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A COMPARISON OF THE AUSTRALIA GROUP LIST OF CHEMICAL WEAPON PRECURSORS AND THE CWC SCHEDULES OF CHEMICALS

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At first glance, the list of 54 individual chemicals in the table on page 3, the Australia Group List (AGL), looks rather different from the schedules of chemicals set out in the Annex on Chemicals of the Chemical Weapons Convention (CWC), where the different schedules contain both chemical-warfare agents and precursors, with some listed as individual chemicals and some as families of chemicals.

These apparent differences may have caused some confusion to officials involved in the implementation of export controls on the CW precursor chemicals and preparing for implementation of the CWC (eg. government, trade and industry officials, chemical traders and the chemical industry).

The purpose of this paper is briefly to outline the development of these lists, and to explain the differences in the two lists on the basis of their different objectives.

The Australia Group List

The AGL was developed as a direct response to an immediate problem, that is, the CW proliferation in the Middle East. The development of the AGL was seen as a interim short term solution pending the conclusion of the CWC.

The original list of the 40 most relevant precursor chemicals for the production of sulphur mustard, tabun, sarin, soman, VX and psychochemicals (including BZ) was prepared at the second meeting of the Australia Group (September 1985) and agreed at the fourth meeting (May 1986). This list of 40 chemicals became known as the Australia Group List. It included the five chemicals on the then Core List (numbers 1 to 5 in the table) that each participating country had placed under export control, with the remaining 35 chemicals constituting an agreed Warning List (many of which were also under export control in some individual participating countries).

As a result of these measures, the countries involved in CW proliferation were forced to either go farther back in the production route, or produce alternative CW agents

whose precursors were not under control. In response, a further ten chemicals (chemicals 41 to 50 in the table) were added to the Warning List in 1989, including earlier precursors for tabun, sarin, soman and VX nerve agents, and precursors for a nitrogen mustard (HN-3) blister agent and amiton nerve agent. At the AG meeting in June 1991, it was agreed that all AG members would place all of the 50 chemicals under export control. In June 1992, four additional chemicals were added to the AGL bringing the number of chemicals under export control to 54.

It is to be noted that the 54 chemicals are all CW agent precursors. There are no catalysts, solvents, adjuncts, acid scavengers or stabilizers on the list. It has been agreed that it would be more appropriate for such chemicals (many of which are produced and traded in very large amounts) to be covered by national warning guidelines rather than export controls.

The CWC Schedules

The CWC text contains three separate schedules of chemicals. These chemicals are to be monitored by the Organisation for the Prohibition of Chemical Weapons for the lifetime of the CWC.

<i>Guest Article by Dr R J Mathews</i>	1-3
<i>CWC Non-Signatory States</i>	3
<i>Progress in The Hague: Quarterly Review</i>	4-9
<i>Editorial comment: The AG and the CWC</i>	5
<i>Forthcoming events</i>	9
<i>News Chronology: May-August 1993</i>	10-27
<i>New Board Member</i>	17
<i>Obituary: Charles Flowerree</i>	22
<i>Recent Publications</i>	27-28

Particular chemicals or families of chemicals have been placed on one of the three CWC schedules based on a number of factors, including the risk that the particular chemical poses to the objectives of the CWC, and, in the case of commercially produced chemicals, on the practicality of subjecting the chemical to a particular monitoring regime. A major factor in the development of these schedules has been the recognition that it would be impractical, and in many cases unnecessary, to have a monitoring system that will guarantee the non-diversion of every relevant chemical from industrial applications to CW use. Instead, the system will focus on monitoring an appropriate range of key chemicals, which will sustain confidence in the overall CWC regime.

Each Schedule is subdivided into Part A — Toxic Chemicals, and Part B — Precursor Chemicals.

Schedule 1 contains chemicals that are deemed to pose a high risk to the purposes of the CWC, but which have very limited, if any, commercial applications. Part A includes nerve agents (including tabun, sarin and VX, and their homologues or “family” members), blister agents (including sulphur mustard) and certain toxins. Part B includes nerve agent precursors for binary chemical weapons.

Each state party to the CWC will be permitted to produce and use Schedule 1 chemicals for research, medical, pharmaceutical or protective purposes (for example, testing gas masks) provided the types and quantities of the Schedule 1 chemicals are strictly limited to those which can be justified for such purposes. In addition, the aggregate amount of such chemicals that a State Party may acquire annually, or possess at any given time, must not exceed one tonne. The types of facilities that are permitted to produce these chemicals are clearly defined in the CWC text. These facilities will be required to make annual declarations of relevant activities, and will be subject to international monitoring.

Schedule 2 contains chemicals that are deemed to pose a significant risk to the purposes of the CWC. Part A contains toxic chemicals that could be used as chemical warfare agents (for example, amiton, which was developed as a pesticide in the 1950s but found to be too toxic for that purpose). Part B contains key precursors to chemicals in Schedule 1 or Schedule 2 Part A. Some of these chemicals have limited commercial applications. For example, thiodiglycol is used in the printing industry but is also a key precursor which is readily converted into sulphur mustard.

It has been agreed that there will be no restrictions on the quantities of chemicals in Schedule 2 that a State Party can produce, process or consume. However, facilities that produce, process or consume chemicals in Schedule 2 in quantities above agreed thresholds will be required to make annual declarations, and will be subject to international on-site inspections.

Schedule 3 contains other chemicals that are considered to pose a risk to the purposes of the CWC. Part A includes

“dual purpose” toxic chemicals such as phosgene (which was used as chemical weapon in World War 1, but which currently has large commercial applications in the production of a range of products including plastics and pesticides). Part B includes other precursors for chemical warfare agents, for example, trimethyl phosphite, which is a precursor for insecticides and flame retardants, and also a precursor for nerve agents.

It has been agreed that there will be no restrictions on the quantities of chemicals in Schedule 3 that a State Party can produce, process or consume. However, facilities that produce chemicals in Schedule 3 in quantities above agreed thresholds will be required to make annual declarations, and will be subject to international on-site inspections.

Comparison of the Lists

From the above discussion it can be appreciated that, while the major focus of concern of both the Australia Group and the CWC are the same CW agents, the objectives are rather different.

In particular, the objective of the AGL is to stop the inadvertent supply of CW precursors to a small number of nations that have chosen to produce chemical weapons. Thus, the AGL contains CW precursors but not CW agents. On the other hand, the objective of the verification measures under the CWC is to provide assurance to each State Party to the CWC that the other States Parties to the CWC are complying with their obligations under the CWC, including not to produce chemical weapons. Therefore, the CWC Schedules include CW agents and their precursors.

It is not surprising that many of the individual precursor chemicals on the AGL are also covered under the CWC schedules, either as an individually listed chemical or as a member of a family of chemicals. However, because of the more limited and highly focussed nature of the objectives of the AGL, some of the precursor chemicals which are early in the production process and/or are widely produced in industry (and hence not considered suitable for effective monitoring under the CWC) have been included on the AGL, because they are either known or suspected to have been sought for CW purposes. Such precursors include:

- the fluoride chemicals (chemicals 14, 24, 41, 42, 43 and 44) for the production of sarin-family nerve agents;
- early precursors for a number of CW agents, including sulphur mustard (chemicals 15 and 50), tabun (chemicals 16, 20, 40 and 45), soman (chemical 39), VX (chemical 48), amiton (chemical 47) and certain psychochemical agents (chemical 37).

The cyanide salts (chemicals 40 and 45) may also be used for the production of hydrogen cyanide and cyanogen chloride, which were used as CW agents in WW1 and are covered by Schedule 3 of the CWC.

It is interesting to note that two sulphur mustard precursors (sulphur monochloride and sulphur dichloride) which were listed in Schedule 3 of the CWC in 1986 were not

added to the AGL until June 1992. These chemicals were initially considered for inclusion to the AGL in 1986. However, the information available to the AG at that time was that CW proliferators were choosing to produce sulphur mustard by the thiodiglycol process rather than the sulphur chloride/ethylene process. This issue has been regularly reviewed by the AG, and the decision to add the two chemicals to the AGL (chemicals 51 and 52) was made after

information became available indicating that the chemicals have recently been sought for CW purposes (and openly advertised for that purpose by one company within a non-participating country).

It is also interesting to note that thionyl chloride (chemical 9), which was on the original AGL of 40 chemicals 1986, was included Schedule 3 of the CWC for the first time in 1989. Thus the addition of chemicals to both the AGL and the schedules of the CWC should be seen as a dynamic process.

Australia Group Export Control List: Chemical Weapons Precursors

<i>Chemical name and CAS number</i>	<i>CWC schedule</i>
1 thiodiglycol [111-48-8]	2B
2 phosphoryl chloride [10025-87-3]	3B
3 dimethyl methylphosphonate [756-79-6]	2B
4 methylphosphonyl difluoride (DF) [676-99-3]	1B
5 methylphosphonyl dichloride (DC) [676-97-1]	2B
6 dimethyl phosphite (DMP) [868-85-9]	3B
7 phosphorus trichloride [7719-12-2]	3B
8 trimethyl phosphite (TMP) [121-45-9]	3B
9 thionyl chloride [7719-09-7]	3B
10 3-hydroxy-1-methylpiperidine [3554-74-3]	--
11 2-N,N-diisopropylaminoethyl chloride [96-79-7]	2B
12 2-N,N-diisopropylaminoethyl mercaptan [5842-07-9]	2B
13 3-quinuclidinol [1619-34-7]	2B
14 potassium fluoride [7789-23-3]	--
15 2-chloroethanol [107-07-3]	--
16 dimethylamine [124-40-3]	--
17 diethyl ethylphosphonate [78-38-6]	2B
18 diethyl N,N-dimethylphosphoramidate [2404-03-7]	2B
19 diethyl phosphite [762-04-9]	3B
20 dimethylamine hydrochloride [506-59-2]	--
21 ethylphosphonous dichloride [1498-40-4]	2B
22 ethylphosphonyl dichloride [1066-50-8]	2B
23 ethylphosphonyl difluoride [753-98-0]	1B
24 hydrogen fluoride [7664-39-3]	--
25 methyl benzilate [76-89-1]	--
26 methylphosphonous dichloride [676-83-5]	2B
27 2-N,N-diisopropylaminoethyl alcohol [96-80-0]	2B
28 pinacolyl alcohol [464-07-3]	2B
29 ethyl 2-diisopropylaminoethyl methylphosphonite (QL) [57856-11-8]	1B
30 triethyl phosphite [122-52-1]	3B
31 arsenic trichloride [7784-34-1]	2B
32 benzilic acid [76-93-7]	2B
33 diethyl methylphosphonite [15715-41-0]	2B
34 dimethyl ethylphosphonate [6163-75-3]	2B
35 ethylphosphonous difluoride [430-78-4]	2B
36 methylphosphonous difluoride [753-59-3]	2B
37 3-quinuclidone [3731-38-2]	--
38 phosphorus pentachloride [10026-13-8]	3B
39 pinacolone [75-97-8]	--
40 potassium cyanide [151-50-8]	--
41 potassium bifluoride [7789-29-9]	--
42 ammonium bifluoride [1341-49-7]	--
43 sodium bifluoride [1333-83-1]	--
44 sodium fluoride [7681-49-4]	--
45 sodium cyanide [143-33-9]	--
46 tris-ethanolamine [102-71-6]	3B
47 phosphorus pentasulphide [1314-80-3]	--
48 diisopropylamine [108-18-9]	--
49 2-diethylaminoethanol [100-37-8]	--
50 sodium sulphide [1313-82-2]	--
51 sulphur monochloride [10025-67-9]	3B
52 sulphur dichloride [100545-99-0]	3B
53 tris-ethanolamine hydrochloride [637-39-8]	--
54 2-N,N-diisopropylaminoethyl chloride hydrochloride [4261-68-1]	2B

CWC Non-Signatory States
(as of 1 September 1993)

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

Building the Organisation for the Prohibition of Chemical Weapons

The OPCW looks like having a headquarters staff of 500-800 people to oversee the Chemical Weapons Convention. That is not small; and, because of the potential impact of the OPCW on chemical industry and trade worldwide, the organization-building now under way in The Hague is a delicate as well as a large task. How it should be undertaken was agreed in principle by the 101 states represented at the first and second plenary sessions of the OPCW Preparatory Commission, in February and April. During the period under review here — June through August — the Provisional Technical Secretariat (PTS) and the other structures of the PrepCom advanced steadily along the agreed track, stimulated by an otherwise largely uneventful third plenary at the beginning of July. Though their workload became progressively heavier, they registered solid progress. Thanks to a PrepCom information policy more open than once it looked like being, the main accomplishments through to the end of the third plenary are clear for all to see. What exactly was achieved during July and August will soon be on display in the documentation of the fourth plenary.

Overall, a notable trend has been the recruitment by the PTS of yet more of the CW specialists previously available to the national delegations (and also to UNSCOM). The PTS is the international civil service rather than the governmental part of the PrepCom, and the community of CW specialists worldwide is not large. One consequence is that the pool of people able and willing to take on the crucial jobs of chairing the Experts' Groups is shrinking. An effect has been to increase the responsibilities falling to the PTS, for, by providing a secretariat for each Group, the PTS necessarily plays a key role in the drafting and therefore the reporting processes.

Not far from the surface now is this question: what happens if the Chemical Weapons Convention does not after all come into force in January 1995? Some signatory states are finding that the legislative and other burdens of preparing for domestic implementation may preclude their early ratification. For entry into force on schedule, 65 states must ratify by mid-July 1994. This, in some peoples' minds, is no longer the certainty it once seemed. So the ramp-up of the PTS to staffing levels commensurate with the duties that will fall to the Technical Secretariat within a month of the treaty coming into force may need to be delayed. But the time for decision on the 1994 PrepCom work-programme and budget is fast approaching.

The possibility of postponement is disturbing, but actually it might not be an unmitigated setback to the prospects for global CW disarmament. If properly managed, delayed entry into force might allow the geographical spread of original states-parties to broaden in a manner important for

the well-being of the fledgling OPCW. The recent breakthrough in the Middle East peace process gives this consideration an added salience.

Actions by the PrepCom The Preparatory Commission in plenary session is the ultimate source of authority for the organization-building. The third plenary took place during 28 June to 2 July and was attended by 80 signatory states. This was nine down from the previous session and only seven short of inquoracy. Although no major decisions were taken — which was perhaps one of the reasons for the reduced attendance — important purposes were nevertheless served. In particular, the 50 or so participating states that had not been represented in the Experts' Groups must surely have become more aware of the scope of the work before the Commission and therefore also of the nature of their obligations under the CWC.

The formal business of the plenary session included receiving and acting upon the reports of the Commission's two principal subsidiary bodies, Working Groups A and B. So the Commission duly took note of the projected scheduling of meetings of Experts' Groups during the two following intersessional periods, including the detailed task assignments, and approved the changed dates for the fourth session, namely 27 September through 1 October. It decided to adopt the specification for the OPCW's ambitious computerized Information Management System which had come up from the Group of Experts on Data Systems. This occurred despite the fact that a recommendation on the IMS had not been put forward by Working Group A. It had been blocked because relevant papers had not been distributed in all official languages in time, including French, offending some delegations. On the report of Working Group B, the Commission approved the draft introductory sections of the projected OPCW Safety and Health Policy Document, even though, for those same "technical reasons", it had not been recommended to do so by the Working Group. The report on Inspection Team Composition was not adopted, a number of delegations raising questions which the Commission then referred back to Working Group B; a particular difficulty was the report's mention of "NBC" expertise as being a possibly desirable attribute of the inspectorate. The Commission approved the recommendation that the PTS should convene a meeting at Experts' Group level with industry representatives during the week of 4-8 October.

Other formal business included the election of Ambassador Sirous Nasserri of Iran as Chairman of the Preparatory Commission for the next six-month period, and, as Vice-Chairmen, the representatives of Chile, Japan, Romania, Tunisia and the United States.

The Australia Group and the Chemical Weapons Convention

With planning for implementation of the Chemical Weapons Convention well under way in the Provisional Technical Secretariat and other parts of the Preparatory Commission, members of the Australia Group, meeting in Paris in December, must be considering how best to interact with the emerging Organisation for the Prohibition of Chemical Weapons.

Already there is opportunity for the AG to provide the PTS with useful information regarding its experience in the design, operation and coordination of national export controls, inasmuch as such controls are required by the CWC itself. During its first 3 years, the CWC requires each state party to obtain end-use certificates for transfers of any Schedule 2 or Schedule 3 chemical to any non-party state. Thereafter, Schedule 2 chemicals may neither be exported to nor imported from non-parties, and end-use certificates continue to be required for Schedule 3 chemicals.¹ More generally and applicable to all chemicals, whether scheduled or not, the Convention requires that states parties “adopt the necessary measures to ensure that toxic chemicals and their precursors are only...transferred...for purposes not prohibited under this Convention”.²

In fulfilling its obligations under the CWC, including those directed against proliferation, each state party is required to establish a National Authority to serve as a focal point for liaison with the OPCW. The AG, by sharing its experience, can assist the PTS in its task of advising National Authorities on how to translate the antiproliferation provisions of the CWC into workable and effective procedures.

There is also opportunity for the AG to begin to plan how it will fulfil its pledge made at the Conference on Disarmament on 6 August 1992 to “contribute actively to an increase in commercial and technological exchanges between States”.³ In particular, the AG will need to agree on procedures for reviewing the export restrictions its members have imposed on trade in certain chemicals and chemical equipment, “with the aim of removing such measures for the benefit of States Parties to the Convention acting in full compliance with their obligations under the Convention”.

But in relating constructively to the OPCW, the AG at present suffers from a serious political liability: gross under-representation of states outside of the western group. Of the five major groups of nations which are to be represented on the OPCW Executive Council, as prescribed in Article VIII, the 25 members of the AG include no participant at all from Africa and only one member each from Asia, East Europe and Latin America. Without broader representation, the AG will be seen as discriminatory even by states in full compliance, inevitably impairing its relations with the OPCW.

Compared to the CWC, with its global scope and far-reaching provisions for verification, the AG was created as only a stop-gap. If, as intended, the CWC creates sufficient confidence that none of its states parties is seeking chemical weapons, it will be sufficient to require only effective surveillance, without measures that inhibit peaceful trade.

1. Verification Annex: VII.C.32 and VIII.C.26
2. Article VI.2
3. CD/1164

The Commission reverted to certain unresolved issues which had exercised previous plenary sessions. One was the lack of full interpretation facilities for the Groups of Experts, an issue on which France, Cameroon and Latin American delegations expressed themselves strongly, and which, as just noted, had obstructed the Working Groups (though not the Commission itself). Those delegations insisted on the principle of universal access, while the delegations of major financial contributors such as the United States, Japan and Germany stressed the need for efficiency and fiscal stringency. A study commissioned by the PTS and reported to the plenary indicated that an additional \$1.45 million per year would be required for full language interpretation at all meetings of Experts' Groups. By way of interim compromise, the Executive Secretary told the plenary that, during the remainder of 1993, the PTS would experiment with provisional solutions, responding on a case-by-case basis to particular needs. The PTS would also

be making proposals for a longer-term solution in connection with the 1994 budget.

Differences also resurfaced over the implementation by the Netherlands of its original undertakings on hosting the OPCW and the PrepCom. The OPCW Foundation, which is the Netherlands authority charged with this task, had put forward a narrow interpretation of the accepted hosting bid, an interpretation which would require the PrepCom to invest \$140,000 in improving its conference facilities. This was challenged by several delegations. Difficulties have also arisen because the permanent building to house the OPCW — the Peace Tower, to be built in the centre of The Hague — cannot be available for three years, whereas the OPCW, on the current working assumption, must be fully operational in 1995. Alternative sites in The Hague are currently being investigated.

Transparency of the PrepCom's work was a less prominent issue. The Australian delegation informally circulated a draft decision providing for public sessions of plenary meetings. It was too soon for full consensus to be achieved on the proposal, but that may well emerge at the fourth plenary. Hitherto all PrepCom meetings, other than the ceremonial first few minutes of the inaugural plenary, have been held in private.

Sensitivities about geographical balance in appointments to the PTS continued in evidence. An intervention by Mexico deplored the fact that more than half of the 25 senior posts in the PTS had gone to just one of the five politico-regional groups. Mexico went on to state that "the drafting of the staff rules...should unequivocally reflect the necessity of rigorously applying the principle of equitable geographical distribution among the five regional groups". At least one delegation even insisted that the principle should be applied to inspection teams of the future OPCW.

Actions by Member States By the end of the period under review, 148 states had signed the Chemical Weapons Convention, thereby becoming entitled to join the PrepCom. Three of them — Laos, Latvia and Rwanda — had signed before the third plenary, though none then participated. Three others signed after the third plenary: Dominica, Liechtenstein and Panama.

Of the member states that attended the second plenary, eleven did not attend the third: Albania, Bangladesh, Belarus, the Holy See, Mali, Mauritius, Namibia, Nepal, Papua New Guinea, Yemen and Zambia. Two member states that had attended only the first plenary participated in the third: Senegal and Slovenia.

By mid-June, 45 of the then 142 member states had paid, in full or in part, the contributions required of them to cover PrepCom expenditure during 1993. These payments corresponded to 45 percent of the \$8.84 million budget for the year. Ninety-seven states, representing 22.5 percent of the budget, had made no payment. The organisation remained solvent nevertheless, having spent only a quarter of its 1993 budget by the end of May.

Sweden on 17 June became the fourth state to deposit its instrument of ratification with the United Nations. Swedish law, like that of some but by no means all other signatory states, permits ratification prior to the passage of national implementing legislation. Two other states-signatories also ratified during the period under review but they have not yet deposited their instruments of ratification: Norway (on 9 June) and Saudi Arabia (on 9 August); and Oman has since ratified (on 12 September) as well. So, if the treaty is to enter into force in January 1995 (i.e. after the prescribed minimum interval of two years from opening for signature), at least 58 more ratifications will be needed between now and mid-July 1994.

One ratification in particular, that of the Russian Federation, is bound to exert a stimulatory effect on others — or, if it fails to materialize, an inhibitory effect. Whether the

Russian parliament comes to look favourably on the Convention will almost certainly be contingent on its approving the detailed plans for destruction of the 40,000 agent-tonnes of former Soviet chemical weapons held within the Federation. The various draft destruction plans have been challenged on safety, environmental and financial grounds. Their future seems dependent on the degree of assistance which other countries are able to provide for their development and implementation.

Progress in the Provisional Technical Secretariat

Evident during the third plenary session was the fact that the PTS had now become an organization capable of functioning efficiently and coping with a growing workload. A number of delegates commented privately on the high quality and commitment of the staff which the PTS has been able to attract.

Appointment of the head of the Division on Technical Cooperation and Assistance was again postponed because of absence of agreement in the Group of African States over the proposed candidate. Possibly a decision on this one remaining top-level position will be reached during the fourth plenary. Having been asked to nominate a candidate, the Executive Secretary had duly considered the possibilities and then conducted interviews, for which purpose he had visited Algeria, Morocco, Nigeria and Zimbabwe. As for the next level down, he informed the third plenary that all P5 posts were now either filled or under offer to chosen candidates. The latter included: Pavel Castulik of the Czech Republic, to head the Inspector Training branch in the Verification Division; Raul C Fernandez of Argentina, as Industry Relations Officer in the External Relations Division; Johan Santesson of Sweden, as Technical Cooperation Officer in the Technical Cooperation and Assistance Division; Chamuta D Banda of Cameroon, as Personnel Officer in the Administration Division; and H V D Becker of Germany, as Budget & Finance Officer in the Administration Division. Ron Manley of the UK, currently serving on UNSCOM, has been offered the Chemical Weapons branch in the Verification Division.

Tentative planning has been proceeding within the PTS for staffing levels for 1994 and beyond. It appears likely that two staffing patterns will be considered for the next budget year. One will cover an expanded core staff to continue and broaden the preparatory work for implementing the CWC. A major second wave of hiring of implementation staff, such as inspectors and additional support personnel, would occur 6-8 months before anticipated entry-into-force of the CWC. On the current working assumption, the decision to authorize this second, ramp-up, phase of 1994 staffing would be made by the PrepCom in mid-1994. During the period under review, the Executive Secretary was preparing detailed proposals on PTS development for consideration by the Experts' Group on 1994 Programme of Work and Budget. This Group will presumably be submitting at least an interim report in time for the fourth plenary at the end of September.

The PTS has been expanding its contacts with non-governmental bodies. Some of these contacts it has reported in its newsletter *OPCW Synthesis*, for example with Pugwash [News Chronology, 1 June] and CEFIC; and the Monterey Institute internship at the PTS continues. As a further aid to transparency, the PTS now has a policy of making available on request to research institutions and other non-governmental organizations documents it has published "in accordance with the Rules of Procedure". The Executive Secretary reported his intention of adopting this policy to the PrepCom at its third plenary, and met with no objection. In practice, the policy has come to mean the public availability of all PrepCom documents formally distributed at plenaries. During the third plenary, moreover, the PTS External Relations Division made itself available for the press and other people formally excluded from the conference chamber.

Progress in the PrepCom structures Although the PTS is clearly growing in influence, it is the Experts' Groups, made up of members of the national delegations and reporting to the two Working Groups, which are the powerhouse of the PrepCom. The more active delegations in The Hague either already include specialist members or bring specialists in to serve on the Experts' Groups. Less active ones simply assign local diplomats to the Groups, sometimes more in a listening than a contributory role. The inactive delegations — around two-thirds of the PrepCom membership — are unrepresented.

During the period under review (June through August), there were 17 Groups of Experts at work, four of them under Working Group A, 12 under Working Group B, and one reporting to both. Under the prevailing publication policy, the results of their work remain private until after formal reporting to the responsible Working Groups, by which time the reports will have been sent out for consideration in national capitals. Membership of the Experts' Groups, other than the chairs, is not disclosed at all -- though this seems to be policy by default, not design. The reports thus far from the Experts' Group are typically a couple of pages long, briefly noting whatever written submissions the Group may have received, identifying the topics discussed, and putting forward recommendations. In most cases a lengthy "Chairman's Paper" is annexed, setting out particulars. Insofar as it has yet been published, the work of each Experts' Group is noted briefly in turn below. The first four Groups are the ones reporting to Working Group A.

Financial and Staff Regulations (chair: Sarvajit Chakravarti of India, succeeding Ralf Trapp, now with the PTS). Having completed the Draft Staff Regulations in early May, this Group was tasked during the third plenary to examine the consistency with them of the Executive Secretary's Staff Rules. The Group was also tasked to finalize its Draft Provisional Financial Regulations. It reconvened for a one-week session in August.

Privileges and Immunities (chair: Natalino Ronzitti of Italy). Having partly completed, in May, the draft for an agreement with the host government on privileges and im-

munities for diplomats accredited to the PrepCom and OPCW and for senior Secretariat staff, the Group was tasked during the third plenary to review the outcome of further negotiations between the Executive Secretary and the Netherlands government, and then to finalize the draft in time for the fourth plenary. It reconvened at the end of August.

Data Systems (chair: Tibor Tóth of Hungary). The PrepCom at its third plenary approved the detailed set of requirements which this Group had elaborated during April and May for a comprehensive computerized Information Management System suitable for the OPCW. The PrepCom then tasked the Group to consider how the IMS might be developed further, including the contributions that member states might offer for the system. The Group reconvened for a week in early August.

OPCW Building (chair: Radoslav Deyanov of Bulgaria). Having produced a second interim report in May detailing the sort of building the OPCW would need, this Group proceeded to establish a Task Force which included both its own specialists and ones from the OPCW Foundation. The Task Force began meeting in June, among other things to wrestle with the awkward fact that the accepted Netherlands bid to host the Organisation had expressly estimated a 3-5 year life span for the PrepCom whereas the PrepCom's mandate is to prepare for full OPCW operations from as early as February 1995; and the new building offered by the Netherlands cannot be ready before 1996. The Group and its Task Force were mandated during the third plenary to continue their efforts.

Analytical Chemists (chair: Marjatta Rautio of Finland). After a two-week session in June, this Group recommended that the OPCW should establish a centrally controlled Quality-Assurance/Quality-Control programme which built on existing international initiatives in this field (such as the Western European Laboratory Accreditation Co-operation); that the OPCW should perform regular proficiency-testing of its projected network of approved laboratories and field activities; and that it should assign to the projected OPCW laboratory, a properly accredited one, the role of coordinating analytical activities under the Convention, rather than actually undertaking all the analyses itself. The Group further recommended that the PTS should ask Member States to provide spectra and other analytical data on relevant chemicals in order that construction of the requisite OPCW data-base could begin early. Its report also set out areas in which the Group believed it needed to do more work.

Technical Co-operation and Assistance (chair: Sarvajit Chakravarti of India). Having produced, during its initial session in May, an expanded formulation of the tasks and issues that had been referred to it, this Group was mandated during the third plenary to continue along the lines it had developed. It duly reconvened for a second one-week session, in July. Its May report had recorded the Group's view that: "The multifaceted terms 'technical cooperation'

and 'assistance' among States Parties and between States Parties and the Organisation apply in their general meanings to many provisions of the Convention; technical co-operation and assistance run throughout the Convention as common threads and serve as a lubricant for the smooth meshing of its gears; the terms should be interpreted in the broad sense of process — permitting the Convention to operate successfully — rather than in the restricted sense of giver and receiver; all parts of the Convention are inter-related and are to be implemented as a whole.”

Industrial Declarations (chair: Graham Cooper of the UK). During a two-week session in June, this Group discussed the formats of declarations to be required from the chemicals industry about production and use of chemicals for purposes not prohibited by the Convention. This also meant that the Group had to consider such questions as what to do about 'captive use' of scheduled chemicals (e.g. phosgene made at the same location as its use for making urethanes) and the guidelines for 'low concentrations' (scheduled chemicals present as impurities in other products). The Group developed a set of 31 charts to serve as the basis for forms to be used for transmitting in a standardized and computer-assimilable fashion 31 different categories of information declarable under CWC Article VI. (Certain interpretations of the Convention are embedded in these charts: for example, on the declaration by states parties of aggregate national data on the quantity of each Schedule-2 chemical produced, the aggregate is to be the sum of production only in sites declared for each such chemical, not the country as a whole.) The report of the Group, which contained a dissenting footnote by Iran, noted areas where further work would eventually be needed, including work by the Experts' Group on Industrial Facilities. On the 'captive use' issue, the report stated that a facility producing for captive consumption a chemical listed on Schedule 2 or 3 should be declared and verified in the same manner as any other Schedule 2/3 facility.

Equipment (chair: Henk Boter of the Netherlands). After a one-week session in mid-June, this Group recommended that the OPCW should have its own laboratory, but that it should be small and limited in its functions to the following: (a) providing the OPCW Director-General with technical assistance and advice on the certification of Designated Laboratories (DLs); (b) handling verification-related samples prior to analysis by DLs; (c) preparing control samples and distributing them to the DLs concerned; (d) quality-auditing and proficiency-testing of the DLs; (e) organizing, updating and certifying the OPCW analytical databases; (f) certifying methods, reference compounds and inspection equipment; (g) supporting maintenance and storage of inspection equipment; and (h) supporting training activities. It was mandated during the third plenary to start work on inspection equipment and other matters, and duly reconvened in August for a further one-week session.

Training (chair: Raul Fernandez of Argentina). This Group convened for a one-week session in June during which it discussed the training necessary to enable the Inspectorate and Verification Division of the OPCW Techni-

cal Secretariat to discharge their inspection duties when the Convention enters into force. The Group also discussed training requirements for other PTS/TS personnel and for personnel of the National Authorities of states parties. It developed some preliminary guidance on these matters and outlined concepts and a curriculum for a General Training Scheme which the PTS might establish in the near future. Its report, without mentioning the training programmes which several countries are already setting up and advertising, urged Working Groups A and B speedily to resolve the issue of whether training for inspectors should be undertaken before or after employment by the PTS/TS. The Group was mandated during the third plenary to develop the detailed contents of training courses and guidance for their implementation. It reconvened in August.

Chemical Weapons Storage Facilities (chair: Jim Knapp of Canada). This Group was mandated during the third plenary to work on the formats of the declarations to be made by states parties of their holdings of chemical weapons and of the depots where the weapons are stored. The mandate also included: guidelines for stockpile and depot inspection procedures; suitability for CWC purposes of bilateral verification procedures; inspection-report formats; model facility agreement for storage sites; and identification of possible types of inspection equipment. The Group convened for a one-week session early in July.

Chemical Weapons Destruction Facilities (chair: Ron Manley of the UK). This Group was mandated during the third plenary to work on the formats of the declarations to be made by states parties of their plans for destroying such chemical weapons as they have declared, and also to establish the deadlines for submitting detailed chemdemil-facility data. The mandate included several associated matters as well, such as guidelines for inspection procedures, suitability of the bilateral verification procedures, inspection-report formats, a model facility agreement, and identification of possible types of inspection equipment. The Group convened for a one-week session early in July.

Single Small Scale Facility/Schedule 1 Facilities (chair: Bernhard Odernheimer of Germany). This Group was mandated during the third plenary to work on declaration-formats, guidelines for inspection procedures, and related matters. It convened for a one-week in mid-July.

Inspectorate Planning (chair: Johan Santesson of Sweden). This Group was mandated during the third plenary to review staffing options for the Inspectorate, such as 'on-call' vs fulltime inspectors, and to consider the size of the Inspectorate in relation to the 1994 Staff Plan. The Group convened for a one-week session during mid-July.

Chemical Industry Facilities (chair: Adam Noble of the UK). This Group was mandated during the third plenary to extend the work of the Cooper Group on industrial declarations (see above) and to develop guidelines for inspection procedures in the civil chemical industry. The mandate also included several associated matters, such as inspec-

tion-report formats, a model facility agreement, and identification of possible types of inspection equipment. The Group was the largest yet, and worked intensively – both morning and afternoon sessions – during the middle of July.

Chemical Weapons Production Facilities and Their Destruction or Conversion (chair: Jacobus Ooms of the Netherlands). This Group was mandated during the third plenary to develop declaration-formats for former chemical-weapons factories, to specify allowed maintenance activities at such facilities, and to develop a destruction schedule. The mandate also included several associated matters, such as guidelines for inspection procedures, suitability of the bilateral verification arrangements, inspection-report formats, model facility agreements, and identification of possible types of inspection equipment. After a somewhat difficult start, the Group worked intensively during the middle of August.

Challenge Inspections (chair: Andrea Perugini of Italy). This Group was mandated during the third plenary to develop guidelines for the conduct of challenge inspections and to consider a range of associated matters. The Group convened for a one-week session in August.

1994 Programme of Work and Budget (chair: Jorge Morales Pedraza of Cuba). This Group began to meet at the very end of the period under review here. It will be reporting jointly to Working Groups A and B.

As for the two Working Groups themselves, the custom has now become established that they meet formally only during the plenary sessions. During the third plenary, Group A had the work of five Expert's Groups to consider, while Group B had eight, including three which, because they had completed reports before the period under review here, are not listed above:

Safety Procedures (chair: Raymond Fatz of the USA), which in May had produced a draft for the initial sections of the OPCW Safety and Health Policy Document;

Chemical Engineers (chair: Bernhard Odernheimer of Germany), which in May had compiled inspection requirements and inspection activities for four different categories of declarable facility, and whose report had put forward the principle that it should be the PTS, not the Experts' Groups, that should draft the actual operational inspection procedures for the inspection manual, the draft being based on the results of Experts'-Group discussions; and

Inspection Team Composition (chair: Johan Santesson of Sweden), which in May had elaborated illustrative examples for ten different categories of inspection, the sizes of the teams envisaged ranging from a low of 4 inspectors, for a Single Small Scale Facility, to a high of 50 inspectors, for a military depot challenged as a possible undeclared CW storage facility.

Of these three, the Santesson Group had produced a final report (containing, however, a footnote reservation by Iran); the Fatz and Odernheimer Groups, producing interim reports, were mandated to continue their work. Of the other ten experts' reports that went up to the Working Groups, four were distributed less than the requisite 21 days before the relevant Working Group met and in English versions only (those from the Rautio, Cooper, Boter and Fernandez Groups), while certain others were not made available in all official languages within that period. Working-Group recommendations to plenary on some but not all of these late-distributed reports were accordingly blocked as part of the language-service dispute mentioned above, in particular those of the Tóth and Fatz Groups.

Looking ahead to the fourth intersessional period (4 October to 10 December), the current projection is that one further Experts' Group will be established under Working Group B: on *Old and Abandoned Chemical Weapons*.

This review was written by Peter Herby of the Quaker United Nations Office, Geneva, and Julian Perry Robinson.

Forthcoming Events

The 8th annual colloquium on Science and Security of the American Association for the Advancement of Science, 'New Approaches to Arms Limitations and International Security', will be held at the Madison Hotel, Washington DC, on 15 October.

The Japanese government is hosting an Asian Export Control Seminar in Tokyo during 25-27 October.

Los Alamos National Laboratory and the American Defense Preparedness

Association are cosponsoring a conference on Non-Lethal Defense in a Johns Hopkins University facility in Laurel, Maryland, during 16-17 November. Secret-level clearances are required of participants.

The annual Chemical Defense Research Conference will be held at Edgewood RDE Center, Maryland, during 16-19 November.

The Australia Group will be meeting in Paris during 6-10 December.

The 4th International Seminar against the Proliferation of Chemical and Biological Weapons will be held in Oslo during 13-14 December. The seminar is organized by the Royal Norwegian Ministry of Foreign Affairs. Participants will be representatives from Australia Group countries, the Baltic States, other central and eastern European countries, and the Newly Independent States.

In The Hague, the 5th plenary session of the OPCW Preparatory Commission is scheduled for 13-17 December.

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.

May North Korean CBW programmes are described in *Jane's Intelligence Review* by Joseph Bermudez Jr. He quotes as follows from a May 1979 assessment by the US Defense Intelligence Agency: "Until the North Koreans reach a level of self-sufficiency in science and technology...they will continue looking to their communist allies to some degree for CW needs. North Korea has developed a protective CW capability; thus the next logical step is to pursue the development of an offensive capability to offset any [CBW] threat from its enemies. [Since]...the North Koreans probably base their CW doctrine primarily on the Soviet model, the research and development of offensive weapons is extremely likely in the near future." The article then states, without attribution, that in the early 1980s "the DPRK initiated the bulk production of offensive chemical agents, including nerve gases". The article continues: "To accompany this production, chemical munitions were developed for large calibre mortars, artillery rockets greater than 122 mm, and FROG-5/7 rockets for airborne delivery [sic]... By the end of the 1980s the DPRK had expanded its production to include chemical warheads for its developing inventory of 'Scud' variant ballistic missiles. It was also during this period that the first significant steps were taken to provide assistance to other Third World countries in developing their chemical weapons capabilities." Syria and Iran are mentioned in this connection [see also 8 Apr].

As to North Korean biological weapons [see 24 Feb], the article states that these "are believed to have been developed indigenously" — i.e. without the assistance which both China and the USSR had "definitely provided" for CW agent programmes in the past — and that production capability for "biological agents for offensive employment...is believed to have existed since at least the early 1980s, possibly earlier". {JIR May}

1 May In Bosnia-Herzegovina, Deputy Defence Minister Munib Biscic complains in a letter to the UN Protection Force of Serbian use of poison gases in attacks on Visegrad [see also 18 Mar], even as negotiations are under way in Athens. {RBH 1 May in SWB 3 May}

3 May In the United States, the Congress is lobbied by environmental activists from across the country seeking to block the Army's use of incineration in the chemical-weapons stockpile destruction programme [see 19 Apr]. {AP in CN 4 May} *Inside the Pentagon* describes the lobby as also being directed "against ratification of the Chemical Weapons Convention". {ITP 6 May}

4 May In Armenia, President Levon Ter-Petrosyan has signed a decree requiring export controls on dual-use technologies, including raw materials, equipment, information and services applicable to production of chemical weapons. A Commission on Export Control is to be established, headed by the vice pre-

mier, eventually to be charged also with domestic implementation of international obligations on weapons of mass destruction. The Department of National Security and the Military and Industrial Commission are to be represented on it. {SNARK 4 May in FBIS-SOV 5 May}

4 May In the US Senate, the acting director of the Defense Department's Strategic Defense Initiative Organization (being renamed Ballistic Missile Defense Organization), Major-General Malcolm O'Neill, argues before the Defense Appropriations Subcommittee that, despite the ending of the Cold War, the country needs a limited missile defence system, the continuing development of which would require \$6000 million in the year ahead: "More than 25 countries, many of them hostile to the United States, may possess or be developing" missiles that could be armed with chemical, biological and possibly nuclear warheads. President Clinton had reduced the FY 1994 SDI budget request to \$3800 million, 40 percent less than President Bush would have asked for, scaling back the "star wars" programme to focus on theatre defence systems for US troops. {Reuter in WT 5 May; JDW 5 Jun}

A Defense Department report to Congress on 7 May indicates that work on space-based laser weapons is to continue, for such a weapon could provide a "global answer" to the "likely developing" threat of ballistic-missile-delivered chemical or biological bomblets. {AP in CN 23 Jun}

4 May Senior US Army Chemical Corps officers, recently retired, led by Maj-Gen Gerald Watson make representations to the Presidential Base Closure and Realignment Commission against moving the Chemical School [see 21-23 Apr] from Fort McClellan to Fort Leonard Wood, as had once again been proposed [see 12 Mar] and was now being strongly contested. {ITA 17 May}

5 May In Tehran, senior Foreign Ministry official Hamid Reza 'Asefi states, in an interview published in *Tehran Times*, that Iran is ready to rid itself of plants manufacturing weapons of mass destruction built in prerevolutionary times under the Shah. Dr 'Asefi says, further, that Iran wants to see the Near and Middle East region free from nuclear, chemical and biological weapons [see also 29 Apr] and that Iran, to this end, is ready to cooperate with any state or states and also with international organizations; Western technical aid could ease the conversion of certain Iranian military plants. {*Tehran Times* 5 May in FBIS-NES 17 May}

Iranian advocacy of the weapon-free-zone concept is later expressed by other senior Foreign Ministry officials, one on 10 May in Canberra, another two days later in Tehran during preparations for the impending visit of a German parliamentary delegation. Both officials deny reports of an Iranian CW armament programme, one of them saying: "At present, none of Iran's industrial or military installations nor any of its research

centres is capable of producing such weapons, and for this reason Iran has not hesitated in signing the related conventions". {IRNA 11 and 12 May in SWB 13 May}

5 May In Estonia, the Riigikogu ratifies law on joining the Chemical Weapons Convention. {Estonian Radio 5 May in SWB 8 May}

5 May In the US House of Representatives, the Defense Appropriations Subcommittee takes evidence on CBW programmes. Dr Billy Richardson, the Deputy Assistant to the Secretary of Defense for Chemical Matters, describes programmes planned for 1994, beginning with an account of the proliferation threat: "The spread of chemical warfare capability to at least 24 nations, biological warfare capability to at least 9 nations, and ballistic missile capability to more than 15 nations is of serious concern to the United States and our allies." He says that the total FY 1994 Defense Department CBW budget request is about \$1300 million, 49 percent of it for CBW defence, 42 percent for chemdemil, and 9 percent for chemical treaty verification activities [see also 27 Mar]. As "arguably the most critical element" in CBW-defence readiness, he identifies intelligence collection and analysis, and states that "the technical nature of CBW intelligence precludes rapid ramp-up in this type of activity, so that reductions in emphasis can be reversed only over a period of years". {Prepared statement}

6 May In southern Iraq, many inhabitants of the al-'Amarah marshlands have been poisoned by chemicals which, in tens of tonnes, the regime has dumped there, according to a statement issued by the Iran-based Supreme Assembly of the Islamic Revolution of Iraq [see also 28 Feb]. {Voice of the Islamic Republic of Iran (Tehran) 6 May in FBIS-NES 7 May}

6 May Latvia signs the Chemical Weapons Convention, becoming the 143rd state to do so.

7 May In The Hague, the Experts' Groups working under OPCW PrepCom Working Group A complete their work for the current intersessional period. The *Draft PTS Staff Regulations* [see 24 Mar] are now complete. {PC-III/A/WP.5 and PC-III/A/WP.6} Nearing completion are the *Draft PTS Financial*

Regulations [see 24 Mar], on which a second interim report {PC-III/A/WP.2} has been submitted by the Experts' Group concerned, and the *Draft Host State Agreement on Privileges and Immunities* [see 5 Mar], also the subject of a second interim report {PC-III/A/WP.8}. Further progress by the Experts' Group on OPCW Building [see 3 May] now depends on the outcome of other studies. {OS 1 Jun}

8-9 May The new Pugwash Study Group on Implementation of the CBW Conventions convenes in Geneva for its inaugural workshop. There are 42 participants from 20 countries and the OPCW Provisional Technical Secretariat. The Study Group recommends that a small team of legal and other experts be swiftly convened under its auspices to work on guidelines and models for national CWC implementing legislation. Pugwash accepts this proposal. Other recommendations, also accepted, are that the Study Group should take an initiative in the preparation of teaching and other educational materials on the CBW treaties, and that the Group should keep the question of convergence between the Biological and the Chemical Weapons Convention under continuing study. {*Pugwash Newsletter* Jul}

10 May Jordanian Foreign Minister Kamel Abu-Jaber, in an interview published today, speaks as follows about the stance of his country towards the Chemical Weapons Convention: "We have never said we would not sign it. In accordance with an Arab League provision, we have repeatedly said that we would sign it if Israel will sign the nuclear Non-Proliferation Treaty. I do not understand how the world has a double standard on this. I hope we will sign it when the time is right, when the same standards are applied to the Israelis." {DN 10 May}

10 May In The Hague, the Preparatory Commission for the OPCW commences work on substantive, as opposed to administrative, issues involved in making ready for implementation of the Chemical Weapons Convention. Groups of Experts convened under Working Group B begin developing recommendations for detailed verification procedures.

One combined group of experts chaired by Bernhard Odernheimer of Germany meets in the morning to study verification-related tasks requiring chemical-engineering expertise. Another combined group, chaired by Raymond Fatz of the

Glossary of Abbreviations

ACR	<i>Arms Control Reporter</i>	FBIS	<i>Foreign Broadcast Information Service</i>	NSAC	<i>Notes on Security & Arms Control</i> (UK Foreign Office)
ASAN	<i>ASA Newsletter</i>	FR	<i>Frankfurter Rundschau</i>	NSci	<i>New Scientist</i>
AWST	<i>Aviation Week & Space Technology</i>	FT	<i>Financial Times</i>	NYT	<i>New York Times</i>
BG	<i>Boston Globe</i>	FY	Fiscal Year (US)	OPCW	Organisation for the Prohibition of Chemical Weapons
BS	<i>Sun</i> (Baltimore)	Guar	<i>Guardian</i> (London)	OS	<i>OPCW Synthesis</i>
BusW	<i>Business Week</i>	HansC	<i>Hansard</i> (Commons, UK)	PC-III/	OPCW Preparatory Commission Third Session document
CBW	Chemical/biological warfare	IHT	<i>International Herald Tribune</i>	PTS	OPCW Provisional Technical Secretariat
CD/	Conference on Disarmament document	Ind	<i>Independent</i> (London)	RBH	Radio Bosnia-Herzegovina (Sarajevo)
CDU	<i>Chemical Demilitarization Update</i>	ITA	<i>Inside the Army</i>	RG	<i>Rossiyskaya Gazeta</i> (Moscow)
C&EN	<i>Chemical & Engineering News</i>	ITP	<i>Inside the Pentagon</i>	S/	UN Security Council document
CN	<i>Current News Early Bird</i>	Izv	<i>Izvestiya</i> (Moscow)	SWB	BBC <i>Summary of World Broadcasts</i> via FT Profile
CR	<i>Congressional Record</i> (daily edition)	JIR	<i>Jane's Intelligence Review</i>	TL	<i>Times</i> (London)
CW	Chemical warfare	JDW	<i>Jane's Defence Weekly</i>	USDSD	<i>US Department of State Dispatch</i>
CWC	Chemical Weapons Convention	JPRS	FBIS <i>JPRS Report</i>	WP	<i>Washington Post</i>
DMN	<i>Dallas Morning News</i>	KZ	<i>Krasnaya Zvezda</i>	WT	<i>Washington Times</i>
DN	<i>Defense News</i>	LAT	<i>Los Angeles Times</i>		
DTel	<i>Daily Telegraph</i> (London)	MEDN	<i>Middle East Defense News</i> (Paris)		
DW	<i>Defense Week</i>	MN	<i>Moscow News</i>		
FAZ	<i>Frankfurter Allgemeine Zeitung</i>	Nat	<i>Nature</i>		

USA, meets in the afternoon to start work on a health and safety policy document for eventual consideration by the First Conference of States Parties. This pattern of morning/afternoon work continues.

10-14 May In New York, the Preparatory Committee for the 1995 Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons convenes for the first of four plenary sessions. {PPNN Newsbrief no 22} The Non-Aligned Movement proposes that a paper be prepared for the 1995 Conference on "the link between the NPT and other weapons of mass destruction, particularly the CWC". Australia raises the question of whether "relevant elements of the...CWC verification regime could be applied to IAEA safeguards".

11 May In Moscow, a joint working group of the Russian and Japanese governments meets to consider the ocean-dumping of nuclear waste in the Sea of Japan by the former USSR. The working group reportedly also discusses what the head of a Russian governmental committee investigating marine pollution by the former USSR, Tenghis Borisov, had just disclosed to the Japanese newspaper *Asahi Shimbun*, namely that during the late 1940s the USSR had dumped into the Sea of Japan, and into the sea "north of Siberia", more than 30,000 tons of mustard gas in artillery shell and metal containers. {Reuter 11 May in CN 11 May and in FR 12 May; WT 12 May; Kyodo 11 May in SWB 17 May} At a news conference in Tokyo, Japanese International Trade Minister Yoshiro Mori says that his government is seeking an explanation of the *Asahi Shimbun* report from Russia. {ITAR-TASS in RG 12 May in FBIS-SOV 13 May and in SWB 17 May}

11 May In the London seminar series of the Harvard Sussex Program, there is a session on "The 1979 anthrax epidemic in Sverdlovsk, and its relevance to verification of the 1972 Biological Weapons Convention". The opening presentation is by Dr Matthew Meselson. The initial discussant is Dr Graham Pearson, Director-General of CBDE Porton Down.

12 May Laos [see 13 Jan] signs the CWC.

12 May In Britain, questions are asked in Parliament about Defence Ministry work on genetically modified organisms. The responses provided by the chief executive of the Chemical and Biological Defence Establishment state that such work has been in progress at the establishment for the past nine years. "As part of the research programme to counter the threat from biological warfare it is necessary to use genetic methods of modifying organisms. This research work generates small quantities of genetically modified organisms using processes that are both time consuming and costly. It is for this reason that small samples of each genetically modified organism are stored in secure conditions that meet the requirements of the Health and Safety Executive so that they can be re-evaluated at a later stage should the need arise. Genetically modified organisms that do not exhibit properties of value to the CBDE research programme are destroyed." Such disposals of evaluated GMOs, by high-temperature steam autoclaving, "can be as frequent as daily". The responses state further: "The purpose of the research is to assess the biological warfare threat ["to the United Kingdom Armed Forces"] from genetically manipulated organisms and to produce effective protective measures including medical countermeasures against their use.

The results of this work [are] usually published in the scientific literature." {HansC written answers 17 and 20 May}

12 May The US Air Force releases an unclassified summary of the *Gulf War Air Power Study* prepared over the previous two years by a team headed by Eliot Cohen of Johns Hopkins University. The study reportedly concludes that the allied air war against Iraq had been largely ineffective against Scud missiles and mobile launchers, and also against nuclear, chemical and biological weapon facilities [see 13 Jun 91]. {DN 17 May}

12-14 May In the United States, the Marine Corps II Marine Expeditionary Force hosts the American Defense Preparedness Association's 1993 Nuclear, Biological and Chemical Operations Symposium at Camp Lejeune, North Carolina. The theme is joint CB defence in power projection operations. {ADPA publicity leaflet} The symposium coincides with II MEF exercises attended by members of Congress, senior military and foreign dignitaries {CBIAC Newsletter Summer}.

13 May In Moscow, Dr Vil Mirzayanov [see 8 Apr] is finally shown the official statement of the charges he faces. This says he had "reported to a number of persons and published in the press data which he had learned during work at GSNIIOKhT relating to the creation of a new [toxicant] in the said institute and the development of binary weapons on its basis, at the same time divulging top-secret information constituting a state secret about the latest achievements in the sphere of science and technology (the results of scientific research in the interests of the country's defense), which make it possible to enhance the potential of existing arms (ammunition), and also about the thrust and the results of applied scientific research work on the creation of binary weapons, which is being done in the interests of the country's defense". {Izv 20 May in JPRS-TAC 3 Jun}

13 May In Bosnia-Herzegovina, as fighting intensifies in the Maglaj area, a new wave of reports of Serbian use of poison gas there starts to be heard from Sarajevo. {RBH 13, 16 and 23 May in SWB 17, 18 and 25 May} [See also 1 May]

13-15 May In Moscow is held the first Russian conference on medical and ecological problems of chemdemil, attended by doctors, scientists, specialists from ministries, and members of the public. {Vesti newscast on Russian TV 13 and 15 May in JPRS-TND 18 May and JPRS-TAC 3 Jun}

14 May In Prague, where the head of the Russian Intelligence Service, Yevgeniy Primakov, is half-way through a four-day visit, a Czech Interior Ministry spokesman announces that the Russian and Czech intelligence services have agreed on certain concrete measures concerning the sharing of information. He also announces that Russia and the Czech Republic will cooperate to block the spread of weapons technology and the illegal shipment of nuclear components as well as combatting the sale or transfer of biological and chemical weapons. {CTK 14 May in SWB 20 May}

15 May In Croatia, Army troops fire "chemical warfare shells" against Serbian positions in Nadinska Kosa and Skabrinja, according to the Republic of Serb Krajina Army Command. {Tanjung 15 May in FBIS-EEU 17 May}

17 May Rwanda signs the Chemical Weapons Convention.

17-19 May The Middle East peace process multilateral Arms Control and Regional Security Working Group reconvenes [see 10 Mar] in Washington. Neither Syria nor Lebanon participate, but there is, for the first time, a Palestinian delegation. The proposals on confidence building measures discussed at the previous session, in Moscow, are explored further. There are several Arab and Israeli working papers. The Palestinian one calls for the Middle East to become “a region free from weapons of mass destruction” and, more immediately, for all warring parties in the region to join the nuclear-weapons Non-Proliferation Treaty. In the Israeli paper, according to *Yedi'ot Aharonot*, one of the main points is: “After peace is established...Israel will work together with the other countries in the region to eliminate all nuclear, biological and chemical weapons from the Middle East”. Intersessional activities in preparation for the next meeting of the Group are agreed, including a workshop on verification to be held in Cairo. {*Yedi'ot Aharonot* and *Ha'aretz* 20 May in FBIS-NES 20 May}

18 May In Germany, the Bundesamt für Seeschifffahrt und Hydrographie publishes the report of its joint federal/state working group on the chemical weapons in the Baltic Sea [see 19 Jan and 17 Aug 92]. The report states that, after World War II, between 42,000 and 65,000 tonnes of Wehrmacht CW munitions were dumped in the Baltic, more than 35,000 tonnes of them during 1947-48 by the Soviet military administration in Germany. The German Democratic Republic dumped some 200 tonnes during 1952-65. {AFP in FAZ 19 May}

18-21 May In England, at Porton Down, there is a meeting of participants in the fourth international inter-laboratory comparison tests (Round Robin) coordinated by the Finnish Research Project on the Verification of Chemical Disarmament [see 19 Jun 92]. The test had been performed in March, with 16 laboratories from 14 countries participating. The samples — three soils and two waters, spiked with precursors and degradation products of agents BZ and VX — had been prepared in the United States, at Lawrence Livermore National Laboratory. The test was aimed, not at the testing of a specific inspection scenario, but at validating recommended operating procedures compiled after the previous round. As to results, three laboratories reported false positives, two because of poor quality mass spectra and one because of cross-contamination. {ASAN 12 Aug} The meeting draws a number of conclusions about analytical procedures applicable under the CWC. One is that current analytical methods can be improved by identifying reasons for variability in results from participating laboratories and then repeating the exercise. Another conclusion is the need for work on the proficiency-testing that should ultimately be organized under OPCW auspices. {PC-III/B/WP.7}

19-20 May The US Army hosts an industry day at Fort Sill, Oklahoma, to tell defence firms about what it may need in the future for performing deep and simultaneous operations. The briefing paper prepared by the TRADOC Depth & Simultaneous Attack Battle Lab at Fort Sill includes identification of specific inadequacies in current antichemical capabilities. The paper states that existing decontamination capabilities, being heavily water-dependent and also destructive of sophisticated equipment, could seriously degrade combat effectiveness. It speaks, too, of weaknesses in NBC contamination avoidance: “The Army has an inadequate capability to detect NBC hazards/contaminated materiel and to locate areas or routes free from NBC contamination. Manual recon and survey methods

are time and resource intensive. These systems cannot identify or quantify all existing threat NBC contaminants. The NBC warning and reporting system does not provide adequate time for units to avoid contamination.” The paper also addresses improvements needed in existing NBC protection equipment, both individual and collective. {ITA 17 May}

19-21 May ‘MOSCON 93’ takes place, the first Moscow Conference on Chemical and Biological Disarmament, Demilitarization and Conversion [see also 13-15 May]. It is sponsored by the Russian Presidential Commission on CBW Convention Problems, the Russian Academy of Sciences and, from the USA, the Chemical and Biological Arms Control Institute, EAI Corporation, the International Center for Disarmament and Conversion, Molten Metal Technology Inc, and the University of Georgia Center for East-West Trade. The preliminary list of attendees names 181 participants, 79 of them from outside Russia.

President Yeltsin, in a welcoming message to the conference, speaks of what lies ahead in implementing the CWC: “It is a difficult task for Russia. Its solution will require a considerable material outlay — to be precise, more than one-half of the expenditure on all types of disarmament and the mobilization of all Russia’s intellectual and spiritual powers. We also hope to secure the maximum support of the world community countries committed to the destruction of chemical arsenals.” {*Rossiyskiye Vesti* 19 May in JPRS-TAC 3 Jun}

The conference is co-chaired by Academician Kuntsevich and the president of EAI Corporation, Bill Mengel. The keynote address is given by Russian Deputy Foreign Minister Berdennikov. Other speakers include Pierre Cannone of France, Sirous Nasserli of Iran, Graham Pearson of the UK, Viktor Petrunin of Russia, Billy Richardson of the USA, Johan Santesson of Sweden, Tibor Tóth of Hungary and, from the OPCW Provisional Technical Secretariat, its Chief Executive, Ian Kenyon. {ASAN 10 Jun} Among the papers presented is a Russian one assessing in some detail the dangers of the German chemical weapons which the USSR, like other Allies, dumped in the Baltic after World War II [see 18 May].

Sebia Hawkins of Greenpeace, panellist during the session on “The Community and CW Destruction/Conversion”, voices protest against the arrest and prosecution of Vil Mirzayanov [see 13 May]. {MN 28 May}

21 May The Council of the American Society for Microbiology endorses a statement of *Scientific Principles to Guide Biological Weapons Verification*. The statement places emphasis on the protection of intellectual property.

24 May In Geneva, the Ad Hoc Group of Governmental Experts established by the Third BWC Review Conference convenes for its third session, VEREX III, to explore possible verification measures for the treaty [see 4 Dec 92]. Experts from 42 countries and the World Health Organization participate. Ambassador Tibor Tóth of Hungary continues in the chair. The session is due to end on 4 June.

25 May Norwegian Foreign Minister Johann Jørgen Holst, addressing the Conference on Disarmament in Geneva, states that Norway intends to conclude its ratification process for the Chemical Weapons Convention before the summer recess of its Parliament. He also states that Norway is “prepared to assist in the timely and safe destruction of chemical weapons in areas in the vicinity of our own territory”.

Further, he announces that, in Oslo in December 1993, Norway will host an international seminar on nonproliferation of chemical and biological weapons. {CD/PV.650}

25 May "Arms control and proliferation control are becoming one", the US Senate Armed Services Committee is told by Dr Ashton Carter during its confirmation hearing of his nomination to the new post of Assistant Secretary of Defense for Nuclear Security and Counterproliferation. He goes on to speak of the Defense Department being "a more active player in formulating arms control and export control policies aimed at preventing proliferation". This is to be achieved, he had explained in an earlier written submission, by the Department consolidating all of its export-control and technology-security activities within his new office. Military preparations, should other steps fail, would be a further element in the department's new emphasis [see 30 Mar] on counterproliferation. {DN 31 May; ITP 1 Jul}

25-26 May US Defense Secretary Les Aspin, during a meeting of NATO defence ministers in Brussels, reportedly says that counterproliferation measures ranging from export controls to the development of ballistic missile defences will be needed to stop the spread of nuclear and CBW weapons. {DN 31 May}

25-26 May In the US Senate, testimony on US chemdemil and chemical defence programmes is heard by the Armed Services Subcommittee on Nuclear Deterrence, Arms Control and Defense Intelligence. On chemdemil, the Assistant Secretary of the Army for Installations, Logistics and Environment, Michael Owen, says that the fourth and final phase of the Operational Verification Test of JACADS [see 2 Jan] ended on 6 March; the final report, which will be the basis for the statutory Defense-Secretary certification, is due later this month. {Prepared statement}

26 May IAEA Director General Hans Blix, speaking in Paris to a non-proliferation study group, reportedly says that, contrary to popular belief, the danger of proliferation is not increasing; instead, now that the Cold War is over, smaller threats "appear relatively more dangerous than before". He says that the IAEA needs better access to member-states' intelligence, but adds: "Don't expect us to go order a special inspection just because we have received alarming information. There is a lot of intelligence that is disinformation." He says that the IAEA will not, in the foreseeable future, acquire powers of access comparable to those which the OPCW will have under the challenge-inspection provisions of the Chemical Weapons Convention: "The CWC reflects what governments are ready to accept today, in the 1990s. The NPT represents what they were willing to accept in the 1960s." {MEDN 31 May}

29 May From Washington it is reported that the administration is seeking a further \$400 million in Nunn-Lugar funds, additional to the \$800 million already authorized and allocated, for assisting the destruction of former Soviet nuclear and chemical weapons [see 5 Jan]. The Defense Department is establishing a new post on Nunn-Lugar assistance in the new office of Assistant Secretary for Nuclear Security and Counterproliferation [see 25 May]. {JDW 29 May}

29-30 May North Korea conducts a 300-mile test-firing into the Sea of Japan of its new Nodong-I ballistic missile [see 8 Apr], according to a Japanese government source some two weeks later. The missile is a developmental 600-mile-range

weapon which US intelligence officials have said is believed capable of carrying a payload of chemical weapons or perhaps even a small nuclear device. {Ind 12 Jun; NYT 13 Jun}

31 May The joint Israeli-US *Arrow* antimissile-missile programme is to run a ship-launched test in the Mediterranean against a simulated CW warhead, so *Defense News* reports, quoting Israeli and US officials. The test is scheduled for mid-summer. The target against which the *Arrow* interceptor will be launched is to be Israeli-built and include a canister of black powder and high-explosive charge to simulate the chemical weapon. {DN 31 May}

June CW allegations during the Angolan civil war are assessed in an article published by Dr Brian Davey, technical adviser on CW matters to the Surgeon General of South Africa {JIR Jun}. The assessment, much of which had been presented during the Swedish CW-use-allegations workshop in Geneva [see 16-17 Dec 92], is based on the author's and other investigations of the "steppage gait" syndrome displayed by at least 50 UNITA soldiers, possibly more than 400 of them, during 1986-90. At the time, an association had been drawn between the syndrome and chemical warfare, especially in the work of a Belgian toxicologist, Dr Aubin Heyndrickx [see 22 Feb 90 and 28 Aug 89]. The syndrome, which Dr Davey describes in additional detail elsewhere, {ASAN 10 Jun} is a neurological disorder in which patients exhibit progressive onset of a permanent spastic paralysis. Its initial appearance had coincided with an upsurge of local rumours and reports suggesting that "Eastern bloc" supporters were providing Angola with CW assistance "in spite of the lack", as Dr Davey puts it, "of offensive chemical abilities on the side of South African and UNITA forces". The assessment concludes that no association between CW and the syndrome can yet be established; and Dr Davey says, further, that "it remains only an intriguing hypothesis that an incendiary weapon releasing tri-ortho-cresyl phosphate and its combustion products might have been responsible".

Beyond this, the assessment dwells on the psychological-warfare potential of even unfounded CW stories: "Observations show that the negative military effects of CW...were most definitely experienced by the target group. However, this was on a different level to troop casualties as a result of a deliberate chemical attack. Once the population had become sensitized to what they perceive as CW, an intense fear of the potential threat sets in. Certain battles were lost when information spread (aided by disinformation and signal intercepts) that use of chemicals was imminent... There are few troops who will stand fast, unprotected for chemical exposure, in the face of battlefield smoke that they suspect will poison them. In the light of this type of reaction, adequate incentive exists for 'chemical chicanery'."

Dr Davey ends with a warning about wider impacts of such chicanery: "Whatever the outcome of...future investigations [of steppage-gait syndrome] might be, they are unlikely to change the opinion of those affected that they were the victims of CW. It is in this way that the seeds of proliferation can be sown, and it is imperative that professionals working to eliminate CW take note of the unconventional nature that a chemical threat can take. If CW disarmament initiatives are to be successful, this embodiment of chemical aggression is as important to counter as the overt use of CW agents."

1 June From The Hague, the OPCW Provisional Technical Secretariat publishes the second issue of its newsletter, *OPCW Synthesis*. The participation of its chief executive officer, Ian Kenyon, in the inaugural workshop of the new Pugwash CBW Study Group [see 8-9 May] is recorded in the newsletter, which reports further that the workshop “led to the decision to launch a study with the support of the Provisional Technical Secretariat on models for national legislation relating to the ratification and implementation of the CWC”. {OS 1 Jun}

2-3 June The MIT Defense and Arms Control Studies Program convenes a two-day conference on The Policy Implications of Non-Lethal Warfare Technologies [see 16 Feb]. Some 75 people from inside and outside government participate. Dr Matthew Meselson of Harvard University speaks on the restraints imposed on technology-acquisition in this area by the CWC and other elements of international law.

3 June Netherlands Foreign Minister Dr P H Kooijmans, addressing the Conference on Disarmament in Geneva while VEREX III [see 24 May] is in session, says: “Thorough verification of the Biological and Toxin Weapons Convention would close another loophole in the broader regime for weapons of mass destruction. It would thus add to the security of us all.” [See also 2 Feb] He announces that the Netherlands had recently carried out a bilateral trial inspection of a large vaccine production facility.

Further, he speaks of the 1981 Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, stating that The Netherlands stands ready to engage in consultations on convening a review conference aimed at strengthening the treaty. {CD/PV.651}

3 June A US National Archives official, Michael McReynolds, has stated that 1950s documents relating to secret UK-US negotiations about nerve-gas production are being withheld from release under the Freedom of Information Act on the specific instructions of the British government, so a London newspaper reports. {Guar 3 Jun}

3 June US Secretary of State Warren Christopher announces his decision to recommend to President Clinton that the US Arms Control and Disarmament Agency be preserved and strengthened, rather than that, as many had been advocating, it be merged into his department. He explains his decision as part of the administration’s intent to give increased priority to the nonproliferation of nuclear and CBW weapons and of missile delivery-systems for them, to which end he says he sees “real value in an independent voice”. {BS 4 Jun}

4 June Sweden completes its ratification process for the CWC, becoming the fourth state to do so and the first in the Group of Western European and Other States. It deposits the instrument of ratification with the UN on 17 June.

4 June In Geneva, VEREX [see 24 May] concludes its third session, having held 22 meetings, five of them informal ones, during the ten days allotted to it. The secretariat had issued more than 110 working and other papers by delegations or individual experts from 14 of the 42 participating BWC states parties, the majority of the papers being evaluations of possible BWC verification measures. There were also background studies and research papers. One, reprinted in the end-of-session

report {BWC/CONF.III/VEREX/6}, was a study by Switzerland of how available sampling and identification techniques could be applied in the case of Q-Fever to differentiate licit from illicit activities at a suspected BW-agent production site. Another was a joint paper by Canada and the Netherlands reporting a bilateral trial inspection at a large vaccine production facility [see 3 June]. A further two were reports by the United Kingdom on a practice inspection it had conducted in April at a pharmaceutical pilot plant and associated laboratories, the first in a projected series of UK trials.

The primary task before VEREX III had been to evaluate the 21 potential verification measures identified during the previous sessions. Annexed to the end-of-session report is an evaluation of each of the measures, adopted by consensus. The rapporteurs for the measures, like the three broad-area moderators [see 23 Nov 92], had remained unchanged since VEREX II [see 4 Dec 92], except that Thomas Dashiell (USA) and John Noble (UK), respectively, took over from Ashok Kapur (India) and David Arnold-Forster (UK). The task of evaluating measures, not just on their own, but also in combination with one another, was initiated during the session. To this end, Åke Bovallius (Sweden) and Graham Pearson (UK) acted as Friends of the Chair, and a joint Anglo-Swedish methodological paper was accepted and applied to the task. The end-of-session report records that the “Group conducted discussion and evaluation of illustrative and non-exhaustive examples of measures in combination and adopted by consensus a report [annexed] without prejudice to further contributions”.

Two further papers were annexed, by consensus, to the end-of-session report. One was a paper setting out the results of consultations conducted by Volker Beck (Germany) on the question of “types and...quantities” in the sense of Article I of the BWC — and thus on the possible roles of agent-listings and thresholds in potential verification regimes [see 27 Sep 91]. The other was a paper by participating Non-Aligned and Other Developing Countries stating that “potential verification measures...should by no means serve other interests than the basic need of strengthening the Convention”, continuing: “It will therefore be difficult for the developing countries to participate in the consensus over the final results of the present exercise if their interests and concerns are not properly taken into account.”

The Developing-Countries statement gave expression to a continuing anxiety, namely that the potential for abuse of a BWC verification regime might render it more of a danger than a safeguard, given the apparent limitations of the available measures. India, for instance, had characterized all but six of the 21 measures — including inspections, remote sensing and continuous monitoring — as technically unsound, prohibitively costly or unacceptably intrusive {BWC/CONF.III/VEREX/WP.149}. Nor did the United States seem to be any more positively disposed towards BWC verification than it had been previously [see 28 Dec 92]. According to *Arms Control Reporter*, US policy toward the BWC remained unclear because the Clinton administration had not yet provided any direction. {ACR at 701.B.114}

The Ad Hoc Group did, however, achieve agreement that it should prepare and adopt by consensus at its final session a report on its work, the Group also agreeing a rough outline for the report. The next session of VEREX, presumably its last one, is set for 13-24 September. The Group entrusted its chairman “to collect possible contributions delegations might wish to make and to prepare, in the course of several informal consul-

tations and Extended Bureau meetings, a draft report which could be circulated in advance of the last session”.

Thereafter, the expectation is that the BWC depositaries, having received the experts’ report, will convene a special conference of states parties to consider it, most probably well before the NPT extension conference in 1995 {ACR at 701.B.114}.

7 June In Iraq, an UNSCOM team is refused permission to install cameras at two ballistic-missile test sites for purposes of what the UN Secretary-General had earlier called “interim monitoring” [see 19 Apr]. In a communication next day to UNSCOM, Iraqi Deputy Foreign Minister Riyadh al-Qaysi confirms the action, stating that the installation of the cameras did not fall under the purview of resolution 687 (1991) “but rather comes within the framework of matters and questions that are still the subject of dialogue between the Iraqi authorities on the one hand and the Special Commission on the other”, an assertion which UNSCOM rejects. {S/25960} The confrontation on the issue of ongoing monitoring and verification of Iraqi non-acquisition of mass-destruction weapons [see 27 Mar] thus enters a new phase.

7 June US progress on domestic implementation of the Chemical Weapons Convention is the subject of a detailed review in *Chemical & Engineering News* based on interviews with government and industry officials. The composition of the Article VII National Authority has not yet been determined, but, according to an unidentified ACDA [see 3 Jun] official, it is expected “to operate like the interagency process does now, with one agency, possibly ACDA, designated as liaison agency to the OPCW”; it will be a “standing representative body with the Departments of State, Energy, Commerce, the intelligence agencies, and ACDA being the key players involved”. As for the requisite implementing legislation, this is still in the early stages of drafting. The review continues: “ACDA has just completed an article-by-article assessment of the treaty. A political and intelligence analysis of whether the treaty is verifiable is now being conducted by other appropriate agencies under ACDA’s watchful eyes.” The White House reportedly wants the Congress to begin holding hearings in “late fall 1993”, both on the implementing legislation and, in the Senate (which currently has both START II and the Open Skies treaty on its advice-and-consent agenda), on ratification. {C&EN 7 Jun}

7-10 June The Australia Group meets in Paris. Iceland has now joined, as well as Argentina and Hungary [see 7-10 Dec 92], bringing the total number of participating states to 25. The European Commission also is represented, as usual. {NSAC 93 no 6} Beforehand, starting on 2 June, there had been subsidiary meetings of experts, one on BW issues, another on CW dual-use equipment, and a third on CW precursor chemicals. They enable the Group to consolidate its common export control lists and complete the package of controls on biological agents and dual-use biological manufacturing equipment. Thus, the Group finalizes its *Control List of Dual-Use Chemical Manufacturing Facilities and Equipment, and Related Technology* [see 10-12 Dec 91] and also its *Proposed List of Plant Pathogens for Export Controls* [see 7-10 Dec 92], and it produces a revised version of its *Proposed List of Biological Agents for Export Control* [see 7-10 Dec 92].

A fourth subsidiary meeting, comprising representatives from licensing and customs authorities, had discussed ways of implementing CBW export controls more effectively within

member countries, and of increasing cooperation among enforcement officials. The press release from the meeting says: “Participants reached agreement on a clearer understanding of procedures for ensuring that denials of an export of a listed item for CBW non-proliferation reasons by one member would be respected by all other members”. It continues: “On the basis of an agreed framework for effective licensing arrangements for CBW-relevant export controls, ways and means were discussed for enhancing the effectiveness of national export controls, including the possibility of harmonisation of end-user undertakings and re-export controls among AG partners.”

The release presents a new gloss on the Group’s relationship to the multilateral CBW treaties. It describes as an “agreement on major policy directions” the consensus of participants at the December 1992 meeting “that there was a continuing and important role for the Group in the harmonisation of national non-proliferation controls over CBW materials, in a manner consistent with the Group’s primary interest in an effectively operating CWC and BWC”. {AG press release 10 Jun; ACR at 704.B.552-3.}

8 June The President of the Argentine Republic, Dr Carlos Menem, in an address to the Conference on Disarmament in Geneva, says: “No country is unimportant when it comes to preserving international security. The most modest fertilizer plant can quickly be converted into a supplier for chemical warfare; a small reactor may build up the critical mass to be used in a nuclear warhead. Hence non-proliferation becomes of self-evident importance in building a much safer world. My Government has been guided by these principles in its domestic and international actions.” {CD/PV.652}

8 June In the US House of Representatives, testimony on the “Gulf War syndrome” is heard by the Veterans Affairs Subcommittee on Oversight that is investigating administration responses to health complaints of *Desert Storm* veterans. Over the past year, increasing numbers of veterans or their families have been complaining of chronic illness unsatisfactorily diagnosed or treated; and chemical, even chemical-weapon, causes have been suggested. {DMN 7 Jun} The Department of Veterans Affairs testifies that, of the 1800 claims filed by Kuwait-War veterans for “mystery illness” disabilities, 35 have been approved. {Reuter in BG 9 Jun} Its view has hitherto been that the majority of cases are stress-related, but it is still investigating the possibility of depleted uranium (used in some tank armour and in armour-piercing projectiles), burning oil-wells or other battlefield environmental hazards having been responsible. {ITP 24 Jun} The possibility of adverse reaction to pyridostigmine, a nerve-gas prophylactic extensively used during *Desert Storm*, has also been raised. {Ind 2 Jul}

9 June In Moscow, security police visit the offices of *Novoye Vremya* and *Moskovskiy Novosti* in connection, they say, with an investigation of Dr Vladimir Uglev [see 31 Jan], whose accounts of GSNIIOKhT chemical-weapons work had been published by both periodicals [see also 13 May]. {BS 11 Jun}

9 June Norway completes its ratification process for the CWC [see 25 May].

9 June US Secretary of State Warren Christopher, meeting in Luxembourg with his European Community counterparts, speaks of Iran’s military buildup and asks, as the Bush Administration had done during the previous autumn, for cooperation

in isolating the Iranian government, for example by placing an embargo on the sale of dual-use technologies to Iran — as, to a degree, the United States was already doing [see 5 Jan, and see also 11 Feb, 1, 8, 19 and 29 Apr and 7 May]. A joint US-EC study is agreed. Speaking later to the press, Secretary Christopher calls for a “collective policy of containment” to persuade Iran to abandon nuclear, CBW and missile programmes. Unidentified US intelligence officials suggest that Iran is trying to buy biological agents from Europe that could be useful in developing biological weapons. {NYT 10 Jun; WT 10 Jun; BusW 14 Jun}

9 June The US Defense Department notifies Congress of a decision to spend up to \$30 million of FY 1993 Nunn-Lugar funds [see 29 May] on establishing a Central Chemical Weapons Destruction Analytical Laboratory at a location yet to be determined. {ITP 24 Jun; ASAN 12 Aug} The objectives of the laboratory had been agreed during bilateral technical meetings in May, and are described as follows in department testimony to the Senate Armed Services Committee on 23 June: “The lab will perform environmental baseline studies, develop the analytical methods to be used at the sites where the actual destruction will take place, provide on the job training, and perform Quality Assurance and Quality Control on chemical weapons demilitarization. A very important purpose of this funding is to provide state-of-the-art western technology that cannot be purchased with rubles.” {Prepared statement of Dr Harold Smith}

This action increases to \$55 million the Nunn-Lugar assistance now promised by the United States for Russian chemdemil, rather little of which has, however, actually been obligated [see 28 Jan]. By the end of 1992, a total of \$1.6 million had been disbursed, almost all of it to Science Applications International Corporation to establish and run a Moscow field office for chemdemil planning support. {Office of the Department of Defense Comptroller, *Quarterly Report on Program Activities for Facilitation of Weapons Destruction and Nonproliferation in the Former Soviet Union*}

10 June The Norwegian Defence Ministry places a \$22 million order for supply over the next three years of a new NBC respirator, the FM12. The contract has been awarded to the British firm Avon Technical Products against competition from Italy, Switzerland and, especially, Canada and Sweden. The FM12 is a development of the S10 UK service respirator, which the firm has been making since 1985. {*Wiltshire Times* 11 Jun; DN 5 Jul}

10 June In the UK, Parliament is further informed about international frameworks within which Britain has collaborated with allies on CBW matters, and more information is given in subsequent responses to parliamentary questions. {HansC written answers 21 May 92, 1 Dec 92, 10 Jun, 16, 19 and 20 Jul}

10 June The US National Academy of Sciences report for the Army on *Alternative Technologies for the Destruction of Chemical Agents and Munitions* [see 13 Apr 92] is released in Washington by the Academy’s principal operating agency, the National Research Council. The report, prepared by a committee of 12 academicians chaired by Professor John Longwell of MIT (and with Matthew Meselson of Harvard University among its members), considers some 28 different processes or technologies that might be used in destroying the US CW stockpile. The report discusses how they should be evaluated but makes no recommendations about whether any of them should be

New Board Member

The Harvard Sussex Program is pleased to announce that Dr Abdullah Toukan, Science Advisor to King Hussein I of Jordan, has joined its Advisory Board and therefore also the Editorial Advisory Committee of *Chemical Weapons Convention Bulletin*. Dr Toukan has degrees in Physics from the University of Liverpool (BSc) in the UK and Massachusetts Institute of Technology (PhD) in the USA.

used to replace or supplement the Army’s baseline disassembly-and-incineration chemdemil technology. Chairman Longwell says that the committee had found potential applicability in many of the processes, adding that an assessment as to whether these alternatives represent a significant improvement to safety, thereby warranting additional development costs, still needs to be conducted. He draws attention, however, to the possibility of adding closed-system gas storage and treatment technology at the emission stage of the Army’s baseline technology. {NRC release 10 Jun}

The Army is required under the 1993 Defense Authorization Act to provide the Congress with its own report on alternative chemdemil technologies, responsive to the Academy study [see 1 Oct 92]. To this end, the Longwell report will now be considered by the National Research Council Committee on Review and Evaluation of the Army Chemical Stockpile Disposal Program [see 14 Jan]. {NSci 19 Jun; C&EN 21 Jun}

11 June In Russia, presidential adviser and military historian Dmitry Volkogonov writes in *Izvestiya* of a KGB operation to assassinate Yugoslav leader Josip Broz Tito by such means as infecting him with bubonic plague. Planning for the operation, codenamed *Scavenger*, had been initiated in 1952, but was called off after the death of Soviet leader Jozef Stalin, who had ordered it. {Ind 12 Jun}

11 June At the UN in New York, the Executive Chairman of UNSCOM meets with the Permanent Representative of Iraq, not only to insist on the installation of UNSCOM cameras at Yawm al Azim and Al Rafah [see 7 Jun], but also to insist that equipment used in the phosphorus-trichloride/phosphorylchloride production plant at Fallujah [see 8 Jun 92] be removed to Muthanna for destruction there under UNSCOM supervision. Iraq had been resisting this since April, stating that it wished to redeploy the equipment for use in insecticide production. {S/25960}

11 June President Clinton issues an executive order delegating powers for the administration of, *inter alia*, sanctions against CBW proliferation and use, including powers conferred by amendments to the Arms Export Control Act and the Export Administration Act and by the Chemical and Biological Weapons Control and Warfare Elimination Act of 1991 [see 4 Dec 91]. The “appropriate interagency groups” are to be utilized for consultation “prior to any determination to exercise the prohibition authority delegated”. {*Federal Register* vol 58 pp 33181-3}

13 June In Angola, government forces are once again said to be using “chemical bombs” against UNITA [see 1 Jan], killing many people, in the north of the country; a UNITA spokesman says that evidence will be presented to the international com-

munity. {Voice of the Resistance of the Black Cockerel 13 Jun in SWB 14 Jun} A similar allegation is made ten days later, to the effect that four chemical bombs had been dropped in Malange province, killing eight people. {Voice of the Resistance of the Black Cockerel 23 Jun in SWB 25 Jun} The allegations are denied by a spokesman for the Armed Forces Chief of Staff {RDP Lisbon 27 Jun in JPRS-TND 7 Jul}.

14 June US Defense Secretary Les Aspin, in a speech to the American Israel Public Affairs Committee, speaks of the growing challenge faced by Israel of ballistic missiles with nuclear or CBW warheads. He says: "Syria, Libya and Iran have chemical and biological weapons, all they need now are long-range missiles, all three are actively looking for them." {*Defense Daily* 16 Jun}

14 June The US Army issues a revision of its 1986 keystone field manual, FM 100-5 *Operations*, redefining its "AirLand Battle" doctrine to improve its applicability in post-Cold-War power projection, chiefly through the concept of "full dimensional operations" {US Army TRADOC news release 14 Jun}. The new manual also sets out how the Army is to prepare for operations other than war, such as evacuating noncombatants, disaster relief, combatting terrorism, counter-drug actions and arms control. It states US policy on CBW in the following terms: "While the US has renounced the use of biological weapons, many nations have not. The availability of biological weapons to possible enemies requires that commanders prepare for operations in a biological environment... All current and future operations have the potential to occur in a chemical environment. Although US policy does not condone or authorize first use of chemical weapons [see also 13 May 91], preparedness to operate in this environment negates many possible advantages for an enemy to employ these weapons — in itself a deterrent to their use." {FM 100-5}

15 June OPCW Preparatory Commission member states are asked to inform the PTS how many facilities, sites and storage locations they have that will become subject to declaration and inspection under the CWC. The PTS provides a standardized form for replies, requested by the end of August 1993. The data are needed to estimate the likely inspection effort facing the OPCW Technical Secretariat upon entry into force of the Convention. Such an estimate is needed for preparing detailed proposals for PTS staffing and budget during 1994. {PC-III/4}

15 June The Depositary of the Chemical Weapons Convention, namely the UN Secretary-General, is informed by the Executive Secretary of the OPCW Preparatory Commission of an important typographical error in all but the Chinese edition of the certified copy of the Convention. {PC-III/5} Though to a chemist both the presence of the error and its correction are likely to be self-evident, its effect might be to suggest to some people that the list of chemicals to be controlled under Schedule 1 is shorter than was actually intended.

15 June The US Defense Department reports as required to Congress on "war stopper" items, by which is meant items assessed to be militarily unique and essential in combat, but to have few peacetime uses, a limited shelf-life and only a small dedicated production base. Five such items are identified, three of them antichemical protective items: autoinjectors for nerve-gas antidote, butyl-rubber gloves and protective suits.

For autoinjector supply, the Defense Department has awarded the sole US domestic manufacturer — Survival Technology Inc — an "industrial base maintenance contract" through 1999 in order to keep the company alive. The contract will "support the industrial production capability, but deliver only incidental product".

For the protective gloves, there are two domestic producers, Brunswick and Siebe North. The former is also getting an industrial base maintenance contract, while Siebe North is getting a "minimum sustaining rate" contract that allows it to produce just enough gloves to keep open its production-line. But the Army is seeking new technology that will provide a more commercially viable rubber-glove material.

For the protective suits, there are currently six producers, but the expectation is that the annual military requirement will soon shrink to a level capable of sustaining only one of them, in which event there will probably be a winner-takes-all competition for a maintenance contract. {DW 28 Jun}

15-16 June In Bosnia-Herzegovina, Serbian forces attacking Gorazde use chemical agents and poison gases, according to Bosnian radio, which had made a similar report two weeks previously; so had Radio Belgrade, which said that Muslim forces in Gorazde were using an internationally banned chemical agent. {RBH 16 Jun in SWB 18 Jun; ACR 704.E-2.92}

16 June In Germany, contamination originating in a World War II chemical-weapons factory entering Weiße Elster river is endangering the drinking-water supply of Halle, according to a report in *Mitteldeutschen Zeitung*. {DPA 16 Jun in FR 17 Jun}

16 June In the UK House of Commons, the Public Accounts Committee inquires into the halted privatization of the Center for Applied Microbiology and Research (CAMR) at Porton Down [see 7 Feb 90]. The £46 million sale of CAMR to Porton International Ltd had been halted by ministers "in view of the part it played in the Gulf War", according to a memorandum from the Comptroller and Auditor-General Sir John Bourn, which also disclosed that CAMR receives large royalties from abroad. Questioned on whether CAMR had provided Iraq with vaccines against BW agents, Health Department Permanent Secretary Graham Hart declines to respond fully in open session. Deputy Chief Medical Officer Jeremy Metters says that CAMR produces vaccines against anthrax and other biological warfare agents. {Guar 17 Jun}

Parliament is later told that the Ministry of Defence has no facilities for the manufacture of anthrax vaccine. It is also told that how much anthrax vaccine the ministry has bought over the past three years is classified information. {HansC written answers 26 Jul}

16 June In the US Senate, the Committee on Armed Services holds a hearing on implementation of arms control agreements. The Assistant to the Secretary of Defense for Atomic Energy, Dr Harold Smith, testifies that, of the \$307 million sought for arms-control activity in the FY 1994 Defense Department budget, \$87 million is for implementation of the two agreements on chemical weapons: the Bilateral Destruction Agreement with Russia, which will necessitate inspection of declared storage depots and former chemical weapons production facilities, and the multilateral Chemical Weapons Convention, for which "preparatory activities" will need funding. {Prepared statement}

16 June Panama signs the Chemical Weapons Convention.

17 June Sweden deposits its instrument of ratification of the Chemical Weapons Convention, becoming the fourth state to do so and the first in the Group of Western European and Other States.

17 June In the US Congress, the Joint Economic Committee receives the following testimony from a senior official of the Defense Intelligence Agency, William Grundmann: "Russia and Ukraine increasingly are authorizing export of sensitive dual-use space-launch, chemical and biological technologies as they attempt to save their weapons facilities and prevent unemployment". {NYT 23 Jun} Much publicity, with threats of trade sanctions, is given over the following month to a shipment of Russian ammonium perchlorate (usable in rocket fuel) to Libya via Ukraine, and about Russian transfers of rocket engines to India {NYT 23 Jun; *Holos Ukrayiny* 7 Jul in FBIS-SOV 12 Jul; NYT 17 Jul}; but nothing more is heard about transfers of dual-use biological technology.

18 June The UN Security Council, through its president, states that Iraq's refusal to cooperate with UNSCOM over the monitoring cameras at missile test sites [see 7 Jun] and the CW-precursor production equipment at Fallujah [see 11 Jun] constitutes a "material and unacceptable breach" of resolution 687 (1991) and a violation of resolutions 707 (1991) and 715 (1991). Its statement warns of "serious consequences". {S/25970}

19 June In the Gaza Strip, a 50-year old woman from Jabalyah refugee camp dies from injuries suffered after inhaling tear gas. There had been a demonstration at the camp. During it, six residents had been injured by Israeli-Army fire and another ten from tear-gas inhalation. {Qol Yisra'el 20 Jun in FBIS-NES 21 Jun}

19 June In Bosnia-Herzegovina, the 2nd Corps Command in Tuzla announces that it has issued an ultimatum, transmitted to the UN Security Council, stating that if the "Chetnik onslaught on the town of Gorazde and the surrounding area" [see 15-16 Jun] is not stopped by tomorrow morning, the Command "will consider and suggest measures and decide to use chlorine tanks against enemy soldiers and citizens along tactical directions". {RBH 19 Jun June in SWB 21 Jun; FR 21 Jun}

21 June Estonia deposits its instrument of accession to the 1972 Biological Weapons Convention. {USDSD 19 Jul}

21 June In Germany, the Darmstadt poison-gas trial [see 25 Jan], which has now been running for 14 months, is suspended for an indefinite period following a decision of the court to release expert witness Professor Kurt Dialer from his duty. {FR 22 Jun}

21 June In London, the Scott judicial inquiry into UK exports to Iraq [see 10 Nov 92] hears evidence from a senior Defence Ministry military adviser, Richard Glazebrook, that an arms deal with Jordan concluded in 1985 by the Ministry's own company International Military Services, and approved at the highest level of government, had included the sale of 70,000 nerve-gas antidote syringes and other NBC defence equipment, notwithstanding an assessment by the Defence Intelligence Staff distributed in November 1984 that Jordan was a diversionary destination for defence-related goods actually bound for Iraq [whose use of chemical weapons against Iran had by that time

been fully verified]. Colonel Glazebrook said he had become aware of this sale in February 1987, and in an internal memorandum two months later he had written: "Is this another case of IMS smuggling NBC equipment to Iraq in contradiction of HMG's guidelines?" {FT, Guar and DTel 22 Jun; Ind 23 Jun}

21 June The UN Security Council receives the fourth six-monthly report submitted by UNSCOM on its activities in Iraq {S/25977}. The report records the replacement of Commissioners John Gee and Bryan Barrass [see 7 May 91] by, respectively, Peter Dunn and Ron Manley, noting, however, that the last-mentioned has since resigned, also to take up a position in the OPCW Provisional Technical Secretariat. Total Commission staff now numbers 140 people in the three UNSCOM offices (32 in New York, 25 in Bahrain, and 83 in Baghdad) of whom all but 50 are on loan from governments. In New York, the largest element is the Information Assessment Unit, comprising 12 people; its computerized data-management system is now in place and fully functional.

The report describes instances of non-cooperativeness on the part of Iraq, and observes that, "despite internationally verified evidence to the contrary, Iraq denies ever using chemical weapons". A listing is given of what exactly has been destroyed, as of 17 June, in the chemical destruction programme.

23 June In Washington, the Presidential Base Closure and Realignment Commission votes 6-1 against moving the US Army Chemical School from Fort McClellan to Fort Leonard Wood, as the Army had proposed [see 4 May]. The commission says that the Army could attempt to gain the necessary Missouri state permits for the hot-agent Chemical Defense Training Facility (which the Army had not sought to move from Fort McClellan) and then apply in 1995 to move both the school and the facility to Fort Leonard Wood. {AP in BS 24 Jun} President Clinton has until 15 July to approve or reject *in toto* this and the rest of the package of recommendations which the commission later transmits to him. {WP 28 Jun}

23 June In the US Senate, the head of the Defense Department policy organization, Principal Deputy Under Secretary Walter Slocombe, testifies before the Armed Services Committee on "the Cooperative Threat Reduction/Nunn-Lugar program to assist Russia, Belarus, Ukraine, and Kazakhstan in the destruction of the former Soviet Union's weapons of mass destruction and the prevention of weapons proliferation". The department has requested "an additional \$400 million in DOD Nunn-Lugar funds for FY94" [see 29 May], part of which he states is needed because: "We would work to advance the environmentally-safe elimination of the chemical weapons arsenal in Russia. The nature and extent of such assistance will depend in large part on experience gained with programs developed using current funds [see 9 Jun], as well as on Russian decisions concerning where and how to carry out this program. We anticipate that additional funding will be necessary to chart and begin to implement the best course for this monumental task." {Prepared statement}

Other Defense Department testimony lays stress on the assistance of American industry in achieving the Nunn-Lugar program goal: "We will work with proven, respected US firms in which we have high confidence that they will get the job done". {Prepared statement of Dr Harold Smith [see 16 June]}

Secretary Slocombe also testifies on the Defense Department's new counterproliferation ambitions and the associated organizational changes [see 30 Mar and 25 May], during

which he says: "more than two dozen countries have programs to research or develop chemical weapons [see also 5 May], and a number have stockpiled such weapons, including Libya, Iran and Iraq".

23 June The US Department of Energy in the person of the director of its Office of Intelligence and National Security, Dr John Keliher, testifies before the Senate Armed Services Committee on its "programs...to combat the proliferation of weapons of mass destruction and their delivery systems". These programmes are presented as an extension of the past national-security tasks of the department and its national laboratories, rooted in nuclear weapons. The testimony describes in turn DOE activities in policy support, in intelligence, and in research and development.

Under policy support: "DOE supports negotiation of agreements and their implementation in both the chemical weapons and biological weapons areas. DOE participates in the inter-agency activities to guide USG policy in areas of DOE expertise... Department expertise has been provided in support of the multilateral CWC in the general areas of chemical sampling and analysis, general chemical production processes, chemical weapons production, and challenge inspection procedures. DOE will be active in presenting DOE-developed equipment, including non-destructive evaluation (NDE) equipment and specialty analytical instrumentation, for consideration by the CWC for use in inspections. Support has been provided to the multilateral BWC experts group [VEREX] in the general areas of sampling and analysis, remote sensing and general facility monitoring procedures using instruments. In the US-Russian bilateral chemical weapons negotiations, DOE has been involved in developing USG policy for inspections under the Wyoming Memorandum of Understanding and in providing assistance in areas of special DOE expertise, including chemical weapons production and related (e.g., pesticide) chemical production. The Office presented DOE-developed NDE equipment to the Russians during the negotiations and will provide policy representation in the NDE equipment demonstration to be provided to the Russians in preparation for joint use of this equipment..."

Under intelligence, the testimony describes only nuclear-related activities. Under research and development, the \$43 million FY94 "Regional Measurement" activities are described as including, beside seismological work, "many projects to detect and analyze the effluents given off in the development or production of nuclear and chemical weapons". In "Remote Sensing" activities, for which \$87 million are sought in FY94: "We have placed high priority on developing new satellite sensing techniques to enhance our capabilities for independently monitoring the proliferation of weapons of mass destruction". The \$63 million FY94 "Advanced Concepts/Technology Development" activity includes "the development of an airborne multi-sensor pod system to detect chemical signatures of effluents related to nuclear and/or chemical proliferation activities". {Prepared statement}

23 June US On-Site Inspection Agency director Major-General Robert Parker, USAF, in testimony for the Senate Armed Services Committee, writes: "Our Chemical Operations Division is preparing to implement inspection and escort missions under Phase II of the Bilateral Wyoming Memorandum of Understanding [see 3-4 Apr] and assisting with preparations for the bilateral destruction and non-production agreement. We are now in our third round of mock inspections at facilities ex-

pected to be declared under those two bilateral regimes. In addition, we have been tasked to assist with the Destruction Support Program between the US and Russia. We are prepared to assist in arranging for housing, meals, transportation, and interpreters in anticipation of a visit by Russian interns to US chemical weapons destruction facilities."

Regarding the conduct of on-site inspection, the general's testimony identifies site preparation as a crucial first step. "It requires a thorough assessment of site activity, identification of vulnerabilities based on the applied arms control provision(s) and a determination of the appropriate security countermeasures, including the aspects of cost, for protection of our national security and proprietary interests. A properly performed assessment serves as a cost avoidance measure protecting against the loss of our technological advancements while ensuring effectiveness in Security Countermeasures Selection."

The OSIA is seeking \$116.9 million in the FY94 budget, of which \$16.5 million is for its CW work (as compared with \$15 million in the FY93 budget), calculated on the assumptions that the Bilateral Destruction Agreement will enter into force during July-September 1993 and the Chemical Weapons Convention in January 1995. {Prepared statement} [See also 16 Jun]

25 June In Israel, *Ma'ariv* publishes an investigative report by a team of its journalists headlined "Switzerland is the main supplier of aid to Iran in the production of atomic, biological and chemical weaponry". {Qol Yisra'el 25 Jun in FBIS-NES 25 Jun}

25 June In Geneva, the Conference on Disarmament concludes the second part of its 1993 session. {CD/PV.656}

26 June The United States attacks Baghdad with sea-launched cruise missiles. President Clinton describes the raid as retaliation for an Iraqi murder plot against former President George Bush. {USDSD 5 Jul} A compound housing Iraq's central intelligence headquarters is the target. Of the 24 missiles, each with a 1000-pound conventional warhead, allocated to the raid, 16 hit their aim point. Three crash outside the compound into a residential neighbourhood. {USDSD 5 Jul; WT 28 Jun; AWST 5 Jul; *Newsweek* 19 Jul}

27 June Bosnia-Herzegovina has obtained "23 aircraft bombs filled with nerve gas and other chemical agents" according to a Zagreb newspaper citing unidentified "connections in the General Staff of the Bosnia-Herzegovina Army and in the Middle East". The bombs are said to have been stolen by the National Liberation Front for Palestine from an ammunition dump of the Lebanese Army; delivered via Syria, Iraq and Turkey; and held at Dubrave air base, near Tuzla. {*Vjesnik* 27 Jun in JPRS-TND 12 Jul}

27 June A US military unit stationed near Al Jubayl on the Persian Gulf was attacked with chemical weapons in the early morning of 20 January 1991 according to members of the unit quoted in an Alabama newspaper, the *Birmingham News*. They say they were ordered by their commanders to keep quiet about the attack, and are only now breaking their silence because they have been unable to obtain adequate government medical care for the chronic health problems they say resulted. Further particulars are given on 30 June in testimony before the Senate Armed Services Subcommittee on Force Requirements and Personnel. The Defense Department, however, says that there were no Iraqi CW attacks during the war. The Defense

Secretary is asked to investigate. {AP in WT 1 Jul; Ind 2 Jul; WT 30 Jul}

27-28 June In northern Bosnia-Herzegovina in the region of Doboï, Bosnian forces attacking Serb positions fire “more than ten mortar shells with calcined soda”, according to Serb sources. {Tanjug 28 Jun in SWB 30 Jun}

28 June Australia passes to the OPCW Preparatory Commission a copy of its draft model legislation for the incorporation of the Chemical Weapons Convention into domestic legislation. Ambassador Paul O'Sullivan, in his covering letter to the Chairman of the Commission, says that the Australian draft had earlier been distributed for the fifth CW Regional Initiative seminar in Sydney [see 1-2 Apr] and that an updated draft is expected soon. He refers to the Pugwash model-legislation project [see 1 Jun] and advises that “Australia would be interested in making a drafting contribution to any ‘OPCW-endorsed’ model legislation”.

28 June Estonian Radio reports that the Greenpeace ship *Moby Dick*, which has spent the past week in Baltic waters off Tallinn searching for chemical weapons which may have been dumped there by the former USSR, has not yet discovered anything. {Estonian Radio 28 Jun in SWB 8 Jul}

28 June - 2 July In The Hague, the OPCW Preparatory Commission convenes for its third plenary session and adopts an agreed report {PC-III/11}. [See Review, pages 4–9]

29 June Bosnian forces in Sarajevo use “poison gas” against Serb positions in the Vogosca section of the front, according to a Serbian news agency. {Tanjug 29 Jun in SWB 2 Jul}

29 June US Army Dugway Proving Ground announces that, on 26 March, the Department of the Army had decided to construct and operate a new BW defence test complex, to be known as Life Sciences Test Facility, at the proving ground in place of the BW-related buildings and facilities in the Baker Area there, which date from 1952. The new complex is to accommodate administrative functions, general analytical test support activities and microbiological operations requiring BL-1 through BL-3 containment. The BL-3 suite is to be subdivided into three multipurpose test rooms: a BL-3 cultivation and assay room, an aerosol-chamber room and an aerosol-chamber support room. The Army decision follows a series of public scoping meetings and hearings as well as comments received on environmental impact statements both on the planned LSTF and on earlier concepts back to February 1988 [see 13 Mar 92].

29 June In the US House of Representatives, an administration proposal on providing medical treatment for Kuwait-war veterans suffering from unexplained illnesses — the so-called “Gulf War syndrome” [see 8 Jun and 27 Jun] — pending further investigation is approved by the Veterans Affairs Subcommittee on Hospitals and Health Care. The full committee is due to vote in a month's time on a recently introduced bill to improve medical care for *Desert Storm* veterans, on whose health complaints the House has held at least four hearings this past year. The chairman of the Veterans Affairs Committee, Congressman Sonny Montgomery, has recently proposed that a special facility be established to explore whether the Gulf War syndrome may be related to multiple chemical sensitivity. {DMN 30 Jun}

29 June Implementation in Iraq of the disarmament provisions of the UN ceasefire resolution and the long-term monitoring of compliance with them are the subject of a joint hearing in the US House of Representatives by two Foreign Affairs subcommittees. {LAT 30 Jun; JDW 10 Jul} One of them, the Subcommittee on International Security, International Organizations and Human Rights, has a staff report, *Iraq Rebuilds its Military Industries* by Kenneth Timmerman, which among much other detail presents listings of foreign suppliers of Iraqi CBW facilities.

30 June The Romanian Armed Forces press office issues a statement denying reports that Romania is helping Iraq to hide its chemical weapons. {Rompres 30 Jun in SWB 3 Jul}

30 June In London, the judicial inquiry by Lord Justice Scott into UK exports to Iraq [see 21 Jun] hears evidence from David James, chairman of the parent company of Walter Somers, a foundry that had supplied steel tubes destined for an Iraqi supergun. Mr James testifies that, during the month prior to the seizure by Her Majesty's Customs in April 1990 of similar but much larger tubes being exported by another UK firm, he had been told by an intelligence-service contact that, according to information received over the previous year from the Israeli intelligence service Mossad, Iraq was working on a 1000-mm super-gun capable firing a one-tonne shell to a range of maybe 1400 miles, Project Babylon. He says he had learnt from the contact, identified only as Mr Z of MI6, that the super-gun, again according to Mossad, was “intended almost certainly for the delivery of anthrax shells”. He adds: “The lack of rifling was entirely consistent with germ warfare, where accuracy was not needed”. {TL, DTel and NYT 1 Jul}

30 June At the US National Academy of Sciences there is a public briefing and forum on alternative chemdemil technologies during which environmental activists and others react to the Academy's report on the subject [see 10 Jun]. {DW 6 Jul; *Common Sense* Aug}

1 July In Moscow, *Krasnaya Zvezda* publishes a long interview with the present commanding officer of the Defence Ministry Central Scientific Research Institute at Shikhany, Major General Valeriy Ivanovich Danilkin. {KZ 1 Jul in JPRS-TAC 20 Jul} (A video report on the establishment had been screened on Moscow television two weeks previously. It said the place has a population of 15,000. {Saratovskaya Mozaika on Russian TV 18 Jun in JPRS-TND 7 Jul}) General Danilkin, who has had the command since 1990, says that the establishment is in two parts. Shikhany-1, also known as Volsk-17 or State Institute for Organic Synthesis Technology [see 31 Jan], is a science and production association formerly under the Ministry of the Chemical Industry [see also 30 Jun–4 Jul 88]. It has a small experimental plant attached to it. Shikhany-2, or Volsk-18, accounting for about 40 percent of the population, is a specifically military facility, the heart of which is the institute with its test range. Current work is on NBC protection, on questions of aerosol camouflage, on chemdemil, and also the development of flamethrower and incendiary devices.

Speaking of housing problems, General Danilkin says that about 200 families have recently arrived, many of them from central Asia “where two chemical test ranges were disbanded and eliminated”. He continues: “Shikhany has become a sort of Noah's Ark for military chemists from all over the former USSR. People are arriving all the time.”

Charles Conway Flowerree

Ambassador Charles Flowerree, a founding member of the Advisory Committee of the *Chemical Weapons Convention Bulletin*, died at his home in Arlington, Virginia, on 9 July 1993. He was 72.

As a public servant and as a private citizen after retiring from the US Foreign Service, Charles Flowerree worked with deep commitment for the effective elimination of chemical and biological weapons.

He graduated from the US Naval Academy during World War II and fought in the Pacific both then and during the Korean War. He served as an assistant naval attaché in Iran and Pakistan, and later, in 1962, joined the US Foreign Service, serving in London, Saigon and Kinshasa. Subsequently, in Washington, he became Director of the State Department's Office of International Security Policy and then Chief of the International Relations Division of the Arms Control and Disarmament Agency.

In 1980, Flowerree was appointed by President Carter to be US Representative to the Committee on Disarmament (CD) in Geneva, where he led US delegations in a variety of international arms control negotiations and consultations, including those at the First Review Conference of the Biological Weapons Convention, the new CD Ad Hoc Working Group on Chemical Weapons, and the bilateral negotiations with the USSR on chemical weapons.

After retiring from the Foreign Service in 1982, Ambassador Flowerree worked as a consultant to the State Department and to the Secretary-General of the United Nations. At the UN he participated in the Group of Consultant Experts which, during 1984, devised procedures for investigating allegations of chemical or biological warfare. He authored a number of scholarly articles on CBW arms control and, with Gordon Burck, the *International Handbook on Chemical Weapons Proliferation* (1991).

Ambassador Flowerree was a member of the Executive Council of the Committee for National Security, where he oversaw its Project on Chemical and Biological Weapons Control. He was vestryman at Piedmont Parish Episcopal Church.

He is greatly missed by his many friends and by those who knew his work for chemical and biological arms control and disarmament.

1 July In England, the Harvard Sussex Program and the Working Party on Chemical and Biological Weapons are guests of the Chemical & Biological Defence Establishment at Porton Down. The discussions dwell on the declarations for which the Defence Ministry will be responsible that must be made to the OPCW within 30 days of the CWC entering into force. There is also discussion of the role of the CBDE after entry into force. {ASAN 12 Aug}

2 July In Georgia the Defence Ministry suspects that Abkhaz forces may be using chemical weapons in their rocket and artillery attacks on Sukhumi. A Ministry spokesman says that, over the past two days, shells have been fired which "often explode in the air and emit a substance smelling of chlorine". {ITAR-TASS 2 Jul in SWB 3 Jul} Some four weeks later, Ukrainian sources state that Russian military subunits fighting on the Abkhazian side have been using chemical weapons {UNIAR 11 Aug in FBIS-SOV 12 Aug}.

5 July Iraq completes the destruction, according to UNSCOM inspector Arie Wynmaalier of the Netherlands, of the items of dual-use production equipment for CW precursors at Falujah 2 [see 11 Jun]. Three days previously it had still been refusing to do so. The 80-90 tons of precursors remaining at Falujah have been transferred to Muthanna for destruction. {LAT 7 Jul; Reuter 8 Jul in ACR 704.E-2.94}

5 July The UK government states that the declaration by Russia under the extended BWC confidence-building measures "made it clear...that the former Soviet Union — a Depository Power of the Biological Weapons Convention — had illegally maintained an offensive biological weapons programme which continued until March 1992". The statement appears in the annual Defence White Paper, *Statement on the Defence Estimates 1993*, released today. It continues: "This confirmed the misgivings long held by the other Depository Powers — ourselves and the United States — who took up these matters at a high level with the Soviet and Russian governments between 1990 and 1992." Referring to the framework established by the trilateral Russia/UK/USA *Joint Statement on Biological Weapons* [see 10-11 Sep 92], the White Paper states that UK and US experts "have visited Russian facilities and are to be given details of the past programme" [see also 22 Mar].

On future BWC compliance-monitoring and the work of VEREX [see 4 Jun]: "Even though no verification regime in this difficult area could guarantee detection of non-compliance, it is likely that worthwhile deterrence could be achieved by a web of measures restricting potential violators" room for manoeuvre".

6 July In Bosnia-Herzegovina, two Croat soldiers are brought into a war hospital near Vitez with signs of gas poisoning. It is a time when reports of gas grenades in use during fighting near Busovaca are being heard. One of the soldiers tells a British journalist visiting five days later that, in the village of Prosje, a projectile had landed beside him without exploding but had instead emitted something "like tear gas", then black smoke. At first he had "wanted to go to sleep", then he had begun to choke, and a couple of minutes later he had started coughing blood. The reporter writes that the soldier is in constant pain and very weak; he cannot eat — saying "everything tastes very bitter" — or walk more than ten yards. According to a hospital doctor, the soldier had been injured the day before his admission and was treated with atropine upon arrival because he was showing some of the signs of nerve-gas poisoning; but, despite

initial recovery, this hasty treatment seemed to have aggravated his condition. The other apparent CW casualty is soon discharged. {Ind 12 Jul}

7 July In the US Senate, the Armed Services Subcommittee on Force Requirements and Personnel conducts a hearing on sick active-duty veterans of the Kuwait War [see 29 Jun]. {DMN 30 Jun}

9 July In Hungary the head of the Army's chemical defence unit, Col. Janos Hulej, announces that a long-term plan to develop chemical defences has been completed and that testing of modern equipment is under way. {MTI 9 Jul in SWB 13 Jul}

9 July Italy blocks a shipment to Iran of plant equipment which officials say could be used to make chemical weapons. {Reuter 9 Jul in ACR 704.E-2.96}

9 July The UK government, through Armed Forces Minister Jeremy Hanley, responds as follows to a question in parliament about "Gulf War syndrome" [see 29 Jun]: "The wide variety of symptoms which are alleged to make up the condition popularly known as Desert Storm syndrome are prevalent within the general population. There is no evidence that the incidence of these symptoms in the services has increased since the Gulf conflict. There is nothing in the available medical evidence in the United Kingdom that would suggest that the symptoms described cannot be explained in conventional medical terms, but my Department is actively seeking further information and will continue to monitor the situation closely." {HansC written answers 9 Jul} Parliament is subsequently told that the government has been liaising on the matter with the relevant authorities in both France and the United States. {HansC written answers 13 Jul}

10 July From Japan, Kyodo news agency reports that the Japanese Imperial Army produced some 600,000 poison-gas weapons during the peak production year, namely 1941. The information is from production data contained in records dated 1932-41 held in the library of the JDA National Institute for Defense Studies in Tokyo, according to Kentaro Awaya, an historian and professor at Rikkyo University. {Kyodo 10 Jul in FBIS-EAS 13 Jul}

10 July In Iraq, UN inspectors arrive on a mission to disable and seal equipment at the two missile test sites where Iraqi authorities have blocked the installation of "interim monitoring" cameras [see 18 Jun]. With strong and public support from the Security Council, UNSCOM has proposed this step as a compromise measure pending resolution of the on-going monitoring and verification issue. {Reuter in BG 9 Jul} But the inspectors, UNSCOM 60 led by Mark Silver of the United States, are then prevented by Iraqi authorities from sealing the sites, and depart immediately. {WP 12 Jul} There is talk of renewed allied military action against Iraq {TL 12 Jul} — and also, in Iraq, of the crisis having been deliberately fabricated to that end. {S/26072; FBIS-NES 12, 13 and 14 Jul}

The Security Council two days later decides to send UNSCOM Executive Chairman Rolf Ekéus on a special mission to Baghdad. He arrives there on 15 July.

11-13 July In Cairo an international seminar on the verification of arms-control accords and confidence-building measures is held under the auspices of the Middle East peace process

multilateral Arms Control and Regional Security Working Group [see 17-19 May]. {MENA 11 Jul in FBIS-NES 13 Jul}

12 July In Bulgaria, the weekly periodical *168 CHASA* reports that a Danish citizen is now suspected of having murdered Georgi Markov in 1978 [see 8 Jan 92]. The suspect had been recruited by the Bulgarian external intelligence service after having been arrested, in 1972, on drug-trafficking charges. Unidentified secret British and Danish sources are attributed for the information. {BTA 16 Jul in FBIS-EEU 19 Jul}

12 July In Germany, the Iraq-poison-gas trial in Darmstadt [see 21 Jun] is terminated and must now, after 15 months, begin all over again. The appeal of the Darmstadt public prosecutor against the decision of the Darmstadt District Court to adjourn the trial is today finally rejected by the Frankfurt Oberlandesgericht. {FR 13 Jul} An independent expert witness acceptable to both the prosecution and the defence has not been found {*Aerospace Daily*, 13 Sep}.

14 July In the Mediterranean, the sixth test of the joint Israeli-US *Arrow* antimissile-missile system, in which the target missile has a simulated CW warhead [see 31 May], is a failure: the interceptor fails to take off from its ship-borne launch pad. {IDF Radio 14 Jul in FBIS-NES 15 Jul}

15 July In Washington the Henry L Stimson Center hosts a luncheon seminar on chemical weapons. The seminar focuses on activities in The Hague. {DN 12 Jul}

16 July The Director-General of the UK Chemical and Biological Defence Establishment, Dr Graham Pearson, declines to answer a parliamentary question asking for citations of open-literature publications reporting extramural research done for his establishment. He states that it "is not the practice of the Ministry of Defence on both national and personal security grounds to identify links between the Ministry...and the contractors engaged on extramural research". He continues: "It is left to the individual contractors to decide whether or not to disclose their contracts." {HansC written answers 16 Jul} This reticence is the subject of a subsequent question in parliament, to which Defence Procurement Minister Jonathan Aitken responds: "Universities would prefer us not to disclose whether they are receiving Ministry of Defence funds for research and development projects in order to protect their academic researchers assigned to the projects from potentially violent extremists". {HansC written answers 20 Jul}

As to intramural research publications which report animal experiments, Dr Pearson says that these too must be withheld from public disclosure, because of "the activities of animal rights activists, who placed a bomb under the car of a member of my staff from which she was lucky to escape with her life". {HansC written answers 26 Jul}

16 July In Britain the Security Service (MI5) publishes, for the first time ever, an official account of itself. This booklet says that the Service employs about 2000 people, more than half of them women. The ending of the cold war does not appear to have had much impact on its size: Director General Stella Rimington says in her introduction that, although the "collapse of Soviet Communism" has led to a "reduction in the scale of the threat from espionage", "the dangers posed by the proliferation of nuclear, chemical and biological weapons are a new cause for concern". Currently consuming about 25 percent of

the Service's resources, the counter-espionage branch of the Service has been expanded to include counter-proliferation, this being explained in the following terms: "Since the Gulf War Western governments have been increasingly concerned at the proliferation of weapons of mass destruction, both nuclear, and chemical and biological. Much of the technology and expertise involved has been obtained from the West, often by foreign agents using illicit methods. The Service is now contributing to efforts to minimise the leakage of specialist technology from the UK, and traditional counter-espionage techniques are being adapted to meet this new problem."

16 July In the US House of Representatives, the Government Operations Subcommittee on Environment, Energy and Natural Resources holds a hearing on the Defense Department's Chemical Stockpile Emergency Preparedness Program. The General Accounting Office testifies that local communities near the country's eight storage depots for chemical weapons are unprepared to cope with an accidental release of poison gas, despite the \$187 million already spent by the Army on the CSEPP. {AP in BG 17 Jul; GAO pub T-NSIAD-93-18} The Army and the Federal Emergency Management Agency testify in detail on the nature of the Program and the problems it confronts.

19 July In Baghdad, Iraqi authorities and the special UNSCOM mission [see 10 Jul] reach agreement. Interim-monitoring cameras are to be installed at the two missile test sites, but will not be turned on until after "technical talks" in New York have established what Iraq must still do to comply fully with the cease-fire terms in Security Council resolution 687 (1991). These talks are expected to start in early September. {NYT 20 Jul; Ind 4 Aug} UNSCOM Chairman Ekéus is quoted in the press on there being an "indirect link" between the projected technical talks and the negotiations for a limited resumption of Iraqi oil exports. {AFP 19 Jul in FBIS-NES 19 Jul} The cameras are duly installed during 27-28 July. {AP in BG 28 Jul}

19 July The UK Ministry of Defence, asked in Parliament how many Operation Granby service personnel had been vaccinated against BW agents during the Kuwait War, states that all vaccinations for service personnel are given on a voluntary basis and that information relating to measures against BW agents is "classified" [see also 16 Jun] {HansC written answers 19 Jul}.

19 July China has shipped chemicals that could be used as weapons to Iran, according to US intelligence reports described to the *New York Times* by unidentified "senior Administration officials". {NYT 20 Jul}

20 July The Director-General of the UK Chemical and Biological Defence Establishment, Dr Graham Pearson, responds to a series of detailed parliamentary questions about past UK research on CW agents. The report on irritant agent CR provided to the United States in 1962 was still classified. Some 25 service volunteers had been exposed to the incapacitant BZ during the mid 1960s. In all, less than 110 kg of nerve-agent VX had been produced at Nancekuke, the last of it in 1968; some had been transferred to the United States in 1957 for "comparative analytical studies" at Edgewood; and, during the period 1957 to 1967, a total of about 100 kg of US-made VX had been received at Porton Down for stability studies and various collaborative trials. {HansC written answers 20 Jul} In a response to

earlier questions, Dr Pearson had indicated that the initial preparation of VX at Nancekuke had been in 1957, and that study of the transesterification route to VX [as later used in the US factory at Newport] had commenced in early 1960. {HansC written answers 16 Jul}

21 July In eastern Bosnia-Herzegovina in the region of Zvornik, Bosnian forces are shelling Serb villages with chemical ammunition, according to Serb military sources who describe it as the first time Muslim units in the Zvornik region have used chemical projectiles. The Zvornik garrison command, saying that three projectiles had been found to contain chemical in addition to explosive agents, believes them to be locally re-adapted conventional artillery shells. {Tanjung 22 Jul in SWB 26 Jul}

There are more such reports two days later. According to the Belgrade news agency Tanjung: "Experts say that, along with numerous artillery and mortar shells, the Muslim forces also fired five poison gas shells of the CS asphyxiation type, which are banned under all international conventions". {Tanjung 24 Jul in SWB 26 Jul}

21 July Liechtenstein signs the CWC.

23 July In Bosnia-Herzegovina, Serbian forces are using "poisonous gases" in the Brcko region, according to Bosnian radio. {RBH 24 Jul in SWB 26 Jul}

25 July In Bosnia-Herzegovina, Bosnian forces have launched artillery attacks on the base of the Croatian Second Bugojno Brigade and are beginning to use chemical weapons, according to Radio Croatia [see also 6 Jul]. {Radio Croatia 25 Jul and 26 Jul in FBIS-EEU 26 Jul and SWB 28 Jul}

26 July ASEAN, the Association of South-East Asian Nations, begins its annual post-ministerial conference, in Singapore. South Korean Foreign Minister Han Sung-chu describes the proliferation of mass-destruction weapons as the "most alarming issue" of the post-Cold-War period.

US Secretary of State Warren Christopher says in regard to CBW and missile proliferation: "This is a growing problem for Asia because economic and technological development means the region can now produce chemicals, sophisticated electronics and other products and services that the proliferators want, but are now denied in Europe and the US. Asia is at the stage when its participation in international agreements and establishment of export control regimes are most important." He adds that the US looks forward to working closely with ASEAN on the issue.

Japanese Foreign Minister Kabun Moto says that Japan and the ASEAN-PMC must strive to increase the number of signatories to the Chemical Weapons Convention and to ensure its early entry into force. {*Bangkok Post* 27 Jul in FBIS-EAS 27 Jul; IHT 29 Jul}

26 July In Geneva, the Conference on Disarmament reconvenes for the opening of its third and last session of the year, due to end on 3 September. {CD/PV.654}

26 July The UK House of Commons orders to be printed the 1992/93 annual report and accounts of the Chemical and Biological Defence Establishment. The report, released as a glossy illustrated brochure, has several pages on the year's scientific achievements at the establishment. These include an

account of MADONA (Meteorology and Dispersion Over Non-uniform Areas), an international civil-military collaborative project to develop smoke/vapour dispersion models for non-flat terrain; of BRACIS, a computerized biological, radiological and chemical information system for forces-wide NBC warning and reporting; of work on gene probes for identification of BW agents; of work on chemical modification of activated carbons; and of work on transdermal delivery of carbamate drugs for nerve-agent pretreatment. Graduate staff at CBDE had now reached 200. There had been 69 open-literature publications during the year and 138 CBDE Reports. Total gross expenditure during the year had been £35.4 million, of which £3.1 million was recoverable from non-Defence-Ministry customers.

26 July In Washington the Committee for National Security convenes a session on Issues for CWC Implementing Legislation in its lunchtime discussion series. The speaker is Edward Tanzmann of the Argonne National Laboratory. {DW 26 Jul}

26 July US Army Edgewood Research, Development & Engineering Center announces in *Commerce Business Daily* that it will soon be issuing solicitations to industry for both tactical and strategic BW-agent detection systems. The tactical system must be able to locate and map aerosol clouds of biological material at a range of 1-5 kilometres. The strategic system, using an infra-red laser, must do the same out to 50-100 km. {*Aerospace Daily* 27 Jul}

27 July In Bosnia-Herzegovina, Serbian forces around Sarajevo are using chemical agents in an offensive at Golo Brdo in the region of Zuc, according to the Army First Corps press service as reported on Radio Bosnia-Herzegovina. The report states that this is the most intensive chemical attack on the Sarajevo region since the beginning of the war, and warns people living downwind to take necessary protection measures. {RBH 27 Jul in FBIS-EEU 27 Jul}

A subsequent communiqué from the general staff of the army of Bosnian Serbs describes such reports as “a treacherous and dangerous propaganda ploy” [see also 13 Mar]. It goes on to allege that “Muslims have been bringing in chlorine and poison gases to the Sarajevo area and saying that they will use them”. {Tanjung 1 Aug}

27 July In Washington the National Academy of Sciences Institute of Medicine releases the report commissioned from the Academy by the Department of Veterans Affairs [see 6 Feb 91 and 9 Sep 92] reviewing and evaluating all past studies of possible links between health disorders and exposure to Agent Orange or other military herbicides used during the Vietnam War. The 500-page report, based on review of 6420 scientific papers, contradicts the view widely held in official circles that further investigation would be futile because of the difficulty of gathering worthwhile data on exposure of veterans. It indicates a possible linkage with two illnesses in addition to the three already suspected (soft-tissue sarcoma, non-Hodgkin's lymphoma and chloracne), and goes on to identify areas for further inquiry. {Nat 29 Jul}

The Veterans Affairs Department announces that it will add the two illnesses — porphyria cutanea tarda and Hodgkin's disease — to the list of those for which veterans are already compensated. As of 13 July 40,097 Orange-related claims had been filed with the Department, but compensation had been paid in only 553 cases. {NYT, BG and WP 28 Jul}

27 July In the US Senate, the Committee on Armed Services reports on the FY 1994 Defense Authorization bill. {Senate report 103-112} Among its recommendations is a provision to establish a Joint Review Committee aimed at eliminating duplication of effort in the NBC counterproliferation programmes of the Departments of Defense and Energy and the Central Intelligence Agency.

The Committee also recommends that the Army request for funding to design a vaccine production facility at Fort Detrick be denied at least until a cost-benefit analysis of the alternatives has been reported to it.

28 July In the US House of Representatives CIA Director James Woolsey testifies on proliferation issues before the Foreign Affairs Subcommittee on International Security. He says that Libya is constructing a second chemical weapons plant [see 15 Mar] “even while it is proclaiming its good intentions”. He confirms earlier reports [see 29-30 May] that North Korea has tested a new missile capable of striking much of Japan which “in addition to conventional warheads is capable of carrying nuclear, chemical or biological payloads”. {BG 29 Jul; YONHAP 29 Jul in FBIS-EAS 29 Jul}

29 July In Prague it is announced that personnel of the anti-CW unit which Czechoslovakia had contributed to Coalition forces during the Kuwait War are being checked for signs and symptoms of “Gulf War syndrome” [see 9 Jul]. {Reuter in Guar 30 Jul} Czech Defence Minister Antonin Baudys says in an interview published in *Mlada Fronta Dnes* that “only this week” he had received convincing evidence that, while in Saudi Arabia during the war, the unit had detected traces of sarin in the atmosphere [see 30 Jan 91]. {Reuter in CN 30 Jul} The newspaper says that 10 of the 185 people who had served in the unit are believed to be suffering from Gulf War illnesses.

30 July In the US House of Representatives, the Committee on Armed Services reports on the FY1994 Defense Authorization bill. {House report 103-200} It includes a strong recommendation that the United States should move quickly to ratify the Chemical Weapons Convention, and says that a verification and inspection regime similar to that of the CWC should be adopted in the Biological Weapons Convention. It advances a package of organizational proposals, reflected in legislative provisions, for strengthening US CBW defence preparedness. The proposals include a \$10 million provision to promote greater international cooperation in CBW defence research and development. The report also instructs the Secretary of Defense to direct the Advanced Research Projects Agency to explore the potential of greater cooperation between the Defense Department, the Public Health Service and the Centers for Disease Control in the provision of vaccines and antidotes for “unusual strains of disease”.

In connexion with the ‘Gulf War syndrome’, the Committee recommends a \$1.2 million authorization for the Army to establish “a specialized environmental medical research unit in a hospital setting to conduct environmentally controlled research into possible chemical sensitivities to low-level exposures to organic chemicals and other substances”.

2 August Dominica signs the CWC, the 148th state to do so.

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 the intrusive verification procedures of the treaty 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."

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 120-mm 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 93.} [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". {JDW 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" and "not because international rules forbid it". {Noticias Argentinas 6 Aug in FBIS-LAT 9 Aug}

8 August In Beijing the official newspaper *Peoples Daily* prominently reports 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. The US embassy subsequently confirms the story [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. {NYT 9 Aug} US intelligence officials say the cargo amounts to "tens of tons" of the precursors {LAT 10 Aug}. Chinese Assistant Foreign Minister Qin Huasun later says that 24 of the 700 containers comprising the ship's cargo are indeed bound for Iraq, 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 in order to avoid deterioration of the situation, 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 {*Ta Kung Pao* 14 Aug in FBIS-CHI 16 Aug}, 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 {DTel 14 Aug}, causing offence thereby {*Wen Wei Po* 16 Aug in FBIS-CHI 16 Aug}. A compromise is being sought {C&EN 16 Aug; AP in BG 17 Aug}

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}

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. {AWST 16 Aug}

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 under the CWC in chemical-industry facilities, in which he reviews and draws from the accumulated experience of the national trial inspections [see 15-16 Jun 91]. {SIPRI press release 10 Aug}

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 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. {WP 10 Aug}

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. {CDU Jul; AP in WT 12 Jul; *Salt Lake Tribune* 10 Aug; ITA 16 Aug}

23 August The *Washington Times* carries an article on the theme of Iran as a "threat to world peace to a degree reminiscent of the beginning of the Hitler era". 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. {WT 23 Aug}

23 August The US Department of State announces that the Chinese ship *Yin He* [see 8 Aug] is expected to undergo an inspection soon at the Saudi port of Damman. {AP in WP 24 Aug} The inspection is to be conducted by Chinese and Saudi officials. The *Yin He* is reported to be approaching Damman two days later. {Reuter in Ind 26 Aug}

China announces on 2 September that the inspection, which had duly been conducted at Damman, showed that the *Yin He* was not carrying CW precursors. The US embassy in Beijing has no immediate comment. {TL 3 Sep}

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. {ASAN 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}

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