operator error in purging of the incinerator feed system. Table 2 is a summary of the OVT operations. The necessary certifications have been provided to Congress, and full-scale operations at JI have been initiated.

During the OVT period, the test burns required under the Resource Conservation and Recovery Act (RCRA) were conducted on all of the incinerators. These test burns,

Table 2. Johnston Island OVT destruction summary

<i>Munition Type</i>	<i>Number</i>	<i>Agent fill</i>
M55 rocket	7,567	GB, c 10.3 lbs
M55 rocket	13,889	VX, c 10.8 lbs
Bulk (ton container)	67	Mustard, c 1700 lbs
105mm projectile	23,978	Mustard, c 3.3 lbs

Total agent destroyed = 200 short tons

conducted under the aegis of the Environmental Protection Agency Region IX, revealed that the agents were destroyed at destruction efficiencies exceeding 99.9999 per cent and that the dioxin, furans, other organics, and particulate, as well as other hazardous waste incinerator emissions, were well below Environmental Protection Agency requirements.

In addition, a destruction facility has been constructed at Tooele Army Depot, Utah. Testing of the facility commenced in late August 1993 and will continue through February 1995 when live agent operations will be initiated.

The Army destruction program recognized early in its implementation that operator training was a vital concern in achieving the Army's safety and environmental goals. Accordingly, a training facility was constructed at Aberdeen Proving Ground, Maryland. At that facility actual destruction process machinery, computer-simulated incineration operations, agent monitoring, laboratories, and process control computers are all integrated into a total training concept. All critical personnel who will be involved in the destruction program will pass through this facility. Training, of course, will vary from 60 to 120 days depending on the individual's job assignment. All personnel must pass required tests before they are considered qualified to participate in the destruction program. To date approximately 50 personnel who are scheduled to work at the Tooele Army Depot facility have undergone this training.

Although the RCRA trial burn results and the OVT performance were excellent from a safety and environmental viewpoint, the use of incineration has received severe criticism. These critiques are not necessarily unique to this program; rather incinerators in general, and hazardous waste

incinerators in particular, have been the subject of attack by environmental groups, particularly Greenpeace. These groups have succeeded in raising serious concerns from the public over incineration operations at some sites.

As a result, a few states have enacted legislation for the purpose of rendering incineration of the chemical agents difficult, if not impossible. For example, the Commonwealth of Kentucky has passed legislation requiring the Army to certify that no alternative technology exists (a reasonable requirement) *and that no alternative technology will ever be available* (an impossible statement to make) prior to state issuance of a permit that would enable the Army to construct a facility. Based on these concerns, the Army requested the NRC committee who have been overseeing the Army's program for several years to examine alternative technology options. Subsequently, Congress directed this effort be formalized in a report for Congressional review. In June 1993 a special committee appointed by the standing NRC committee published a report summarizing alternative technologies, the maturity, advantages and disadvantages of these technologies, and the potential applications of these technologies to the Army's program. The standing NRC committee will evaluate the June report and provide recommendations to the Army by 31 December 1993. The Department of Defense will then provide their assessment of the report to Congress in March 1994.

In the meantime, expenditures of resources are being held to the minimum until a sense of alternative technologies is available. It must be kept in mind that the Chemical Weapons Convention could be ratified by the United States and enter into force in 1995. The Convention specifies a 10-year period for destruction of chemical weapons stockpiles. Therefore, the treaty requirements could play a major role in technology selection. The current program is on track to meet the 2004 completion date.

The stockpile exists, and it represents a threat to public safety as long as it continues to exist, but the destruction needs to be done as efficiently and safely as possible. Considerable progress has been made in getting rid of these unwanted chemical munitions but the task ahead promises to be even more difficult.

Forthcoming Events

The 6th plenary session of the OPCW Preparatory Commission will take place in The Hague during 14-18 March 1994.

The Second Moscow Conference on Chemical and Biological Arms Control, Demilitarization and Conversion, MOSCON 94, will take place in Moscow during 20-22 April 1994, again under joint Russian-US auspices.

The US Defense Nuclear Agency will be sponsoring its 3rd Annual International Conference on Controlling Arms during 16-19 May 1994 at Virginia Beach, Virginia.

The Finnish Scientific Committee for National Defence, Research Centre for the Defence Forces and NBC Defence School are hosting their second International

Symposium on NBC Defence during 25-26 May 1994 at Keuruu, Finland.

The Pugwash Study Group on Implementation of the Chemical and Biological Weapons Conventions will hold its second workshop during 27-29 May 1994 in Noordwijk, Netherlands.

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Building the Organisation for the Prohibition of Chemical Weapons

Actions by the PrepCom The fourth session of the OPCW Preparatory Commission, which took place in the Hague from 27 September through 1 October, was notable for the rather routine manner in which it was able to process an ever increasing volume of recommendations from its fifteen inter-sessional Groups of Experts. The PrepCom had before it some 100 recommendations requiring decision, a marked increase from the 24 recommendations before the third plenary, and the 14 before the second. The methodical manner in which the PrepCom was able to handle its business reflects both the increasing professionalisation of the Provisional Technical Secretariat and a, perhaps temporary, de-politicisation of the Commission's work on the part of delegations. It may also reflect the inability of most delegations to comment upon the increasingly technical work of the Groups of Experts.

The session was attended by 82 of the 150 states which had signed the CWC at the time, six more than was needed to fulfil requirements for a quorum. This meant that two more states participated than in the third plenary but seven less than had attended its previous session in April, at which time only 142 states had signed. The additional signatures of small states which find themselves unable to attend PrepCom sessions may eventually make the achievement of a quorum impossible without resorting to extraordinary measures such as urgent appeals to embassies of member states in The Hague and Brussels.

Major administrative actions taken by the Commission at its fourth plenary session include:

- a decision to ask authorities in The Hague to propose an alternative site for the future OPCW headquarters building. This resulted from serious concerns about security of personnel, visitors and data at the site currently on offer near the city's central rail station;
- an agreement to accept the draft Headquarters Agreement between the PrepCom and the Dutch government. The agreement spells out the rights, privileges and immunities of delegations to the PrepCom and of PTS staff vis-à-vis Dutch taxes, civil and criminal law and employment regulations;
- the adoption of a design for the OPCW's future Information Management System which will serve a wide range of functions including administration, fiscal management, documentation, communications, support for verification activities and data-base management; and
- the adoption of financial and staff regulations for the PTS.

In matters related to the Chemical Weapons Convention's verification system the PrepCom approved

'understandings', or clarifications of the Convention, which confirm that certain references to chemical munitions apply to both filled and unfilled munitions. It also specified that munitions filled with CW simulants for testing CW destruction processes must be declared to the OPCW as if they were munitions filled with chemical warfare agents.

The Commission also began consideration of its 1994 budget and program of work, which had been prepared by the PTS and adopted by a group of experts operating under the joint auspices of the Commission's two Working Groups. The preparation of the 1994 budget is an extremely complex exercise which involves anticipation of the Commission's conference and staffing needs under both a 'steady state' (Phase I) of operations, needed for continued development of the CWC verification regime and OPCW requirements, and a 'ramp-up' phase (Phase II) which would begin when sixty-five states have ratified the Convention (i.e. six months prior to entry into force). The 'ramp up' phase would entail a rapid expansion of infrastructure and personnel aimed at ensuring that the OPCW can begin data collection, inspection and monitoring activities upon entry into force of the Convention.

Under the draft 1994 budget plans before the fourth plenary, PTS staff would increase from a current level of 57 to 109 posts in 1994 for 'steady state' operations and to 294 posts under the 'ramp-up' phase prior to entry into force. The budget would increase from US\$8.8 million in 1993 to \$15.7 million for 'steady state' operations in 1994. An additional \$38 million would be required for six months of a 'ramp-up' phase which could begin in July 1994 if sufficient ratifications have been received by that time.

Preliminary responses to the 1994 budget and work program were registered at the fourth plenary. Based on these reactions significant changes, including cost reductions, are expected to be made in the revised 1994 work program and budget which will be presented for adoption at the fifth plenary, in December. A decision by a subsequent PrepCom session, which has reviewed progress towards the trigger point of 65 ratifications, will be taken before spending against the 'ramp up' budget is authorised.

Political pressure for more equitable geographic balance in appointments to the PTS continued at the fourth plenary, with Mexico insisting in a statement included in the final report that geographic balance be maintained not only in the Secretariat as a whole but also within the future OPCW inspectorate and even on individual inspections teams. Similar efforts by the Bulgarian delegation in the Commission's Working Group A (Administration) were followed by the Executive Secretary's distribution of a document providing a geographic breakdown of professional posts in the PTS.

The survey indicates that of 24 top professional positions 11 have gone to individuals from the group of West European and Other States.

In debate on geographic balance within the Secretariat a number of states noted that regional balance is only one of the considerations, and not necessarily the primary consideration, which the Executive Secretary is required to take into account in recruiting staff. Staff regulations accord 'paramount importance' to 'securing the highest standards of efficiency, professional competence and integrity'. Although this issue is likely to be an ongoing point of contention in the Commission's work the Executive Secretary assured delegations that he would use the expansion of PTS in 1994 to 'extend the range of nationalities in the Secretariat'.

Unlike previous sessions, disputes over the provision of interpretation and translation services for inter-sessional groups of experts were kept at a low key during the September session. France, which had previously led efforts to obtain full language services, expressed satisfaction with the *ad hoc* provision of services on an 'as needed' basis, a practice tested on a trial basis over the previous six months. The French delegation indicated a readiness to continue the practice in 1994, provided adequate provisions are included in that year's budget. However, the Asian Group expressed its alarm that four recent requests for language services had cost the Commission some US \$56,000 and stressed its support for English as the sole language to be provided for in groups of experts. Working groups and plenary sessions are currently provided with full services in all six official languages of the Commission.

The fourth plenary was also notable for an action it failed to take — that of opening its plenary sessions to the public, industry and other non-governmental bodies. Such a step had been widely expected following informal discussion of the option at previous plenaries and the informal circulation by Australia of a draft decision to effect this change. The change is said to have been opposed by two western delegations and several from developing countries.

Currently all meetings under the PrepCom, unlike most other intergovernmental bodies, are conducted in private. The effect is to render its decision-making processes less than transparent and to actively discourage attendance and interaction by interested non-governmental bodies, including those on which the PrepCom and OPCW will increasingly depend for co-operation in implementing the CWC. Indeed, the only access currently available to observers of the Commission is the cramped entrance hall adjacent to the new conference room which the PrepCom has had renovated for its use during the next five years. This 'facility', even more than previous arrangements, presents an inhospitable environment for people from outside the Commission who take an interest in what it is doing.

Since the second plenary the PTS has attempted to improve the information-flow to nongovernmental organisations and the media by making arrangements for

daily briefings, issuing press releases and producing an issue of its *OPCW Synthesis* before each session of the Commission. Nonetheless, 'attendance' on the periphery of PrepCom sessions by representatives of non-governmental bodies has decreased with each session held.

Actions by Member States With the signatures of Liechtenstein, Dominica, Saint Vincent and the Grenadines and Swaziland the CWC had attracted 150 signatory states, and the PrepCom therefore 150 members, at the time of its fourth session. Two weeks later, with the additional signatures of Djibouti, the Maldives, Guyana and Turkmenistan, the total had reached 154. As no additional ratifications had been notified to the Commission their total remained, as at the previous plenary session, at four, although Norway, Saudi Arabia, the United Arab Emirates and perhaps others too had in fact ratified the Convention by then.

By mid-September 59 of the Commission's then 142 assessed member states had paid all or part of their contribution to the 1993 budget of US \$8.8 million. These payments amounted to 83 percent of the year's budget. From the remaining 83 assessed member states, responsible for 13.6 percent of the budget no payments had been received. Due to under-spending and delays in staff recruitment the PTS projected a US \$2.45 million surplus at the end of 1993.

During 9–10 September the government of Chile hosted a Latin American regional seminar on the CWC which was attended by representatives of eleven regional states and addressed by Ian Kenyon, Executive Secretary of the PTS and Félix Calderón, head of the Legal Division.

China and Iran each submitted separate statements to the PrepCom protesting interference by the United States with the Chinese ship *Yin He*, which the US in August and early September had accused of carrying CW precursor chemicals to Iran. Subsequent inspection of the cargo in Saudi Arabia revealed that such chemicals were not on board. China questioned the legal basis of the US actions, asserted that it stringently controls its CW-relevant exports and demanded both an apology and compensation from the USA. Iran claimed that the actions of the United States 'will damage the universality of the CWC', particularly in the Middle East, and would reduce the motivation of states to participate in other disarmament agreements.

Progress in the Provisional Technical Secretariat

With the approval by the PrepCom at its fourth session of the appointment of Dr John Makhubalo of Zimbabwe as head of the Division on Technical Co-operation and Assistance all of the senior management positions (D-1) in the PTS have been filled. All of the previously authorised subdivision posts had by now also been filled, with Anil Wadhwa from India joining the PTS as head of Public Affairs and Media in the External Relations Division, Shahbaz from Pakistan as Article X Assistance Officer in the Technical Cooperation and Assistance Division, and Johan Rautenbach from South Africa as Deputy Legal Adviser. However, the Executive Secretary, Ian Kenyon, reported to

the PrepCom on the severe pressures under which many staff are operating and requested additional hiring on an urgent basis for certain priority positions. The fourth plenary authorised the employment in 1993 of seven additional professional staff and two support staff, provided the costs fall within the existing personnel budget. Most of the new professional post are within the Verification Division.

The PTS has also undertaken the organisation of a number of seminars in the last three months of 1993 to promote understanding and discussion of CWC implementation measures. On 2 October the PTS hosted a seminar on National Trial Inspections at which 90 participants from 44 countries considered the experiences of a dozen or so states from among those which have conducted trial inspections in order to anticipate functional problems in the application of CWC verification requirements. On 6-7 October a meeting was held between the Group of Experts on Chemical Industry Facilities and officials and chemical industry representatives from 39 countries. The PTS will also host a seminar for states parties on national implementation on 18 December, immediately following the fifth plenary. An *ad hoc* group of 10-20 legal scholars and government lawyers, sponsored by Parliamentarians for Global Action and the Pugwash Study Group on Implementation of the CBW Conventions, will convene in The Hague shortly before the December seminar to complete a guide to implementing legislation which will be presented for consideration at the PTS meeting.

Progress in Other PrepCom Structures During the period between the third and fourth plenary sessions of the Preparatory Commission, 15 Groups of Experts were active, 4 under Working Group A on administrative matters, 10 under Working Group B on Verification and Technical Coöperation & Assistance, and one reporting to both. The inter-sessional work of each group of experts and its mandate from the fourth plenary for work through autumn 1993 is noted briefly below. The first four groups are those reporting to Working Group A.

OPCW Building (chair: Radoslav Deyanov of Bulgaria). As noted above, this group recommended that the PrepCom request an alternative building site from The Hague authorities, which it did. The group has asked all groups of experts to submit their views on building requirements. It has been asked to evaluate the suitability of any alternative building sites offered, to prepare detailed building requirements and to make proposals by the time of the fifth plenary for interim accommodation for the OPCW. The Group reconvened to work on these matters during 1-5 November.

Data Systems (chair: Tibor Tóth of Hungary). This Group provided the PrepCom with a recommendation, which was adopted, for the design of the OPCW's Information Management System. It was charged with agreeing by 31 October on the requirements for data declarations and to continue developing the data formats needed for handling the administrative and verification data required. It reconvened during 8-12 November.

Staff and Financial Regulations (chair: Sarvajit Chakravarti of India). This body finalised the PTS staff and financial regulations which were adopted by the Commission. Its recommendation that the Commission establish a Capital Advance Fund of 1 million Dutch Guilders was also accepted and members assessed for their contributions. The operation of a Finance Group referred to in the Financial Regulations has been suspended until Commission members can agree on whether it should be a group of experts or a body open to all member states. The Group reconvened during 8-12 November, tasked with bringing a recommendation on the size and composition of the Finance Group to the next Commission plenary.

Privileges and Immunities (chair: Natalino Ronzitti of Italy). During the inter-sessional period this group completed the Headquarters Agreement between the Preparatory Commission and the Dutch government. The Commission accepted the agreement and authorised its Executive Secretary to sign on its behalf. The Group is not scheduled to meet again.

Chemical Weapons Destruction Facilities (outgoing chair: Ron Manley of the UK). This Group's initial report to the fourth plenary included draft procedures for initial visits to CW storage facilities, guidelines for conducting inventories of CW munitions in storage and destruction facilities and procedures for confirming the destruction of CW. It reconvened for a five-day session on 29 November to continue this work and also to consider health and safety issues, deadlines for provision of facility information, provisions for assistance of states in CW destruction, and the politically charged matter of how to accommodate destruction processes that produce Schedule 2 chemicals.

Chemical Weapons Storage Facilities (chair: James Knapp of Canada). The work of this body included preparation of a format for initial declarations of CW storage facilities to the OPCW and the drafting of guidelines for visits to such facilities. It also produced the recommendation, adopted by the Commission, on the definition of munitions, national declarations of CW as defined by the CWC, and the inclusion of simulants-filled munitions under the definition of CW. It reconvened during 22-26 November with numerous additional assignments.

Inspectorate Planning (outgoing chair: Johan Santesson of Sweden). This group produced an initial report which recommended that full-time inspectors form the core of the OPCW's inspectorate and considered the pros and cons of establishing regional offices of the inspectorate. It also presented detailed work on target dates for development of the inspectorate. The group's work in the current intersessional period will be subsumed by the Group of Experts on the 1994 Program of Work and Budget. It may be asked to resume its functions when the Executive Secretary has received a sufficient amount of the data he requested from states concerning facilities they will be required to declare to the OPCW and/or when more is known about the date of entry into force of the Convention.

Chemical Industry Facilities (chair: Adam Noble of the UK). In its first report to the PrepCom this body presented a draft set of guidelines for inspections of Schedule 2 and 3 facilities and elaborated criteria for assessing the risk to the CWC of particular Schedule 2 industrial plant sites, for use in the selection of sites for inspections. The group also produced draft declarations for industrial facilities and prepared the ground for its meeting with representatives of chemicals industries during 6-7 October. Its work resumed the week of 4 October.

Single Small Scale/Schedule 1 Facilities (chair: Bernhard Odernheimer of Germany). This Group of Experts had concluded its preliminary work on declaration requirements and inspection guidelines. Its next gathering, which has not yet been scheduled, is to include consideration of inspection equipment needs, instruments for continuous on-site monitoring and model agreements for facility inspections.

Technical Co-operation and Assistance (chair: Sarvajit Chakravarti of India). This group's second report, following meetings in May and July, included recommendations that the Secretariat compile information on implementing legislation being adopted by states parties. The group also called for assistance to National Authorities charged with implementing the Convention and supported the organisation of regional seminars for this purpose. It considered ways of promoting transparency with regard to programs on protection from CW as well as access to protective equipment through the OPCW. The group reconvened for a five-day session on 29 November.

Equipment (chair: Henk Boter of the Netherlands). This group was able to complete its principal task of producing a

list of equipment required during inspection activities. Its future work will include finalising the list of inspection equipment, identifying equipment needed for the OPCW laboratory and proposing staffing structures for the OPCW laboratory and Equipment Store. It reconvened during 18-22 October, charged also with assembling procedures for increasing the transparency of national programmes related to protective purposes.

Training (outgoing chair: Raul Carlos Fernandez of Argentina). This body agreed on working assumptions required for planning of the PTS/OPCW training program, analysed the proposed training courses and considered means to integrate training offered by member states into a coherent program accredited by the PTS/OPCW. It reconvened during 18-22 October.

Chemical Weapons Production Facilities (chair: Graham Cooper of the UK, taking over from Jack Ooms of the Netherlands). Initial work on formats for declarations and on particular inspection activities to be undertaken during inspections of CW production facilities was reflected in this body's report to the PrepCom. It continued its work on these and an extensive list of additional tasks assigned by the fourth plenary when it reconvened during 11-15 October.

Challenge Inspections (chair: Andrea Perugini of Italy). This group reported on its consideration of issues including the selection of inspectors, the inspection mandate, confidentiality requirements and equipment needs. It reconvened during 15-19 November to consider aspects of the intermediate stages of challenge inspections.

1994 Program of Work and Budget (chair: Jorge Morales Pedraza of Cuba). Operating under the joint auspices of Working Groups A and B, this body's first draft of the 1994 budget and work program included an extensive list of assumptions upon which planning for 1994 was to proceed, in particular assumptions concerning progress in ratification of the Convention and in implementation of the US-Russian bilateral agreement on destruction of their CW stocks. It reconvened during the weeks of 25 October and 1 November to finalise its recommendations to the fifth plenary.

In addition to the above groups of experts the PrepCom mandated work during the autumn inter-sessional period by the group on *Safety Procedures* (15-19 November), which last met in the Spring, and by a new group on *Old and Abandoned Chemical Weapons* (22-26 November).

The fifth session of the Preparatory Commission will take place in The Hague during 13-17 December 1993. The sixth is provisionally scheduled for 28 March through 1 April 1994.

This review was written by Peter Herby.

Warsaw Regional Seminar

Assembling in Warsaw during 7-8 December for a seminar on *National Authority and National Implementation Measures for the CWC* were representatives of member-states of the Eastern European Group of CWC signatories, as well as guest speakers from other countries, from international organizations and from research institutes, including the Harvard Sussex Program. The seminar was a Polish initiative, organized by the Ministry of Foreign Affairs in cooperation with the OPCW Provisional Technical Secretariat and with the support of the Polish Chamber of Chemical Industry and CIECH Ltd. It was opened by Dr Robert Mroziewicz, Deputy Foreign Minister of Poland.

The meetings were held at the headquarters of CIECH. There were some 50 participants in all. The signatory states represented were Albania, Azerbaijan, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Germany, Hungary, Latvia, Netherlands, Poland, Romania, Russian Federation, Slovakia, Sweden, Ukraine and the USA.

What follows is taken from the CBW Events data-base of the Sussex-Harvard Information Bank, which provides a fuller chronology and more detailed identification of sources. The intervals covered in successive Bulletins have a one-month overlap in order to accommodate late-received information. For access to the data-base, apply to its compiler, Julian Perry Robinson.

2 August The US House of Representatives debates a bill authorizing the Department of Veterans Affairs to extend “pre-sumptive care” to *Desert Storm* veterans with undiagnosed symptoms that may have been caused by toxic agents — the so-called ‘Gulf War syndrome’ [see 29 Jul]. The day previously, newspapers had carried interviews with two Veterans Affairs doctors in New England who had informally diagnosed 124 such *Desert Storm* veterans with “Multiple Chemical Sensitivity”, a condition as yet unrecognised for aid or benefit purposes by the Department. {*Boston Herald* 1 Aug}

2 August Dominica signs the Chemical Weapons Convention, becoming the 148th state to do so.

2–6 August In The Hague, the OPCW Group of Experts on Data Systems reconvenes for its second session.

2–6 August In The Hague, the OPCW Group of Experts on Staff and Financial Regulations reconvenes [see 7 May], now under the chairmanship of Sarvajit Chakravarti of India.

3 August In Israel, newspapers report that a former deputy director of the Israel Institute for Biological Research at Ness-Ziona, Marcus Klingberg, previously a colonel in the Red Army, had not “disappeared in Europe” ten years previously but had been arrested in 1983 and sentenced by a Tel Aviv court in secret to 18 years in jail. {*Independent* 4 Aug}

3 August Iran submits a proposal to the OPCW Provisional Technical Secretariat on the design of the computerized Information Management System being planned for the OPCW. {PC-IV/A/WP.2}

4 August In The Hague, the OPCW Preparatory Commission secretariat issues a compilation of information on the inspector training programmes being offered by individual member states [see 19 Apr]. {PC-IV/B/2} The following countries are planning to offer courses internationally, or are already doing so: Austria, Finland, France, Germany, Mexico, the Netherlands, Poland, Romania, South Africa, Sweden, Switzerland and the UK.

4 August In Spain the Council of Ministers begins the ratification process for the CWC, formally transmitting the treaty to Congress. {*El País* (Madrid) 23 Aug}

4 August In the US Congress, the Office of Technology Assessment publishes a study of the likely effects of the Chemical Weapons Convention on the US chemical industry. {OTA-BP-ISC-106} The study had been requested by the Select Committees on Intelligence of the two houses. Its broad conclusion is that advance preparation by industry can mitigate concerns about intrusive verification procedures jeopardizing valuable trade secrets.

Among the detailed findings of the study is this one: “Harmonization of US export controls with those mandated by the CWC could eventually result in some liberalization of trade with states parties that are currently subject to strict export controls. This reform, although unlikely to be fully implemented for several years, would give the US chemical industry a strong incentive to support the treaty.”

5–6 August In Geneva, the UN Institute for Disarmament Research conducts a symposium on Problems of Compliance and Enforcement. Participants include the Executive Secretary of the OPCW Preparatory Commission, Ian Kenyon. {*OPCW Synthesis* 20 Sep}

6 August In Bosnia-Herzegovina, UN military observers collect shell-fragment, soil and vegetation samples at Boskovici, near Zvornik — the site, so they had been told by the Bosnian Serbs who had requested their visit, of a recent chemical attack by a “notorious Muslim military unit known as the Mosque Doves”. According to the Serbs, three 120mm projectiles with a chemical, probably chlorine-based, fill had landed, destroying all life over a 20-metre diameter; it was said to be the third such CW attack in the Zvornik area that week. {*Tanjug* 6 Aug} [See also 21 Jul]

UNPROFOR launches an official inquiry. Despite the many other such CW allegations reported to UNPROFOR, this is to be its first such investigation. *Jane’s Defence Weekly* reports UNPROFOR as saying that “most reports turned out to be falsifications or referred to the use of tear gas, smoke or incendiary white phosphorus grenades”. {*Jane’s Defence Weekly* 21 Aug}

6 August Argentine Defence Minister Oscar Camilion speaks as follows during a television interview: “We do not manufacture nuclear and chemical weapons because we do not want to and because we believe that, by doing so, we would be violating the basic rule of international coexistence”. He also says: “We will not manufacture bacteriological weapons because we deem them immoral”, “not because international rules forbid it”. {*Noticias Argentinas* 6 Aug in FBIS-LAT 9 Aug}

7 August In Beijing, Chinese Assistant Foreign Minister Qin Huasun announces that, since 23 July, the US government has been making “repeated representations” to the Chinese government about a cargo ship, the *Yin He*, carrying chemicals for export from China to the Middle East which the US says are CW-agent precursors, namely thiodiglycol and thionyl chloride; and, despite Chinese assurance that export of those particular chemicals has been banned, the US government is now preventing the ship from reaching its destination; China is demanding compensation from the United States and an undertaking “not to engage in any further acts that interrupt the normal voyage and commercial activities of Chinese ships”. {*Xinhua* 7 Aug in JPRS-TAC 12 Aug 93} The US embassy

subsequently confirms that representations have been made [see also 19 Jul]. An official in Washington says that the *Yin He*, a 19 000-ton boat, is bound for Iran and is being shadowed by US warships. {*New York Times* 9 Aug} US intelligence officials say the cargo amounts to “tens of tons” of the precursors {*Los Angeles Times* 10 Aug}: “We know exactly how many barrels of the stuff were loaded, and even where in the ship they are located”. {*Far Eastern Economic Review* 26 Aug} Minister Qin Huasun later says that 24 of the 700 containers comprising the ship’s cargo are indeed bound for Iran, but they contain stationery, metals and machine parts and are due to be unloaded at Dubai for transshipment. He says, further, that under orders from Beijing the ship had stopped so as to prevent the situation from deteriorating further, and was now adrift near the entrance to the Persian Gulf. {*Xinhua* 13 Aug in FBIS-CHI 16 Aug} Officials of the United Arab Emirates had reportedly refused permission for the ship to dock at Dubai on 3 August, {*Ta Kung Pao* 14 Aug in FBIS-CHI 16 Aug; *Washington Post* 5 Sep} apparently under US pressure. US Secretary of State Warren Christopher is reported as insisting on the right of the United States to inspect the ship’s cargo. {*Daily Telegraph* 14 Aug} Offence is said to be taken at this in China {*Wen Wei Po* 16 Aug in FBIS-CHI 16 Aug} but the Chinese government says that it will permit a joint inspection by officials from China and the host state once the ship docks at a Gulf port. {*Chemical & Engineering News* 16 Aug; AP in *Boston Globe* 17 Aug}

8 August In Bosnia-Herzegovina, Serbian forces outside Sarajevo are using “banned military poisons” in their offensive on Mount Igman, according to Bosnian radio. {Radio Bosnia-Herzegovina 8 Aug in *BBC Summary of World Broadcasts* 10 Aug}

9 August In Russia, President Yeltsin signs a directive ordering the Council of Ministers to establish, within one month, a government commission to select locations for chemdemil facilities in fulfillment of Russia’s international commitments to destroy chemical weapons. {ITAR-TASS 10 Aug in FBIS-SOV 10 Aug; *Krasnaya Zvezda* 22 Oct in JPRS-TAC 1 Nov}

9 August In Saudi Arabia, Information Minister ‘Ali al-Sha’ir announces that King Fahd and his Council of Ministers had just approved “the agreement on banning the development, storage and use of chemical weapons”, and that a royal decree to this effect has been drawn up. {SPA 9 Aug in FBIS-NES 10 Aug} Saudi Arabia thus joins the growing number of CWC signatory states that have ratified the treaty but not yet deposited their instruments of ratification with the UN Secretary-General [see also 9 Jun].

9 August The US Defense Department, on behalf of its Ballistic Missile Defense Organization, publishes an environmental assessment of the Theater Missile Defense Lethality Program. The objective of the programme is to “develop validated lethality criteria for a high-confidence kill against all theater threat warheads”, including CBW warheads. {*Federal Register* 12 Aug}

9–13 August In The Hague, the OPCW Group of Experts on training reconvenes under the acting chairmanship of Dr Jan Medema of the Netherlands, with Dr Pierre Cannone of France as Friend of the Chair.

9–13 August In The Hague, the OPCW Group of Experts on equipment reconvenes.

10 August An Air China flight from Beijing is hijacked as it approaches the Formosa Straits by a Chinese man threatening to spray passengers with acid. It lands in Taipei, where Taiwanese officials arrest the hijacker. {*Aviation Week & Space Technology* 16 Aug}

10 August In Iraqi Kurdistan a storage site used before the Kurdish uprising by the 51st Division for “chemical materials” has been discovered during current work rebuilding the village of Wali Hayri in the Kifri area, according to a clandestine radio broadcast. {Voice of Iraqi Kurdistan 10 Aug in JPRS-TAC 12 Aug}

10 August The Moscow weekly *Segodnya* publishes an article by Dr Lev Fedorov in which he amplifies archive-derived information he had published previously [see 3 Dec 92] about production of CW weapons in the USSR. By the end of World War II 77,400 tonnes of mustard gas had been produced in Berezniki, Stalingrad, Chapayevsk and (two-thirds of it) Dzerzhinsk; and 20,600 tonnes of lewisite had been produced at Chapayevsk and Dzerzhinsk. He contrasts these data with the official information that Russian holdings today of the two vesicant agents total 7,700 tonnes. {JPRS-TAC 7 Sep}

10 August In Stockholm, SIPRI releases the long-awaited study by Dr Ralf Trapp, now with the OPCW Provisional Technical Secretariat, of on-site inspection in chemical-industry facilities under the Chemical Weapons Convention, in which he reviews and draws from the accumulated experience of the national trial inspections [see 15-16 Jun 91].

10 August Iran, at the Conference on Disarmament in Geneva, expresses concern about the relationship between the Australia Group and the Chemical Weapons Convention: “We have...witnessed discriminatory moves against specific countries which were in the forefront of supporting the Convention and have signed it at its first opening ceremony in Paris. There is already a growing concern, as the result, that the enthusiasm of many countries to sign the Convention will give way to reluctance or, at least, indifference when comes the time for ratification and implementation. The small number of ratifications so far in comparison with the number of signatories is a vivid signal.” {CD/PV.659}

10 August In Geneva, the Conference on Disarmament decides to begin negotiation of a comprehensive nuclear test ban treaty. The precise mandate for the negotiation will be the subject of consultations prior to the opening of the CD’s 1994 session.

10 August The Angolan Air Force is using cyanide and organophosphorus chemical weapons against villages in the provinces of Bie, Huambo and Malange [see also 13 Jun], according to the UNITA representative in Brussels. {Radiodifusao Portuguesa (Lisbon) 10 Aug in *BBC Summary of World Broadcasts* 12 Aug}

10 August The *Washington Post* reports that the Egyptian navy had recently been persuaded by the US government to board a ship, the French operated *Ville de Vega*, about to transit the Suez Canal en route for Lebanon carrying a cargo of

hydrogen fluoride, a potential nerve-gas precursor, which US officials said had been sold by an Indian firm to customers in Iraq. The cargo was now on its way back to India. {*Washington Post* 10 Aug}

10–11 August The 24th South Pacific Forum is held in Nauru. It is attended by the heads of government of Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, New Zealand, Niue, Papua New Guinea, the Republic of the Marshall Islands, Solomon Islands, Tonga, Tuvalu, Vanuatu and Western Samoa. The final communiqué includes a passage urging those “members of the international community” which have not yet signed the CWC to do so as soon as possible. The communiqué also reiterates the Forum’s view that the US chemdemil facility on Johnston Atoll “should be permanently closed when the current programme of chemical weapons and agent destruction was completed”. {*Pacific Research Aug*}

11 August In Glasgow, during the International Congress on Virology, consensus is not reached on a WHO recommendation that the last remaining samples of smallpox virus be destroyed. {*Independent* 12 Aug} That decision is to be deferred until the May 1994 World Health Assembly. {*Independent* 11 Oct}

11 August The US Army opens its \$385 million chemdemil plant at Tooele Army Depot, Utah [see 13 Feb], the Tooele Chemical Disposal Facility. This new incinerator is scheduled to begin test burns later in the year, and is due to go on line in February 1995. {*Chemical Demilitarization Update* Jul; AP in *Washington Times* 12 Jul}

12 August From the US Defense Department request for proposals under the Fiscal Year 1993 Small Business Innovation Research Program, the solicitations in the field of CBW R&D are published by *ASA Newsletter*. Topic A93-224 is “Less-Than-Lethal Immobilizing Chemicals” and has as its objective: “To suggest, acquire, evaluate and develop chemical immobilizing materials for application to various missions such as: rescue, embassy protection, anti-terrorism, barricade situations, domestic disturbances, and other law enforcement scenarios.” The topic description is as follows: “Most recent less-than-lethal (LTL) programs at US Army Edgewood RDE Center focused on the fentanyl as candidate compounds. Some fentanyl are widely used as injectable anesthetics and others are being studied as wildlife and veterinary tranquilizers. Many of these compounds are well-characterized, rapid acting, very potent and reliable in their activity. However, for many LTL applications, they have safety ratios that are too low and durations of action that are too long. Ideally one needs a material that will act safely, virtually instantaneously and last for just a few minutes. Thus, candidate chemical immobilizers with improved safety ratios and shorter duration of action are needed.” {*ASA Newsletter* 12 Aug and 14 Oct}

13 August In Japan, Kyodo News Service carries an interview with two former officials of a Japanese Imperial Army factory — the Sone Bomb Factory, established in 1937 — where bombs had been filled during World War II with mustard gas, lewisite, hydrogen cyanide and other CW agents manufactured at Tadanoumi Arsenal. Packed into wooden cases, the bombs had been stored in an abandoned coal mine in Yamaguchi prefecture. After the war, they were removed by freight train under

US Army supervision to Ube Port, whence they were dumped in 30 metres of water in the Inland Sea, 18 km southeast of Ube. {Kyodo 13 Aug in FBIS-EAS 24 Aug}

16–20 August In The Hague, a new Group of Experts under the OPCW Preparatory Commission begins work on chemical weapons production facilities and their destruction or conversion. It is chaired by Jack Ooms of the Netherlands.

17 August Russia, at the CD in Geneva, refers to the 1972 Biological Weapons Convention and the VEREX activity, stating: “We welcome the convening in 1994 of a special conference of States Parties to the Convention that would take a decision on further steps to strengthen its verification machinery”. {CD/PV.661}

18 August In Iraq, the UNSCOM Chemical Destruction Group at Muthanna State Establishment completes the destruction of holdings of the tabun precursor D4, some 104 kilolitres in all. Since its establishment in June 1992, the Group has destroyed over 80 kl of mustard gas, 61.4 kl of nerve agents and more than 1222 kl of precursor chemicals, as well as 18,375 chemical munitions. {United Nations press release 23 Aug}

19 August OPCW Preparatory Commission member states are asked to inform the PTS, preferably within a month, about their progress towards ratification of the CWC, about the approaches they have adopted on implementing legislation, and about progress on establishing their National Authorities. Responses will be kept confidential. {PC-IV/3}

19 August OPCW Preparatory Commission member states are asked to provide the PTS with specified GC/MS, IR and NMR spectroscopic data on CWC-relevant chemicals so that work can begin on constructing the OPCW analytical data base, as recommended at the last session of Working Group B. {PC-IV/B/7}

20 August In Japan, the human experimentation conducted in Manchuria as part of the biological weapons programme of the Japanese Imperial Army during 1932-45 is one subject in an exhibition about Unit 731 that is now touring the country. The exhibition has been organized by a group of academics including Keiichi Tsuneishi, professor of history of science at Kanagawa University. {*Independent* 20 Aug}

20 August The UN Sub-Commission on Prevention of Discrimination and Protection of Minorities adopts a resolution condemning violations of human rights in Iraq and calling for a visit to the southern marshlands of Iraq by the UN Special Rapporteur on Human Rights, Ambassador Max van der Stoep. The following week, the US government announces that it has verified “extensive draining and burning of the marshes, the burning of villages, and ongoing artillery attacks on civilian centers”. {*US Department of State Dispatch* 6 Sep}

23 August In Spain, the Army’s CW defence facility — La Marañosa National Chemical Products Factory, 14 km from Madrid — is the subject of a lengthy article in *El País*. Founded in 1923 as a mustard-gas factory and apparently still producing chemical weapons during the years immediately after World War II, the facility had hitherto been largely unknown to the general public (save readers of Rudibert Kunz and Rolf-Dieter

Müller, *Giftgas gegen Abd el Krim*, Freiburg: Rombach, 1990). Nowadays, the mandate of La Marañosa is roughly comparable to that of the UK Chemical Defence Establishment at Porton Down. {*Observer* 14 Nov} The facility has been attracting wider notice than usual because Spanish authorities have begun to draft the declarations of past chemical-weapons production and other matters which must be submitted to the OPCW within 30 days of the CWC entering into force.

23 August Iran as a “threat to world peace to a degree reminiscent of the beginning of the Hitler era” is the theme of an article in the *Washington Times*. Addressing Iranian CBW activities, the article refers to a “chemical weapons complex” under construction, with Chinese assistance, nine miles west of Tehran, one of five such Guards Corps CBW weapons projects in different parts of the country. The other four are said to be situated in Karaj (BW), Qazvin, Marvdasht (mustard gas production) and Isfahan. These and other particulars — adding to, or at least differing from, those in the recent *Mednews* exposé [see 19 Apr] — the author says came from the People’s Mujahedin Organization of Iraq. Shortly afterwards, the Tel Aviv newspaper *Ha’aretz* publishes similar information, with attribution to “the Iranian opposition organization, Mujhidin Halaq”. {*Ha’aretz* 27 Aug in JPRS-TND 8 Oct}

23 August The US Department of State announces that the Chinese ship *Yin He* which is believed by the US government to be carrying a cargo of CW precursor chemicals to Iran [see 7 Aug] is expected to undergo an inspection soon at the port of Dammam in Saudi Arabia. {AP in *Washington Post* 24 Aug} The inspection is to be conducted by Chinese and Saudi officials. The *Yin He* is reported to be approaching Dammam two days later {*Reuter* in *Independent* 26 Aug} — at which time the US government is announcing trade sanctions against China because of exports to Pakistan in violation of the Missile Technology Control Regime with which, in late 1991, China had undertaken to comply. {*New York Times* 26 Aug}

Far Eastern Economic Review later speculates that the captain of the vessel had “managed to off-load the chemicals before reaching the Gulf”. It states that US intelligence “could confirm” that the chemicals were still aboard when the *Yinhe* stopped in Singapore, but not after. {AFP 1 Sep in FBIS-CHI 2 Sep}

23–26 August In The Hague, the Group of Experts on Privileges and Immunities reconvenes [see 7 May] to finalize the host-country agreement.

23–27 August In The Hague, a new Group of Experts under the OPCW Preparatory Commission begins work on challenge inspection. It is chaired by Andrea Perugini of Italy.

24 August In the United States, two sentences of death are executed by means of toxic chemicals: one by hydrogen cyanide in the gas chamber of San Quentin prison, California, the other in Texas by lethal injection. {*Guardian* (London) 25 Aug}

25 August In Sarajevo, a representative of the Bosnia-Herzegovina Army, Mujo Alic of the General Staff, speaks as follows at a press conference: “Since the beginning of the war, the enemy has perpetrated more than 450 chemical attacks at the battlefields in Bosnia-Herzegovina. The largest number of these attacks, 209, were carried out on Sarajevo and the neighbouring region [see 8 Aug]; 33 on Gorazde; 28 in the re-

gion of Brcko; 26 in the region of Gradacac; 22 on Jajce; 10 on Mostar; 22 on Srebrenica, and many other places.” {Radio Bosnia-Herzegovina 25 Aug in BBC *Summary of World Broadcasts* 27 Aug}

26 August UK Assistant Under-Secretary of State for Foreign and Commonwealth Affairs Paul Lever states before the CD in plenary session that the “United Kingdom continues to give unstinting support to the preparations for the entry into force of the Chemical Weapons Convention”. {CD/PV.663}

26 August The US Army Chemical and Biological Defense Agency holds an open house at Edgewood, hosted by the XM45 Mask development team, for all manufacturers interested in future production of the new respirator. {*ASA Newsletter* 12 Aug}

27 August In India, official sources in Jammu reportedly say that missiles with chemical warheads are among the sophisticated weapons lately acquired by the Jammu & Kashmir secessionists with the help of foreign mercenaries from Sudan, Afghanistan, Morocco, Bahrain and Saudi Arabia. {*Indian Express* 28 Aug}

27 August Russia transmits to the OPCW Preparatory Commission a document entitled *Assistance in the Destruction of Chemical Weapons*. The document proposes a procedure for implementing the provision in CWC Article IV paragraph 12 whereby states parties undertake “to cooperate with other States Parties that request information or assistance...through the Technical Secretariat regarding methods and technologies for the safe and efficient destruction of chemical weapons”. The document suggests that the PTS might “provide assistance in rallying financial support to cover costs related to the transfer of selected [chemdemil] technology”. And it proposes that these issues be taken up in the Experts Group on Technical Cooperation and Assistance. {PC-IV/B/8}

27 August In the United States, the Central Intelligence Agency transmits to the Senate Governmental Affairs Committee a large package of responses to questions it had received some six months previously following testimony during a hearing on *Proliferation Threats of the 1990’s* [see 24 Feb]. Some of the responses amplify what had earlier been said about the CBW programmes of particular countries:

“Iran has an active chemical weapons program and has been producing chemical agents at a steadily increasing rate since 1984. Iran has produced at least several hundred tons of blister, choking, and blood agents, and may have produced as much as 2,000 tons of agent... We have no specific information to discuss about Iran’s biological warfare efforts.” (During the original hearing, the head of the Non-Proliferation Center, Gordon Oehler, had stated that Iran’s “extensive pharmaceutical infrastructure” had led the CIA to believe that Iran had a “capability for BW program” which “could be operational now”).

“Libya’s CW program consists of two facilities at the Rabta technology center: the CW agent production plant, and a metal fabrication complex for making bomb components. Libya is also building a second CW agent plant near Tarhunah and is attempting to establish an indigenous precursor chemical production complex near Benghazi. We estimate that Libya has produced at least 100 tons of CW agents, mostly the blister agent mustard and smaller amounts of the nerve agent sarin. The Libyans also could produce the more toxic nerve agent

soman in the future. In our judgement, Libya would use chemical bombs to deliver its agents. It may intend to develop a chemical warhead for missiles." The CW plant at Rabta is described as inactive but capable of renewing production.

"Libya's BW program is in the research and development phase and has not produced any BW weapons. Tripoli is interested in building the General Health Laboratories, a state-of-the-art biological research center, but must find a foreign contractor to construct the facility. Due to the dual use nature of BW agent development, we believe this ostensibly legitimate facility will be used to advance research and development of BW agents, and could possibly be used for small scale production. We believe that a number of Libyan universities are being used for basic research of more common BW agents, however, these sites are not equipped to perform the sophisticated work needed for weapons development."

"North Korea is capable of indigenously producing nerve gas, blood agents, and mustard-gas that could be delivered by mortars, artillery pieces, multiple rocket launchers, and Scud missiles. In addition, the North Korean Air Force probably has bombs capable of delivering chemical agents. Several of North Korea's large chemical complexes could produce chemical agents, but we have little information on possible production rates and types of munitions... We have almost no information on whether P'yongyang seeks to build biological weapons. Nevertheless, North Korea — if it desires — has the capability to develop classic biological agents such as anthrax, plague, or yellow fever."

"We have no information on any Algerian efforts to develop chemical or biological weapons."

Questions about CBW programmes in India, Israel, Pakistan and Syria are expressly unanswered in the CIA responses.

The CBW-use reports from Laos and Cambodia a decade previously are addressed: "[Senator Glenn:] Does the intelligence community now believe that the 'Yellow Rain' that reportedly fell in Southeast Asia was a toxin weapon or some other natural phenomenon? [CIA response:] Based on a wide variety of information collected between 1975 and 1982, the Intelligence Community concluded that the former Soviet Union had supplied lethal toxin weapons — trichothecene toxins — to its allies in Southeast Asia and assisted in their use from 1976-1982. The theory that bee feces is the sole source of the material is flawed because it cannot account for the combination and concentration of toxins noted in the positive samples, nor can it explain the reported illness in man and animals." {S. HRG. 103-208}

30 August In Germany, three managers from the Bavarian firm Rhein-Bayern Fahrzeugbau (Kaufbeuren) go on trial before Augsburg Regional Court charged with illegal arms dealing with Iraq. The firm is said to have supplied Iraq from 1987 onwards with important components for the construction of nuclear, biological and chemical weapons. {DPA 30 Aug in FBIS-WEU 30 Aug}

30 August–10 September In The Hague, a new Group of Experts under the OPCW Preparatory Commission begins work on the 1994 programme of work and budget. It is chaired by Jorge Morales Pedraza of Cuba.

31 August In Iran, the armed forces announce that the 21st Hamzeh army division has been conducting operational exercises, *Sahand-1*, in the Azerbaijan border region; "anti-chemi-

cal weapons forces" participated. {Voice of the Islamic Republic of Iran 31 Aug in BBC *Summary of World Broadcasts* 2 Sep}

31 August In South Africa the Department of Trade and Industry issues a statement reacting against concerns expressed by some South African chemical companies that the CWC might lead to "unnecessary intervention by the state". The statement says that any adverse impacts of the treaty on local industries could not be compared to the effects of sanctions which would have been imposed had South Africa not joined the CWC. It continues: "Punitive measures against offenders and nonsignatories apply to raw materials, end products and the capital needs of the industry". {SAPA 31 Aug in JPRS-TND 17 Sep}

31 August In New York, high-level technical talks between UNSCOM and Iraq begin at UN Headquarters. As agreed in Baghdad [see 19 Jul], the talks will address "the nature and implementation of the provisions of the plans for ongoing monitoring and verification as approved by Security Council resolution 715 (1991), as well as all other outstanding issues between Iraq and the Commission". The talks are to be conducted both in plenary sessions and in meetings of five specialized groups — including one on chemical and another on biological matters. There are 17 people on the Iraqi delegation, which is led by General Amer Muhammed Rashid [see 5 Dec 92], director of the Military Industrialization Corporation of Iraq. There are 28 people on the UNSCOM/IAEA side. {S/26451}

Talks begin in Geneva the following day between UN Secretary-General Boutros Boutros-Ghali and Iraqi Deputy Prime Minister Tariq Aziz on weapons inspections and a possible lifting of the trade embargo. {AFP in *Independent* 1 Sep}

September The US Army Chemical Materiel Destruction Agency initiates its Russian Intern Familiarization Program. Six mid-career Russian scientists and engineers, including ones from GSNIIOKhT and the Cheboksary Khimprom [see 23 Sep 92], have arrived for a 6-month 3-phased training programme in the United States during which all aspects of the US Chemical Stockpile Disposal Program will be studied. {*Chemical Demilitarization Update* Nov}

2 September In Beijing, the Chinese Foreign Ministry announces that inspection of the *Yin He* [see 23 Aug] has now been completed at Dammam by Chinese and Saudi officials, the latter assisted by "technical advisers" dispatched from the United States: "The inspection on all the cargo on the ship loaded at a Chinese port, including that transshipped from Hong Kong destined for Iran, showed that the ship did not carry at all the two chemicals...thiodiglycol and thionyl chloride, thus proving the repeated clarifications made by the Chinese side to be true". {Xinhua 2 Sep in FBIS-CHI 2 Sep; *Financial Times* 3 Sep; *New York Times*, 3 Sep} The US embassy in Beijing has no immediate comment {*Times* (London) 3 Sep} but the US State Department says that the inspection has not yet been finished. {AP in *International Herald Tribune* 3 Sep}

The inspection report is completed and signed two days later by Chinese, Saudi and US representatives. It confirms the Foreign Ministry announcement. Announcing this, a new Foreign Ministry statement asks: "If such behaviour of self-styled 'world cop' is to be condoned, can there still be justice, sovereign equality and normal state-to-state relations in this world?" {PC-IV/12} Xinhua news agency puts out a long and detailed

account of the whole episode. {Xinhua 5 Sep in JPRS-TND 17 Sep}

US officials in both Washington and Beijing are subsequently reported as saying that the United States had acted in good faith on intelligence from a number of sources, all of which proved to be wrong. They say, further, that the incident raised questions of whether China had undertaken a "sting" operation to embarrass Washington, perhaps involving double agents. State Department spokesman Michael McCurry says that the United States felt it had acted "responsibly"; he thanks China for the "open" and "forthright" way it had submitted the *Yin He* for an inspection. {*New York Times* 6 Sep; *Newsweek* 4 Oct}

2 September The US Defense Department reports to Congress that, on support for the UN Special Commission on Iraq (UNSCOM), it had spent more than \$20 million during the first three quarters of fiscal year 1993, most of it on aerial surveillance. {*Defense Week* 12 Oct}

3 September In Geneva, the Conference on Disarmament is concluding its 1993 session and adopts, among other things, the report of its Ad Hoc Committee on Transparency in Armaments, in which the issue of international transfers of high technology with military applications is addressed. {CD/1218, CD/PV.665} The report records the views of Australia, Canada, France, Germany, the Netherlands, Russia, the UK and the USA that export controls are a necessary complement to international agreements prohibiting transfers or the acquisition of weapons of mass destruction. The report also records the views of China, India and Iran in which such counterproliferation export controls, including Australia-Group activities, are seen to have adverse effects upon the economic and social development of developing countries [see also 10 Aug]. India and Iran had accordingly called in the Committee for the elimination of existing export-control regimes.

4 September In Egypt the 3rd Field Army enters the second phase of *Badr*, a major military exercise involving all formations and units, today in a CW environment. MENA reports: "The enemy hypothetically released toxic gases and resorted to chemical warfare methods by discharging many pollutants over the operation theater. The troops taking part in the exercise successfully confronted the strike. All elements used protective masks and total and partial decontamination processes were immediately conducted on the polluted equipment. This helped curb the losses involved in the chemical strike. The goal of the hypothetic chemical strike during the exercise was to prepare the troops for the various possibilities, including a nuclear strike, and train them in ways to tackle such a strike, while ensuring the good handling of the protective equipment and the special weapons used in fighting these types of military battles." {MENA 4 Sep in FBIS-NES 8 Sep}

6 September In Prague, there is a founding meeting of the Czech Preparatory Commission for the Prohibition of Chemical Weapons. The commission, "composed of representatives of all national ministries and institutions" concerned in implementing the CWC, is headed by Deputy Industry Minister Radomir Sabela. {CTK 6 Sep in JPRS-TND 17 Sep; PC-V/B/WP.9}

8 September The US Defense Nuclear Agency solicits industry, through a *Commerce Business Daily* notice, for support of an effort "to provide technical advice and assistance to Government of Russia for development of a comprehensive plan that

will document a safe, secure and ecologically sound approach for destruction of the Russian Chemical Weapons stockpile.... This effort may include options to demonstrate selected agent destruction technologies and provide assistance in the development of a design plan for a nerve agent munitions destruction facility capable of destroying 2,000 agent tons per year." {*Aerospace Daily* 9 Sep; *ASA Newsletter* 14 Oct}

9 September Iraq is selling Iran chemical weapons it had concealed from UN inspection teams, according to "Iraqi opposition sources in London with Iranian connections" quoted by a clandestine radio station, Voice of Iraqi People. {Voice of Iraqi People 9 Sep in FBIS-NES 10 Sep}

9 September In New York the high-level technical talks between Iraq, UNSCOM and the IAEA [see 31 Aug] come to an end, the participants jointly signing a report. {S/26451} Each working group had been instructed to conduct a thorough review of all issues outstanding in regard to implementation of Security Council resolutions 687 (section C), 707 and 715. Matters that could not be resolved were to be listed for subsequent attention: they would be taken up in a resumed session of the talks, possibly in Baghdad during early October. From the standpoint of UNSCOM, the pre-requisite for further progress would be fulfilment of Iraq's obligation to provide information on outstanding issues identified in the working groups.

The report on the talks says that the working group on chemical weapons resolved some issues but that "other critical issues related to past programmes" remained for further work, namely: "(a) Production of chemical warfare agents; (b) Precursor chemicals; (c) Specific critical equipment suppliers; (d) Weaponization of produced agents; (e) Suppliers of unfilled munitions; (f) Chemical weapons facilities." As regards (f), the Iraq side had "reaffirmed the non-existence of any other undeclared chemical weapons facilities. The report continues: "The Commission representatives explained that, with regard to some of the critical issues referred to above, information in the possession of the Commission, including documentary evidence, was at variance with that provided so far by the representatives of Iraq, namely (a) the availability of precursors and their production and handling facilities; (b) relations with other countries in the offensive chemical weapons programme; and (c) the time at which the offensive chemical weapons programme was initiated. The Iraqi side reaffirms the credibility of the information given previously. However, it will study the contradictions raised by the Commission, when provided in documentary evidence form, and will provide explanations during the resumed talks."

On biological weapons, the report says: "The commission representatives received a full account of the genesis, evolution and termination of the programme of research at the Section for Biological Research for Military Defence Purposes (BRMD) at the Technical Research Centre at Salman Pak. The critical issues on which further information from the Iraqi side was required were identified as the present location of the inhalation chambers and aerosol generators not yet identified by the Commission but which are known to have been imported into Iraq. In addition, information is required by type, quantity, year since 1985, supplier and user of imports of toxins, micro-organisms in risk-groups II-IV and complex media for the growth of these organisms.... The Commission is concerned about the extent of Iraq's biological weapons-related activities and, in particular, the possibility of such activities being conducted at facilities other than the Section for Biological Re-

search for Military Defence Purposes. The Iraqi side strongly reaffirmed the non-existence at any stage of a biological weapons programme. Iraq also reaffirmed that the activities undertaken at the Section...were as previously defined to the Commission, i.e. biological military defence research and development."

With regard to ongoing monitoring and verification by UNSCOM, the report indicates substantial progress, possibly even with the first inspections taking place in early December 1993. The UNSCOM side had reaffirmed what it had said in Baghdad in July, namely that "it was the intention that the [OMV] plans should be carried out in the same spirit as relevant international agreements in the field of arms control and disarmament". Thus, on chemical weapons, the OPCW inspectorate might eventually take over the OMV function in Iraq.

9 September From the US Senate a staff investigation of the 'Gulf War syndrome' [see 2 Aug] is released by Senator Donald Riegle. It reports in some detail that there is circumstantial evidence associating the syndrome with "possible exposure of Gulf War participants to chemical warfare agents and biological toxins". Two episodes in which US forces might perhaps have come under Iraqi CBW attack are described, as is the Czech report that traces of sarin had been detected in the air early in the war [see 29 Jul], possibly as a result of the bombing of Iraqi CW facilities. The report recommends further lines of inquiry.

Two days previously the commander of the Walter Reed Army Medical Center, Major-General Ronald Blanck, had reportedly told Congressional investigators that low-level exposure to chemical agents might have been responsible for the syndrome. {*Inquirer* (Philadelphia) 9 Sep}

9–10 September In Santiago de Chile, the Chilean government hosts a seminar on the CWC for countries of the region. Among the speakers are the Executive Secretary and the Legal Adviser of the OPCW/PTS. {*OPCW Synthesis* 20 Sep; PC-IV/10}

10 September In Kiev, the Ukrainian environmental association Zelenyy Svit announces it has information about past disposal of chemical weapons. The information refers to "twenty cylinders of war gases" found in the grounds of Slavyanskiy chemical combine in Donbas and to two dumpings in the Black Sea — one, which included mustard gas, in June 1942, and the other, involving "chemical ammunition", in October 1990. {*Unian* 10 Sep in JPRS-TND 27 Sep}

10 September In New York the leaders of the two sides in the just-concluded round of UNSCOM/Iraq high-level technical talks [see 9 Sep] speak at separate news conferences. UNSCOM Executive Chairman Rolf Ekéus says that the next round of talks, scheduled next month in Baghdad, might not take place if Iraq still refused to activate the emplaced surveillance cameras [see 19 Jul]. General Amer Rashid says that the UN Security Council would have to lift the embargo on oil exports, or at least give Iraq assurances that it would do so, before the cameras could be activated. {*Atlantic News* 17 Sep; *Disarmament Times* 22 Sep}

10 September In Washington, senior governmental officials including the secretaries of State, Defense and Commerce under the chairmanship of the President's national security adviser, Anthony Lake, reach agreement on a draft for a non-proliferation policy directive covering missiles, nuclear and CBW

weapons. This follows seven months of interdepartmental review. {*Jane's Defence Weekly* 4 Sep; *International Herald Tribune* 24 Sep} The draft will shortly be submitted to President Clinton. {*Defense News* 13 Sep}

The President reportedly signs the directive on 27 September. {*Arms Control Today* Nov}

11 September In Oman it is announced that Sultan Qabus Bin-Sa'id has decreed that Oman will ratify the Chemical Weapons Convention. {*Radio Oman* 11 Sep in FBIS-NES 14 Sep} It does so next day. States members of the Gulf Cooperation Council have recently taken a collective decision to ratify the treaty [see also 9 Aug].

13 September In Croatia, Serbian forces attacking in the region of Komarevo and the Sisak-Petrinja corridor have fired "projectiles containing poison gas", according to Radio Croatia. {*Radio Croatia* 13 Sep in JPRS-TND 27 Sep}

13 September In Geneva, the Ad Hoc Group of Governmental Experts established by the Third BWC Review Conference convenes for its fourth and final session, 'VEREX IV', to explore possible verification measures for the treaty [see 4 Jun]. Its task this session is to achieve consensus on a final report, drafts for which have been prepared during the intersessional period. Experts from 41 countries participate. Ambassador Tibor Tóth of Hungary continues in the chair. The session is due to end on 24 September. {*Financial Times* 28 Sep}

13 September In France, the international training programme being organized by CEFFIAC in support of the CWC [see 4 Feb] opens for its first session. There are 20 trainees from 17 signatory states: Algeria, Argentina, Bulgaria, Cameroun, China, Côte d'Ivoire, France, Germany, Greece, Ireland, Italy, Mexico, Morocco, Pakistan, Poland, Romania and Russia. The session will end on 17 December.

13 September Israel and the Palestine Liberation Organization sign in Washington a joint Declaration of Principles on Interim Self-Government Arrangements, the product of many months of secret talks in Norway. Next day, Israel and Jordan initial in Washington a Common Agenda. {*US Department of State Dispatch Supplement* Sep}

13 September The US House of Representatives adopts several amendments to its FY94 Defense Authorizations bill. One of them requires the Defense Department to make a \$1.2 million grant to a qualified medical research institution for the purpose of studying low-level chemical sensitivities, especially among Gulf-War veterans. Other amendments address the chemdemil programme. {*Congressional Record* 13 Sep}

14 September In Bosnia-Herzegovina, "chemical weapons" are being used by the Bosnian Army during its attack of Croatian positions in Zepce, according to Radio Croatia. {*Radio Croatia* 14 Sep in JPRS-TND 27 Sep}

14 September Czech Defence Minister Antonin Baudys announces that a complete set of data on the detection of CW agent by Czech specialists during the Gulf war [see 9 Sep] will shortly be transmitted to the US Congressional group which, during a recent visit, had expressed interest. As "personal speculation", he expresses doubts that the detected CW agent could have caused the "health difficulties experienced by US,

British and Czechoslovak personnel". (CTK 14 Sep in JPRS-TND 27 Sep)

Earlier, Congressman Glen Browder had said in a press interview that, during meetings in Prague early in September, Czech officials had told him that the quantities of agent detected were far too small to have caused illness. He had also said in the interview that two British CW specialists had told him they doubted that the Czech military had detected chemical agents. He had said, further, that the British were investigating the claims of about ten war veterans complaining of 'Gulf War syndrome'. (*Washington Times* 7 Sep)

Rude Pravo, quoting a Czech Army source, later publishes the information that the Czech unit in the Gulf had been "equipped with a top secret detector", and that this item, the "Detehit", was "almost one hundred times more sensitive than the devices used by NATO". (CTK 28 Sep in JPRS-TND 8 Oct)

14 September In the US House of Representatives, the Foreign Affairs Subcommittee on International Security, International Organizations and Human Rights continues its series of hearings on US Security Policy and the "Rogue Regimes" (meaning states on the State Department list of countries "supporting international terrorism" and which pose a distinct security threat, direct or indirect, to the United States). Subcommittee Chairman Tom Lantos says in his opening statement that Libya "is building yet another chemical weapons plant at Tarhuna [see 15 Mar], under contract with the French construction giant, Bouygues, with the assistance of companies in Switzerland, Austria, and Germany". He releases a staff compilation of information on "400 companies from 40 countries that have supplied goods and production equipment with dual civilian and military applications" to Libya, Syria, Iran and North Korea.

18 September In Thailand, a government agency has issued an order prohibiting job placement firms from sending Thais to work in weapons factories overseas. (*Sunday Post* (Bangkok) 19 Sep in FBIS-EAS 21 Sep) The government has for several months been under pressure from Washington to recall the 200 Thai workers which the US government has stated are working at a CW-weapons factory project in Libya, at Tarhuna [see 14 Sep]; but the Thai government has thus far taken no such action, on the grounds that it has no powers to dictate its citizens' workplaces, and also because Libya has threatened to expel the many thousands of other Thai workers in Libya if it were to do so. US officials reportedly say that Thai companies took over chemical-weapons projects in Libya after German and Japanese contractors had been forced by their governments to withdraw in 1989. (*The Nation* (Bangkok) 2 Sep in JPRS-TND 17 Sep; *Far Eastern Economic Review* 16 Sep; *New York Times* 26 Oct)

20 September In Bosnia-Herzegovina, "poisonous gases" are being used by the Bosnian Army against Croatian forces in the vicinity of Vitez, according to Radio Croatia [see also 14 Sep]. (Radio Croatia 20 Sep in BBC *Summary of World Broadcasts* 22 Sep) In a later report of Bosnian use of chemical weapons in the region, the weapons are identified as "irritants", Croatian television saying that the British UNPROFOR battalion there had been informed of this. (Croatian TV satellite service 10 Oct in BBC *Summary of World Broadcasts* 12 Oct)

20 September In London, *The Times* reports on the diligent work being done by Western intelligence services, including the

British MI6, in collaborating to stem the spread of nuclear and CBW weapons. It says that Libya's "second chemical warfare factory on the outskirts of the village of Ras Fam Mullaghah near Tarhuna" [see 18 Sep], currently under construction, is suspected of being supplied by Austrian, British, Danish, German, Italian, Japanese, Polish, Swiss and Thai firms. It says, too, that Egypt has received 340 tons of potential CW-agent precursors from India, and that "Cairo's renewed interest in chemical weapons was noticed a year ago". No attempt is made by the newspaper to substantiate or even source any of this information.

20 September In London, the judicial inquiry by Lord Justice Scott into UK exports to Iraq [see 30 Jun] hears evidence from former Foreign-Office minister Tim Renton that, in September 1986, government ministers had approved a shipment to Egypt of 26 tons of hydrogen fluoride (a potential nerve-gas precursor) despite warnings earlier in the year, apparently from Israeli intelligence, that Egypt was a diversionary destination for goods actually bound for Iraq. Renton states that he had concurred on the understanding that the concern about diversion would be conveyed to the Egyptian government, which it was. The exporting company had already supplied 60 tons of the chemical to Egypt. (*Guardian*, *Daily Telegraph*, *Financial Times* and *Independent*, 21 Sep)

20 September St Vincent and the Grenadines signs the Chemical Weapons Convention.

21 September In Cambodia, the Constitution Assembly in plenary session adopts a Constitution for the new Kingdom of Cambodia. Article 54 states: "The production, use and storage of nuclear, chemical or bacteriological weapons shall be absolutely prohibited". (BBC *Summary of World Broadcasts* 18 Oct)

21 September In the US Congress, the Office of Technology Assessment publishes a study of the proliferation of weapons of mass destruction. (OTA-ISC-559) One of its conclusions is that the low-tech end of the range, namely CBW weapons, constitutes a more immediate threat to nonproliferation efforts than does the high-tech end, namely nuclear weapons and ballistic missiles. The report cautions that only if nonproliferation is made a top priority can US policy succeed in stopping the spread of these weapons, and then only if there is international cooperation. Sacrifices will be necessary, both in trade and in autonomy. (*Inside the Pentagon* 30 Sep) [See also 4 Aug]

Still in press is a separate OTA background paper on technologies underlying weapons of mass destruction.

22 September In Tokyo, US Defense Under Secretary for Acquisition and Technology John Deutch proposes to the Japanese government that the US should provide aid for a missile defence system in exchange for access to advanced Japanese commercial technologies. (*New York Times* 23 Sep) Japanese concern about the North Korean Nodong-I ballistic missile [see 29-30 May] and its nuclear or CBW delivery potential had earlier stimulated Japanese-US talks on the possibility of Japanese access to the US Army's new Theater High Altitude Area Defense (THAAD) system. (*New York Times* 18 Sep; *Defense News* 20 Sep)

Later, the US government is reported to have asked South Korea whether it was interested in taking part in the Theater Missile Defense project. (*International Herald Tribune* 15 Oct)

23 September Iraq agrees to allow activation of the UNSCOM surveillance cameras [see 10 Sep]. {Reuter in *Boston Globe* 24 Sep}

23 September Swaziland signs the CWC.

24 September In Geneva, VEREX IV [see 13 Sep] comes to an end with agreement achieved on a report describing the work of the Ad Hoc Group on the identification and examination of potential BWC verification measures from a scientific and technical standpoint. The report identifies 21 different measures, presenting in tabular form an evaluation of each one assessed against six different criteria. The main conclusions are as follows:

"The Ad Hoc Group of Governmental Experts concluded that potential verification measures as identified and evaluated could be useful to varying degrees in enhancing confidence, through increased transparency, that States Parties were fulfilling their obligations under the BWC. While it was agreed that reliance could not be placed on any single measure to differentiate conclusively between prohibited and permitted activity and to resolve ambiguities about compliance, it was also agreed that the measures could provide information of varying utility in strengthening the BWC. It was recognized that there remain a number of further technical questions to be addressed such as identity of agent, types and quantities, in the context of any future work. Some measure[s] in combination could provide enhanced capabilities by increasing, for example, the focus and improving the quality of information, thereby improving the possibility of differentiating between prohibited and permitted activities and of resolving ambiguities about compliance.

"Based on the examination and evaluation of the measures described above against the criteria given in the mandate, the Group considered, from the scientific and technical standpoint, that some of the potential verification measures would contribute to strengthening the effectiveness and improve the implementation of the Convention, also recognizing that appropriate and effective verification could reinforce the Convention." {BWC/CONF.III/VEREX/8}

The generally positive and constructive tone of these conclusions stands in striking contrast to the reports of discord that could be heard in earlier phases of the VEREX process. The US administration had still been engaged in a review of its policy on strengthening the BWC [see 10 Sep]; and US experts continued to stress during the session such problems as the necessity of protecting confidential proprietary information, a matter on which the US Biotechnology Industry Organization and the US Pharmaceutical Manufacturers Association had just expressed "grave concern" in a joint report. {*Biotechnology* Sep} The experts from Australia, Canada, France, Germany, the Netherlands and the UK might well have supported stronger language in the conclusions. The Brazilian and Cuban experts, too, worked for a strong report. The Chinese and Indian experts during the drafting dwelt on the CPI problem and, again like their US colleagues, cautioned against the use of language that might lend support to intrusive measures of verification. Iranian concerns about impacts on technology-transfer processes [see 3 Sep] found some expression. {*Arms Control Reporter* 701.B.117-118} Russian and eastern European contributions were not assertive.

The expectation now is that there will be a call from a majority of BWC states parties for a Special Conference; that a preparatory committee for the conference will meet in January

1994; and that the conference itself will be convened during September 1994.

24-26 September In England, at Wiston House, there is the fourth of the Wilton Park Arms Control Seminars [see 25-27 Sep 92], this one on Controlling Biological Weapons. There are 34 participants from Australia, Austria, Belgium, Finland, Germany, the UK and the USA. {*ASA Newsletter* 14 Oct}

27 September North Korea is estimated to possess around a thousand tons of CW agents, including blister and nerve types, according to a South Korean radio broadcast attributing the National Unification Board. The broadcast also says that, for BW weapons, North Korea has been producing infectious disease agents, such as those of cholera and plague, and has completed somatological tests of these agents. {KBS-1 Radio (Seoul) 27 Sep in FBIS-EAS 27 Sep} [See also 27 Aug]

Strongly worded denials of these reports are shortly afterwards issued from Pyongyang by the Secretariat of the Committee for the Peaceful Reunification of the Fatherland {Korean Central Broadcasting (Pyongyang) 2 Oct in FBIS-EAS 4 Oct} and the northern co-chairman of the North-South Joint Military Committee, Kim Kwang-chin. {Korean Central Broadcasting (Pyongyang) 3 Oct in FBIS-EAS 4 Oct; KCNA 4 Oct in FBIS-EAS 4 Oct}

27 September In Iraq, where the UNSCOM surveillance cameras at two missile test sites have just been activated [see 23 Sep], the UN commences its largest-yet inspection, UNSCOM 63, scheduled to last more than a month. Chief Inspector Nikita Smidovich of Russia tells reporters that the purpose is "to inspect a number of declared and undeclared sites in Iraq", and that between 50 and 100 inspectors will be involved. {AP in *New York Times* 28 Sep; *Daily Telegraph* (London) 28 Sep} The focus will be on Iraq's missile capabilities but, according to an earlier release from UN headquarters, the inspectors "will also be hunting for undiscovered traces of chemical and biological weapons programs and evidence of a secret underground nuclear reactor that 1992 French intelligence reports indicated may exist". {*New York Times* 19 Sep} It is also reported that the team will be looking to verify information provided by Iraq during the high-level technical talks in New York earlier in the month [see 9 Sep]. {*Financial Times* 1 Oct}

And UNSCOM technical experts arrive in Baghdad in order to receive information and data remaining to be provided that had been identified and promised during the New York talks. {S/26571}

27 September In the UK House of Commons, the minutes of evidence on the Centre for Applied Microbiology and Research taken in the summer by the Committee of Public Accounts [see 16 Jun] are laid before the House. The published evidence somewhat clarifies the role of CAMR in producing vaccines against biological-warfare agents. Some £3 million in additional income had been generated from "sales of vaccines and related royalties arising from the Gulf War". The US Army had a contract with CAMR pre-dating the war "for the preparation of some botulinum materials and that contract was extended in the aftermath of the Gulf War". No CAMR products were sold to Iraq. {HC Papers (session 1992-93) 757-i.}

27 September President Clinton, addressing the UN General Assembly, outlines a framework for US counterproliferation efforts based on his new policy directive [see 10 Sep]. {*US De-*

partment of State Dispatch 4 Oct; *Arms Control Today* Nov} His address includes the following: "I am also proposing new efforts to fight the proliferation of biological and chemical weapons. Today, only a handful of nations has ratified the Chemical Weapons Convention. I call on all nations, including my own, to ratify this accord quickly so that it may enter into force by January 13th, 1995. We will also seek to strengthen the Biological Weapons Convention by making every nation's biological activities and facilities open to more international scrutiny." {AP 27 Sep} [See also 24 Sep]

27 September In Washington the Department of Veterans Affairs increases to nine the list of illnesses possibly caused by Agent Orange [see 27 Jul] for which veterans of the Vietnam War can receive disability payments. The four additional illnesses are multiple myeloma (a cancer of the bone marrow) and three respiratory cancers, those of the lung, larynx and trachea. {*Washington Post* 28 Sep}

27 September–1 October In The Hague, the OPCW Preparatory Commission convenes for its fourth plenary session. The chair has now passed to Ambassador Sirous Nasseri of Iran, who says during his opening statement: "The verification mechanism provided by the [CWC] may be considered intrusive by some when compared with any preceding global agreement. But one should realise that through removal of ambiguities and doubts this global system can establish strong confidence among States Parties. Any complementary measure, be it at a global or regional level, which enhances confidence will undoubtedly contribute to the genuine implementation of the Convention, and must be welcomed. On the other hand, actions which may undermine confidence, particularly at these crucial initial stages, need to be discouraged. During the course of the negotiations for the Convention, it was consistently emphasised that through its implementation industrial and technological cooperation among the States Parties will be enhanced and peaceful use of chemical industries will be promoted and enhanced. This important fact should be borne in mind in all phases of preparations for implementation of this Treaty." {PC-IV/23}

The Executive Secretary reports to the Commission on work done during the period between the third and fourth plenaries. {PC-IV/10} He includes the following: "In co-operation with the Harvard Sussex Program[...] on CBW Armament and Arms Limitation, the Secretariat is working on an international information project on the implementation of the [CWC]. The project will produce and disseminate a range of information in audio-visual or printed form about implementation issues, and will develop an integrated Guide to Obligations under the Chemical Weapons Convention."

The Commission adopts a report recording numerous decisions taken during the session. [See Review, pages 5–8]

28 September In southern Iraq, in the Hor Alawi area on the eastern edge of the Hammar marshes northeast of Basra, government forces begin to use artillery-fired poison gas in their continuing offensive against Shi'ite resistance [see 6 May], so it is reported from Iran some three weeks later, the information being attributed to refugees from the area who had recently crossed the border. {Voice of Rebellious Iraq 16 Oct in FBIS-NES 18 Oct; Radio Kuwait 16 Oct in FBIS-NES 18 Oct; Voice of Iraqi Islamic Revolution 20 Oct in FBIS-NES 22 Oct; *Guardian* 8 Nov; *New York Times* 16 Nov}

28 September Finland offers its *Verify* data-base for use as part of the OPCW data system. The Finnish Research Project on the Verification of Chemical Disarmament [see 18-21 May] has been developing *Verify* since 1987 to support CWC verification analysis. *Verify* would be delivered as a turn-key system integrated into the existing PTS microcomputer network. {PC-IV/A/WP.8}

28 September Australia distributes as an official document of the OPCW Preparatory Commission "illustrative model legislation" for incorporating the CWC into domestic law. An explanatory memorandum accompanies it. {PC-IV/A/WP.10} In an earlier form, these materials had been presented at the fifth seminar, in Sydney, of the Australian CW Regional Initiative [see 28 Jun].

28–30 September In Vilnius, the Ad Hoc Working Group on Dumped Chemical Munition of the Baltic Marine Environment Protection Commission (the Helsinki Commission) convenes for its second meeting with delegations from Denmark, Estonia, Finland, Germany, Lithuania, Poland, Russia and Sweden, and with observers from Latvia, the UK and the USA as well as from CCB (Coalition Clean Baltic). The Group now has before it detailed national reports from participating countries indicating that about 40,000 tonnes of CW munitions containing about 12,000 tonnes of toxic chemicals were dumped in the Baltic prior to 1948. The Russian delegation is requested to seek the release of official information bearing on the possible dumping of chemical munitions by the USSR after 1947.

The US observer distributes a statement saying that, during the preparation of the comprehensive and authoritative US report *Special Study on the Sea Disposal of Chemical Munitions*, no evidence had been found of any agreement between the USA and the USSR governing the German chemical weapons that were dumped in the sea between 1944 and 1948. The UK observer likewise disavows UK involvement in any post-World-War-II Baltic (though not Skagerrak) dumpings.

The Group continues its consideration of the information and recommendations that should be included in the report on the Baltic CW problem which it will be presenting in Denmark. {HELCOM CHEMU 2/8; Helsinki Commission press release 30 Sep}

29 September The UN General Assembly is addressed by the Vice Premier and Foreign Minister of China, Qian Qichen, who, after reaffirming the support of the Chinese government for nonproliferation of all weapons of mass destruction, includes the following in his speech: "We oppose the all too frequent arbitrary use of sanctions by one country to bring pressure to bear on another under the pretext of controlling arms transfers while engaging in massive arms sales of one's own which jeopardize the sovereignty and security of the country concerned. We also denounce the hegemonic conduct of a self-styled 'world cop' [see also 2 Sep] who tramples upon international law and norms of international relations by endangering another country's navigation safety and normal trading on the excuse of enforcing the ban on chemical weapons and in disregard of the provisions of the relevant international conventions." {Chinese UN Mission press release 29 Sep}

ca 30 September The United States at present possesses "about 3,200 tons of usable unitary nerve and blister agent contained in artillery projectiles, spray tanks, and bombs", according to the *Fiscal Year 1994 Arms Control Impact Statements*

which had been transmitted to the Congress in June and are now published. The unclassified version continues: "The remainder of the agent on hand, about 28,000 tons of mustard and nerve agents, is either in munitions which have lost their utility (defective rounds, items with obsolete delivery systems, and items with severe operational restrictions) or in bulk storage. There are no usable filling facilities for the unitary bulk agent."

1 October In central Bosnia-Herzegovina, Croatian casualties from Bosnian mortar fire under treatment in Busovaca display signs and symptoms of poisoning: headaches, nausea, tears, vomiting and lung oedema. In the subsequent opinion of Professor Zlatko Binenfeld, a CW medical specialist and a major-general of the Croatian armed forces, the mortar-projectiles used were charged with chlorine. {HINA 15 Oct}

2 October In Baghdad, the high-level talks between Iraq and UNSCOM/IAEA resume [see 27 Sep]. {S/26571}

2 October In The Hague, a seminar on National Trial Inspections is convened by the OPCW Provisional Technical Secretariat. It is chaired by Ambassador Sirous Nasseri of Iran, the Chairman of the OPCW Preparatory Commission. The aim is to promote a sharing of experiences from past trial inspections, to encourage further countries to conduct such trials, and to draw lessons for implementation of the CWC inspection provisions. There are over 90 participants from 44 countries, all signatories of the CWC. Initial presentations are given by PTS staffers Ralf Trapp [see 10 Aug] and Anil Wadhwa. Four panel sessions follow, on routine inspections in civilian facilities, on multilateral trial inspections, on challenge inspections, and on national implementation measures, initial presentations being given by people from Australia, Brazil, Canada, Cuba, France, Germany, Japan, Poland, Sweden and the UK as well as the PTS. {*The CWC Chronicle* (Washington: The Henry L Stimson Center) Oct; *OPCW Synthesis* 23 Nov} A 44-page summary of the proceedings is subsequently published as no 1 in a new PTS *Occasional Papers* series.

4 October In Croatia, the Serbian Army of Krajina issues a report saying it has "captured from a group of Croat saboteurs chemical mines and toxic smoke boxes". The report continues: "It has been established that these were chemical agents of Belgian production and that these are used for temporary incapacitation". {Radio Beograd 4 Oct in JPRS-TND 8 Oct}

4 October In the US Senate, the Committee on Appropriations publishes its report on the 1994 Defense Appropriations bill. It recommends a cut of some \$38 million in the funding sought by the Administration for its chemdemil programme. In particular, it disallows procurement funding for long-lead equipment requested for chemdemil operations at Umatilla and Pine Bluff because of delays anticipated in the systematization phase at the Tooele chemdemil facility. Other changes it recommends in the programme include the contingent provision of a further \$25 million in development funding in case the DoD/NAS/NRC report due in December [see 10 Jun] favours an alternative to the disassembly-and-incineration baseline technology. {Senate report 103-153} The corresponding House report two weeks previously had made similar recommendations. {*Defense Week* 4 Oct}

4-8 October In The Hague, the Group of Experts on Chemical Industry Facilities under the OPCW Preparatory Commission reconvenes.

6-7 October In The Hague, the OPCW Preparatory Commission Experts' Group on Chemical Industry Facilities meets with representatives of chemicals industries. The meeting is focussed on the likely effects of the entry into force of the CWC on international chemical industry. It is intended to provide occasion for industry representatives, the PTS and experts on the Group to meet together directly (rather than through the intermediary of governments) and propose acceptable solutions to implementation problems. Besides industry representatives, the Preparatory Commission had agreed that the United Nations and its multilateral bodies, such as UNIDO, UNITAR and the UN Regional Economic Commissions, other international organizations and international chemical industry associations might be represented were they to ask for invitations. The Commission had also agreed that representatives of national chemical industry associations might participate without necessarily forming part of national delegations, if so invited by their governments. {PC-IV/23} Other nongovernmental organizations are, as usual, excluded.

The meeting is opened and closed by Working Group B Chairman Sylwin Gizowski; 132 people from 39 countries and one international organization participate, including industry or trade-association executives from Austria, Brazil, Cuba, Finland, France, Germany, India, Israel, Japan, the Netherlands, Russia, South Africa, South Korea, Ukraine, the UK and the USA. It is organized into three panel discussions: on industry concerns about preparations for entry into force of the Convention, on industry concerns about in-plant inspection operations and safety, and on industry concerns about confidentiality. Each panel opens with a background presentation by a PTS official followed by industry presentations. {PC-IV/4; US Arms Control and Disarmament Agency press release 13 Oct; *Chemical & Engineering News* 1 Nov; *OPCW Synthesis* 23 Nov}

6-8 October The Economic Commission for Europe Working Party on the Chemical Industry (which is responsible to the UN Economic and Social Council) meets for its third session. One of the papers before it has been prepared by the OPCW Provisional Technical Secretariat, informing the Working Party of the activities of the OPCW Preparatory Commission and its current plans in the field of chemicals. {ECE document CHEM/R.192/Add.2}

8 October In Baghdad, the high-level UNSCOM/Iraq talks [see 2 Oct] end and a report on them is signed by the participating delegations. {S/26571} The report states that considerable and substantial progress had been made in the provision of information by Iraq. As to biological weapons (and ballistic missiles), the Commission was now able to conclude that Iraq has discharged its obligation to make "full, final and complete" disclosure of its past now-proscribed programmes. As to chemical weapons, the report describes the conclusion of the Commission as follows:

"That the substantial supplementary information provided by Iraq in Baghdad on the chemical area covered the full process of chemical weapons production, namely the quantities of precursors imported, the quantities of agent produced, the quantities, types and capacities of equipment acquired for agent production, the quantities of chemical munitions produced or imported and the quantities of munitions filled, by

agent. It was explained, in a manner satisfactory to the Commission, that, with the exception of the quantity of agents, munitions and production equipment seen and destroyed by the Commission's inspection teams, all the chemical assets had been either destroyed or otherwise disposed of.... The initial assessment of the Commission's experts in Baghdad was that those data provided a credible account of Iraq's chemical weapons programme and its disposal and no further questions arose at the present stage. However, the experts needed to return to the Commission's headquarters in New York in order to verify, assess and confirm the numbers and the additional information that had been provided. The Commission would use its best endeavours to present its final assessment of the supplementary data within a two-week period, or as shortly as possible thereafter."

UNSCOM (and IAEA) undertook to treat the information provided in Baghdad on critical foreign suppliers — information defined in the report from the New York talks [see 9 Sep] — as confidential, agreeing further to use it "solely in order to identify all the elements of Iraq's previous programmes in the proscribed fields, to clarify related technical and scientific issues for the purposes of resolution 687 (1991), and to assist the Commission and IAEA in the planning and conduct of ongoing monitoring and verification". The information would not be published. {S/26571}

The report indicates that the issue of ongoing monitoring and verification was clarified but still not resolved; progress awaited Iraq's formal acknowledgement of its obligations under resolution 715 (1991) and the plans approved thereunder. Further talks are to be held in New York in mid-November.

8 October In the UK the government lays the Chemical Weapons Convention before Parliament. {Cm 2331.}

9 October In Russia, a UK/US inspection of a non-military biological site conducted within the framework of the September 1992 *Joint Statement on Biological Weapons by the Governments of the United Kingdom, the United States and the Russian Federation* [see 5 Jul] has recently been completed, following the long-sought conclusion of a trilateral accord on the protection of proprietary information. Besides the visit to the St Petersburg Institute for Ultrapure Biological Preparations (which was not conducted within the trilateral framework) [see 18-21 Nov 92], UK/US teams have now visited an installation at Berdsk, near Novosibirsk, where development work on BW weapons had been suspected, and a facility at Pokrov, near Moscow, where BW research had been suspected. {*New York Times* 1 Dec}

11-15 October In The Hague, the Group of Experts on Chemical Weapons Production Facilities under the OPCW Preparatory Commission reconvenes.

12 October Turkmenistan becomes the 154th state to sign the CWC. Previously, Djibouti, Guyana and the Maldives had also just signed.

13 October In Tokyo, at the close of a three-day state visit by the president of the Russian Federation, Prime Minister Morihiro Hosokawa and President Yeltsin sign a joint declaration on Japan/Russia relations which includes an undertaking "to cooperate closely for effectively securing nonproliferation of weapons of mass destruction, their delivery systems, related materials and components, and technologies and knowledge".

Also signed is a joint foreign-ministerial statement on nonproliferation under which: "Both sides will strengthen their efforts for solving issues of nonproliferation of weapons of mass destruction on the Korean peninsula, in South Asia and in the Middle East". {Kyodo 13 Oct in FBIS-EAS 13 Oct}

14 October In Thailand, police arrest the owner of W & M Construction Company on suspicion of sending Thais to work at the Tarhuna project in Libya in contravention of the recent government order [see 18 Sep]. {*Times* (London) 16 Oct} He is released almost immediately {*New York Times* 26 Oct}, but it later transpires that W & M notified the Libyan company managing Tarhuna shortly afterwards that it would be terminating its supply contract. {*New York Times* 10 Nov}

14 October In the Mediterranean, the sixth trial launch of the joint Israeli-US *Arrow* antimissile-missile system [see 14 Jul], in which the target has a simulated CW warhead, is not successful: the interceptor reportedly comes within ten yards of the target missile but a warhead malfunction prevents it from destroying the target. {Qol Yisra'el 17 Oct in FBIS-NES 19 Oct; *Defense Daily* 18 Oct; *Washington Times* 20 Oct; *BMD Monitor* 22 Oct; *Aviation Week & Space Technology* 25 Oct} The simulated CW target warhead was of the multiple-submunition rather than bulk-filled type; one aim of the test had been to determine the effectiveness of the interceptor warhead in destroying a cluster of bomblets. {*Flight International* 22-28 Sep; *Ha'aretz* (Tel Aviv) 1 Oct in FBIS-NES 5 Oct}

15 October At the US Army Chemical School Honors Day ceremonies, Thomas Dashiell and David Nydam become Distinguished Members of the Chemical Corps, of which there are now 14. {*Retorts* (Chemical Corps Regimental Association) Aug}

CWC Non-Signatory States

(as of 15 October 1993)

Angola	Bosnia-Herzegovina
Botswana	Macedonia, FYR of
Chad	Uzbekistan
Egypt	Yugoslavia
Lesotho	
Libya	Antigua & Barbuda
Mozambique	Bahamas
Sao Tome & Principe	Barbados
Somalia	Belize
Sudan	Grenada
Tanzania	Jamaica
	St Christopher & Nevis
Bhutan	Suriname
Iraq	Trinidad & Tobago
Jordan	
Kiribati	Andorra
Lebanon	Monaco
North Korea	
Solomon Islands	
Syria	
Taiwan	
Tonga	
Tuvalu	
Vanuatu	

154 states have signed the CWC

16 October Iraqi use of CW artillery in the marshes north of Basra [see 28 Sep] is the subject of refugee accounts now starting to be heard abroad through statements released by the Tehran-based Supreme Council of the Islamic Revolution in Iraq (SCIRI) and its representatives abroad. {Radio Kuwait 16 Oct in FBIS-NES 18 Oct; Voice of Iraqi Islamic Revolution 20 Oct in FBIS-NES 22 Oct; Reuter in *Times* (London) 21 Oct; Press Association (London) 22 Oct in FBIS-NES 25 Oct} Such refugee accounts are soon being heard from other quarters as well, including a London-based Iraqi doctor returning from two weeks at Himmet refugee camp on the Iranian border and other doctors working in the area associated with the relief efforts of British parliamentarian Emma Nicholson. {Press Association (London) 22 Oct in FBIS-NES 25 Oct; *Guardian* (London) and *Independent* (London) 23 Oct; AP in *Boston Globe* 23 Oct; Emma Nicholson in *Hansard (Commons)* 19 Nov} The picture presented is of hundreds of people being killed or wounded from artillery bombardments in which white clouds are released from shells that burst with a dull thud. The symptoms of survivors are described as difficult breathing, skin rash and inflammation of the mouth, throat and eyes.

ca 17 October Brazil produced mustard gas during 1937-42, according to an article by Dr Benjamin Garret in *CBIAC Newsletter* {Fall}. The agent, whose present whereabouts do not seem to be known, had apparently been produced under contract for Germany.

18 October In New York, at the 48th session of the UN General Assembly, the First Committee begins its work, which is scheduled to end on 24 November. {*Disarmament Times* 22 Sep}

18-21 October The Stockholm International Peace Research Institute (SIPRI), in collaboration with the German Federal Armed Forces NBC Defence Research Institute, holds an international conference on The Challenge of Old Chemical Scrap-Munition and Toxic Armament Wastes. {*Jane's Defence Weekly* 6 Nov} Papers are presented by Austrian, Belgian, British, Canadian, Czech, French, German, Norwegian, Polish and Swedish specialists. The conference is held at the NBC Defence Research Institute in Munster, Germany, where participants also visit the chemdemil incineration facility.

18-22 October In The Hague, the Group of Experts on Training under the OPCW Preparatory Commission reconvenes.

18-22 October In The Hague, the Group of Experts on Equipment under the OPCW Preparatory Commission reconvenes.

19 October The Acting Director of the US Arms Control and Disarmament Agency, Thomas Graham, tells the UN General Assembly First Committee that the United States supports further efforts to strengthen the BWC [see 24 Sep], continuing: "More specifically, we would like to see the creation of a transparency regime that enhances the effectiveness of, and compliance with, the Convention". He says that the United States supports the "early convening" of a special conference of BWC states parties to examine the VEREX report. {US Information Service London *Official Text* 22 Oct}

19 October The Executive Secretary of the OPCW Preparatory Commission, Ian Kenyon, addresses the First Committee

of the UN General Assembly. He presents a report on progress thus far in the preparation for implementation of the CWC.

19 October US Defense Secretary Les Aspin has authorized a comprehensive review of US nuclear-weapons doctrine aiming to produce, according to the *Washington Post*, a "new national policy" for President Clinton to consider in place of the existing policy directive, which dates from 1981. Among other matters, the review is to determine whether US military doctrine should include planning for nuclear strikes in response to CBW attacks on US forces, as some have advocated [see 6 Jan 92]. {*Washington Post* 19 Oct} The review is to be headed by Ashton Carter, Assistant Secretary of Defense for Nuclear Security and Counterproliferation, and Lt-Gen Barry McCaffrey, Joint Staff Director for Strategic Plans and Policy. {*Jane's Defence Weekly* 6 Nov}

20-21 October NATO defence ministers meet at Travemunde in Germany. Topics under discussion include US proposals for countering the proliferation of weapons of mass destruction. {*Daily Telegraph* (London) 21 Oct}

21 October In Bosnia-Herzegovina, Serb positions 15 km north-west of Zvornik are attacked with mortar projectiles, of which at least 25 release "poisonous gases" according to the local Serb command, which says that the attack is a repeat on a larger scale of attacks during the previous week in which 120mm mortar rounds containing chlorine and ammonia had been fired. {Tanjug 21 Oct in FBIS-EEU 22 Oct} An UNPROFOR situation report dated 20 October is said to state that, in northern Bosnia, UN Military observers reported that the commander of 216 Brigade of the Army of Bosnia and Herzegovina admitted that chemical grenades have been used against the Bosnian Serb Army.

That UNPROFOR report is quoted in a subsequent communication to the UN Security Council from the government of the Federal Republic of Yugoslavia which asks for an investigation of the report. The communication also says that "120mm mortar shells with compressed chlorine filling" [see also 1 Oct] were recently used by "the Muslim side" in the area of Antrovici village, fragments of two of the shells being subsequently retrieved and handed over to UNPROFOR for analysis. {S/26672} However, an UNPROFOR spokesman in Zagreb later says that the analysis showed the shells in question to have been filled with titanium tetrachloride, a standard smoke agent.

21 October At the United Nations in New York, in the Dag Hammarskjöld auditorium, a forum on Strengthening the Biological Weapons Convention is sponsored by the UN Office of Disarmament Affairs, the Federation of American Scientists and the NGO Committee on Disarmament. There is a presentation by Dr Graham Pearson, Director General of the UK Chemical and Biological Defence Establishment. He speaks of the just-ended VEREX process and its final report [see 24 Sep]. He concludes: "States Parties [to the BWC] should be encouraged to request the convening of a conference to examine the report as that conference has the mandate from the Third Review Conference to decide on any further action. I would urge all States Parties to request the convening of the special conference which should have the aim of drawing up a compliance assurance regime comprising both of declarations and on-site inspections. The essential elements of the current politically binding CBMs should be subsumed into mandatory declara-

tions which should include past offensive and defensive programmes (not limited to R&D), which will set current national activity in context, high containment facilities, facilities working with listed materials and national biological defence programmes (not limited to R&D). Consideration needs to be given to the organisation needed to implement this. Our overall goal must be to devise an effective regime in which the benefits exceed the disadvantages.”

22 October On the alleged Iraqi use of chemical weapons in the southern marshlands [see 16 Oct], SCIRI claims that it has obtained the minutes of a meeting at Fourth Army Corps headquarters in Amara in which the use of chemical weapons in the marshes is authorized. {*Guardian* (London) 23 Oct} Later, another Tehran-based organization, Gulf War Victims, reports that refugees from the Hammar marshes say they had been attacked by troops wearing gas masks. {*Guardian* (London) 27 Oct} Later still, Gulf War Victims releases a copy of what it says are pages taken from the notebook of a dead Iraqi commander who died in the fighting and who had summarized his battle orders in it. The purported summary (in Arabic) is dated 26 September and includes the following: “A chemical attack is to be considered during the battle. ... We will hit with chemical K80. ... Gas masks will be fixed to the belt in battle. ... A card concerning the agent phosgene should be issued to every soldier.” {*Guardian* (London) 15 Nov; *New York Times* 16 Nov}

22 October In Moscow, the Army newspaper *Krasnaya Zvezda* publishes an interview with Academician Kuntsevich, chairman of the Presidential Commission on CBW Convention Problems. Speaking of the Russian chemdemil programme, of which he is in charge, he says that further work is still being done on the draft plan but that the most likely outcome is that the stockpiles will be eliminated at the seven sites where they are stored. The new commission to select the sites for chemdemil facilities [see 9 Aug] “will start work in the very near future”. Implementation of the programme he expects will cost on the order of 500 billion roubles at today’s prices, but he hopes to ease the burden on the national budget by at least 30–40 percent by engaging the support of other countries, including Germany, the United States, Sweden and Italy. He says: “We are working on the question of having the US side set up in Russia two technological facilities for the destruction of chemical weapons on a turnkey basis within the framework of the agreement on aid for the Russian Federation”. He also says: “Way back in the 1960s we learned to transform combat toxic substances into different resins for timber processing, special fluids for the fast pumping of oil from wells, and other useful substances. All this is now being rationalized, as it were — systematized, registered and patented. If we succeed in implementing it, we will be able to recoup part of the expenditure envisaged for the destruction of chemical weapons.” {*Krasnaya Zvezda* (Moscow) 22 Oct in JPRS-TAC 1 Nov}

22 October Germany signs an agreement in Moscow under which it will give Russia financial support for its chemdemil programme. Around DM 5 million is being provided in 1993. German firms and Russian bodies are to cooperate on specific projects which will receive grants from the German government. The projects include a pilot plant for vesicant agents. {DPA 22 Oct in JPRS-TAC 1 Nov}

22–28 October Iran conducts missile manoeuvres, *Sa’eqeh-3*, over a thousand-kilometre stretch of the Persian Gulf and

Strait of Hormuz littoral. Iranian armed forces and the Islamic Revolution Guards Corps join in a wide variety of exercises including, according to IRNA, “commando exercise, air and land chemical counter-attack by a hypothetical enemy, defensive operations and mopping up of the affected areas”. {IRNA 25 Oct in FBIS-NES 25 Oct}

24 October The US Defense Department announces that it has designated the Army as the lead service in a newly formed joint programme office for a Biological Defense Program. The office will report through the Army’s acquisition executive to the Under Secretary of Defense for Acquisition. It will be responsible for overseeing medical and non-medical development and acquisition efforts associated with biological defence. {*Defense Daily* 25 Oct}

25–27 October In Tokyo, the Japanese Foreign Ministry and the Ministry of International Trade and Industry cosponsor an Asian Export Control Seminar, the topics under discussion including controls on materials that could be used to create nuclear and CBW weapons and missiles. Participation is from the six ASEAN countries, Australia, Hong Kong, South Korea and the United States. {*Journal of Commerce* 25 Oct; NHK General Television (Tokyo) 25 Oct in FBIS-EAS 29 Oct}

25 October–5 November In The Hague, the Group of Experts on 1994 Programme of Work and Budget under the OPCW Preparatory Commission reconvenes [see 10 Sep].

26 October On British independent television a one-hour documentary is screened, *Saddam’s Killing Fields*, on the persecution of the Marsh Arabs of southern Iraq [see also 22 Oct]. {ITV Viewpoint}

28 October On British independent television a one-hour documentary is screened, *Dirty War*, on the putative ‘Gulf War syndrome’ [see 14 Sep] among British and US veterans of the war. {Channel 4 Critical Eye}

28 October The US Defense Department provides a confidential briefing to members of Congress on the ‘Gulf War syndrome’, addressing in particular the question of whether coalition soldiers could have been exposed to low levels of Iraqi CBW agents during the fighting [see 9 Sep]. Defense Secretary Les Aspin has directed the Army to study the Czechoslovak data [see 14 Sep] and to make findings public. {*Washington Post* 30 Sep; AP in *Boston Globe* 6 Nov}

28 October At the United Nations in New York, in the Dag Hammarskjöld auditorium, a forum on The Chemical Weapons Convention is sponsored by the UN Office of Disarmament Affairs, the UN Department of Public Information and the NGO Committee on Disarmament.

30 October In Iraq, the large-scale UN inspection, UNSCOM 63, [see 27 Sep] comes to an end. Team leader Nikita Smidovich of Russia tells reporters: “The findings are that we have not found any prohibited items”, and that Iraqi authorities had provided “all the support required” for the mission. {INA 30 Oct in FBIS-NES 1 Nov; AFP in *Times* (London) 1 Nov}

30–31 October In London, police detain, question and then release a Russian visitor, Oleg Kalugin [see 4 Apr 91], formerly a general in the USSR KGB. In April, a London tabloid news-

paper, *The Mail on Sunday*, had carried an interview with General Kalugin in which he said he had been ordered to arrange the killing in London in 1978 of the Bulgarian emigré Georgi Markov [see 12 Jul]. {Reuter in *New York Times* 1 Nov; *Guardian* (London) 6 Nov}

1 November The Treaty on European Union enters into force

1 November In Washington, Secretary of Veterans Affairs Jesse Brown announces that his department will soon begin a pilot programme to test people who served in the Gulf War "for health problems that may be related to their exposure to chemical agents". He says that this is because of the Defense Department's "recent acknowledgement that very low concentrations of chemical agents were detected by the Czechoslovakian military" during the war [see 28 Oct].

The Department of Veterans Affairs has recently contracted with the National Academy of Sciences for a study of what effects service in the Gulf War might possibly have had on soldiers' health. {*Washington Post* 2 Nov}

1–5 November In The Hague, the Group of Experts on OPCW Building under the OPCW Preparatory Commission reconvenes.

2 November In Russia, the presidential National Security Council approves a document setting out guiding principles for Russian armed forces in the post-Soviet world, *Basic Provisions of Russian Federation Military Doctrine*. The new doctrine no longer sees other states or regional security systems as threatening the vital interests of Russia, nor does it identify any potential enemy. Instead it sees small local conflicts as the main source of military danger. Approval of the document had been delayed by controversy over its provisions for using troops for internal security. Such use, in certain specific instances, is authorized in the final version, one of the specific instances comprising attacks on nuclear or chemical installations. {*New York Times* 3 Nov; *Krasnaya Zvezda* (Moscow) 4 Nov in FBIS-SOV 4 Nov}

2 November In the US Senate, the Committee on Veterans' Affairs holds a hearing on Research on the Health Effects of Agent Orange and Other Herbicides Used in Vietnam. Among the testimony received from a panel of six medical doctors and scientists is that of Dr Arnold Schechter, in which he advocates government-sponsored research in Vietnam on Agent Orange health effects by joint US-Vietnamese medical teams.

3–4 November In Moscow, the Multilateral Working Group on Arms Control and Regional Security of the Middle East Peace Process meets for its fourth session [see 17–19 May]. {*Jordan Times* (Amman) 3 Nov in FBIS-NES 4 Nov}

4 November UNSCOM is preparing to investigate the reports that Iraq has been using chemical weapons in its southern marshlands [see 22 Oct], Executive Chairman Rolf Ekéus of UNSCOM says in New York. UNSCOM investigators will first travel to Iran to interview refugees and perhaps take blood samples from them, and then, if good evidence of a CW attack at a particular location is thus found, another team of investigators will travel to that location to take soil samples and search for further evidence. {*Daily Telegraph* (London) 5 Nov; *New York Times* 7 Nov}

6–7 November In The Hague, members of the OPCW Provisional Technical Secretariat and the Harvard Sussex Program meet for a conceptualization conference to develop plans for their joint international information project on implementation of the CWC [see 27 Sep–1 Oct]. *OPCW Synthesis* later reports that the conference agreed that the project should produce for the PTS "information material on specific topics that may be used separately, and in appropriate groupings, to meet the needs of government officials and others in developing national policies regarding the CWC and programs for its implementation", adding that the project "will eventually develop an integrated Guide to the Chemical Weapons Convention". {*OPCW Synthesis* 23 Nov}

8–11 November In Sweden, at Riksgränsen, the National Defence Research Establishment (FOA) and the Defence Materiel Administration (FMV) jointly host an international workshop on *Doctrine and Instruments for Detection and Monitoring of Chemical Warfare Agents*.

8–12 November In The Hague, a new Group of Experts under the OPCW Preparatory Commission convenes for a five-day session to work on PTS Financial Rules and Staff Rules.

8–12 November In The Hague, the Group of Experts on Data Systems under the OPCW Preparatory Commission reconvenes.

9 November In Libya the first of some 10,000 Thai workers leave the country, reportedly ordered out by the Libyan government in retaliation for Thai withdrawal, under US pressure, from the Tarhuna project [see 14 Oct]. {AFP in *International Herald Tribune* 10 Nov; *New York Times* 10 Nov}

9 November In Prague, the spokesman for the Association of Persian Gulf Veterans, Peter Zelinsky, dismisses as utter nonsense press reports that some Czech veterans had said that US troops during the Gulf War possessed chemical weapons.

Reporting this, CTK news agency also quotes an unidentified "diplomatic source" saying that three US military experts had visited the Czech Republic in mid-October in order to inspect the equipment with which CW agent had been detected and measured during the Gulf War by the Czechoslovak Anti-Chemical Unit [see also 1 Nov]. The source said that the Americans themselves had detected no CW agent.

9 November In the US House of Representatives, the Committee on Veterans Affairs meets in special session with some 50 ailing veterans of the Gulf War [see also 28 Oct]. These witnesses are suffering from unsatisfactorily diagnosed illnesses, and many of them complain of callousness or scepticism about their condition on the part of the Veterans Administration. Some say they are afraid that, if the Defense Department does not admit that CBW agents were used during the war, they will never receive proper treatment. {*Los Angeles Times* (Washington edition) and *Boston Globe* 10 Nov}

Defense Secretary Les Aspin says at a news conference next day that he has ordered a panel of experts to search anew for reasons for the veterans' ailments. The panel is to be headed by Dr Joshua Lederberg of Rockefeller University. Secretary Aspin says there is no evidence that either the Iraqis or the allies used chemical weapons during the war. He says that, on 19 January 1991, the Czechoslovak unit had twice detected low levels (0.05 mg/m³) of airborne sarin nerve-gas near

Hafar Al Batin in northern Saudi Arabia, and that, on 24 January, the unit had been summoned to investigate what it determined to be a small patch of liquid mustard gas near King Khalid Military City. "If the [Czechoslovak] detections were valid, we don't know where the agent came from." Officials say that the Defense Department does not agree with the Czechs that allied bombing of Iraqi chemical-weapons sites could have been responsible, as the prevailing winds were blowing in the wrong direction. Secretary Aspin says that Washington would soon ask the Saudi Arabian government and other coalition members if they had kept any chemical stockpiles in the region. {US Defense Department news release 10 Nov; AP in *International Herald Tribune* 11 Nov; *New York Times*, *Washington Post* and *Washington Times* 11 Nov}

The possibility of the detected traces of agent having originated in "tests carried out by units of allied Saudi Arabia" is later expressed by Czech military sources. {*Mlada Fronta Dnes* (Prague) 22 Nov in *East Europe Intelligence Report* 25 Nov via *Military News* 3 Dec}

10 November US Undersecretary of State for International Security Affairs Lynn Davis testifies on the administration's nonproliferation policy [see 27 Sep] before the House Foreign Affairs Committee. She says: "To strengthen the Biological Weapons Convention, we are parting company with the previous administration and promoting new measures designed to increase transparency of activities and facilities that could have biological weapons applications, thereby increasing confidence in compliance with the convention." [See also 19 Oct]

14 November In Iran, a team of nine UN experts led by Dr John F Scott arrives to investigate reports of Iraqi CW attacks against Shi'ites in the southern marshlands [see 4 Nov]. The team will visit the Iraq/Iran border area of Khuzestan province where more than 5000 Iraqi Shi'ites have reportedly sought refuge. {AFP 13 Nov in FBIS-NES 15 Nov; AFP in *Daily Telegraph* (London) 15 Nov; *Guardian* (London) 15 Nov; IRNA 14 Nov in FBIS-NES 15 Nov}

14 November In the UK, the pilot Foundation Course for the training of potential entrants to the OPCW begins. The course is being run in coöperation with the Netherlands and Switzerland, and is organized by the Royal Military College of Science, which is a faculty of Cranfield University. Its syllabus closely follows the one being developed for a Basic Foundation Training Course by the OPCW Preparatory Commission. Accepted for the course are 21 trainees from 15 countries: Algeria, Argentina, Bulgaria, China, Ghana, India, Malaysia, the Netherlands, Pakistan, Russia, South Korea, Switzerland, Ukraine, the UK and the USA. The course is due to end on 22 December.

14–16 November The Executive Secretary of the OPCW Preparatory Commission, Ian Kenyon, is in Tehran for an official visit during which he meets with Foreign Minister Velayati. {IRNA 14 Nov in FBIS-NES 15 Nov; Voice of the Islamic Republic of Iran (Tehran) First Program 16 Nov in FBIS-NES 17 Nov}

15 November In Hanoi, a four-day conference begins on the long-term effects of herbicides, the second such international symposium. There are more than 200 participants from inside and outside Vietnam, and 71 papers are to be presented. {AP in *Washington Times* 26 Nov} During the previous week,

Vietnamese doctors had stated at a news conference in Hanoi that the defoliant Agent Orange sprayed by US forces in South Vietnam 20 years previously was still causing cancers, deformed babies and skin defects. Professor Hoang Dinh Cau, chairman of the national committee monitoring after-effects of herbicides had said that "almost all the population of South Vietnam are more or less damaged". {Reuter in *Current News* 10 Nov} [See also 2 Nov]

15 November In New York, Iraqi and UNSCOM delegations meet for a further round of technical talks [see 8 Oct]. {Republic of Iraq Radio 13 Nov in FBIS-NES 15 Nov; AFP 15 Nov in FBIS-NES 15 Nov}

15–19 November In The Hague, the Group of Experts on Safety and Health under the OPCW Preparatory Commission reconvenes.

15–19 November In The Hague, the Group of Experts on Challenge Inspections under the OPCW Preparatory Commission reconvenes.

16 November Czech Defence Minister Antonin Baudys leaves for Washington with a team of CW specialists and chemical detection equipment of the kind used by the Czechoslovak unit during the Gulf war. There is talk of sales of the equipment. {*Defense News* 15 Nov}

16 November Meeting in The Hague, representatives of the 17 countries members of the Coordinating Committee for Multilateral Export Controls (COCOM) decide to dissolve the committee as soon as possible. COCOM — a construct of the Cold War — will be replaced by a new multilateral agreement, albeit one whose aims, parties and targets have yet to be determined. {*Atlantic News* 19 Nov} Three working parties have been created to prepare for a further meeting in The Hague in January at which the new structure will be defined. {*Intelligence Newsletter & Mednews* (Paris) 25 Nov}

16 November UK Defence Secretary Malcolm Rifkind, during a lecture delivered at the Centre for Defence Studies, King's College London, on the future role of nuclear weapons in British defence strategy, speaks as follows: "Would...the possible use of chemical or biological weapons against us be seen as justifying the threat of our using nuclear weapons [see also 19 Oct]? Would there be a difference between the use of such weapons against centres of population in the United Kingdom and their use against British forces deployed overseas?"

He continues: "We have of course given, in common with the other nuclear weapons states, a negative security assurance which precludes our using, or threatening to use, nuclear weapons against any state which is a party to the NPT or similar internationally binding non-proliferation commitments and which is not itself a nuclear weapons state or in alliance with one. These assurances were given in the context of the Cold War, when there was no appreciable risk of our facing a chemical or biological attack from any country outside the Warsaw Pact. They remain in force today... But the context in which we extend these assurances is one in which we attach ever increasing importance to the Biological and Chemical Weapons Conventions: both to securing universal adherence to these Conventions and to ensuring that they are effectively implemented, with appropriate international action directed against countries which do not abide by their provisions."

16 November In the US Senate the Veterans' Affairs Committee conducts a hearing on "Persian Gulf War Illnesses: Are We Treating Veterans Right?". Among those testifying is Marine Corps Chief Warrant Officer Joseph Cottrell, who had served with an NBC team during the Gulf War. He states that low levels of chemical agents were detected several times on battlefields during the war; his own Fox detection vehicle had twice picked up traces of lewisite vapour. {AP in *Boston Globe* 17 Nov; *Independent* (London) 18 Nov}

The Committee also hears testimony from Major-General Ronald Blanck, commander of the Walter Reed Army Medical Center, in which he says that several possible causes of the mystery symptoms in Gulf-War veterans had been closely examined and ruled out, at least for now. They were: smoke from oil fires; leishmaniasis; exposure to petroleum products; depleted uranium; and chemical warfare agents. {*New York Times* 23 Nov}

16 November In the US House of Representatives, the Veterans' Affairs Subcommittee on Oversight and Investigations conducts a hearing on "Health Care Problems and Concerns of Persian Gulf War Veterans". It receives testimony from veterans, from veterans' organizations, from the Office of Technology Assessment and from administration officials.

16–17 November Los Alamos National Laboratory and the American Defense Preparedness Association co-sponsor a conference on Non-Lethal Defense at a Johns Hopkins University facility in Laurel, Maryland. Secret-level clearances are required of the US-only participants. An official from the Office of the Deputy Assistant Secretary of Defense for Peacekeeping reportedly tells the conference that Pentagon analysts have "just started" a series of studies on non-lethal technologies and will make their first progress report in February or March. {*Aerospace Daily* 17 Nov} The Army plans to appoint a senior advisory group in March to guide development of "low-collateral, less-than-lethal weapons". Several projects are already under way, notably at Edgewood RDE Center. One project there to which publicity has been given is a police-like baton that can shoot drug-filled disabling darts to a range of 30 yards. {*Defense Week* 22 Nov} There is also talk of "drugs that would make enemy soldiers fall asleep [which] could be dusted over the enemy from the air, or a fog-like vapour wafted towards enemy lines". {*New Scientist* 11 Dec}

16–19 November The US Army Edgewood Research, Development and Engineering Center hosts the 1993 international Scientific Conference on Chemical Defense Research. Nearly 200 papers and posters are presented. Especially striking is the work displayed on the application of developments in biotechnology to protection against CBW agents. As for possible new threat agents, interest is still evident in synthetic opioids of the fentanyl family [see 12 Aug], in the propensity of the trifluoromethyl group for enhancing biological potency, and in such fluorocarbons as perfluoroisobutene and perfluorocyclobutane. {Conference abstract digest}

18 November In the UK the Queen opens Parliament, delivering the speech which presents her government's plans for the coming session. In the foreign-affairs part of the speech she says — much as she had done in previous years — that the government "will work for the effective implementation of the Chemical Weapons Convention". But in the home-affairs part, which envisages much new legislative activity, there is nothing

about introducing the legislation that will enable her to ratify the treaty. Responding later to a parliamentary question, the government writes: "The necessary implementing legislation will be introduced when parliamentary time permits". {*Hansard (Commons)* written answers 23 Nov}

19 November The UN General Assembly First Committee does not act on a draft resolution introduced by The Netherlands encouraging states to sign and ratify the CWC. Although co-sponsored by a hundred states, consensus could not be achieved on an amendment proposed by Iran stating that "upon the entry into force of the Convention, States Parties shall not maintain among themselves any restrictions, including those in any international agreements, incompatible with the obligations undertaken under the Convention" [see also 3 Sep]. The Netherlands argued that this language did not conform, as Iran had argued it did, with Article XI of the CWC, and announced a list of 36 mostly Northern co-sponsors who would withdraw were the draft to be amended.

The First Committee had, however, succeeded in adopting without vote a resolution on the Biological Weapons Convention. This commended the work of VEREX [see 24 Sep] and asked the Secretary-General "to render the necessary assistance...should the Depositary Powers be requested by a majority of States Parties to convene a conference" to consider developing a BWC verification regime. {*Disarmament Times* 22 Nov}

20–21 November In Iraq, an UNSCOM team of nine experts led by Roger Hill of Australia conducts an inspection of the site of an alleged CW attack in the southern marshlands north-west of Basrah [see 14 Nov]. In its preliminary release on the inquiry, UNSCOM says that, although the team did not find any immediate evidence of CW, it took a large number of soil, water, flora and fauna samples, and the analysis of these samples may take some months to complete, until which time UNSCOM "will not...be in a position to arrive at a definitive conclusion on the question of whether chemical weapons were used or not". The release says, further, that "the Commission has also obtained some documents, the authenticity and relevance of which is now subject to investigation". {UNSCOM press release 22 Oct}

22 November Iraqi Deputy Prime Minister Tariq Aziz is at the UN for high-level talks immediately prior to the regular review by the UN Security Council of the UN sanctions against Iraq [see also 15 Nov]. {*Boston Globe* 23 Nov}

22–26 November In The Hague, the Group of Experts on Chemical Weapons Storage Facilities under the OPCW Preparatory Commission reconvenes.

22–26 November In The Hague, a new Group of Experts under the OPCW Preparatory Commission convenes to work on Old and Abandoned Chemical Weapons.

23 November The United Nations publishes the second report on human rights in Iraq by the special rapporteur, Ambassador Max van der Stoep, appointed by the UN Commission for Human Rights [see 20 Aug]. The report, which is an interim one for the UN General Assembly, states that Iraqi government forces have maintained a continuous bombardment since June of villages in the southern marshlands, which are being systematically drained. The rapporteur found no evidence that the riv-

ers and waterways of the marshes had been deliberately poisoned [see 6 May], but he did find evidence of tremendous pollution by effluent from chemical plants and untreated sewage. He calls for the deployment of monitors in Iraq. {*Independent* (London) 23 Nov; *New York Times* 24 Nov}

23 November The US Army Chemical Materiel Destruction Agency submits to the Congress the final survey and analysis report on non-stockpile chemical materiel (NSCM) called for in the 1993 Defense Authorization Act [see 1 Oct 92]. The report indicates that the remains of chemical weapons, some dating back to World War I, may exist at 215 sites in 33 states, the District of Columbia and the US Virgin Islands, a somewhat larger number than the interim report had suggested [see 20 Apr]. The sites are mostly places where chemical munitions have either been disposed of by land burial or where it is judged possible that they might have been so buried. Clearance is estimated, very roughly, to cost \$17.7 billion in current-year dollars over the next 40 years. {AP in *New York Times* 26 Nov}

24 November In Angola, the Air Force has been dropping chemical bombs on civilian targets in the area of Cafunfo in Lunda Norte province [see also 10 Aug], according to Voice of the Resistance of the Black Cockerel. {*Voz da Resistencia do Galo Negro* 25 Nov in *Africa Intelligence Report* 30 Nov via *Military News*.}

24 November President Clinton submits the Chemical Weapons Convention to the United States Senate for its advice and consent to ratification, calling for ratification early in the next session of the Congress. The White House says that implementing legislation, among other things "to ensure that implementation respects Constitutional rights", will shortly be submitted to the Senate along with other relevant documentation. {White House press statement 24 Nov}

The White House also announces arrangements for the National Authority required under Article VII of the Convention: "In the United States, this body will consist of all government agencies who have activities affected by CWC implementation or who have oversight of civilian activities that are affected. The National Security Council Staff will chair the National Authority and the US Arms Control and Disarmament Agency will serve as the Office of the US National Authority, responsible for compiling declarations and reports, liaison with the OPCW, and administrative support for US implementation activities." {White House fact sheet 24 Nov}

26 November For destroying the US CW stockpile, costs are currently estimated at \$8-9 billion, according to unidentified US officials quoted in the press. The chemdemil operations will take 10-15 years to complete. {*Reuter* in *Washington Post* 26 Nov}

26 November Iraq formally accepts long-term UN monitoring of its weapons programmes, as required under the Gulf War ceasefire resolution [see 15 Nov]. The letter from Foreign Minister Mohammed Said al-Sahar to the President of the UN Security Council informing the UN of the Iraqi decision to accept the obligations of Resolution 715 (1991) suggests that this and other "positive developments" justified the lifting of sanctions [see 22 Nov]. The Security Council has stated that it will not agree to any such thing until it is satisfied that Iraq has given a full accounting of its nuclear, CBW and missile programmes and has demonstrated its coöperation with the ongoing moni-

toring and verification. This may take several more months. {*New York Times* and *Washington Post* 27 Nov; *Financial Times* 27-28 Nov}

27 November The UN Security Council decides against any immediate lifting of the sanctions on Iraq [see 26 Nov]. Iraqi Deputy Prime Minister Tariq Aziz describes the decision as "a double cross". {AP in *Boston Globe* 28 Nov} He will remain in New York in order to prepare a joint public statement with UN-SCOM Executive Chairman Rolf Ekéus setting out what Iraq must still do to be in full compliance with its obligations under the relevant UN resolutions. {*New York Times* 28 Nov}

28 November From Tokyo the imminent publication is announced of a study of the biological-warfare plans of the Japanese Imperial Army during World War II. The study, based on newly discovered Army records, records BW operations being projected for March 1942 in the Bataan peninsular of the Philippines, estimated to require 10 tons of microbial bombs. BW operations were subsequently envisaged against Australia, India, Burma, Hawaii and other Pacific islands. The planning, finally abandoned in July 1945, had been an Army initiative, and it had been thought that the concurrence of Emperor Hirohito might not have been forthcoming. The principal author of the study is Professor Yoshiaki Yoshimi of Chuo University. {*Kyodo* 28 Nov via *Military News* 3 Dec; AFP in *Daily Telegraph* (London) 29 Nov}

29 November In The Hague, the Group of Experts on Technical Co-operation and Assistance under the OPCW Preparatory Commission reconvenes for a five-day session.

29 November In The Hague, the Group of Experts on Chemical Weapons Destruction Facilities under the OPCW Preparatory Commission reconvenes for a five-day session.

29 November In the UK, the Ministry of Defence responds to a parliamentary question asking how many current or former servicemen have complained of 'Gulf War syndrome' since August. The Ministry states that 5 former members of the armed forces had been in touch during the period, but no currently serving personnel. {*Hansard (Commons)* written answers 29 Nov}

JNA chemical weapons

Details of a development programme for chemical-weapons production by the former Yugoslav National Army (JNA) were disclosed in a paper presented by the delegation of Croatia at the Warsaw regional CWC seminar on 7 December (see page 8). The paper states that the principal facility was located near Mostar in the village of Potoci, where work commenced in 1958, continuing until closure and relocation to Lucani, near Cacak, in January 1992. A wide variety of agents and munitions is said to have been studied, including 122mm, 152mm and 155mm artillery shells charged with mustard gas and sarin, and 128mm sarin rockets. During 1978-89 more than 100 tons of agent CS were reportedly produced.

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Antichemical Protection and the Chemical Weapons Convention

edited by Priyamwada Deshingkar, Matthew Meselson and Julian Perry Robinson

"It is possible to protect people against chemical weapons without at the same time so immobilizing or burdening them that they are unable to function effectively. This is true of no other category of modern battlefield weapon."

In this lies the key to the crucial relationship now being established between the new chemical treaty and protection against chemical weapons. HSPOP 2 shows why this is so, and why the treaty should not obstruct development of protection.

Antichemical protection may promote compliance with the Chemical Weapons Convention by reducing the incentive for having chemical weapons. It may enhance the effectiveness of verification by forcing a would-be violator to increase the scale and therefore the detectability of any production, storage or other proscribed activities undertaken. If noncompliance nevertheless happens, antichemical protection may render it less dangerous.

The implications of the Convention for the future role and design of antichemical protection and, conversely, the implications of antichemical protection for the successful implementation of the Convention were the chief topics before the *El Escorial Workshop on Antichemical Protection and the Chemical Weapons Convention*, of which HSPOP 2 is a record.

The Workshop, held while the Convention was in the final phase of negotiation, was hosted by the Complutense University of Madrid and the Spanish Pugwash Group, and was organized by the Harvard Sussex Program in collaboration with the Pugwash Conferences on Science and World Affairs. Besides conveners and organizers, the Workshop brought together 20 experts from 16 countries, most of them specialists in physical or medical aspects of protection against chemical warfare and some of them members of their countries' negotiating delegations in Geneva.

Contents: *Matthew Meselson* and *Julian Perry Robinson*, Introduction, overview and conclusions; *Julian Perry Robinson*, The emerging Chemical Weapons Convention; *Matthew Meselson*, The role of chemical defense in chemical warfare, chemical deterrence and chemical disarmament; *Jan Medema*, Realistic chemical challenge levels for design of antichemical protection; *Herbert C DeBisschop*, Detection and identification of chemical warfare agents; *Derek L Griffiths*, Evolution and performance of modern respirators and filters; Some thoughts on collective protection; *David W Pike*, Evolution and performance of protective clothing; *S M Asim*, Hot weather field trials of chemical protective suit; *Hugh D Crone*, Limitations on the effectiveness of chemical protection for the person, particularly that of heat stress; *C Richard Hall*, Possible developments in protective clothing; *Hermann Martens*, New aspects of decontamination; *Zlatko Binenfeld* and *Vladimir Vojvodic*, Medical aspects of chemical warfare; *Slawomir Rump*, Medical protection: present status and possible development; *Gad Bar-Sela*, The protection of civilians; *Benjamin Harris* and *Frank Shanty*, US chemical defence; *Kathleen C Bailey*, The need for increased protection against chemical weapons; *Mohamed El Zarka*, Antichemical protection and chemical weapons non proliferation; *Gao Fang*, To develop suitable chemical defence technology for developing countries, to facilitate the conclusion of the CW Convention; *Alexander T Lugachev*, Political and technical aspects of antichemical protection in the context of elaboration of the Convention on the Prohibition of Chemical Weapons; *Graham Cooper*, Article X of the Chemical Weapons Convention: Assistance and Protection against Chemical Weapons; *Martin M Kaplan*, A final comment.

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