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## SCIENTIFIC OPENNESS AND NATIONAL SECURITY AFTER 9-11

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*The events of 11 September 2001 and the anthrax letters have reignited the longstanding debate over scientific openness and national security. And for the first time, the life sciences community is the focus of concern. Recent proposals for self-governance are unlikely to provide sufficient reassurance that information, in the words of the Corson Report, "not directly and significantly connected with technology critical to national security" is not disclosed. A more formalized system for considering the security implications of biodefence and other dual-use research, including specific criteria for making decisions on dissemination restrictions or classification, is needed in order to maintain support for the very endeavours on which both public health and national security depend.*

Fear of bioterrorism has emerged as a priority concern of American security policy as a result of the anthrax letters of 2001. That event resonating with the September 11 terrorist attacks crystallized a much more urgent sense of threat than had previously been perceived. It is now commonly assumed that malicious organizations will attempt to exploit the destructive potential of biotechnology, and it is also implicitly conceded that a dedicated effort is likely to succeed.<sup>1</sup>

In response to this surge of fear, the American political system has sharply increased investment in biodefence research intended to provide protection against deliberate biological attack. Nowhere is this more true than at the National Institutes of Health (NIH), which has seen its funding for biodefence grow by over 3,200%, from \$53 million in fiscal year 2001 to a record \$1.8 billion (requested) in fiscal year 2006.<sup>2</sup> These funds have resulted in a 1,500% increase in the number of grants for research on anthrax, plague and other top biological warfare agents, from 33 between 1996-2000, to almost 500 between 2001 and January 2005.<sup>3</sup> This research is dedicated to determining the character and magnitude of potential threat in order to develop better methods of protection. But at least some of this effort will assuredly identify more advanced methods of attack as well.

That unavoidable fact poses a sharp dilemma and a fundamental problem of policy. By its very nature, biodefence research generates information that the global medical community has strong reason and arguably an inherent right to know. Unrestricted dissemination of that information, however, might inform those dedicated to destruction.

Moreover, as in other areas of technology, it is likely that offensive applications of biotechnology will prove to be substantially easier than defensive ones and could therefore emerge more rapidly in open competition.

In principle, the dilemma might be substantially mitigated by a new oversight system under which sensitive information vital to public health protection is restricted to those professionally qualified and explicitly authorized to have it and those individuals are in turn monitored to document responsible use. Such an arrangement does not exist within any country or internationally, however, and is not as yet even being officially discussed. But for such an arrangement to be effective at any level, there is a need to devise principles to guide decisions on whether to restrict or classify information. Fortunately, there are useful precedents in that regard.

### **Evolving Practice**

In the past, all NIH-funded research has been unclassified. But in October 2001, President Bush signed an Executive Order extending classification authority to the Department of Health and Human Services, which includes NIH. Anthony Fauci, who heads the NIH institute responsible for biodefence research, later said that although most NIH-funded research would remain unclassified, some limitations on access could not be ruled out. "As we move into more research on counter-bioterrorism," Fauci said, "we should examine this issue on a case-by-case basis".<sup>4</sup>

By the spring of 2002, it was clear that the Bush Administration was seriously considering the possibility of restrictions on the dissemination of scientific findings that could have national security implications — what has been called "sensitive but unclassified" information. In a memorandum to federal agencies in March, White House

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Chief of Staff Andrew Card raised the need to protect sensitive but unclassified information.<sup>5</sup> At the same time, the US Department of Defense (DOD) circulated a draft directive containing proposals for new categories of controlled information and for prepublication review of certain DOD-funded research, even if it was unclassified.<sup>6</sup> Because of strong criticism from the scientific community, the Pentagon draft was withdrawn. However reports continued to emerge about White House plans to develop rules for the dissemination of information that could have national security implications.

US scientific organizations moved quickly to minimize the possibility of government-mandated restrictions on fundamental research, offering governance by scientists themselves as an alternative. In August 2002, the American Society for Microbiology (ASM), which publishes eleven leading US peer-reviewed scientific journals, adopted guidelines for handling manuscripts dealing with sensitive microbiological issues. As part of the traditional peer-review process, all reviewers were now required to inform the Editor of any manuscript that contained information on methods or materials “that might be misused or might pose a threat to public health safety”. Any manuscript thus identified would be held until a decision concerning its disposition had been rendered by the Editor-in-Chief in consultation with the ASM Publication Board.<sup>7</sup> As Board Chairman Samuel Kaplan later described it, the goal was to establish a practice for trying to prevent the publication of information that could be a “clear and imminent danger to the public”.<sup>8</sup> A few months later, the *Proceedings of the National Academy of Sciences* (PNAS) quietly adopted a similar review process for biological agents that had been identified by the Centers for Disease Control and Prevention as posing the highest security risk.<sup>9</sup>

By October 2002, the Presidents of the National Academies of Science were weighing in, declaring in a formal statement that a balance was needed between the restrictions necessary to safeguard “strategic secrets” and the openness required to accelerate the progress of technical knowledge. The NAS Presidents called upon scientists and policymakers to work together to develop clear criteria for determining what information needed to be restricted or classified and how best to accomplish that task.<sup>10</sup>

In January 2003, in response to a request from ASM, the National Academy of Sciences hosted a day-long meeting of scientists and security experts to begin to explore how to balance openness and national security. Scientific journal editors were generally dismissive of the idea that any research should be publicly withheld. But others cautioned that unless scientists took the lead in defining what was sensitive and proposing how it could be protected, the government would act. If scientists do not take these security concerns seriously, former Deputy Secretary of Defense John Hamre warned, politicians with little understanding of science will step in with “blanket restrictions” that would have “devastating effects on the conduct of science”.<sup>11</sup>

The following day, thirty journal editors and scientists agreed in a signed statement to support the development of new processes for considering the security implications of proposed manuscripts and, where necessary, to modify or refrain from publishing papers whose potential harm outweighed their potential benefits. In an editorial accompanying release of the statement, the PNAS elaborated upon the thinking behind the effort. No one would publish a “cookbook recipe” for a weapon, which would in any event not pass scientific muster.

But it is nearly impossible, the editorial said, to determine in advance exactly what type of manuscript should not be published, as any work of value to terrorists would also be of value in countering terrorism. For this reason, the journal editors had focused on developing a common set of publication policies.<sup>12</sup> But as Stanford Professor Stanley Falkow later pointed out, the journal editors had failed to provide guidance not only on who exactly would make these publication decisions but also what information constituted a potential threat.<sup>13</sup>

### Precedents and Possible Guidelines

The need to balance scientific openness and national security is not a new issue. As former ASM president Ron Atlas has noted, since the beginning of modern science in the 1600s, scientists have confronted questions of secrecy and science. In an essay in 1626, Sir Francis Bacon observed: “And this we do also; we have consultations, which of the inventions and experiences which we have discovered shall be published, and which not; and take all an oath of secrecy for the concealing of those which we think fit to keep secret...”<sup>14</sup>

During the Cold War, concerns that the Soviet Union had benefited militarily from access to US scientific and technical information, especially in computer science and other areas of the physical sciences, prompted discussions not unlike today’s about possible restrictions on scientific communication, including prepublication review by the Pentagon of research in certain areas relevant to national security. In response, the National Academy of Sciences convened an expert panel under the chairmanship of former Cornell University President Dale Corson to examine how to balance scientific communication and national security. The Corson Report, which was published in 1982, concluded that the national welfare, including national security, is best served by allowing the free flow of all scientific and technical information “not directly and significantly connected with technology critical to national security”. Accordingly, the report recommended that most fundamental research at universities should be unclassified; that a limited amount might require classification; and that a small grey area could require limited restrictions short of classification.<sup>15</sup>

The Reagan Administration accepted the Corson Report recommendations, embodying them in National Security Decision Directive 189, which stated: “to the maximum extent possible, the products of fundamental research [shall] remain unrestricted.... No restrictions may be placed upon the conduct or reporting of federally-funded fundamental research that has not received national security classification, except as provided in applicable US Statutes”. NSDD189 defined fundamental research as “basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community...”<sup>16</sup>

Following the controversy over the Card memo, the President’s Science Advisor, John Marburger, publicly reaffirmed the Bush Administration’s commitment to NSDD 189,<sup>17</sup> referring to an earlier letter from National Security Advisor Condoleezza Rice. “The key to maintaining US technological preeminence is to encourage open and collaborative basic research,” Rice wrote in November 2001. “[T]he policy on the transfer of scientific, technical, and engineering information set forth in National Security Decision Directive 189 shall remain in effect, and we will ensure that this policy is followed.”<sup>18</sup>

In addition to upholding the principle of scientific openness, the Corson Report also outlined criteria for making classification decisions in fundamental research, criteria that could serve as a model for classification decisions in the life sciences, including biodefence research, today. Admittedly, the context is very different: the Soviet Union as compared to a much more diffuse set of national and possibly subnational actors; the physical sciences as compared to the life sciences. But no US adversary, much less terrorist group, that exists today is better capable than the Soviet Union was of adapting fundamental research results for military purposes. If these criteria were deemed by the NAS as appropriate to deal with the Soviet military threat, they should be at least as effective against the much less sophisticated adversaries we currently face.

Drawing on the Corson Report, one could establish the principle that no basic or applied research, including biodefence research, at university, industry or government labs should be restricted or classified unless the following criteria are met:

1. the technology is developing rapidly and time from basic science to application is short;
2. the technology has identifiable direct military applications; or it is dual-use and involves process or production related technologies;
3. the transfer of technology would give a BW proliferator (e.g. a nation-state or subnational group) a significant near-term military benefit;
4. the US is the only source of information about the technology, or other nations that could also be the source have control systems as secure as those in the US; and,
5. the duration and nature of the proposed restrictions would not seriously compromise existing public health practice.

There are two main differences between these criteria and those outlined in the Corson Report: the term "Soviet Union" has been replaced by "BW proliferator;" and a fifth criterion has been added to take account of the public health implications of any proposed restrictions.

Whether it is possible to identify a more specific list of fundamental research for which restrictions or classification is warranted is unclear. One proposal, in 2003, included the following examples: alterations in virulence that defeat vaccine; alterations that greatly accelerate disease course or delay diagnosis; engineering drug resistance; and, delivery systems.<sup>19</sup> But this and other proposals like it are far too broad, and would capture a wide swath of fundamental research critical to future medical, agricultural and other peaceful applications.

Interestingly, a much more limited approach to the classification of biodefence information has been promulgated by the US Army. In Army regulation 380-86, dated 1 February 2005, only one area of research is proposed for classification: the results of medical research revealing operational deficiencies or vulnerabilities in biological defence. By comparison, the identity of microorganisms and toxins being studied, their characteristics, and the consequences of their administration to appropriate hosts is considered unclassified information, as is general medical research and procedures for protecting personnel against biological agents.<sup>20</sup>

There are sound scientific reasons for avoiding dissemination restrictions or classification in the life sciences, including in the area of biodefence research. As the NAS has noted,

none of the research that has been the focus of recent attention has pointed the way toward the production of biological weapons in any specific way. Many additional experimental steps are required in order to translate basic research results into a useable biological warfare agent, much less an actual weapon.<sup>21</sup> In addition, as the rapid response to SARS showed, scientific progress depends upon open communication and the ability to replicate research and validate results. Restrictions on the flow of scientific information will undermine not only efforts to develop defences against biological weapons but also to protect the public against the threat from naturally occurring disease. New restrictions could also have a chilling effect on the willingness of scientists to work in areas in which there are limits on their ability to communicate with other scientists and to publish their research results.<sup>22</sup>

There are also compelling security reasons for avoiding restrictions or classification, especially in the area of biodefence research. As Mark Wheelis has pointed out, secrecy about the nature and scope of US biodefence efforts makes it more difficult for Congress to exercise its oversight responsibilities and limits opportunities for expert or public input into the policymaking process. The result could be policies that fail to address the real threats facing the United States. Limits on the dissemination of information about US biodefence research activities could also raise suspicions about US intentions to comply with the Biological Weapons Convention (BWC), thus leading others to pursue the very illicit activities the US programme is designed to counter. Lack of openness on the part of the US could also serve as a justification for others to be more secretive about their own purported biodefence activities, thereby complicating US efforts to detect genuine violations of the BWC. Finally, limits on the dissemination of biodefence information denies the US the deterrent value that comes from an adversary being aware of the robust nature of US biodefence preparations.<sup>23</sup>

Many of these arguments are similar to those made in the 1980s by US officials concerned about secrecy at Soviet biological institutes, including the possibility that Moscow was using recombinant DNA technology for offensive BW purposes. At a 1988 roundtable, ACDA official Robert Mikulak stated that there was "no justification" for secret biological research labs or classified research. He also argued that openness could help reduce suspicions of noncompliance with the Biological Weapons Convention. At the same meeting, DOD official Thomas Dashiell argued that by making DOD biodefence efforts "visible," the programme could act as a deterrent to potential adversaries.<sup>24</sup>

Both Mikulak and Dashiell also disavowed the need for classified research involving recombinant DNA technology. "There is no justification for classified military research on recombinant DNA ... anywhere," Mikulak declared. Dashiell agreed, noting that classification was unnecessary because the relevant work involved "basic science areas" and the possible application was a number of years away.<sup>25</sup>

### **Classification and Oversight Mechanisms**

If certain types of fundamental research in the life sciences are to be reviewed for possible dissemination restrictions or classification, however limited in scope, how might this best be pursued?

One possibility would be to rely upon scientific journals to review manuscripts, as proposed in the February 2003 statement by journal editors and scientists. This is also the

approach recommended in October 2003 by an expert panel convened by the National Research Council under the chairmanship of MIT professor Gerald Fink. In their report, *Biotechnology Research in an Age of Terrorism*, the Fink Committee argued that “imposing mandatory information controls on research in the life sciences, if attempted, [would] be difficult and expensive with little likely gain in genuine security”. As a consequence, the Committee recommended self-governance by scientists and scientific journals to review publications for their potential security risks.<sup>26</sup>

The Fink Committee recognized, however, that scientists have available to them many other opportunities for sharing the results of their research efforts short of publication. This includes presentations at scientific meetings, Internet postings, and normal e-mail and other exchanges between scientists working in similar areas. For this and other reasons, the Committee called for a concerted effort to educate scientists about the dual-use nature of biotechnology research. They also recommended adding seven so-called “experiments of concern” to the NIH Guidelines, the oversight process which is to be followed by all academic and other institutions that receive funding from NIH for recombinant DNA research. In the view of the Committee, this layered system of self-governance, involving individual scientists, the local and national committees responsible for implementing the NIH Guidelines (known respectively as Institutional Biosafety Committees and the Recombinant DNA Advisory Committee), and journal publishers, would provide an effective oversight arrangement. In March 2004, the Bush Administration announced plans to create a National Science Advisory Board for Biosecurity to develop guidelines for implementing these recommendations. But the Board, which has yet to be named or to hold its first meeting, is strictly advisory and both industry and classified research are formally outside its jurisdiction.<sup>27</sup>

Another possibility would be to rely upon a more formalized process for considering potential dissemination restrictions or classification requirements before funding has been approved and the research begun. This is the approach enshrined in NSDD 189, which states: “Each federal government agency is responsible for ... determining whether classification is appropriate prior to the award of a research grant, contract, or cooperative agreement”.<sup>28</sup> It is also reflected in the broader oversight proposal we have been developing at the Center for International and Security Studies at Maryland aimed at preventing advanced research in the life sciences from being applied, either inadvertently or deliberately, for destructive purposes.<sup>29</sup>

Under our proposed oversight system, all proposals in certain clearly defined research areas would go through a peer review process in which the potential scientific, medical, or other benefits are weighed against the potential security risks. Consideration would be given not only to whether and under what conditions the proposed research should proceed but also the possible need for restrictions on the dissemination of the research results, including through classification. This peer review process would be applied comprehensively to all relevant institutions, whether government, industry or academic. This is in contrast to the Fink Committee approach, which formally would apply only to academic or other institutions that are subject to the NIH Guidelines. Thus, neither industry nor government biodefence programs, which the Fink Committee singled out as raising particular dual-use concerns, would be required to adhere to its proposed rules.

To encourage compliance with our oversight system and adequate funding for its implementation, the obligations would be mandatory, unlike the Fink Committee approach, which relies on the voluntary compliance of scientists with the NIH Guidelines. And consistent with the globally distributed nature of the research itself, our system would seek to establish uniform procedures and rules among all participating countries. The Fink Committee recommendations, by comparison, apply only to the United States, although the Committee acknowledged in its report that only internationally harmonized standards would minimize the risk of misuse of dual-use research.

Like the NIH Guidelines, our oversight system would be tiered, with the level of risk of the proposed research determining the nature and extent of the oversight requirements. At the foundation would be a local review body, responsible for overseeing and approving what we call potentially dangerous research activities, particularly those that increase the potential for otherwise benign pathogens to be used for destructive purposes. This local oversight body would be similar to the existing Institutional Biosafety Committees, though better resourced, both financially and in terms of dedicated personnel.<sup>30</sup> The vast majority of research would fall into this category or not be affected at all.

At the next level there would be a national review body, which would be responsible for overseeing and approving what we call moderately dangerous research activities, particularly those that would enhance the weaponization potential of pathogens or toxins that already have been identified as posing a security threat. This national oversight body would be similar to the Recombinant DNA Advisory Committee.

At the top would be a global implementing body, which would be responsible for overseeing and approving the most dangerous research activities, especially research that involves or could result in the creation of pathogens significantly more dangerous than those that currently exist. The closest precedent for this would be the WHO Advisory Committee on Variola Virus Research, which oversees and approves all smallpox virus research conducted in the USA and Russia, the only countries authorized to retain the virus following its successful eradication in nature.

If the relevant peer review body determined that the results of a particular research project needed to be restricted, every effort would be made to share the restricted information with other scientists with a legitimate need-to-know. One model for this is the process that was used by the NAS to allow limited access to certain portions of its 2002 study on agricultural bioterrorism. In response to security concerns from the Department of Agriculture, which funded the study, NAS officials developed guidelines for the types of individuals who could be given access to the controlled information. Anyone interested had to submit a written request and be interviewed by NAS staff before being provided a copy of the controlled information.<sup>31</sup> It might also be possible to use a secure, password-controlled website to make controlled information available to those who have been vetted and found to have a legitimate need for access to the information.<sup>32</sup>

Clearly, the success of an oversight system like that described above depends very heavily on the willingness of the scientific community to help develop and implement the procedures and rules that are at the heart of the system. But security experts will also be critical to the peer review process, especially at the national level, where most biodefence research proposals likely would be vetted. Security clearances

may be necessary for some or all of the individuals that serve on the national oversight body. Nondisclosure agreements, with appropriate penalties for violations, could also be used to help prevent unauthorized disclosures of sensitive information. And at every level, independent scientists and security experts, without a vested interest in the outcome of the review process, would be required to help ensure the integrity of the overall system.

## Notes

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<sup>1</sup> Prepared Testimony of Porter J Goss, Director of Central Intelligence, “Global Intelligence Challenges 2005: Meeting Long-Term Challenges with a Long-Term Strategy”, Senate Select Committee on Intelligence, 16 February 2005, available at [http://www.cia.gov/cia/public\\_affairs/speeches/2004/Goss\\_testimony\\_02162005.html](http://www.cia.gov/cia/public_affairs/speeches/2004/Goss_testimony_02162005.html)

<sup>2</sup> In addition to basic research, these figures also cover construction of new biosafety laboratories and development of medical countermeasures. Prepared Testimony of Anthony Fauci, Director, National Institute of Allergies and Infectious Diseases, Senate Committee on Health, Education, Labor & Pensions, 8 February 2005, available at [http://help.senate.gov/testimony/t184\\_tes.html](http://help.senate.gov/testimony/t184_tes.html)

<sup>3</sup> “An Open Letter to Elias Zerhouni”, *Science*, 4 March 2005, available at [http://www.sciencemag.org/feature/misc/microbio/307\\_5714\\_1409c.pdf](http://www.sciencemag.org/feature/misc/microbio/307_5714_1409c.pdf)

<sup>4</sup> Erika Check, “Biologists apprehensive over US moves to censor information flow”, *Nature*, 21 February 2002.

<sup>5</sup> US Department of Justice, Office of Information and Privacy, FOIA Post, “Guidance on Homeland Security Issued”, released 19 March 2002, available at <http://www.usdoj.gov/oip/foiapost/2002foiapost10.htm>

<sup>6</sup> US Department of Defense, “Mandatory Procedures for Research and Technology Protection with the DOD”, Draft, March 2002, available at [http://www.fas.org/sgp/news/2002/04/dod5200\\_39r\\_dr.html](http://www.fas.org/sgp/news/2002/04/dod5200_39r_dr.html)

<sup>7</sup> Prepared Testimony of Ronald Atlas, “Conducting Research During the War on Terrorism: Balancing Openness and National Security”, House Committee on Science, 10 October 2002, available at <http://www.asm.org/Policy/index.asp?bid=5703>

<sup>8</sup> Samuel Kaplan, PhD, “Current Policies and Proposals”, at Scientific Openness and National Security Workshop, National Academy of Sciences, Washington, DC, 9 January 2004.

<sup>9</sup> Nicholas R Cozzarelli, “PNAS policy on publication of sensitive material in the life sciences”, *Proceedings of the National Academy of Sciences*, 18 February 2003, available at <http://www.pnas.org/cgi/content/full/100/4/1463?etoc>

<sup>10</sup> Bruce Alberts, Wm A Wulf, and Harvey Fineberg, “Statement on Science and Security in an Age of Terrorism”, 18 October 2002, available at <http://www4.nationalacademies.org/news/nsf/isbn/s10182002b?OpenDocument>

<sup>1</sup> Diana Jean Schemo, “Scientists Discuss Balance of Research and Security”, *New York Times*, January 10, 2003.

<sup>12</sup> Cozzarelli, “PNAS policy on publication of sensitive material in the life sciences”, 18 February 2003.

<sup>3</sup> Stanley Falkow, “Statement on scientific publication and security fails to provide necessary guidelines”, *Proceedings of the National Academy of Sciences*, 13 May 2003, available at <http://www.pnas.org/cgi/content/full/100/10/5575>

<sup>14</sup> Essay, “The New Atlantis”, quoted in Ronald Atlas, “Preserving Scientific Integrity and Safeguarding Our Citizens: Challenges for Scientific Publishers in the Age of Terrorism”, at Scientific Openness and National Security Workshop, National Academy of Sciences, Washington, DC, 9 January 2003.

<sup>15</sup> US National Academies of Science, “Scientific Communication and National Security”, Washington, DC: National Academy Press, 1982, available at <http://www.nap.edu/books/0309033322/html/>

<sup>16</sup> “National Policy on the Transfer of Scientific, Technical and Engineering Information”, (NSDD 189), 21 September 1985, available at <http://www.fas.org/irp/offdocs/nsdd/nsdd-189.htm>

<sup>17</sup> Remarks by John Marburger at Scientific Openness and National Security Workshop, National Academy of Sciences, Washington, DC, 9 January 2004.

<sup>18</sup> Condoleezza Rice Letter to Dr Harold Brown, co-Chairman, Center for Strategic and International Studies, 1 November 2001, available at <http://www.aau.edu/research/Rice11.1.01.html>

<sup>19</sup> Stephen S Morse, “Bioterror R&D: Assessing the Threat”, powerpoint presentation at Scientific Openness and National Security Workshop, National Academy of Sciences, Washington, DC, 9 January 2004.

<sup>20</sup> US Department of the Army, “Classification of Former Chemical Warfare, Chemical and Biological Defense, and Nuclear, Biological, and Chemical Contamination Survivability Information” (Army Regulation 380-86), 1 February 2005, available at <http://www.fas.org/irp/doddir/army/ar380-86.pdf>

<sup>21</sup> Cozzarelli, “PNAS policy on publication of sensitive material in the life sciences”, 18 February 2003; and US National Academies of Science, “Background Paper on Science and Security in an Age of Terrorism”, 18 October 2002, available at <http://www4.nationalacademies.org/news/nsf/isbn/s10182002?OpenDocument>.

<sup>22</sup> At least one of the Principal Investigators for the most contentious experiments – mousepox, smallpox protein, and poliovirus – has left the field because of the controversy surrounding publication of the work. Private communication, 3 March 2005.

<sup>23</sup> Mark Wheelis, “Transparency and Biodefense”, unpublished powerpoint presentation, 5 December 2003. See also, Jeanne Guillemin, “National Security and Biodefense: Is There a Case for Full Transparency?” 21<sup>st</sup> Workshop of the Pugwash Study Group on the Implementation of the Chemical and Biological Weapons Conventions, Geneva, 4-5 December 2004.

<sup>24</sup> “Biological Warfare Issues Weighed”, *ASM News*, vol 54 no 7, 1988.

<sup>25</sup> Jonathan B. Tucker, “Gene Wars”, *Foreign Policy*, no 57 (Winter 1984-85), p. 70.

<sup>26</sup> National Research Council, *Biotechnology Research in an Age of Terrorism*, (Washington, DC: National Academies Press), Oct. 2003, available at <http://www.nap.edu/books/0309089778/html/>

<sup>27</sup> Information on the NSABB, including its charter, is available at <http://www.biosecurityboard.gov/index.htm>

<sup>28</sup> "National Policy on the Transfer of Scientific, Technical and Engineering Information", (NSDD 189), 21 September 1985.

<sup>29</sup> John Steinbruner and Stacy Okutani, "The Protective Oversight of Biotechnology", *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, vol 2 no 2, 2004, available at <http://www.liebertonline.com/doi/pdf/10.1089/bsp.2004.2.273>; and John D Steinbruner and Elisa D Harris, "Controlling Dangerous Pathogens", *Issues in Science and Technology*, vol 19 no 3 (Spring 2003), available at <http://www.issues.org/19.3/steinbruner.htm>

<sup>30</sup> The limitations of the current Institutional Biosafety Committees has been documented in Sunshine Project, "Mandate for Failure: The State of Institutional Biosafety Committees in an Age of Biological Weapons Research", 4 October 2004, available at <http://www.sunshine-project.org/>

<sup>31</sup> Martin Ensirenk, "Entering the Twilight Zone of What Material to Censor", *Science*, 22 November 2002.

<sup>32</sup> Raymond A Zilinskas and Jonathan B Tucker, "Limiting the Contribution of the Open Scientific Literature to the Biological Weapons Threat", *Journal of Homeland Security*, December 2002.

## **Developments in the Organization for the Prohibition of Chemical Weapons**

The major event during the period under review was the thirty-ninth session of the Executive Council, which met for only one day, 14 December 2004. Libya's combined plan for conversion and verification of the chemical weapons production facilities (CWPFs) Rabta Pharmaceutical Factories 1 and 2 (phase II) was approved, along with several facility agreements for on-site inspections at the Category 2 Al-Jufra chemical weapons destruction facility (CWDF), Ruwagha chemical weapons storage facility (CWSF), CWPF Tripoli STO-001 and for the Rabta Pharmaceutical Factories. In addition, it was reported on 31 January that a change to Part V of the Verification Annex to the Chemical Weapons Convention (the Convention or CWC) had been adopted. This change, further to a request by Libya, removes a procedural block in order to permit states parties joining the Convention after 29 April 2003 to convert former CWPFs for purposes not prohibited under the Convention.

Implementation of the Article VII action plan has become one of the Organisation's overriding concerns this year and the pace of activity will continue to gain speed in advance of the tenth session of the Conference of the States Parties where further steps will be taken on this matter, if necessary.

### ***Thirty-ninth Session of the Executive Council***

The Executive Council met for its thirty-ninth session on 14 December and was chaired by José Antonio Arróspide of Peru.

The Vice-Chairmen and coordinators for clusters of issues reported to the Council on informal consultations during the intersessional period as follows: Benchaâ Dani of Algeria, on chemical weapons issues; Mustafa Kamal Kazi of Pakistan on chemical industry and other Article VI issues; Marc Th. Vogelaar of the Netherlands on administrative and financial issues; and Kirill Gevorgian of Russia on legal, organisational, and other issues. The Chairman reported on his activities on behalf of the Council during the intersessional period.

The Director-General began his opening statement to the last regular session of the Council for 2004 by expressing gratitude and satisfaction with the work of the OPCW and its the programme and budget for 2005. Mr Pfrter noted that

the Council's relevant recommendations and suggestions regarding the budget will guide the Secretariat's work on the one for 2006.

Turning to verification, the Director-General observed that several decisions were before the Council including ones deferred from the previous session as well as decisions relating to facility agreements with Libya and a CWDF in India. Mr Pfrter discussed Libya's preparations for the destruction of its Category 1 weapons and noted that destruction of its Category 2 weapons would begin in December. It was noted by the Director-General that nearly three times as much lewisite is being destroyed now at Unit 1 of the Gorny CWDF due to a technical modification in the destruction process. Mr Pfrter also remarked that 48 per cent of the stockpile of a state party of withheld identity has now been destroyed. In respect of optimisation, Mr Pfrter observed that, in the United States, optimisation of verification is underway at the Anniston Chemical Agent Disposal Facility, including the successful completion of its first round of munitions destruction under an optimisation trial. He added that optimisation at a CWDF in India is being discussed and that talks are also underway with Russia, including discussions on the possible optimisation of verification activities at the future CWDFs in Kambarka and Maradikovskiy.

With regard to international cooperation, the Director-General noted that recent events were held in Argentina, Bangladesh, Kenya, Singapore, and Uruguay under the OPCW's Conference Support Programme. Particular attention was drawn to the Fourth Singapore International Symposium on Protection against Toxic Substances, which Mr Pfrter attended, held in Singapore during 6-10 December. The Director-General also observed that 15 projects were sponsored in 2004 in several states parties with developing economies under the Programme for Support of Research Projects. In respect of assistance and protection, Mr Pfrter expressed his satisfaction with the adoption of a decision by the Conference on the format for submission of information about national protection programmes. Brief mention was also made of the upcoming ASSISTEX 2 to be held in Ukraine. National capacity-building was discussed by the Director-General, including thirteen courses for first responders in as

many member states, nine regional protection courses and nine international assistance events. Mr Pfirter concluded his remarks on the topic of international cooperation by noting the Conference's request to the Council to expedite consultations on the full implementation of Article XI, with a view to forwarding a proposal to the tenth session of the Conference, as well as the Netherlands' contribution to the OPCW to sponsor an expert in Addis Ababa to work with African states parties on implementation of the Convention.

The Director-General next said a few words about universality. He observed that nine states had joined the OPCW in 2004, bringing the total number of states parties to 167. Mr Pfirter mentioned several recent outreach activities, drawing particular attention to a subregional workshop for Eastern Caribbean states held in Saint Kitts and Nevis in November. He added that the OPCW's efforts in the Caribbean were supported by the Organisation of Eastern Caribbean States, which assisted with the Saint Kitts and Nevis event, as well as by the Organisation of American States. Lastly, Mr Pfirter emphasized that the OPCW would continue to work with member states and international and regional organisations in 2005 to further universality of the Convention.

The Director-General's final comments concerned internal oversight and the OPCW Staff Regulations and Interim Staff Rules. On the first matter, Mr Pfirter briefly noted that he had approved a proposal from the Office of Internal Oversight to arrange a workshop on risk management for senior programme managers, in light of a suggestion from the Council at its thirty-seventh session. Turning to the OPCW Staff Regulations and Rules, the Director-General noted that a task force had nearly completed the first phase of its work on this matter and that its recommendations were being internally reviewed, including with staff representatives. He added that a draft proposal would be submitted to the Council for consideration at its fortieth session, with the ultimate aim of presenting a final proposal to the Conference at its tenth session. In concluding, the Director-General observed that the OPCW appears to be functionally well and that it is ready to play a role vis-à-vis evolving challenges, including those highlighted in the recent UN report prepared by the High-Level Panel on Threats, Challenges and Change.

India, Ukraine and China made interventions during General Debate. India discussed the status of its destruction efforts, Ukraine discussed preparations for ASSISTEX 2, and China discussed, *inter alia*, a recent initiative with the European Union on arms control and non-proliferation, the universality and Article VII action plans, and international cooperation and assistance.

**Destruction issues** The Executive Council again had before it the decision on the detailed plan for the verification of destruction of chemical weapons at the Aberdeen Chemical Agent Disposal Facility in the United States. This plan, first introduced at the thirty-second session of the Council, was again deferred until its next session. The Council also decided to defer until this session consideration of an agreed detailed plan for verification of the destruction of chemical weapons at a CWDF in India.

**Conversion and verification of chemical weapons production facilities** The Council noted information submitted by the Director-General, in a restricted document, on the progress made at CWDFs where conversion is still in progress.

Russia gave a brief presentation on the status of conversion at its former CWDFs, further to discussions during the Executive Council's thirty-third session on the need for such reports from relevant states parties during its last regular session each year.

Regarding other conversion matters, the Council considered and approved a combined plan for conversion and verification of the CWDFs Rabta Pharmaceutical Factories 1 and 2 (phase II) in Rabta, Libya.

**Facility agreements** The Executive Council again deferred a decision until its next session on the facility agreement relating to on-site inspections at the Aberdeen Proving Ground-Edgewood Area in the United States. This decision was first introduced at the thirty-second session of the Council.

The Council approved the following facility agreements for on-site inspections with Libya: the Category 2 Al-Jufra CWDF (Al-Jufra CWDF-001), the Ruwagha CWSF, the CWPF Tripoli STO-001, and the CWDFs Rabta Pharmaceutical Factories 1 and 2. Further to standing instructions from the Council, the Secretariat separately indicated the differences between the text of the model agreements for these facility agreements and the agreed texts with Libya.

The Council also took note of the Technical Secretariat's Note informing the Council of agreed changes to a facility agreement with the United States for on-site inspections at the Umatilla Chemical Agent Disposal Facility at Umatilla Chemical Depot, Oregon.

**Administrative and financial issues** The Council received reports on the OPCW's income and expenditure for the months of September and October 2004. As at 31 October 2004, 79.9 per cent of the assessed contributions for 2004 had been received. 100 states parties had fully paid their assessed contribution and fifteen had paid in part. The amount outstanding was EUR 13,781,745.

With regard to Article IV and V verification costs for 2004, EUR 3.9 million in reimbursements had been budgeted for. As at 31 October 2004, EUR 3,372,041 had been invoiced by the OPCW. Of that, EUR 1,933,337, or 57.3 per cent, had been paid by the possessor states parties concerned.

**Advisory Body on Administrative and Financial Matters** Yu Dunhai's resignation from the Advisory Body on Administrative and Financial Matters was noted by the Council. In addition, the appointment of Zhang Shen was approved. This appointment was made retroactive to the effective date of his letter of nomination.

**Other business** The Council urged all states parties to file their annual declarations in a timely manner, further to Secretariat reports on the status of annual declarations on past activities for 2003, as well as on projected activities and anticipated production at Schedule 1 facilities and anticipated activities at Schedule 2 and 3 plant sites in 2005.

### **New Member States**

According to the OPCW and as at 10 March 2005, there are 167 states parties, 16 signatory states which have not yet ratified the Convention, and 11 states which have not signed or acceded to the Convention.

## Technical Secretariat

**Declaration processing** As at 28 February 2005, 156 member states had submitted initial declarations, with Afghanistan, Cape Verde, Marshall Islands, Mozambique, Saint Vincent and the Grenadines, Sierra Leone, Solomon Islands, Timor-Leste, Tonga, Tuvalu and Madagascar yet to do so. Eight states parties had submitted incomplete initial declarations: Ivory Coast, Kiribati, Nepal, Seychelles, Suriname, Turkmenistan, and Yemen having failed to submit their Article VI initial declarations, and Nauru having yet to submit its initial declaration under Article III. Eighty states parties had submitted annual declarations of past activities for 2003 and forty-three states parties had submitted declarations of anticipated activities for 2005.

**Inspections and verification** As at 11 March 2005, 64 inspections had been completed at a total of 51 sites since 1 January 2005. The breakdown of completed inspections is as follows: 20 at CWDFs, 6 at CWPfFs, 2 at CWSFs, 16 DOC inspections, 1 at an old chemical weapons site, 2 at a Schedule 1 facility, 12 at Schedule 2 facilities, and 5 at Schedule 3 facilities. Also, as at 11 March 2005, 11 CWDF and 3 CWSF inspections were in the process of being completed.

As at 11 March 2005, 2,009 inspections at 812 sites had been completed since entry into force. The breakdown of completed inspections is as follows: 24 at ACW sites, 500 at CWDFs, 333 at CWPfFs, 266 at CWSFs, 8 at destruction of hazardous chemical weapon sites, 249 DOC inspections, 1 at an emergency destruction of chemical weapons site, 57 at old chemical weapons sites, 1 'other', 141 at Schedule 1 facilities, 287 at Schedule 2 facilities, and 142 at Schedule 3 facilities.

The fourth inspector-training course conducted by the OPCW was completed by nine trainee inspectors on 10 December 2004. The Inspectorate now numbers 173 inspectors. It was also reported that the Technical Secretariat will reimburse Group A and B P-4 inspectors in the amount of 118,000 EUR as part of a contractual obligation to pay them acting team-leader allowances when acting in that capacity. These payments stopped in 1999. The Secretariat will also reinstate the practice of making these payments for inspectors eligible to receive them in future.

**Destruction** Official destruction figures reflect that, as at 28 February 2005, 11,334 agent-tonnes of chemical weapons, out of a declared total of 71,373 agent-tonnes, had been destroyed. Some 2,161,315 munitions/containers, out of a declared total of 8,671,570, had also been destroyed.

The number of CWDFs operating in February was seven: five in the United States, one in Russia and one in Libya.

**Implementation of Article X** A number of invitations have been issued in relation to assistance and protection training programmes to be held in 2005. In late December, the OPCW and South Africa invited member states to nominate participants for a regional assistance and protection course. The course will provide training for up to 30 participants from the region on how to plan for and build a response team for civilian protection and defence, rescue operations in contaminated areas, and for measures against incidents involving chemical-warfare agents. It is scheduled to take place from 7-11 March in Pretoria. Training will cover

individual and collective protective equipment; monitoring, detection and decontamination; and sampling techniques, and conclude with a practical emergency-response exercise.

In late January, the OPCW and Slovakia invited states parties to nominate participants for a training course on protection against chemical weapons. The course will provide training for up to 20 participants on: types of chemical-warfare agents and their effects, and conducting threat analysis; activities in contaminated areas; responding to incidents involving chemical-warfare agents; using individual and collective protective equipment; using monitoring, detection and decontamination techniques; and maintaining, testing and repairing material. The course is scheduled to take place from 11 to 15 April at the Institute of Civil Protection in Slovenská Lupca, Slovakia.

A joint invitation from the OPCW and the Swiss government was issued inviting member states to nominate participants for the Chemical Weapons Chief Instructor Training Programme (CITPRO VIII), which is scheduled to take place from 18 to 22 April in Spiez, Switzerland.

A joint invitation from the OPCW and the Republic of Korea was issued inviting member states to nominate participants for an international assistance and protection course, to be held in Seoul from 9 to 13 May. It is intended to provide training for no more than twenty-five participants from Asian member states in planning for and building a response team in civilian protection, civilian defence, rescue operations in contaminated areas, and for measures against incidents involving chemical-warfare agents. An overview of assistance and protection from the OPCW and member states, including the Republic of Korea, will also be provided.

A regional workshop on assistance and protection against chemical weapons, jointly organised by the OPCW and Malaysia, will take place in Kuala Lumpur from 16 to 19 May. It will serve as a forum for managers and planners involved with protection of civilian populations or the provision of emergency assistance under Article X of the CWC. Topics to be addressed include: the planning and establishment of a response system for the protection of civilian populations against chemical weapons, developing an integrated response system at the national level and its interaction with local emergency management authorities and the National Authority, regional approaches to assistance and protection, regional cooperation to coordinate responses and the delivery of assistance, and requirements for training first responders. It is also envisaged that a regional assistance and protection network will be established during this workshop.

An invitation was issued to member states in early February for a chemical weapons civil defence training course, scheduled to take place during 16-20 May in Lázně Bohdaneč, Czech Republic. Training will be provided for up to 20 participants.

The second OPCW exercise on the delivery of assistance (ASSISTEX 2) is scheduled to take place in Lviv, Ukraine from 10 to 13 October 2005. An invitation to participate in a planning meeting for this exercise, scheduled to take place from 21 to 23 March, was issued in early February by the Technical Secretariat. ASSISTEX 2 will focus on: assessing preparedness to receive and transmit requests to the OPCW for assistance and responses to those requests; assessing the overall validity of drafts of standard operating procedures, working instructions and other documents related to the delivery of assistance and the investigation of alleged chemical

weapons use; assessing notification and activation procedures; improving coordination and cooperation among the emergency-response units provided by member states; assessing cooperation between the OPCW and other international organisations involved in assistance and protection; and testing the OPCW's system for responding to requests for assistance, the dispatch of the assistance coordination and assessment team (ACAT) and a team to investigate the alleged use of chemical weapons, and how the ACAT facilitates field-emergency response operations.

**Implementation of Article XI** An analytical skills development course is scheduled to take place this year from 24 June to 8 July in a leading academic institution in Europe. The course is intended to accommodate 20 participants and will have two parts focusing on basic training and gaining experience in gas chromatography (GC) and GC mass spectrometry (GC-MS). The second week will focus on the preparation of environmental samples and GC and GC-MS analyses of the samples for CWC-related chemicals.

Member states were informed by the OPCW in late January that it would be implementing a Laboratory Assistance Project in 2005 under a Joint Action with the European Union. It has the purpose of developing the capacities of publicly funded analytical laboratories in developing countries so as to improve the quality and accuracy of their chemical analyses and to upgrade their technical competence. More specifically, essential analytical equipment and related technical assistance will be provided to these laboratories if needed.

The OPCW informed member states that it would be implementing a project on equipment support to National Authorities in 2005 under a Joint Action with the European Union. It has the purpose of facilitating the building of capacities of National Authorities in developing states parties in order to enable them to implement the CWC and to engage in the development and application of chemistry for peaceful purposes. More specifically, office support equipment such as a desk-top personal computer, printer and software, could be provided to each of those National Authorities that request the equipment to, *inter alia*, assist them with the implementation of their obligations under the Article VII action plan.

The OPCW also informed member states in early February that it would be offering a six-month internship at the OPCW Laboratory starting 1 June. It has the purpose of fostering the development of practical analytical skills in the analysis of chemicals covered by the CWC. It is also intended to facilitate the sharing of scientific and technical information related to the development and application of chemistry for purposes not prohibited under the Convention and to lead to national capacity-building in chemical analysis and in the monitoring and strengthening of the technical competence of laboratories.

**Implementation support** The Technical Secretariat has launched a National Authority Discussion Forum on a trial basis for six months. It is an Internet-based, bulletin-board type of communication tool for CWC National Authorities, with specific forums devoted to discussion of implementing legislation, verification, international cooperation, assistance and protection, and implementation support. There are separate forums for members of the Scientific Advisory

Board and its temporary working groups.

The Sixth Regional Meeting of National Authorities in Latin America and the Caribbean will take place in Cartagena, Colombia from 21 to 22 April 2005.

An invitation was issued to member states by the National Authority of Portugal and the OPCW in mid-February for a two-day basic course for personnel involved in the national implementation of the CWC. It will be held at the Instituto Nacional de Engenharia y Tecnologia y Inovação in Lisbon, Portugal from 2 to 3 May. It is intended for personnel from the National Authorities of Cape Verde, Sao Tome and Principe, Mozambique, Guinea Bissau, and Timor Leste and has the objective of increasing the ability of these states parties to comply with their CWC obligations.

An invitation was jointly issued by the Technical Secretariat and the National Authority of France for two training courses for personnel of National Authorities involved in national implementation of the Convention, to be held 20-30 June and 3-13 October. The courses are intended to train National Authority personnel with little or no previous involvement in implementation of the Convention, and will include 56 hours of instruction in the French language.

The third subregional meeting of National Authorities in Central America, jointly organized by the government of Guatemala and the OPCW, will take place in Ciudad Guatemala from 19 to 20 July. The meeting will focus, in particular, on the role of National Authorities with regard to implementation of the Convention, the administrative requirements for a successfully functioning National Authority, declaration-related issues, and implementing legislation.

**Universality** An invitation has been issued by the Director-General and the government of Cyprus for a workshop on the universality of the Convention. It will take place from 13 to 15 June in Cyprus. Related to a Joint Action with the European Union on support for the OPCW's activities in the framework of implementing the European Union Strategy against Proliferation of Weapons of Mass Destruction, the workshop is intended to increase awareness of the Convention among states in the Mediterranean Basin, the Middle East and neighbouring regions. In addition, it has the objective of promoting the universality of the Convention and its implementation. More specifically, the workshop will include a review of the status of implementation of the Convention in the regions noted above and problems encountered in complying with the Convention's obligations, a discussion of practical measures to reach this goal, and tailored information sessions for signatory and non-signatory states. There will also be discussions of the OPCW's programmes for international cooperation, protection and assistance.

**Validation Group** The report of the twentieth meeting of the Validation Group was issued a few weeks after the meeting, which took place from 7 to 8 December 2004. The meeting had the objective of evaluating new analytical data for inclusion in the OPCW Central Analytical Database (OCAD). The data, including mass spectrometry (MS) data from laboratory 22 which had been resubmitted last fall, were forwarded to the Director-General for appropriate action. Data on riot control agents were also evaluated by the Validation Group and submitted to the Technical Secretariat for action.

It was noted that the Executive Council at its thirty-eighth

session approved the results of the evaluation of data from the nineteenth meeting of the Validation Group and that the Secretariat would begin authenticating these data. It was also noted that an updated version of OCAD would be released in early 2005, which would include data approved by the Executive Council through its thirty-seventh session.

It was reported that the Chemical Abstracts Service numbers for chemicals in the OCAD had been checked and that numbers for 2-chlorovinylchloroarsine (lewisite 1) and bis(2-chlorovinyl)chloroarsine (lewisite 2) were different from their numbers in the Convention. The Validation Group recommended, however, that the CAS numbers for these chemicals remain the same in OCAD.

It was reported that the process for re-evaluation in the proposed procedure for the removal of data from the OCAD will be inserted in a future version of the Secretariat's standard operating procedure on "the organisation of the OCAD and the extraction of data to on-site databases". In addition, a list of data for removal from the OCAD was forwarded to the Director-General for appropriate action.

It was reported that the Validation Group considered the issue of naming chiral compounds but decided it did not need to produce the naming of these compounds and that optical isomers should be declared in the same way as the racemic mixture. Additionally, the spelling of "sulphide" was standardized to "sulfide".

The Validation Group considered the matter of improving access to infrared (IR) data in the OCAD through an IR browser. It also considered the possibility of adding a chemical identifier to the chemical information on each compound in the OCAD, which may affect the Handbook on Chemicals. One member discussed an IUPAC identifier which could automatically be created from a chemical structure and that relevant software is available. The Secretariat was encouraged to look into this.

The report indicated that the Validation Group had finished discussion of the differences between the GC(RI) values of some compounds measured on a DB5-MS column and those measured on SE-54 types of column. It was concluded that a factor of 1.0087 should be applied retrospectively to data measured on a DB5-MS column in the context of creating the on-site database. It was added that approved GC(RI) data will now be accompanied with the following: "Due to differences in the brands of GC columns available on the market, a small correction factor must be applied to the GC(RI) values in some columns to reflect these differences. This applies in particular to the values used in the on-site database".

It was reported that the Validation Group agreed with the Secretariat's practice of including multiple mass spectra in the on-site database when the span between the lowest and highest values of the GC(RI) indices of isomers exceeds 20 units. It was added that an average GC(RI) value will be incorporated when the span is 20 units or less.

Finally, gaps in the OCAD were discussed, especially those between the MS and GC(RI) data. It was recommended by the Group that the gaps be filled as a priority and one member agreed to produce a list of gaps between these data for the Group's review at its next meeting.

The twenty-first meeting of the Validation Group will take place during 21-22 June.

**Proficiency testing** On 24 February, the Director-General released the schedule for the seventeenth and

eighteenth official Proficiency Tests for laboratories. The samples for the seventeenth test will be dispatched on 1 April. The Wehrwissenschaftliches Institut für Schutztechnologien – ABC Schutz in Germany will prepare the test samples, with the Edgewood Chemical and Biological Forensic Analytical Center in the United States assisting with the evaluation of the results. The samples for the eighteenth test will be dispatched on 7 October. The test samples will be prepared by the Departement Laboratoria van Defensie in Belgium, and VERIFIN in Finland will assist with the evaluation of the results.

**New validated data** In late January, the Secretariat released the latest version of OCAD on DVD. It contains electronic version 6 (e-OCAD v.6), portable data format version 8 (PDF-OCAD v.8) and, for the first time, the on-site analytical database (OS-e-OCAD v.6). The electronic version contains mass spectrometry data (MS spectra), while the PDF version contains MS, infrared spectrometry (IR), and nuclear magnetic resonance spectrometry (NMR) data, as well as gas chromatography retention indices (GC(RIs)). OS-e-OCAD v.6 contains MS data and retention indices in a combined format and is used with OPCW equipment for on-site analysis.

The databases are updated with data on chemicals approved for inclusion in the OCAD by the Executive Council at its thirty-fifth, thirty-sixth, and thirty-seventh sessions, respectively.

**Technical issues** An invitation was issued by the Secretariat in February for National Authorities to familiarise themselves with newly procured inspection equipment.

**Financial figures** As at 31 December 2004, EUR 61,156,121, or 89.1 per cent, of the assessed contributions for 2004 had been received. 104 states parties had fully paid their assessed contribution and sixteen had paid in part. The amount outstanding was EUR 7,497,269.

With regard to Articles IV and V verification costs reimbursements for this calendar year, EUR 3.9 million in reimbursements has been budgeted for. Based on the most recent official information available, EUR 3,932,554 has been invoiced. Of that, EUR 2,191,886, or 55.7 per cent, has been collected.

**Official visits and visitors** The Director-General of the OPCW paid an official visit during the period under review to Finland from 14 to 16 February, during which he met with the Minister of Foreign Affairs and Director General for Political Affairs, the Director of VERIFIN, the Head of the Defence Policy Department in the Ministry of Defence, and the Chair of the Foreign Affairs Committee of the Finnish Parliament. He also addressed the Finnish Parliament and its Foreign Affairs Committee, as well as the Finnish Institute for International Affairs.

The Director-General met with the Assistant Secretary of Defense from the United States Department of Defense on 3 February at OPCW Headquarters. On 9 March, Pfirter met with the following from the Ministries of Foreign Affairs and Defence of Israel: the Deputy Director General for Strategic Affairs, the Director of the Arms Control Department, the Ambassador of Israel to the Netherlands, and a Senior Consultant in the Ministry of Defence.

**Staffing** The OPCW actual personnel strength as at 10 March 2005 was reported as 520. Of these, 436 are on fixed-term contracts and 302 are D or P-level staff. It was also reported that between 10 December 2004 and 10 March 2005 there were 1 D-1 (External Relations Planning Officer), 1 P-5 (Head of Protocol), 5 P-4, and 1 P-3 appointments. During the same period, there were 1 D-2 (Director, External Relations Division), 1 D-1 (Head, Industry Verification Branch), 2 P-5 (Inspection team leaders), 7 P-4, and 2 P-3 separations.

**Other matters** It was reported on 16 December 2004 that the European Union Council had approved a Joint Action with the OPCW. A Contribution Agreement was signed between the European Union Commission and the Secretariat under which EUR 1,841,000 will be provided to the OPCW in 2005 for work in the areas of universality, national implementation, and international cooperation in the field of chemical activities. These funds are being provided as part of the European Union's strategy against the proliferation of weapons of mass destruction.

### **Subsidiary Bodies**

**The Scientific Advisory Board** The following seventeen individuals have been appointed to the Scientific Advisory Board (SAB): Medhi Balali-Mood of Iran, Herbert de Bisschop of Belgium, Robin Black of the United Kingdom, Jose Luz Gonzalez Chavez of Mexico, Philip Charles Coleman of South Africa, Breccia Fratadochi of Italy, László Halász of Hungary, Abdool Kader Jackaria of Mauritius, Viktor Kholstov of Russia, Valery P Kukhar of Ukraine, Robert Matthews of Australia, Godwin Haruna Ogbadu of Nigeria, Titos Anacleto Quibuyen of the Philippines, Danko Škare of Croatia, Jean-Claude Tabet of France, R Vijayaraghavan of India, and Zhiqiang Xia of China. Two members were also appointed whose first term of office had ended in July 2004: Jirí Matoušek

of the Czech Republic and Koichi Mizuno of Japan.

The seventh annual meeting of the SAB took place 9-11 March.

**Commission for the Settlement of Disputes Related to Confidentiality** The seventh meeting of the Confidentiality Commission is scheduled to take place from 9 to 11 May.

**Advisory Body on Administrative and Financial Matters** The eighteenth session of the Advisory Body on Administrative and Financial Matters will take place from 9 to 13 May.

### **Future Work: EC-40 (15-18 March)**

The fortieth session of the Executive Council was scheduled to take place during the week of publication of the March *Bulletin*, accordingly, the outcomes of that session are not discussed in this issue. Some of the decisions to be considered include agreed detailed plans for verification of destruction of chemical weapons at the Newport Chemical Agent Disposal Facility and at the Explosive Destruction System, Phase 1, Unit 2/3, Pine Bluff Arsenal, as well as the related facility agreements for on-site inspections with the United States; the establishment of specific dates for the intermediate deadlines for destruction by Libya of its Category 1 chemical weapons stockpiles; an amendment to the facility agreement with the United States regarding on-site inspections at the Chemical Transfer Facility, Aberdeen Proving Ground; a facility arrangement with France regarding on-site inspections at a single small-scale facility; and a privileges and immunities agreement between the OPCW and Cuba.

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*This report was written by Scott Spence, the HSP Researcher in The Hague*

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## **Forthcoming Events**

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### **27-30 June**

Wiston House, UK  
Wilton Park Conference no.787:  
*Next Generation WMD: Anticipating the Threat*  
Details: [www.wiltonpark.org.uk](http://www.wiltonpark.org.uk)

### **17-23 September**

Dubrovnik, Croatia  
CBMTSI-IV *Third World Congress on Chemical, Biological and Radiological Terrorism*, with pre-congress *Workshop on Proliferation*  
Details: [www.ASANLTR.com/wbiot.htm](http://www.ASANLTR.com/wbiot.htm)

### **30 September-2 October**

Wiston House, UK  
Wilton Park Conference no. 797:  
*CBW Proliferation: Developing New Responses*  
Details: [www.wiltonpark.org.uk](http://www.wiltonpark.org.uk)

### **28 June-1 July**

OPCW Headquarter, The Hague  
Executive Council, Session 41

### **27-30 September**

OPCW Headquarters, The Hague  
Executive Council, Session 42

### **7-9 November**

OPCW Headquarters, The Hague  
10th Session of the Conference of The States Parties

*What follows is taken from issue 67 of the Harvard Sussex Program CBW Chronicle, which provides a fuller coverage of events during the period under report here, and also identifies the sources of information used for each record. All such sources are held in hard copy in the Sussex Harvard Information Bank, which is open to visitors by prior arrangement. For access to the Chronicle, or to the electronic CBW Events Database compiled from it, please apply to Julian Perry Robinson.*

**November** In Kamisu, Japan, a team of researchers has identified incidents of diphenylarsinic acid poisoning from chemical weapons, according to research published in the *Annals of Neurology*. The report of the team – led by Kazuhiro Ishii – reads thus: “Diphenylarsinic acid (DPAA) is a degradation product of diphenylcyanoarsine (Clark I) or diphenylchloroarsine (Clark II), both of which were synthesized for the Japanese Imperial Army as chemical weapons of emetic type under the code name Agent Red No.1. During World War II, large amounts of diphenylcyanoarsine and diphenylchloroarsine were manufactured both in the United States and European countries as well as in Japan... The town of Kamisu, located east of Tokyo facing the Pacific Ocean, was not identified as a site related to the production and storage of chemical weapons in 1973 government surveys. Here, we document a syndrome presenting mainly with cerebellar symptoms that first became apparent in 2000 in a few residents of one apartment building in Kamisu. The well providing drinking water for the building was found to be contaminated with DPAA... To our knowledge, this is the first report of mass poisoning caused by oral ingestion of water contaminated with DPAA... In view of the cerebellar symptoms, contamination from various agricultural chemicals such as organic chlorides was suspected, but no such substances available in Japan were detected... Terminating exposure to contaminated well water by admission to the hospital or relocation from the area resulted in dramatic amelioration of symptoms within 1 to 2 weeks. When patients resumed ingestion of the contaminated water, symptoms reappeared within a few months... The Kamisu area where these incidents of poisoning occurred was not identified in official records as a production storage site for Agent Red No.1. Official documents are not sufficiently complete to assess how much concern is warranted about future incidents within Japan, surrounding countries, and Europe.”

**November** The German Zollkriminalamt (Federal Customs Administration) releases *Exportkontrolle Informationen sensible Länder* [Export Controls: Information about Countries of Concern]. The report includes the following:

“Iran has had years of experience in the biotechnological sector, thus it has the necessary know-how to conduct a biological weapons programme. This programme is thought to be in the research and development stage. The research is partly being conducted at small university laboratories. Iran is attempting to acquire microbiological and biotechnological laboratory and production equipment (e.g. fermenters, centrifuges, freeze-dryers, separators), as well as biological material, e.g. bacterial and fungal strains and toxins... Iran has an emerging chemical industry. Its chemical warfare programme obtains support, according to accounts received, from China and India. It probably possesses chemical agents such as sulphur mustard, tabun and hydrocyanic acid, and possibly also sarin and VX. Iran is attempting to acquire chemical installations and parts thereof, as well as technology and chemical precursors.

“North Korea is counted among those states which have acquired an offensive biological and chemical weapons programme; further deployability has to be assumed. In respect of precursors, North Korea is largely reliant on imports.

“Syria is presumed to have initiated biological weapons research in the late 1980s under the auspices of the Scientific Studies and Research Centre (SSRC, or CERS), Damascus. Syria is thought to have developed biological weapons agents such as botulinum toxin, algae toxins and *Bacillus anthracis* ... Syria has, since the late 1970s, concentrated on research, development and production of chemical-weapon agents with a view to acquiring a strategic counterweight to Israel. Although officially Syria does not possess such agents, there are indications that it has large stockpiles of the nerve agents sarin and VX. Besides various types of bomb, Syria’s technology capable of delivering such agents includes warheads for Scud missiles, which it has already tested. Syria is largely reliant on imports in respect to precursors and key production technology.

“India has several biology and biotechnology facilities which are known to be used to advance research and development of defensive biological weapons activities. It is not ascertainable how far India’s offensive projects here may have advanced beyond research. It can safely be assumed that India has sufficient knowledge and equipment to mount such a programme... India can draw on its modern chemical industry, which has the capability to produce all precursors that are necessary for the production of chemical-weapon agents. It has succeeded in designing and constructing industrial chemical plants, as well as manufacturing equipment to western standards. It has the potential to develop highly complex production-technology... According to a statement by the former commander-in-chief of the armed forces, General Sunderji, it is not necessary for a country that is able to produce nuclear weapons to possess chemical weapons. Consequently, reserves of chemical weapons are limited to mustard gas originating from British Second World War stocks. According to current knowledge India only produces small amounts of sarin and nerve agents for the testing of protective equipment. However, there is speculation that India produces and stockpiles chemical-weapon agents, particularly since relevant warheads for Prithvi short-range missiles have already been developed. [Note: The ZKI appears uninformed about Indian membership of the CWC.]

“Pakistan’s monetary expenditure for its nuclear and missile programmes leaves little scope for it to mount an offensive chemical and biological weapons programme, though this cannot be proved. However, it is documented that Pakistan is active in the area of defensive chemical and biological weapons research.”

**1 November** In Fallujah, Iraq, fighters opposed to the US-led occupation of Iraq claim to have obtained chemicals such as cyanide, which have been added to mortar rounds, and threatened to use them in any battle for control of the

town, according to the London *Sunday Times*. The newspaper reports that a military committee made up of former officers in Saddam Hussein's army, including experts on chemicals and guerrilla warfare, has been organizing the forces in Fallujah and planning tactics. The committee is understood to include members of all the main insurgent groups, including Abu Musab al-Zarqawi [see 17 Oct].

**2 November** In Tokyo High Court, a former Japanese soldier testifies that the Japanese Imperial Army buried chemical munitions in north-eastern China shortly after the end of World War II. "I buried poison gas weapons. I received an emergency order from the commander (to bury them)," says the unidentified 83-year-old former soldier, at the appeal hearing of a case, filed by five Chinese nationals against the Japanese government, previously dismissed by a district court [see 15 May 03]. It is the first testimony provided by a former Japanese military insider involved in the burying of such weapons. At a subsequent press conference the witness says: "I was shocked to read a newspaper article ten years ago on the damage caused by the poison gas weapons. The government has not even interviewed former soldiers involved in the dumping. I provided the testimony to help the plaintiffs win state redress." The witness was involved in the storage of ammunition sent from various parts of Manchuria with about 60 Japanese soldiers and some 100 Chinese people in the province of Jilin, north-eastern China, in July 1945. On the order of the commander, he buried poison gas weapons on the outskirts of Dunhua several days after the end of the war, but abandoned many of the weapons that he and colleagues were unable to bury.

**2 November** The Chechen leader who claimed responsibility for the recent siege at a school in Beslan [see 040901], says he will use any means – including chemical and biological weapons against civilians – to force Russia to end the war in the Chechnya and grant Chechnya independence, so reports *The (Toronto) Globe and Mail*. An e-mail exchange between Shamil Basayev and the paper was arranged through the Kavkaz Center website, which Basayev has used for several years to communicate with the outside world. The paper says, that whilst there was no way to prove it was communicating with Basayev, the answers and rhetoric were consistent with past statements believed to have come from him.

**2 November** The US Defense Department has temporarily halted its anthrax vaccination programme following an injunction issued by the US District Court for the District of Columbia [see 27 Oct]. Announcing the decision, however, Assistant Secretary of Defense for Health Affairs William Winkenwerder says: "I just would like to reassure everyone that the vaccine is safe and effective... The most definitive study was one that was independent, apart from the Department of Defense, done two years ago by the National Academy of Sciences... They looked at all the evidence... They said the vaccine is safe and effective against all forms of anthrax." A year ago the vaccination programme was also paused briefly following a similar ruling [see 22 Dec 03], which shortly afterwards was reversed [see 7 Jan]. Officials hope that, as in 2003, the current legal issues will be resolved quickly and the program will restart in the near future, he said.

**3 November** In Moscow, Russian President Vladimir Putin and Italian Prime Minister Silvio Berlusconi agree to improve co-operation in the fight against the proliferation of weapons of mass destruction and delivery systems relating thereto. A joint statement, adopted following their talks, states

that both sides will continue to work together within the G8 global partnership to implement Russian chemdemil.

**3 November** The US Department of Homeland Security [DHS] is examining the potential use of sodium fluoroacetate, a poison used to kill wolves and coyotes in western US states, as a terrorist weapon, so reports the Portland *Oregonian*. The DHS is reviewing the chemical, known as Compound 1080, which is reported to have no known antidote. The paper refers to "scientific journals" as stating that some countries have examined the use of sodium fluoroacetate as a potential chemical weapon. It further quotes the FBI, US Air Force and Canadian Security Intelligence Service as saying that Compound 1080 could be used to poison water supplies.

**4 November** China defends its handling of weapons sales in response to recent comments made by US Undersecretary of State for Arms Control and International Security John Bolton in Tokyo that China "engages in outward proliferation" [see 25-27 Oct]. During a press conference, Zhang Qiyue, a spokeswoman for the Chinese Foreign Ministry, says that China has "very strict" laws and regulations on weapons of mass destruction and was willing to enforce them [see 3 Dec 03]. She continues: "We support the objective of PSI in combating terrorism... We are willing to have discussions to further strengthen measures in this respect, but at the same time we have reservations on some measures of PSI... [Some] forceful measures taken by PSI - such as interceptions - go beyond the framework of international laws and UN Charter principles."

**4 November** The UK Ministry of Defence publishes *The 1990/1991 Gulf Conflict: Health And Personnel Related Lessons Identified*. The paper states: "The lack of transparency about the anti-biological warfare immunisation programme during the Conflict (Operation Granby) has led to serious misconceptions, which persist even now amongst some veterans. The MOD has introduced a number of changes and guidance on immunisation. We have been much more open about the current voluntary anthrax immunisation offered to Service personnel. At the beginning of combat operations last year in Iraq, the take-up of immunisation against anthrax among deployed personnel was around 70% overall and higher in some front-line units... Guidance on the use of NAPS [nerve agent pre-treatment set] tablets has been clarified. Instructions and guidance on operational record keeping have been revised and overall the Services have produced far better operational records during [Operation Telic] than was the case in 1990/1991... DU based anti-armour munitions were rapidly brought into UK service for use in 1990/1991. With hindsight, more could have been done to anticipate worries about ill-health and to communicate the minimal risks to our own forces more effectively... Specific diseases, disorders, abnormal conditions and medical syndromes all have common features such as a set of physical signs or symptoms that distinguish them from other medical conditions. But veterans of the 1990/1991 Gulf Conflict do not present with a distinct and identifiable pattern of symptoms or signs. The current consensus of the international scientific and medical community is therefore that there is insufficient evidence to enable this ill-health to be characterised as a unique illness or syndrome. The MOD's approach must be guided by expert scientific and medical opinion and for this reason does not recognise 'Gulf War Syndrome' as a specific medical condition... Although there is no conclusive scientific evidence to connect multiple immunisations with ill-health, vaccinations should ideally be administered routinely and not immediately pre-deployment or in theatre. In order to reduce the requirement to immunise

troops in theatre, occupational health vaccinations have been made routine for Service personnel... From January 2005 we plan to offer anthrax immunisation routinely to all forces, including reserves and those essential civilians who are likely to deploy on operations. We plan to begin with those units that are held at the highest readiness. Taken together with our other force protection measures, these arrangements should maximise our forces' readiness and minimise the need for personnel deploying on future operations to have multiple immunisations in a short period of time. We have no plans to make anthrax immunisation mandatory, as in the US."

**4-5 November** In Geneva, the World Health Organisation (WHO) Advisory Committee on Variola Virus Research convenes for its sixth meeting. In relation to the "the expression of natural or engineered variola virus genes in orthopoxvirus vectors", the Committee recommends that this "might be permitted". The conditions attached thereto are as follows: "[T]he research protocols and risk assessments are reviewed for biosafety and recombinant DNA concerns and approved by appropriate institutional authorities and WHO in accordance with national regulations and WHO resolutions and recommendations; those generating and handling such recombinant viruses should have their smallpox vaccination status approved by their national and institutional authorities; not more than one variola virus gene is inserted into the virus vector. Any proposal to insert more than one variola virus gene into an orthopoxvirus must be considered by the WHO Advisory Committee on Variola Virus Research and approved by WHO; the experiments are performed at BSL-3 or higher containment and consideration is given to the use of high-efficiency particulate air (HEPA) filtration of exhausted air as an additional biosafety requirement for these laboratories; work with such recombinant viruses is done in a laboratory in which no other orthopoxvirus is present."

Regarding the "generation of a variola virus expressing the green fluorescent marker protein" the Committee notes that this work was needed to accelerate the screening for antiviral compounds and that this would reduce the time that laboratory workers are handling live variola virus." It recommends that the proposed work should proceed on the following conditions: "[A] compelling justification for producing such viruses is provided to the Scientific Sub-Committee of the WHO Advisory Committee on Variola Virus Research. This committee will then recommend approval/disapproval of the project by WHO; a detailed risk analysis is performed to demonstrate that insertion of the marker gene is very unlikely to increase the virulence of the derivative variola virus; the research for which the derivative virus is produced is specified and limited and the viral reagent is destroyed once the immediate objectives have been achieved."

**4-10 December** In Singapore, there is an *Inter-national Symposium on Protection Against Toxic Substances*, attended by more than two hundred international bio-chemical defence scientists. On day six, in a demonstration at Nee Soon military base, the Singapore Armed Forces (SAF) Chemical, Biological, Radiological and Explosives Defence Group and the US 4<sup>th</sup> Weapons of Mass Destruction Civil Support Team deal with a sarin and ricin home-made bomb and a package of radioactive Cobalt-60.

**5 November** In the USA, a man pleads not guilty to attempting to acquire the nerve agent sarin and C-4 explosives with intent to destroy US government buildings, according to the Associated Press. Demetrius Crocker, from Tennessee, is charged with attempting to obtain chemical weapons, attempting to receive explosives in inter-state commerce with

the intent to damage and destroy a building and real property, and receiving stolen explosives.

**6 November** The Uzbek Ministry of Defence announces the conclusion of a one-week joint Uzbek-US exercise to test Uzbekistan's ability to co-ordinate a response to an incident involving the use of weapons of mass destruction. More than one hundred representatives of various Uzbek ministries, committees and institutes participated in the exercise. RIA Novosti reports Head of the project Ken Dill, as saying: "The exercises were the first within the [US Department of Defense International Counter Proliferation (ICP)] programme framework... Considering their results, they may become a model for other countries. Similar exercises are planned in the Baltic states." Under the ICP programme, Uzbekistan received equipment worth US\$1 million to prevent smuggling of WMD components.

**8 November** In Sydney, US Principal Deputy Assistant Secretary of State for Nuclear Proliferation Andrew Semmel sets out the US perspective with regard to UN Security Council resolution 1540 [see 28 Apr] during the *Asia-Pacific Nuclear Safeguards and Security Conference*. He states: "Since 9/11, the United States has looked through fresh eyes at the nonproliferation 'toolbox'. We assessed that the nonproliferation architecture assembled over the past three decades needed to be reinforced... We simply did not believe that we had the luxury of our predecessors for negotiation across many months or years to arrive at solution to this danger.... [A] clear gap remains between the global consensus about the threat of WMD proliferation and concrete action on the ground... While not a proliferation panacea, UNSC 1540 helps close this gap... It places a premium on establishment of legal and regulatory measures at the national level. It seeks to build capacity from the bottom up rather than attempting to impose it from above... Though Resolution 1540 has been structured under Chapter VII, we do not envision 'enforcement' as a role for the [1540] Committee... We of course will revisit this view if it becomes evident that countries are not taking their 1540 obligations seriously or are ignoring their responsibility to put in place the legal and regulatory infrastructure required under the resolution."

**8 November** In Dunhua, Jilin Province, north-east China, the first large-scale search for chemical weapons abandoned by the Japanese Imperial Army commences in the area of the Lianhuapao forest. The search, conducted jointly by Chinese and Japanese chemical weapons experts, is expected to take twelve days. The primary focus of the search will be on both sides of a ditch where weapons were previously found as well as two craters in the forest and the surrounding three to five square kilometres. *China Daily* reports that "according to some estimates, there are nearly 700,000 weapons buried in the surrounding areas". Recently, two boys uncovered a 50-centimetre-long barrel full of chemicals whilst playing near a river close to their village [see 23 Jul]. [See also 2 Nov]

**8 November** In The Hague, the European Union and India reach an accord with respect to combating proliferation of WMD and terrorism during a summit, so reports the Press Trust of India (PTI) news agency. A joint statement says that the parties will, amongst other things, "enhance collective action to fight the proliferation of WMD as well as the means of delivery" and that experts from both parties will meet to discuss detailed areas of co-operation.

**8-12 November** In Lima, there is a regional work-shop on assistance and protection against chemical weapons for Latin American and Caribbean member states of the CWC. Jointly

organized by the government of Peru and the OPCW, the workshop is designed as a forum for personnel who are involved with protection of the civilian population or the provision of emergency assistance under Article 10 of the Convention. In particular, the workshop focuses on the planning, establishment and training of response teams to protect civilians; rescue operations in contaminated areas; responses to incidents involving chemical-warfare agents and toxic chemicals; and regional approaches to assistance and protection.

**8-18 November** Off-shore from Key West, Florida, the US Coast Guard hosts a maritime WMD interdiction training exercise – ‘Exercise Chokepoint ‘04’ – under the Proliferation Security Initiative (PSI). Participating in the thirteenth [see 27 Sep – 1 Oct and 25-27 Oct] PSI exercise are representatives from twenty countries, including Argentina, Australia, Canada, Chile, Denmark, Germany, Italy, Japan, Mexico, Norway, Panama, Singapore, Spain, and Sweden. The UK, France, the Netherlands, and the USA contribute operational assets to the exercise.

**9-11 November** In Vancouver, the International Weapons of Mass Destruction Commission, headed by former UNMOVIC Executive-Chairman Hans Blix, meets for its third [see 28-30 Jun] session as part of the Commission’s two-year undertaking to assess current and future threats from nuclear, chemical, biological and other potential weapons of mass destruction and their means of delivery. The Commission, which comprises eminent military, political, scientific and academic figures from around the world, will present its final report to the United Nations Secretary-General in early 2006. Amongst other things, the Commission discusses ways in which the treaties could be strengthened so that neither states nor non-state actors would be able to further develop, acquire or use such deadly weapons, whether in acts of war or terrorism.

**10 November** In Fallujah, Iraq, during its large-scale offensive against resistance fighters, US forces have used “chemical weapons and poisonous gas” leading to the deaths of tens of innocent civilians according to IslamOnline, quoting al-Quds news agency. “Resistance fighters” are quoted by al-Quds as saying: “The US occupation troops are gassing resistance fighters and confronting them with internationally-banned chemical weapons... Some Fallujah residents have been further burnt beyond treatment by poisonous gases.” An unidentified Iraqi doctor is further reported as saying “US troops have sprayed chemical and nerve gases on resistance fighters, turning them hysteric in a heartbreaking scene.”

Six days later, the MENA news agency reports Shaykh Umar Raghieb, a member of the Iraqi Association of Muslim Scholars (AMS), as saying that the AMS has received confirmed reports that US forces attacked the al-Arbain district of the city with “chemical weapons” and then threw the dead into the Euphrates river. The next day, JihadUnspun.com reports an unidentified “Iraqi physician” as having told the Panorama radio station that he had just examined two dead bodies and confirmed that the victims had died of “banned chemical weapons”. He is reported as saying that he found no evidence of bullet wounds, shrapnel, or any objects penetrating the bodies.

Thirteen days later, the US Department of State responds to the allegations thus: “The United States categorically denies the use of chemical weapons at any time in Iraq, including in the Fallujah operation. Furthermore, the United States does not under any circumstances support or condone the development, production, acquisition, transfer or use of chemical weapons by any country. All chemical weapons currently

possessed by the United States have been declared to the [OPCW] and are being destroyed in the United States in accordance with our obligations under the Chemical Weapons Convention.”

**10 November** In Darfur, Sudan, a BBC correspondent reports witnessing the Sudanese police force using tear gas [see also 8 Oct] against civilians at el-Geer refugee camp near Nyala. Fergal Keane reports the incident thus: “The [action] began soon after midnight. I saw at least four jeep-loads of police driving over the flimsy shacks erected by displaced people. Later they returned and began to beat and tear-gas the frightened crowd... The police launched tear-gas grenades into a compound where women and children were sheltering... The police showed open contempt for United Nations officials when they arrived, firing tear-gas grenades and driving aggressively around the camp...The BBC has also confirmed that tear gas was fired at people, mostly women and children, queuing at a nearby medical clinic.”

**10-11 November** In Moscow, the sixth [see 11-12 Nov 03] national dialogue forum on *Russian Implementation of the [CWC]: Status and Prospects as of Year End 2004* takes place. The purpose of the forum – organized by Green Cross Russia in co-ordination with Green Cross Switzerland and Global Green USA – is to raise public awareness as to the state of Russian chemdemil. Attending the forum are more than one hundred representatives of Russian public, private and academic institutions, and foreign organizations involved in Russian chemdemil. During the forum, Head of Department of the Centre of Conventional Problems and Disarmament Programmes Alexander Gorbovskiy says that the “introduction of monitoring devices at the facilities of storage and destruction of chemical weapons makes it possible to reduce expenditures on carrying out inspections by representatives of [the OPCW].” As an example, he says that the number of inspectors at the Gorny facility has been reduced from eight to five owing to the introduction of appropriate technical means to monitor the storage and destruction of chemical weapons. Deputy-Head of the Federal Agency for Industry Viktor Kholstov says: “In order to take the necessary steps to create two facilities for the destruction of chemical weapons in Kambarka and Maradykovskiy, the 2005 federal budget envisages a significant increase in the volume of resources for the construction of these facilities, R11bn and R160m. This is more than double what we have had until recently.” He says that about 737.5 tonnes of chemical agents have hitherto been destroyed, with more than 330,000 category-three chemical weapons destroyed in 2001, and another 10.6 tonnes of category-two chemical weapons disposed of from the end of 2001 to March 2002. According to Kholstov, some \$217 million in foreign aid has been invested in Russia’s chemdemil programme. He continues: “At the same time, the actual cost of building chemical weapons disposal facilities in Russia stands at around \$3 billion. Thus, the size of the available non-repayable funds accounts for a mere 7% of what we need.” He says that Russia has now signed twenty-eight inter-governmental and inter-departmental agreements with foreign countries on chemdemil co-operation.

**11 November** In Paris, Palestine Liberation Organisation (PLO) Chairman Yasser Arafat dies in circumstances that lead to his long-time physician, Ashraf al-Kurdy, calling for a full post-mortem. Following news of Arafat’s death, al-Kurdy says: “Arafat’s case involved the deficiency of blood platelets, which implies that some substance that causes it may be available in his blood.” For reasons relating to patient confidentiality French doctors have not publicly

disclosed the illness Arafat was suffering from. Prior to his death there had been numerous reports speculating as to the cause of his ill health. One such report, three days previously in the *Jerusalem Post*, quoted an unidentified adviser to Arafat as saying that the possibility that Arafat had been poisoned was being seriously considered by the Palestinian Authority, who had sent blood samples to the USA and Germany for investigation. The official was quoted as saying that Arafat was suffering symptoms similar to those of former PFLP military leader Wadi'a Hadad, who the official says was poisoned in the late 1970s by a close aide who was allegedly recruited by Mossad. The official cause of death given in this case was cancer.

**11 November** In Washington, DC, the International Committee of the Red Cross distributes a paper entitled *Preventing Hostile Use of the Life Sciences: From Ethics and Law to Best Practices*. The paper recommends a set of principles to discourage the inadvertent creation of chemical and biological weapons threats. The document recommends the following eleven principles:

- i. "Preventing advances in life sciences from being used for poisoning and deliberate spread of infectious disease must always take precedence over personal, commercial and security interests;
- ii. "Research and its application must always be compatible with respect for, and promotion of, national and international law;
- iii. "Undertaking well-intentioned research does not justify neglect of possible hostile use of the outcome;
- iv. "Knowledge gained from research must ultimately become universal for the progress of science; however, the potential for hostile use of some advances in life science and biotechnology may pose a fundamental dilemma about how and when knowledge is made accessible to others;
- v. "Transparency and a culture of dialogue together constitute the most important element in minimising the risk that advances in life sciences will be turned to hostile use;
- vi. "The increasing power and variety of advances in life sciences must be matched by commensurate objective assessments of risk and closer vigilance;
- vii. "Minimising the risk of poisoning and deliberate spread of infectious disease requires a range of synergistic measures and so is, by necessity, a multidisciplinary endeavour;
- viii. "Those working in life sciences who voice concern and take responsible action require and deserve political and professional support and protection;
- ix. "Because of their particular characteristics, preventing the development, proliferation and use of biological weapons requires a very different approach to preventing the development, proliferation and use of chemical weapons;
- x. "Some materials and technologies more than others lend themselves to poisoning and deliberate spread of infectious disease; and
- xi. "Materials and technologies associated with the life sciences can diffuse rapidly."

**12 November** Russia, together with the other five members of the Collective Security Treaty Organization [CSTO] – Russia, Armenia, Belarus, Kazakhstan, Kyrgyzstan and Tajikistan – issue a joint statement expressing their support for, and readiness to co-operate with, the US-led Proliferation Security Initiative (PSI), so the Associated Press reports. The statement reads thus: "The [CSTO] member states are located at the crossroads of possible routes of illegal transit of weapons of mass destruction ... and are ready to cooperate ... in taking the necessary steps to counter the spread of

WMD." Thus far, Russia is the only CSTO country to have joined the PSI.

**12 November** The South African National Prosecuting Authority (NPA) has, at the last minute, reversed its decision to arrest and prosecute three apartheid-era police officers accused of poisoning Frank Chikane by contaminating his underwear with a nerve poison, according to *The (South African) Star*. Chikane, now a member of Cabinet, was General-Secretary of the South African Council of Churches when the assassination attempt was made in 1989. NPA spokesperson Siphon Ngwema is reported as saying that the decision to prosecute had been taken by the investigators, however, it subsequently became apparent that there were no clear guidelines on how to proceed with prosecutions arising from the Truth and Reconciliation process. The names of the accused came to light during the trial of Wouter Basson [see 30 Oct 00].

**12 November** US Secretary of Veterans Affairs Anthony Principi announces that the USA will spend \$15 million over the next year on research into the illnesses of veterans of the 1991 Gulf War. Speaking at a press conference in Washington, DC, he says that the research would concentrate on the role of neurotoxins, and not the stress and psychological conditions often implicated as a cause of the veterans' health complaints. In addition, he says that the department will establish a research centre to develop treatments for Gulf War illnesses. Principi says the decision was guided by the report of the Research Advisory Committee on Gulf War Veterans' Illnesses, a committee of scientists and veterans appointed by him two years ago to study the cases of thousands of servicemen and women whose ailments persisted after the war. The aforementioned report is released three days later. It points to chemical exposures during the war, as opposed to the effects of combat stress, as the primary cause of the illnesses. It states: "After reviewing a large body of evidence concerning exposure to [chemical nerve agents, pyridostigmine bromide and some types of pesticide] in theater, their potential effects alone and in combination, and their associations with illness in studies of Gulf War veterans and other populations, the Committee concludes that evidence supports a probable link between exposure to neurotoxins during the Gulf War, most prominently acetylcholinesterase inhibitors, and the development of Gulf War veterans' illnesses."

**13 November** The Russian armed forces newspaper, *Krasnaya Zvezda*, runs an interview with the head of the Russian armed forces' CBRN defence troops, Vladimir Filippov, who says "there is convincing evidence that Islamic terrorist groupings are seeking to use biological agents against innocent civilians."

**15 November** In Trowbridge, UK, the jury in the inquest into the death of Ronald Maddison [see 23 Aug] returns a unanimous verdict of unlawful killing. Following sixty-four days of evidence, the jury concluded that the cause of Maddison's death was "application of a nerve agent in a non-therapeutic experiment". David Masters, the Wiltshire Coroner, says the hearing had been momentous. After the hearing, a spokesman for the Ministry of Defence says: "The Ministry of Defence notes the jury's findings and will now take some time to reflect on these. We will be seeking legal advice on whether we wish to consider a judicial review. We don't believe the verdict today has implications for other volunteers. However, we will consider the implications."

Five weeks later, in the UK House of Commons, Parliamentary Under-Secretary of State for Defence Ivor Caplin says

that “[t]he Ministry of Defence intends to challenge, by way of judicial review, the inquest verdict of unlawful killing”.

**15 November** In San Diego, a woman is sentenced to eleven years imprisonment after having pleaded guilty in August to attempting to kill her former husband for insurance money. Astrid Tepatti and her lover, Ebony Wood, were arrested after Tepatti sneaked into the house of her ex-husband and attempted to shoot him [13 Jan]. During a later search of the lovers’ car, investigators uncovered a sachet of ricin, which Tepatti and Wood had made from castor beans.

**15-16 November** In Havana, a seminar on *International Security, Weapons of Mass Destruction and Nonproliferation: Problems and Challenges*, is organized by the Center for Policy Studies in Russia (PIR Center) and the Institute of International Relations of the Ministry of Foreign Affairs of Cuba. Governmental and non-governmental experts from Cuba, Russia, and Latin America attend the seminar. Scientific Adviser to the President of the Council of State of Cuba, Fidel Castro Diaz-Balart notes, in his statement, that Cuba has demonstrated full transparency in fulfilment of its international non-proliferation commitments. He invites PIR Center representatives to visit one of the Cuban biotechnology facilities where, according to statements previously made by certain senior US officials [see 6 May 02 and 4 Jun 03], secret R&D work on biological weapons was being conducted. [See also 18 Sep]

**16 November** In Tokyo, an emergency preparedness and response exercise based on the scenario of a chemical attack is conducted at a monorail station at Haneda airport. Around 150 persons participate in the exercise.

**17 November** In Moscow, during an “an international scientific-practical conference”, Head of the Commonwealth of Independent States (CIS) Antiterrorism Centre Boris Mylnikov says that leaders of terrorist organizations are using modern technologies and weapons to develop plans to use weapons of mass destruction, so reports Russian Information Agency (RIA) Novosti. Representatives of nearly every CIS secret service, the Collective Security Treaty Organization [CSTO] - Russia, Belarus, Armenia, Kazakhstan, Kyrgyzstan, Tajikistan - and the Shanghai Cooperation Organization - Russia, China, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan - attend the conference. The Antiterrorism Center, headquartered in Bishkek, Kyrgyzstan and financed fifty per cent by Russia and the rest equally between CIS countries, was established in June 2000.

**17 November** In the UK, the Independent Public Inquiry on Gulf War Illnesses (The Lloyd Inquiry) [see 12 Jul] – headed by Lord Lloyd of Berwick – releases its report. The remit of the Inquiry was to “[t]o investigate the circumstances that have led to the ill health, and in some cases death, of over 6,000 British troops following deployment to the first Gulf War, and to report”. The inquiry was established at the request of Labour peer Lord Morris of Manchester, parliamentary adviser to the Royal British Legion, after the Ministry of Defence refused an official inquiry [see 14 Jun]. The Ministry of Defence refused to allow serving officials or military personnel to appear before the inquiry although it did submit written evidence. The report concludes as follows: “The reasons why pensions and gratuities are being paid in the case of those who made their claims within seven years, is not because the Government has admitted that their illnesses are due to service in the Gulf; it is because the Government has been unable to prove the contrary. Parliament has provided that in those circumstances

pensions and gratuities must be paid. The pensions and gratuities are not being paid *ex gratia* but pursuant to a legal obligation... Since [according to certain statistical and epidemiological research] the Gulf veterans were twice as likely to become ill as if they had stayed in the United Kingdom the Government, ought now, in fairness, and not before time, to accept that the illnesses of those who were deployed to the Gulf were caused by their deployment... It is of the highest importance to discover the cause or causes of the illnesses from which the veterans are suffering, because only if the causes can be discovered is there any prospect of finding effective treatment. We agree that on this question, even after fourteen years, the jury is still out... [W]hichever of [the] explanations proves to be correct, and whether there was one or more causes, they are all directly connected to service in the Gulf. Nobody has yet suggested any other cause which would explain why Gulf veterans should be twice as likely to become ill as those who remained behind... [A]fter fourteen years it is time for the Government to act on the basis of the existing research, and acknowledge that the veterans’ illnesses are due to their service in the Gulf... [W]e can see no good reason why [the Government] should not accept [the definition of] Gulf War Syndrome. It does not imply a single disease with a single cause. It will not expose them to any new claims. It will make no practical difference. But [...] it will make a great difference to the veterans and their families, if only for symbolic reasons... The [Ministry of Defence] should set up a fund out of which *ex gratia* payments should be made on a pro-rata basis to all those who have made successful claims... The 272 Claimants who have had their claims rejected should have those claims reviewed in the light of this report.”

Responding to the report, Parliamentary Under-Secretary of State for Defence and Minister for Veterans Ivor Caplin says: “What I need to do with officials at the Ministry of Defence is to give the report proper consideration. I have always said, as has the government, that there are Gulf veterans who are ill. That’s never been denied... There’s concern that whilst we as a government have been completely open with the Gulf veterans since 1997, Lord Lloyd consistently refuses to tell us how this enquiry was funded. He should be open and transparent.”

Four weeks later, in the House of Commons, Caplin responds as follows to a written question regarding the findings of the Inquiry: “We are of the view that [the report] contains no new substantive or scientific evidence to support its conclusions and recommendations. It also fails to take into account the large amount of either substantive or scientific written material provided by the Ministry of Defence to Lord Lloyd to help inform his investigation... The report gives the impression that 6,000 veterans are suffering from ill health due to their service in the 1990–91 Gulf Conflict. We understand this refers to those veterans who have claimed a war pension. Although these veterans have served in the Gulf, many of the claims will be for disablements and illnesses unrelated to their Gulf service. The number of veterans in receipt of pensions or gratuities for unspecified, symptomatic Gulf-related illnesses is approximately 1,400, less than 3 per cent of the personnel who served in the Gulf. Additionally, only some 100 claimants have failed to receive an award for Gulf-related illnesses, not the 272 stated by the Lloyd report... We have been surprised by Lord Lloyd’s refusal to disclose who sponsored and funded his investigation. This contrasts with Government policy of transparency and openness set out in our policy document “Gulf Veterans’ Illnesses: A New Beginning”, published in July 1997.”

**17 November** In Washington, DC, the Center for Strategic and International Studies (CSIS) releases its report *Resuscitating the Bioweapons Ban: US Industry Experts Plan*

for *Treaty Monitoring*. The report – a collaborative effort between the CSIS and a group of fourteen US biopharmaceutical industry experts – outlines a plan for conducting trial inspections at US biopharmaceutical facilities with a view to testing the feasibility of monitoring a global treaty outlawing biological weapons. The report proposes an inspection regime similar to that used by the US Food and Drug Administration. It says that the proposed techniques would enable inspectors to search for weapons activity, while protecting proprietary data and minimizing the burden on legitimate facilities.

**17-18 November** In New York, the UNMOVIC College of Commissioners convenes for its seventeenth [see 25 May] regular session, attended, as on previous occasions, by observers from the OPCW and IAEA.

**18 November** Russian Naval Chief of Staff Admiral Vladimir Kravchenko says that Russia and NATO have reached an agreement to jointly patrol the Mediterranean for weapons of mass destruction and related materials [see also 12 Nov]. In an interview with ITAR-TASS news agency, Kravchenko says the document setting out the agreement will be signed next month.

**18-20 November** In Trieste, the 16<sup>th</sup> *Amaldi Conference* takes place under the auspices of the Accademia Nazionale dei Lincei, this year on *Problems of Global Security*. On the second day of the conference, four panels separately discuss themes pertaining to biological weapons, i.e. biological threats to security; biodefence research / research oversight; scientific responsibility and life sciences research; and the roles and responsibilities of scientists in international treaties.

**20-21 November** In Santiago, at the annual Asia Pacific Economic Co-operation (APEC), forum leaders of twenty-one Asian and Pacific Rim countries reaffirm their pledge to fight terrorism and the proliferation of weapons of mass destruction. The four-page *Santiago Declaration*, issued at the end of the forum states: “We expect to review progress on our commitments to dismantle transnational terrorist groups, eliminate the danger posed by proliferation of weapons of mass destruction, their delivery systems and related items, and confront other direct threats to the security of our region in the future.”

**21 November** *The (London) Independent on Sunday* reports that the War Pensions Appeal Tribunal has accepted a claim by a former Royal Air Force clerk that his having suffered from severe eczema and chronic fatigue syndrome for the past fifty years is a result of having been exposed to, *inter alia*, sulphuric acid at Porton Down. Mike Paynter is one of four surviving veterans who are planning to bring test cases at the High Court early next year to challenge legislation barring ex-servicemen from suing the government. Lawyers representing up to 550 veterans plan to sue the Ministry of Defence following the verdict on the death of Ronald Maddison [see 15 Nov].

**21-23 November** In Arlington, Virginia, at the second *Annual International Conference Crossing Boundaries: Medical Biodefense and Civilian Medicine*, researchers from various fields of the life sciences, government and industry discuss approaches to fighting intentionally released diseases. The conference is hosted by George Mason University, the National Center for Biodefense and the Burnham Institute.

**22 November** In Brussels, the Council of the European Union adopts the Council Joint Action on support

for OPCW activities under the framework of the implementation of the EU Strategy against Proliferation of Weapons of Mass Destruction. The Joint Action states: “For the purpose of giving immediate and practical application to some elements of the EU Strategy against the Proliferation of Weapons of Mass Destruction, the European Union shall support activities of the [OPCW], with the following objectives: promotion of universality of the [CWC]; support for full implementation of the CWC by States Parties; international cooperation in the field of chemical activities, as accompanying measures to the implementation of the CWC. The projects of the OPCW, corresponding to measures of the EU Strategy, are the projects which aim at strengthening: [t]he promotion of the CWC by carrying out activities, including regional and sub-regional workshops and seminars, aiming at increasing the membership of the OPCW; [t]he provision of sustained technical support to States Parties that request it for the establishment and effective functioning of National Authorities and the enactment of national implementation measures as foreseen in the CWC; [i]nternational cooperation in the field of chemical activities through the exchange of scientific and technical information, chemicals and equipment for purposes not prohibited under the CWC, in order to contribute to the development of the States Parties’ capacities to implement the CWC... The financial reference amount for the three projects [...] is EUR 1,841,000.” Detailed descriptions of the projects referred to are set out in an annex.

**22 November** In Washington, DC, during the biannual meeting of US and EU anti-terrorism officials and diplomats, both sides agree on a plan to exchange information about advanced WMD sensors and other new technologies. Speaking at a press conference after the meeting, US Homeland Security Under-Secretary Asa Hutchinson says the intention is that the plan will help both sides “invest and ... communicate better together in terms of the new security technologies that will be necessary as we face a common threat.” Speaking at the same press conference, EU Justice and Liberty Director-General Jonathan Faull says the agreement formalizes a process that had already been taking place informally.

**23 November** The US Central Intelligence Agency submits its *Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 July Through 31 December 2003* [see 10 Nov 03]. The report states: “Iran continued to vigorously pursue indigenous programs to produce nuclear, chemical, and biological weapons... Iran is a party to the [CWC]. Nevertheless, during the reporting period it continued to seek production technology, training, and expertise from foreign entities that could further Tehran’s efforts to achieve an indigenous capability to produce nerve agents. Iran may have already stockpiled blister, blood, choking, and possibly nerve agents – and the bombs and artillery shells to deliver them – which it previously had manufactured... Even though Iran is part of the [BWC], Tehran probably maintained an offensive BW program. Iran continued to seek dual-use biotechnical materials, equipment, and expertise that could be used in Tehran’s BW program. Iran probably has the capability to produce at least small quantities of BW agents... During the reporting period, [North Korea] continued to acquire dual-use chemicals that could potentially be used to support Pyongyang’s long-standing CW program. North Korea’s CW capabilities included the ability to produce bulk quantities of nerve, blister, choking, and blood agent, using its sizable, although aging, chemical industry. North Korea may possess a stockpile of unknown size of these agents and weapons, which it could employ in a variety of

delivery means. North Korea has acceded to the [BWC] but nonetheless has pursued BW capabilities since the 1960s. Pyongyang acquired dual-use biotechnical equipment, supplies, and reagents that could be used to support North Korea's BW program. North Korea is believed to possess a munitions production infrastructure that would have allowed it to weaponize BW agents and may have some such weapons available for use... Syria continued to seek CW-related technology from foreign sources during the reporting period. Damascus already held a stockpile of the nerve agent sarin, but apparently has tried to develop more toxic and persistent nerve agents. Syria remained dependent on foreign sources for key elements of its CW program, including precursor chemicals and key production equipment. Syria probably also continued to develop a BW capability."

Regarding "Key Suppliers", the report states: "During the second half of 2003, Russian entities remained a key source of dual-use biotechnology equipment, chemicals, and related expertise for countries of concern with active CBW programs. Russia's well-known biological and chemical expertise made it an attractive target for countries seeking assistance in areas with CBW applications... Evidence during the current reporting period showed that Chinese firms still provided dual-use CW-related production equipment and technology to Iran."

**23-24 November** In Novosibirsk, Russia, an EU delegation visits the State Scientific Centre of Virology and Biotechnology (Vektor) at Koltsovo which, according to *Regions.ru*, conducts more EU-funded research than any other scientific institution in Novosibirsk.

**24 November** The Paris *Figaro* runs an interview with Libyan President Muammer Gaddafi in which Gaddafi says that Libya has been poorly recompensed for renouncing its weapons of mass destruction [see 19 Dec 03] and that this offers little incentive for other countries to follow suit. Gaddafi says that in return Libya should receive 'peaceful technology' as compensation for its gesture.

**25 November** In Fallujah, Iraq, during an offensive against partisans, US forces discovered a house containing a laboratory and instructions on how to make anthrax and blood agents, according to Iraqi Minister of State Kassim Daoud. Speaking at a press conference Daoud says: "Soldiers from the Iraqi National Guard found a chemical laboratory that was used to prepare deadly explosives and poisons. They also found in the lab booklets and instructions on how to make bombs and poisons. They even talked about the production of anthrax." However, former UNMOVIC Executive Chairman Hans Blix, speaking at the Oxford Union, says: "Let's see what the chemicals are. Many of these stories evaporate when they are looked at more closely. ... If there were to be found something, we would all be surprised. The chances are, I think, relatively small. I would be surprised if it was something real."

A week later, US Army Brigadier General David Rodriguez, speaking at a press conference, says that the chemicals found included sodium cyanide and hydrochloric acid, which if combined could be used to make hydrogen cyanide.

**25 November** In Moscow, defence ministers of the Commonwealth of Independent States (CIS) and the Collective Security Treaty Organisation meet to discuss draft programme for co-operation in the area of radiation, chemical and biological defence.

**26 November** In Moscow, Russian Foreign Minister Sergey Lavrov and Swiss Foreign Minister Micheline Calmy-Rey sign an agreement to fund a programme for

organizing public health control related to the construction of the chemdemil facilities at Kambarka and Shchuch'ye. According to Agence France-Presse, Switzerland will provide \$13 million, over five years, under the programme.

**26 November** Russian President Vladimir Putin and Venezuelan President Hugo Chavez, meeting in Moscow, issue a joint statement, which refers, among other things, to their support for "multilateral negotiations aimed at creating a control mechanism to strengthen the [BWC]". The statement also refers to the importance of "strict and total implementation of the basic international agreement in the spheres of disarmament and non-proliferation, in particular, the [NPT, CWC and BWC]" and "the necessity of total implementation of resolution 1540 of the UN Security Council [see 28 Apr]."

**26 November** At UN headquarters, Secretary-General Kofi Annan transmits to the Security Council the nineteenth [see 27 Aug] quarterly report on the activities of UNMOVIC, for the period 1 September to 30 November. The appendix to the report sets out the "Initial Comments [by UNMOVIC] on the Report of the Iraq Survey Group [ISG] [see 6 Oct]", whilst noting that "UNMOVIC does not have access to any of the supporting documentation, interview testimony or details of site inspections carried out." The appendix states:

"In its historical overview of the proscribed programmes, the [ISG] report draws heavily on Special Commission and UNMOVIC reports and documents, as well as Iraqi declarations... It is evident from the report that a major source of information was the Iraqi individuals questioned by the Group. Many of these individuals had in the past also been interviewed by the Special Commission and UNMOVIC. Only some of the Iraqis questioned by the Group are named in the report. The report does not provide a record of their main statements... The report indicates that while the [ISG] found no evidence of stocks of weapons of mass destruction or bulk agents or the reactivation of proscribed programmes in Iraq, it did not exclude the possibility of small quantities of weapons of mass destruction remaining in Iraq. In many instances, especially regarding Iraq's intentions, the report does not include substantiating information to support the judgements and assumptions it contains..."

"Through an evaluation of Iraq's dual-use capabilities, the report discusses Iraq's possible intentions to restart weapons of mass destruction activities in the event sanctions were lifted. The report does not consider what impact post-sanctions monitoring, as adopted by the Security Council in 1991, might have had. Similarly, the report also does not address the disposition and accounting for dual-use items and materials kept under the United Nations monitoring system in the past..."

"[It] states that the Iraqi intelligence apparatus had sought to compromise the integrity of the inspection process during the period from 1991 to 2003. It would be useful to have a better understanding of any impact such activities may have had. United Nations weapons inspections in Iraq were conducted on the assumption that they would be subject to Iraqi intelligence-gathering activities and had implemented appropriate measures to protect the integrity of the inspection process..."

"[It] contains some new details of Iraq's procurement activities that were not known to UNMOVIC, including the involvement of additional Iraqi and foreign entities. On the other hand, not all of Iraq's procurement transactions known to UNMOVIC are directly addressed in the report, for example, relating to specific missile contracts. Thus, it is possible that a combination of the data available to UNMOVIC together with the findings of the Iraq Survey Group may provide a more comprehensive picture of Iraq's past procurement activities..."

"[With regard to] Iraq's biological weapon programme, [the

report] largely confirms the understanding of UNMOVIC. Much of the information, which relates to the history of the programme up to 1991, is also contained in various Iraqi declarations to the United Nations, Security Council document S/1999/94 and the publicly available UNMOVIC cluster document given to the Security Council on 7 March 2003. The results from interviews conducted by the Iraq Survey Group have generally reinforced information contained in earlier Iraqi statements and declarations, such as the 1996 full, final and complete declarations, the December 2002 biological weapon currently accurate, full and complete declaration, supporting documents, interviews and discussions held by UNMOVIC in 2003. Much of the [ISG] assessment refers to possibilities and intentions rather than demonstrating continuation of a biological weapon programme... Intensive searches and enquiries by the [ISG] have not revealed the existence of any new biological weapon production or research facilities, undeclared biological bulk agents, competing programmes, weapon systems, or scientists not previously known...

"The report further provides the information that three aerial bombs that Iraq declared as having been filled with VX for stability tests and destroyed after the tests had failed, had actually been dropped in an undisclosed area in the Islamic Republic of Iran in 1988. There is no indication in the report of the source of this information or of any corroborating evidence... The report states that Iraq's chemical industry had the capability to restore chemical weapon production as a result of improvements achieved during the period 1996-2003. It also states that Iraq probably had the capability to produce large quantities of sulphur mustard in a short time, using locally available chemicals. At the same time, it recognizes that Iraq's industry was still struggling with serious shortages in many areas. UNMOVIC inspected all key facilities potentially capable of involvement in a chemical weapon programme and determined that some of them could be adapted for such a purpose, but only with major reconfiguration of the equipment."

**29 November** US President George Bush issues a waiver under the Cooperative Threat Reduction Program for continued funding for the construction of the Shchuchye chemdemil facility, on the grounds of it being "important to the national security interests of the United States". Congress, under Section 1303 of the National Defense Authorization Act 2005, gave the President authorization to waive the conditions.

**29 November** In Alexandria, Virginia, a district court dismisses a libel claim by Steven Hatfill against *The New York Times* and its columnist for implicating him in the anthrax mailings [see 15 Oct 01]. Hatfill had claimed that columnist Nicholas Kristof had implied, in a number of columns written in 2002, that he had been responsible for the attacks [see also 02 Jul 03]. Judge Claude Hilton of the Federal District Court, however, ruled that Kristof had directed his columns primarily at the handling of the investigation by the FBI and had not accused Hatfill of responsibility for the attacks. Hatfill's lawyer, Victor Glasberg, says it is too early to tell whether there will be an appeal. [See also 7 Oct]

**30 November - 2 December** In Sydney, delegates from nineteen countries convene for the eighth meeting of the Proliferation Security Initiative (PSI) [see also 4-5 Mar]. Matters discussed include: advancing the upcoming exercise programme, examining operational legal and intelligence issues, and considering ways to better inform industry about the aims and objectives of the PSI. In addition to the representatives who attended previous PSI meetings, representatives from Thailand and New Zealand also participate.

**December** In Australia, a research team sponsored by the Australian Defence Force has determined that the more immunizations that Australian Gulf War veterans received before the 1991 conflict, the more likely they were to later suffer physical symptoms, according to research published in *Occupational and Environmental Medicine*. The team, from Monash University, also state that studies of more than eighty per cent of Australia's Gulf War deployment suggest that those who took tablets to protect against nerve gas and biological agents are more likely to suffer joint, skin, vision, sinus and psychological problems, compared with personnel who did not serve in the Gulf. In total, 1456 veterans completed questionnaires from 2000 to 2002 about their physical and mental health.

**December** The US Department of Defense Center for the Study of Weapons of Mass Destruction releases an occasional paper entitled *Eliminating Adversary Weapons of Mass Destruction: What's at Stake?* The paper reports the main findings from several workshops and a series of roundtable meetings conducted by the Center, as well as a classified conference which it hosted in February. The purpose of the conference was to address the most important lessons learned from experiences in Iraq and Afghanistan, and to discuss how best to institutionalize WMD elimination for future contingencies. The Center is financed by the National Defence University.

**1 December** At UN headquarters, the Chair of the High-level Panel on Threats, Challenges and Change [see 031103] transmits to UN Secretary-General *A More Secure World: Our Shared Responsibility*. The report states:

"Any event or process that leads to large-scale death or lessening of life chances and undermines States as the basic unit of the international system is a threat to international security. So defined, there are six clusters of threats with which the world must be concerned now and in the decades ahead [including] [...] infectious diseases and [nuclear, radiological, chemical and biological weapons]... In extreme cases of threat posed by a new emerging infectious disease or intentional release of an infectious agent, there may be a need for cooperation between WHO and the Security Council in establishing effective quarantine measures... That a high-damage attack [involving chemical or biological weapons] has not occurred is not a cause for complacency but a call for urgent prevention...

"Verification of the [CWC] should also be further strengthened, and the long-standing impasse over a verification mechanism for the [BWC], which has undermined confidence in the overall regime, should be overcome. States parties to the [BWC] should without delay return to negotiations for a credible verification protocol, inviting the active participation of the biotechnology industry. States parties to the [BWC] and the [CWC] must increase bilateral diplomatic pressure to universalize membership... The proposed timeline for implementing the Global Threat Reduction Initiative should be halved from 10 to 5 years... The Security Council, acting under its resolution 1540 [see 28 Apr 04], can offer States model legislation for security, tracking, criminalization and export controls, and by 2006 develop minimum standards for United Nations Member State implementation. To achieve that goal, the implementation committee of Council resolution 1540 should establish a permanent liaison with IAEA, OPCW and the Nuclear Suppliers Group...

"States parties to the [BWC] should also negotiate a new bio-security protocol to classify dangerous biological agents and establish binding international standards for the export of such agents. Within a designated time frame, States parties

to the Convention should refrain from participating in such biotechnology commerce with non-members... The Directors-General of IAEA and OPCW should be invited by the Security Council to report to it twice-yearly on the status of safeguards and verification processes, as well as on any serious concerns they have which might fall short of an actual breach of the ... [NPT] and the [CWC]. The Security Council should also be prepared to deploy inspection capacities for suspected nuclear and chemical violations, drawing on the capacities of IAEA and OPCW. Until multilateral negotiations yield a [BWC] verification mechanism, the Security Council should avail itself of the Secretary-General's roster of inspectors for biological weapons, who should remain independent and work under United Nations staff codes. This roster of inspectors should also be available to advise the Council and liaise with WHO authorities in the event of a suspicious disease outbreak, as discussed below... Given the potential international security threat posed by the intentional release of an infectious biological agent or an overwhelming natural outbreak of an infectious disease, there is a need for the WHO Director-General, through the Secretary-General, to keep the Security Council informed during any suspicious or overwhelming outbreak of infectious disease. In such an event, the Security Council should be prepared to support the work of WHO investigators or to deploy experts reporting directly to the Council, and if existing International Health Regulations do not provide adequate access for WHO investigations and response coordination, the Security Council should be prepared to mandate greater compliance. In the event that a State is unable to adequately quarantine large numbers of potential carriers, the Security Council should be prepared to support international action to assist in cordon operations. The Security Council should consult with the WHO Director-General to establish the necessary procedures for working together in the event of a suspicious or overwhelming outbreak of infectious disease.

"Regarding the matter of 'anticipatory' self-defence [see 5 Mar], "The language of [Article 51 of the UN Charter] is restrictive... Can a State, without going to the Security Council, claim [where the threat in question is not imminent but still claimed to be real: for example the acquisition, with allegedly hostile intent, of nuclear weapons-making capability] the right to act, in anticipatory self-defence, not just pre-emptively (against an imminent or proximate threat) but preventively (against a non-imminent or non-proximate one)? ... The short answer is that if there are good arguments for preventive military action, with good evidence to support them, they should be put to the Security Council, which can authorize such action if it chooses to. If it does not so choose, there will be, by definition, time to pursue other strategies, including persuasion, negotiation, deterrence and containment – and to visit again the military option. For those impatient with such a response, the answer must be that, in a world full of perceived potential threats, the risk to the global order and the norm of non-intervention on which it continues to be based is simply too great for the legality of unilateral preventive action, as distinct from collectively endorsed action, to be accepted. Allowing one to so act is to allow all. We do not favour the rewriting or reinterpretation of Article 51."

**1-2 December** In Israel, there is an *International Workshop on Defense to Biological Threats and Homeland Security*, jointly organized by Ben-Gurion University and the Ministry of Science and Technology. Attending are scientists from Germany, Russia, Uganda, the US and Israel.

**2 December** The South African Constitutional Court dismisses an application by the Institute for Security Studies to join an appeal bid by the State [see 10 Mar] against the

acquittal of Wouter Basson [see 11 Apr 02]. Court registrar Martie Stander says that the reasons for the dismissal "will be furnished in due course". The institute had sought permission to join the proceedings as an *amicus curiae* (friend of the court) to allow it to present arguments on the legal implications arising from the failure to hold Basson accountable under international law. An application by the State for special leave to appeal is to be heard by the Constitutional Court in February.

**3 December** In Geneva, at the Palais des Nations, there is a *Symposium on Resolution 1540* [see 28 Apr] as it *Pertains to Biological Weapons*. More than fifty persons representing countries from around the world participate in the symposium, which is organized jointly by the University of the Pacific, McGeorge School of Law and the Center for Nonproliferation Studies, Monterey Institute of International Studies. Conflicting views are expressed regarding the best way to implement Resolution 1540, however, participants agree on the importance of combating the proliferation of weapons of mass destruction to non-State actors. Those making presentations include Jonathan Tucker, Center for Nonproliferation Studies Monterey Institute of International Studies; Barry Kellman, DePaul University College of Law; and Elizabeth Rindskopf Parker, Dean of the University of the Pacific, McGeorge School of Law.

**3 December** In Brussels, the Secretariat of the Council of the European Union releases its six-monthly progress report [see 14 Jun] on implementation of the EU WMD strategy. The report states: "The examination of information provided by Member States on their bilateral assistance programmes lead to the conclusion that there is scope for EU initiatives in the field of biological weapons. The Personal Representative has put forward, in the context of her list of priorities, suggestions on how to strengthen the BTWC and compliance with it." Ten days later, the General Affairs and External Relations Council endorses the report.

**3 December** At UN headquarters, at its sixty-sixth plenary meeting the General Assembly adopts three resolutions, one each on the CWC, BWC and Geneva Protocol.

The resolution on the *Implementation of the [CWC]* reads thus: "[The General Assembly] *recalling* its previous resolutions on the subject of chemical weapons, in particular resolution 58/52 of 8 December 2003... *emphasizes* that the universality of the [CWC] is fundamental to the achievement of its objective and purpose... [It] *underlines* that the Convention and its implementation contribute to enhancing international peace and security, and emphasizes that its full, universal and effective implementation will contribute further to that purpose by excluding completely, for the sake of all humankind, the possibility of the use of chemical weapons... [It] *stresses* that the full and effective implementation of all provisions of the Convention is in itself an important contribution to the efforts of the United Nations in the global fight against terrorism in all its forms and manifestations..."

The resolution on the *[BWC]* states: "[The General Assembly] reaffirms the call upon all signatory States that have not yet ratified the Convention to do so without delay, and calls upon those States that have not signed the Convention to become parties thereto at an early date... [It] *welcomes* the information and data provided to date, and reiterates its call upon all States parties to the Convention to participate in the exchange of information and data agreed to in the Final Declaration of the Third Review Conference of the Parties to the Convention."

Finally, the resolution on *Measures to Uphold the Authority of the 1925 Geneva Protocol* [see also 18 Oct 02] states:

"[The General Assembly] *renews* its previous call to all States to observe strictly the principles and objectives of the Protocol [...] and reaffirms the vital necessity of upholding its provisions... [It] *calls upon* those States that continue to maintain reservations to the [...] Protocol to withdraw them..."

**4 December** From North Korea, KCNA news agency dismisses as an American smear campaign allegations that its scientists have used chemical weapons in experiments on political prisoners. Ten days previously at a press conference in Seoul, Associate Dean of the Los Angeles-based Simon Wiesenthal Center Rabbi Abraham Cooper, presented summaries of interviews claimed to have taken place with three North Korean defectors who allegedly provided first-person accounts of the gassing of political prisoners beginning in the 1970s and continuing until 2002. The first such allegations were made earlier this year [see 1 Feb and 28 Jul] and were recently repeated by the US State Department [see 15 Sep]. The agency states: "We would like to make it clear once again that the fiction about the above-said test hyped by the US again is part of its malicious psychological operation to defame the dignified (North)'s international authority and force it to change its regime."

**4-5 December** In Geneva, The Pugwash Study Group on the Implementation of the Chemical and Biological Weapons Conventions convenes for its 21st workshop, the theme of this one being "The BWC New process and the Sixth Review Conference". There are over 50 attendees, participating by invitation and in their personal capacities, from 19 countries.

**4-10 December** In Singapore, the fourth *Singapore International Symposium on Protection against Toxic Substances (SISPAT)* takes place [see also 2-6 Dec 02]. The symposium – the keynote speech for which is made by OPCW Director-General Rogelio Pfiirter – brings together scientists, engineers and professionals engaged in research and development in the field of protection against toxic substances.

**5 December** Libyan Foreign Minister Abdul-Rahman Mohammad Shalgam says that Libya is ready to reconsider the death sentences [see 6 May] imposed on five Bulgarian nurses – and a Palestinian doctor – who allegedly infected 400 children with HIV. The condition attached to any such commutations, he says, is that Bulgaria offer compensation to the families of the children and finance the construction of a hospital for AIDS victims. "We have three problems – the infected children, the dead children and the sentenced Bulgarians," Shalgam tells Reuters news agency.

Four days later, the Associated Press reports Seif al-Islam e-Qaddafi, the son of Libyan leader Muammar el-Qaddafi, as saying: "I rule out the possibility of executing the Bulgarian defendants". He says Libya would like to expel the nurses – who have been detained since 1999 – to Bulgaria, suggesting that their expulsion might be linked to the extradition of a Libyan man serving a life sentence in Scotland for the 1988 downing of Pan Am flight 103 over Lockerbie, Scotland. He does not, however, discuss the fate of the Palestinian doctor, who has also been detained since 1999.

**6 December** In Amsterdam, police arrest a Dutch national who is alleged to have supplied Iraq with thousands of tons of raw materials for chemical weapons between 1984 and 1988, which Iraq subsequently used in the Halabja massacre [see 18 Mar 88]. The next day, Frans van Anraat is charged with assisting in genocide on the grounds that he had known of the purpose for which the materials he supplied would be used. The materials were shipped via the Belgian port of

Antwerp, through Aqaba in Jordan to Iraq.

Two weeks later, the Dutch *de Volkskrant*, citing unidentified sources, reports that the public prosecution's earlier attempts to arrest van Anraat had failed because the Interior Ministry had provided him with a "safe house" after they had employed him as an informant.

**6 December** In the UK House of Lords, responding to a question on whether the government will give its full support to the recommendation of the UN Secretary-General's High-level Panel on Threats, Challenges and Change [see 1 Dec] that the issue of verification of the BWC should be taken up again and moved forward, Baroness Symons of Vernham Dean says: "I have directly raised [the issue of verification] with my own interlocutors in the United States Government in the years since the United States originally decided that they were not prepared to sign up to the protocol. The whole question is how this is done. That is why we have promoted the discussions in a more informal way between the meetings of the high-level representatives. I am sure that we shall continue to do that with a view to doing what we can to ensure that there is a verification process. I think that in other contexts we all recognise the importance of such verification processes."

**6 December** In Washington, DC, a former employee of the Central Intelligence Agency (CIA), files a lawsuit in the District Court for the District of Columbia against the Director of the CIA and the agency itself, claiming he was warned by a colleague that management wanted to "get him" because his reports on weapons of mass destruction were "contrary to official dogma". The claimant, whose identity together with any possible reference to Iraq has been blacked out, maintains that he had attempted to report intelligence on weapons of mass destruction in 2001 and 2002, but had been thwarted by his superiors, who he says insisted he falsify his reports. He claims that when he refused to do this, investigations were made into allegations that he had sex with a female informer and stole money used to pay informers. He claims that both investigations were "a sham, initiated for the sole purpose of discrediting him and retaliating against him". The claimant was dismissed from his position in August 2004 for "unspecific reasons", but is seeking the restoration of his salary, job and the promotions denied to him, as well as compensation. However, the *Washington Post* reports CIA spokeswoman Anya Guilsher, as saying that the agency could not comment on the lawsuit, but that "the notion that CIA managers order officers to falsify reports is flat wrong".

**6 December** The US Food and Drug Administration (FDA) issues final regulations [see 12 Dec 03], implementing section 306 of the Bioterrorism Act, which requires persons who manufacture, process, pack, transport, distribute, receive, hold, or import food to establish and maintain records. Acting FDA Commissioner Lester Crawford says: "These records will be crucial for FDA to deal effectively with food-related emergencies, such as deliberate contamination of food by terrorists... The ability to trace back will enable us to get to the source of contamination. The records also enable FDA to trace forward to remove adulterated food that poses a significant health threat in the food supply."

**6-10 December** In Geneva, States Parties to the BWC convene to discuss enhancing international capabilities for responding to, investigating and mitigating the effects of cases of alleged use of biological and toxin weapons or suspicious outbreaks of disease, and strengthening and broadening national and international institutional efforts and existing mechanisms for the surveillance, detection, diagnosis and

combating of infectious diseases affecting humans, animals and plants. The Meeting of States Parties follows on from the Meeting of Experts of the States Parties [see 19-30 Jul].

**8 December** The Tajik Assembly of Representatives, its lower house, ratifies the BWC [see 12 Oct and 29 Oct].

**8 December** In The Hague, a summit meeting on the subject of strengthening co-operation in a number of areas related to arms control and nonproliferation takes place between officials from the European Union and China. A joint declaration adopted at the end of the summit reads as follows: "China and the EU agree that prevention of proliferation of nuclear, chemical and biological weapons should not hamper international cooperation in materials, equipment and technology for peaceful purposes while goals of peaceful utilization should not be used as a cover for proliferation... China and the EU are both underlining the importance of a regional approach in the implementation of our strategies for fighting the proliferation of WMD, and regard in this respect ASEAN Regional Forum (ARF) as one of the important fora for consultation on regional, political and security issues. China and the EU will explore possibilities to launch joint initiatives in the area of non-proliferation in the framework of the ARF... Stressing their determination to support international institutions and agencies charged with the verification and upholding of compliance with [*inter alia* the BWC and CWC], China and the EU will work together to ensure strict compliance with the obligations under disarmament and non-proliferation treaties. China and the EU support further effective measures to strengthen and improve the functioning of the above institutions and agencies..."

**8 December** The Netherlands is to provide the UK with EUR 1.5 million to assist in the project of bringing the Russian Shchuchye chemdemil facility into operation [see 29 November-2 December]. Under the terms of a memorandum of understanding – signed in The Hague by Director of Security Policy, Dutch Ministry of Foreign Affairs Maurits Jochems and Deputy Head of Mission to the British Embassy Jane Darby – the funding will support equipment purchases and infrastructure construction at the facility.

**8 December** At UN headquarters, the Chairman of the Security Council Committee established pursuant to resolution 1540 [see 28 Apr] transmits the first report of the Committee to the President of the Security Council. The report states: "In its resolution 1540 (2004) the Council calls upon all States to present to the Committee a first report not later than six months from the adoption of the resolution 1540 (2004), i.e., by 28 October, on the steps they have taken or intend to take to implement the resolution. With the approval of the Committee, the Chairman has sent to all Member States two notes reminding them of this deadline and encouraging them to submit to the Committee their first national reports. As of 5 December, 86 States and one organization have submitted reports to the Committee [set out in appendix I]." The list of States that have yet to report is contained in appendix II.

**8-10 December** In Washington, DC, the Chemical and Biological Arms Control Institute (CBACI) and the International Institute for Strategic Studies (IISS) host their 2004 North American Regional Meeting on *The Future of the Life Sciences: Reaping the Rewards and Managing the Risks*. Over seventy participants from various countries discuss the forthcoming creation of the International Council of the Life Sciences – a new global organization designed to bring together leaders from government, private industry, and academia to formulate best

practices in the life sciences so as to manage safety and security risks.

**9 December** Kazakhstan and the USA sign an amendment to their agreement on co-operation in the non-proliferation of weapons of mass destruction, thus allowing for larger US financing for Kazakh projects pertaining to the non-proliferation of biological weapons. A press release from the Kazakh Embassy in the USA states that the amendment will upgrade bilateral co-operation "in the non-proliferation of biological weapons and the threat of bio-terrorism." There are plans to build a laboratory and a system for monitoring infectious diseases in Kazakhstan under the agreement and within the framework of the Nunn-Lugar programme.

**9 December** In Brussels, the European Commission approves agreements with Israel, Ukraine, Moldova, Morocco, Tunisia, Jordan and the Palestinian Authority with a view to increasing the security of its borders. "[The agreements] will prevent a new dividing line being drawn across Europe after enlargement," says External Relations Commissioner Benita Ferrero-Waldner. The agreements will be adopted by foreign ministers in the coming days; thereafter, they will be formally adopted at bilateral meetings between the countries concerned.

**9 December** In Geneva, during the ongoing Meeting of States Parties to the BWC [see 6-10 Dec], the BioWeapons Prevention Project (BWPP) releases *BioWeapons Report 2004*. It is the first in a series of annual reports, and assesses the global state of technology that could be used to create biological weapons and the strength of the norm against such efforts.

**9 December** In London, during the opening meeting of the fourth Joint Contact Group, UK Home Secretary David Blunkett and US Homeland Security deputy James Loy sign a joint research and development framework on issues relating to homeland security. The agreement allows scientists, engineers and experts from the UK and the USA to work together and exchange information on technology such as chemical, biological, radiological and nuclear decontamination detection equipment. A joint statement released after the meeting reads: "[The Science and Technology Agreement] supports the following: exchanges of homeland/civil security information and associated exchanges of scientists, engineers, and other experts; development of threat and vulnerability assessments for critical infrastructure, strategies for protection of automated control systems and other systems at risk; development and exchange of commercially adaptable best practices, standards, and guidelines; development, testing, and evaluation of homeland/civil security technologies; and utilization of each country's respective research, development, testing and evaluation capacities. This Agreement represents the continuing commitment by the UK and the US to share knowledge, expertise and research in addition to development, testing and evaluation capabilities that will help us find the best technologies and tools to prepare and protect our countries."

**9-10 December** In Paris, health ministers from the G-7 nations and Mexico convene for the fifth [see 7 Nov 03] Ministerial Forum of the Global Health Security Initiative. They agree, *inter alia*, to establish a bioterrorism crisis center to marshal a global response to germ warfare attacks. They also pledge to provide millions of shots for a global "vaccine bank". At a press conference following the meeting, French Health Minister Philippe Douste-Blazy says: "The mission of the broadened G-7 is thus clear: think about the unthinkable..."

For the first time since the group was formed, we agreed this morning to extend our work from the simple fight against bioterrorism to all international health threats... After episodes of SARS and bird flu in 2003-2004, it's a historic decision." Douste-Blazy adds that his proposal to create an international task force on bioterrorism in Ottawa, Canada, currently home to the G-7's health secretariat, which he had planned to raise during the meeting, will instead be discussed by the ministers next year.

**10 December** In Yekaterinburg, the Sverdlovsk regional court sentences a man to six years imprisonment for threatening to mail anthrax spores to the US Consulate-General in Yekaterinburg and to Canadian embassies in Finland, Portugal, Germany and Belgium. Alexei Raskovalov carried out the threats as revenge for having been swindled by a Canadian woman with whom he had agreed to stage a fictitious marriage in 2001 to enable him to settle in Canada.

**10 December** US Deputy Defense Secretary Paul Wolfowitz requests Health and Human Services Secretary Tommy Thompson to declare an emergency in order to justify using the vaccine for protection against inhaled anthrax. The military's anthrax vaccination programme was recently halted by the Department of Defense [see 2 Nov] in response to a ruling by a federal judge [see 27 Oct] in a lawsuit filed by six anonymous plaintiffs. In a memorandum sent by Wolfowitz to Thompson, the former says he has "determined there is a significant potential for a military emergency involving a heightened risk to United States military forces of attack with anthrax." "In making this determination," Wolfowitz adds, "I have considered a classified November 2004 Intelligence Community assessment of the anthrax threat. This heightened risk has been and continues to be the basis for the DoD program of vaccinating personnel serving in the areas of the Central Command and Korea." He continues: "We have paused the DOD anthrax vaccination program due to a judicial mandate for additional public comments on an order issued by [FDA] in December 2003 reaffirming licensure of the vaccine for protection against anthrax via inhalation exposure."

**13 December** In Brussels, the European Council adopts a statement further to the first stage of the Peer Review of Member States' Export Control Systems for Dual Use Goods conducted within the framework of the EU Strategy against Proliferation of Weapons of Mass Destruction [see 031212]. The statement reads: "[T]he Commission Services and the Council Secretariat have worked in close cooperation in order to prepare and contribute to the successful execution of the Peer Review process... During visits which took place between February and July 2004, all Member States, assisted by a Task Force, had the opportunity to compare practices, learn from each other's experiences and make suggestions for improvements... Based on these suggestions and an analysis of national systems, the Task Force has made [the following] recommendations... for strengthening the efficiency of the EU export control system: ensure transparency and awareness of legislation implementing the EU system; minimise any significant divergence in practices amongst Member States; investigate the possibilities for adding controls on transit and transshipment; provide assistance in recognition of dual-use items subject to control; improve exchanges of information on denials, and consider the creation of a data base to exchange sensitive information; agree best practices for the enforcement of controls; improve transparency to facilitate harmonisation of implementation of controls on non-listed items (catch-all); enhance interaction with exporters; agree best practices for controlling intangible transfers of technology."

**14 December** The Trust for America's Health releases *Ready or Not? Protecting the Public's Health in the Age of Bioterrorism* [see also 11 Dec 03]. The report surveys public-health experts and state and local government officials about US states' and cities' readiness for public health emergencies.

**14 December** In Texas, a man is sentenced by a district court to seventy months imprisonment for posting a threatening communication and threatening to use a weapon of mass destruction. In Autumn 2003, Steven Earl Cottingham, from El Paso, posted letters containing a substance intended to resemble *Bacillus anthracis* to the FBI, the US Postal Service, a counselling center and an apartment complex. He was arrested on 23 July this year.

**15 December** Australian Prime Minister John Howard announces that Australia is to impose a 1000-nautical mile security-ring around its coastline with plans to intercept and board any ships on the high seas which it believes to constitute a terrorist threat. Under the move, all vessels that pass through the zone – which will extend south of New Zealand and north of Indonesia – en route to Australia will be monitored and required to give details of their crew, location, speed, cargo and destination port. [Note: under the *United Nations Convention on the Law of the Sea 1982* (now generally accepted as reflecting customary international law and thus universally binding), states that "every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles..." The convention further states: "On the high seas [...] every State may seize a pirate ship or aircraft, or a ship or aircraft taken by piracy and under the control of pirates, and arrest the persons and seize the property on board..." A 'pirate ship or aircraft' is defined as one being intended by the persons in dominant control to be used for the purpose of [piracy]...". Piracy is defined as: (a) any illegal acts of violence or detention, or any act of depredation, committed for **private ends** {emphasis added}..."]

**15 December** In Tokyo, the Group to Investigate the Bone Issues submits to the ministries of health, labour and welfare a petition for the use of a test to confirm whether human bones dug up in the province of Shinjuku Ward belong to six prisoners from the Second World War. The method would superimpose three-dimensional images of the skulls onto photos to identify the dead. Dozens of bones were unearthed in 1989 at a site in the ward where the army operated a medical school and epidemic-prevention institute from the 1920s through 1945. "We are going to ask other relatives of the victims of Unit 731 to provide photographs," says Kazuyuki Kawamura, a member of the group. In 1992, the ward said that its results showed the bones were those of at least sixty-two persons, most of whom were Mongoloid. In 2001, the health ministry said it found no solid evidence to link the remains with the activities of Unit 731.

**15 December** In Amman, the trial of Abu Musab al-Zarqawi, and twelve other persons accused of plotting a chemical attack in Jordan opens, but it is adjourned for a week when nine other suspects arrested over the case refuse to address the court in protest at their detention conditions [see 17 Oct]. Al-Zarqawi, a Jordanian-born Islamist who has a \$25 million US bounty on his head for a string of attacks, and three others, are being tried in their absence. Only eight of the defendants are currently being held in custody. The group is accused, *inter alia*, of plotting, under al-Zarqawi's orders, an attack on the intelligence department using trucks loaded with twenty tonnes of chemicals as part of a larger conspiracy,

including hits on the prime minister's office and the US embassy.

**16 December** The UK Foreign Office, Department of Trade and Industry, and the Ministry of Defence releases *The G8 Global Partnership: Progress during 2004 on the UK's Programmes to Address Nuclear, Chemical and Biological Legacies in the Former Soviet Union (Second Annual Report 2004)* [see 5 Dec 03]. Regarding Russian chemdemil, the report states: "During the year, the UK has continued to develop close working relationships in particular with Russia, Canada and the US, in order to ensure effective programme co-ordination at the Shchuch'ye CWDF. At the initiative of the UK, these countries have set up an informal Shchuch'ye Co-ordination Group that has met four times to date. The UK has also continued to take part in the regular informal donor co-ordination meetings hosted by the Netherlands in The Hague. Excellent progress has been made on the most recent project – procurement of equipment for the main electricity sub-station supporting the CWDF at Shchuch'ye. This project has been ... funded by the UK, Norway, the EU and the Czech Republic [see 10 Oct 03]. All the equipment was delivered to site by October, and handed over to the Russian authorities by early November 2004, some six weeks ahead of contract schedule and under budget. An MOU was signed with Canada [see 19 Nov 03] [...] under which Canada agreed to fund, and the UK to implement, construction of the 18-kilometre railway which will be used to transport some 1.9 million munitions from storage to the CWDF at Shchuch'ye. The 2004 G8 Global Partnership Annual Report commented: "This partnership in action may serve as the model for future co-operation for countries that lack a bilateral agreement with the Russian Federation. The UK intends, jointly with Canada, to carry out further infrastructure projects at Shchuch'ye, and to procure equipment for the second munitions destruction building, inside the CWDF. This will include all the main equipment needed to process chemical agent munitions, as part of the overall destruction process. The UK has agreed in principle to implement these projects and to contribute funding to them. Initial estimates of the total cost are of the order of at least \$50-60 million. Subject to the necessary national approvals, Canada intends to contribute substantial funding for these projects through the UK programme. It is expected that all these projects will be completed by 2007, using funding from the UK and other donors, with the CWDF expected to start operation in 2008. The UK continues to play an important role in enabling other donors to contribute funding assistance to Russia without having to set up their own assistance programmes. New Zealand has agreed to make a contribution through the UK's programme in the current year, and the Czech Republic has decided to make a second such contribution.... The priorities over the next year are to: begin construction of the railway at Shchuch'ye on behalf of Canada; start implementation of further projects at Shchuch'ye, including both infrastructure and equipment for the second munitions destruction building, with funding from the UK, Canada, the Czech Republic and New Zealand; decide at which planned CWDF site the UK could provide further assistance, in close co-operation with other donors."

With regard to the redirection of scientists, the report states: "The MOD began its first biological non-proliferation project at a plant institute in Georgia in May 2004. It is being implemented with technical and management support from the Central Science Laboratory of DEFRA. The project is being carried out through the mechanism of the International Science and Technology Centre (ISTC), and is intended to redirect plant health scientists formerly employed in the Soviet anti-crop programme, whilst contributing to a sustainable future for the

institute and underpinning its role in the development of the plant health sector in Georgia. It is expected to serve as a pilot project for future projects in the FSU and elsewhere. It is intended to carry out a small number of additional projects in the biological area over the next few years. The focus is likely to be on plant and animal health. In addition, some projects may be undertaken relating to the redirection of former chemical weapon scientists. Co-ordination with other donors is a priority, and the UK is working closely with the US and Canada. The FCO, DTI and MOD have also taken part in preparatory work aimed at the redirection of former WMD scientists in Iraq and Libya, in both cases working closely with the US. In the short term, these are seen as high priority requirements for the UK, in order to minimise the risks of proliferation of expertise. We have been involved in discussions relating to the establishment of an Iraqi Science Centre, which would serve a similar function to the ISTC in the FSU. In the meantime, in conjunction with the US, early redirection opportunities are being sought through organisations already established on the ground... A priority is to identify and implement suitable projects in Libya and Iraq. We also intend to gradually expand the scale of the UK Biological Redirection Programme in the FSU, in close conjunction with other donors."

**16 December** In the USA, researchers at Johns Hopkins University report that a "targeted and rapid" deployment of antibiotics and vaccines after an anthrax attack would more effectively protect victims from illness than a mass inoculation programme implemented before a potential incident, according to the journal *Nature*. Ron Brookmeyer – and his colleagues Elizabeth Johnson and Robert Bollinger – developed a probability model to consider the prevention rates achieved by a preventive vaccination campaign or the use of antibiotics after an attack. In the model, anywhere from 67 to 76 per cent of victims of an anthrax attack would not become ill were they to commence taking antibiotics within six days and continued to take the medicine for the recommended period of at least 60 days.

**17 December** US President George Bush signs into law the Intelligence Reform and Terrorism Prevention Act 2004. The Act implements two of the key recommendations of the 9/11 Commission [see 22 Jul]: the creation of a director of national intelligence and the creation of a national counter-terrorism center.

**17 December** In Washington, DC, in the on-going case brought by Steven Hatfill against the Justice Department and the FBI, subpoenas are issued against a number of news organizations relating to information about government sources used to write stories linking him to the investigations into the anthrax letters [see 15 Oct 01]. The *Los Angeles Times* reports the organizations to include the *Washington Post*, Associated Press and National Public Radio. For over a year District Judge Reggie Walton has refused to authorize Hatfill to interview FBI and Justice Department employees whom the attorneys suspect of having leaked information to reporters; however, two months ago he granted Hatfill the right to question journalists who wrote about the investigation [see 7 Oct]. As part of that arrangement, the government secured pledges from a number of officials releasing journalists from any agreements they had to protect anonymous sources. The *Times* reports that those organizations receiving the subpoenas had said they would decline to co-operate. [See also 29 Nov]

**19 December** In Baghdad, Ali Hassan al-Majid (also known as 'Chemical Ali') faces questioning in court – in the first hearing since Saddam Hussein and the eleven other

former officials currently in custody were formally charged in the summer [see 01 Jul] – into alleged crimes committed under the previous Iraqi administration. Charges laid against al-Majid include his role in the use of chemical weapons on Halabja [see 18 Mar 88]. He appears alongside former defence minister Sultan Hashem Ahmed, who also faces charges in relation to the attack on Halabja. At a press conference following the hearing, chief magistrate Rayed Juhi says: “We are in the process of gathering evidence and hearing testimony on the different crimes committed by the accused between 1968 and 2003... Each investigating magistrate will take the time he deems necessary and set the trial date at the appropriate moment.”

**20 December** The Tokyo High Court rejects a request, made three weeks earlier, by defence lawyers for Chizuo Matsumoto, also known as Shoko Asahara, to suspend his appeal case on the grounds that he is unfit to stand trial. According to the court spokesman, the chief judge in the appeal trial, Masaru Suda, had met Asahara in prison and confirmed he was *compos mentis*. A psychiatric report submitted to the court had stated that Matsumoto may have been suffering from a brain disorder or a genuine mental disorder caused by his long detention, or that he may simply have been pretending or observing silence as part of some sort of religious activity. Matsumoto – the founder of Aum Shinrikyo (now called ‘Aleph’) – was sentenced to death at the Tokyo District Court earlier this year [see 27 Feb] for masterminding, among other things, the sarin gas attacks in Matsumoto [see 28 Jun 1994] and the Tokyo subway [see 20 Mar 95].

**20 December** Ukrainian presidential candidate Victor Yushchenko could have been poisoned during a meal he had with three members of the Ukrainian secret service (SBU), according to an article in the *New York Times* [see 10 Sep]. The report states that Yushchenko arrived for a meeting, at a dacha on the outskirts of Kiev, shortly before midnight on 5 September. Yushchenko had asked to have the meeting to discuss, among other things, death threats made against him. The four men reportedly drank beer and ate boiled crayfish from a common bowl, as well as a salad made of tomatoes, cucumbers and corn. Later, they selected vodka and meats, and then cognacs for a last drink. When the meeting ended, at around 02:00 Yushchenko returned home; by the next day he had fallen seriously ill. One of the three men that Yushchenko met with was the chairman of the SBU, Ihor Smeshko. The *Times* quotes Smeshko as rejecting any allegation of foul play as follows: “The main message is this: Our security service did not do Mr Yushchenko any harm, and did not try to do him any harm... This we know for sure. All other versions we will check.” The paper also reports allegations that the person responsible was Smeshko’s former first deputy and Member of Parliament Vladimir Satsyuk, who hosted the dinner and had the food prepared by his personal cook. Satsyuk resigned from the SBU in mid December after a court ruled he could not hold both an executive position in government and a seat in parliament.

**20 December** From the USA, the *Archives of Internal Medicine* publishes research, the findings of which “do not support the hypothesis that Gulf War deployment in 1990-1991 resulted in an increased prevalence of objectively measured, clinically significant pulmonary abnormalities”. A research team led by Joel Karlinsky of Boston University School of Medicine conducted physical and laboratory evaluations of 1036 deployed veterans and 1103 non-deployed counterparts at 16 Veterans Affairs Medical Centres across the USA. They concluded that the two groups had similar

histories of visits to doctors or hospitals for breathing problems, as well as use of inhaled corticosteroids and bronchodilators. Furthermore, they found that spirometry test results did not differ significantly between those who had seen service in the Gulf and those who had not. When the results of individuals potentially exposed to the nerve agents sarin and cyclosarin – believed to be released during the destruction of a munitions storage site at Khamisiyah, Iraq – were analysed, the rate of lung function abnormalities was found still to be no higher than normal.

**21 December** In the UK House of Commons, Parliamentary Under-Secretary of State for Defence and Minister for Veterans Ivor Caplin is asked, by way of a written question, whether he will accept that “Gulf war syndrome” and “acute vaccination reaction” are attributable to service when applications are made for war pensions [see also 17 and 21 Nov]. Caplin responds: “Under the terms of the War Pensions Scheme, claimed disablements are accepted in terms of the underlying medically recognised pathological process. ‘Gulf War Syndrome’ is not medically recognised and we cannot therefore use the term... Any ill-defined symptoms that cannot be attributed to a specific recognised diagnosis are considered under the recognised diagnostic label ‘signs, symptoms and ill-defined conditions’, and awards will be made where they are found to be disabling and due to service. The term ‘acute vaccine reaction’ is a discrete recognised diagnostic label and awards can be made under the War Pension Scheme where such diagnosis is agreed and found to be due to service.”

**22 December** In Novosibirsk, Russia, head of the Novosibirsk FSB Sergei Savchenkov says, during a press conference, that foreign spies are interested in research undertaken at the State Scientific Centre of Virology and Biotechnology (Vektor), Kol’tsovo. He says that during 2004, twenty-four people with links to foreign intelligence services had visited Novosibirsk. In January 2004 President Vladimir Putin entrusted the FSB with the task of guaranteeing the security of Russian technology and development from industrial espionage.

**22 December** In Islamabad, there is a workshop on capacity-building to enable Pakistan to effectively deal with chemical-related threats, including chemical weapons, chemical accidents and chemical terrorism. Pakistani Additional-Secretary Tariq Usman Haider chairs the workshop, which is attended by military and civil defence officials.

**26 December** The *Ottawa Citizen* reports that Canada’s stockpile of smallpox vaccine is much smaller than previously revealed, and that the federal government’s emergency preparations for a bioterrorism attack are behind schedule. It reports that, a year ago, the government had stated delivery of the supplies from Aventis Pasteur, Canada’s largest vaccine manufacturer, would begin in December 2003 and 10 million doses would be stockpiled throughout the country by the early spring of 2004. However, senior federal officials now say unexpected problems in the production of the vaccine meant Aventis Pasteur was not able to supply 6.1 million doses.

**28 December** The US Army Chemical Materials Agency (CMA) announces the destruction of 33.34 per cent of the nation’s stored chemical agent. CMA Director Michael Parker says: “Thus far, the Army has destroyed more than 42 percent of the nation’s chemical weapons munitions, and 10,503 tons of chemical agent, representing one third of the total stockpile.” A CMA press release states: “Aberdeen Proving Ground [... has] destroyed more than 70 percent of

the mustard agent stockpile that has been stored for over 60 years at the installation. The facility remains on track to complete destruction of this stockpile this winter.”

**29 December** The US Bureau of Industry and Security of the Department of Commerce amends its export regulations to comply with the decisions of the Australia Group [see 7-10 Jun] and a subsequent intersessional decision. Added to the list of plant pathogens subject to US export restrictions are three bacteria: (*Xanthomonas oryzae* pv. *oryzae*, *Clavibacter michiganensis* subspecies *sepedonicus*, and *Ralstonia solanacearum*) and two viruses (Potato Andean latent tymovirus and Potato spindle tuber viroid). The rule change also lists nine additional precursor chemicals as subject to export restrictions: methylphosphonic acid, diethyl methylphosphonate, N,N-dimethylamino-phosphoryl dichloride, methylphosphonothioic dichloride, ethyldiethanolamine, triisopropyl phosphite; O,O-diethyl phosphorothioate; O,O-diethyl phosphorodithioate, and sodium hexafluorosilicate.

**31 December** In Utah, Tooele chemdemil facility destroys the last VX-filled spray tank and destruction of the Deseret Chemical Depot’s stockpile of more than 22,000 VX land mines commences, according to a US Army Chemical Materials Agency (CMA) press release. The CMA states that destruction of the last VX land mine, currently scheduled for spring 2005, will represent the elimination of all VX munitions at Deseret.

**January** From London, David Richmond, Director-General for Defence and Intelligence of the UK Foreign and Commonwealth Office and current Chair of the G8 Senior Nonproliferation Officials Group, describes UK priorities on bioterrorism under its chairmanship of the G8 during 2005: “We intend to follow up on the Sea Island [see 10 Jun] undertaking to increase defence against bioterrorism by encouraging improvements to existing mechanisms for sharing information and best practice on contingency planning, emergency response exercises and zoonotic disease surveillance ... . This links with the biological aspects of the work of the Global Partnership. The UK is already engaged in a biological non-proliferation project in Georgia intended to redirect plant health scientists previously employed in the Soviet anti-crop programme. We are working in close collaboration with the US and Canada and other donors on identifying similar areas of potential work in Libya and Iraq.”

**1 January** In Baghdad, the imprisoned Iraqi biologist Dr Huda Salih Mahdi Ammash is dying from cancer, according to the lawyer of former Iraqi deputy Prime Minister Tariq Aziz. Aziz is reported as saying that Dr Ammash, nicknamed ‘Dr Anthrax’ by the Western media, is in “terrible pain” and his lawyer says: “She is always in terrible pain because of cancer, her medical condition is worsening quickly and if she remains like that she will undoubtedly die.” However, a US military spokesman says: “We are aware that she had been treated for cancer at one time, prior to ever being detained. She is checked routinely to ensure there is no reoccurrence. We have no immediate concerns for her health.” Dr Ammash’s sister is reported as saying: “I am sad, angry and anxious because we have not been able to verify the information that suggests she is dying in custody. I have been trying to contact the Red Cross and the US authorities here in Iraq but to no avail.” Nada Ammash adds: “I will take legal action against those who have promoted her as a killer and tarnished her reputation in the eyes of people in Iraq and around the world.”

**2 January** In an interview with *Beijing Review*, Liu

Jieyi, Director General of the Department of Arms Control and Disarmament of the Chinese Ministry of Foreign Affairs, outlines China’s stance on arms control and non-proliferation. In a wide-ranging interview, he says: “The implementation of multilateral arms control and disarmament treaties is, on the whole, in fairly good shape. Multilateral efforts aimed at strengthening the universality and effectiveness of the Chemical Weapons Convention and the Biological Weapons Convention have paid off.” Mr Liu adds: “We fulfilled all obligations set forth in the Chemical Weapons Convention, receiving 14 inspections by the Organization for the Prohibition of Chemical Weapons. We submitted national reports on implementation of the Biological Weapons Convention.” On export controls, he says: “We will continue our dialogue and exchange with other countries and related export control regimes, such as the Australian [sic] Group and the Wassenaar Arrangement.”

**3 January** The US Department of State announces in the *Federal Register* the imposition of sanctions under the *Iran Nonproliferation Act of 2000* on nine foreign entities “for the transfer to Iran since January 1, 1999, of equipment and technology controlled under multilateral export control lists ... or otherwise having the potential to make a material contribution to the development of weapons of mass destruction (WMD) or cruise or ballistic missile systems.” Those sanctioned are: Beijing Alite Technologies Company Limited (China); China Aero-Technology Import Export Corporation (CATIC) (China); China Great Wall Industry Corporation (China); China North Industry Corporation (NORINCO) (China); Ecoma Enterprise Co. Ltd. (Taiwan); Paeksan Associated Corporation (North Korea); QC Chen (China); Wha Cheong Tai Company (aka Wah Cheong Tai Company and Hua Chang Tai Company) (China); and Zibo Chemet Equipment Corporation Ltd. (aka Chemet Global Ltd.) (China). The Department also announces that previous sanctions against the Spanish company Telstar are to be lifted following its agreement to no longer do business with Iran. A press release from the Chinese Ministry of Foreign Affairs subsequently brands the sanctions as “very irresponsible” and states “We believe such actions by the United States will not help expand Sino-US cooperation on nonproliferation.”

**3 January** In the USA, a Utah state senator is calling for the reinstatement of the Utah Federal Research Committee to oversee activities at the US Army’s Dugway Proving Ground. The Army has applied to expand the size of the chemical and biological defence facility and state Senator Gene Davis has tabled a bill to reinstate the committee which was disbanded in the late 1990s.

**5 January** At the Pine Bluff Arsenal in Arkansas, contractors demolish two towers which are among the few remaining structures at the former Integrated Binary Production Facilities complex, which once contained chemical production plants and three munition fill buildings. The only building left standing is the Multiple Launch Rocket System (MLRS) Fill and Close facility, which is being converted to dispose of the remaining DF and QL at the Arsenal; approximately 56,000 canisters of DF, six 55-gallon drums of DF and 291 drums of QL. Conversion of the facility is almost 75 per cent complete and it is scheduled to begin neutralizing the chemicals in early 2006.

**6 January** In Washington, DC, Secretary of Homeland Security Tom Ridge unveils the *National Response Plan*. The 426-page plan, required under Homeland Security Presidential Directive 5, establishes “a comprehensive all-hazards approach to enhance the ability of the United States to manage domestic incidents”, according to a DHS fact sheet. The plan

recognizes the potential magnitude of threats from weapons of mass destruction and severe natural disasters by adoption of a new term, the 'Incident of National Significance'. An incident of national significance is described as an incident with high impact requiring an extensive and well-coordinated response by federal, state, local, tribal, and nongovernmental authorities to save lives, minimize damage, and provide the basis for long-term community and economic recovery.

**6 January** In Graniteville, South Carolina, nine people are killed and more than 250 injured following the derailment of a freight train carrying chlorine. According to authorities, all of the fatalities appear to have been caused by exposure to the cloud of chlorine released when the freight train crashed into a stationary train. Approximately 5,400 residents within a 20-kilometre radius of the accident are forced to evacuate their houses. The accident strengthens calls for improved security for hazardous cargoes transported on the country's railways. Representative Edward Markey says: "Whether it's an accident or Al Qaeda, these hazardous materials are very vulnerable and pose a great risk to densely populated areas". The accident also increases pressure for a ban on the routing of trains carrying toxic chemicals through Washington, DC. Although federal and railway officials say such a ban is unnecessary and that trains have been rerouted anyway since the 11 March train bombings in Madrid, some local councillors have demanded a legislative ban. Two weeks later, around 50 mayors write to Secretary for Homeland Security Tom Ridge asking the federal government to inform them when hazardous cargoes are transported through their cities. Mayor Bob Young of Augusta says: "We need to know what is coming, where it is going and when it is coming. These trains run right through our neighborhoods and business districts." A further two weeks later, the District of Columbia Council passes emergency legislation to ban rail and truck shipments of large amounts of chlorine and other toxic chemicals through the city.

**7 January** In Maryland, workers at the Aberdeen Chemical Agent Disposal Facility begin operation of a pilot facility designed to dismantle ton-containers which have been drained of mustard gas. The Ton Container Cleanout Facility is the second phase of a plan [see 10 Dec 02] to accelerate the destruction of the mustard gas stockpile located at the Aberdeen Proving Ground. The automated facility uses high temperature water sprayed at high pressure to decontaminate the containers, then cuts them in half for further cleaning and eventual recycling.

**7 January** In Washington state, Robert Alberg [see 10 Apr 04] is sentenced to five years probation for possession of ricin. He had faced up to 10 years in prison, but as part of a plea bargain he admitted making the toxin.

**8 January** From Baghdad, Associated Press reports that the US Department of State programme to retrain former Iraqi WMD scientists has so far attracted 116 recruits, including the workforce of a pesticide company that made sarin nerve gas and biologists who brewed botulism and ricin.

**8 January** At Nice-Cote d'Azur airport in France, the authorities increase security following the receipt of a letter threatening a toxic gas attack. A regional official tells reporters: "We received a threatening letter. But after analysis by specialized services, it appears rather fanciful." The letter, written in German and signed by the 'European Globalization Liberation Front', says that an amount of Zyklon B, part of a

stock seized by the Allies when Auschwitz was liberated in 1945, would be released at the airport if planes depart or land between 9am Saturday and 12am Sunday. The following day, a long-delayed CBRN preparedness exercise is due to take place at the airport. Philippe Breuil, prefect of the Alpes - Maritimes region, says: "We didn't have to write the scenario since we used the theme of the letter threat: releasing Zyklon B type gas in the terminals."

**9 January** In New Zealand, Transport Minister and MP for New Plymouth Harry Duynhoven is quoted in the *Sunday News* as saying that "products used to make Agent Orange were shipped from New Plymouth to Subic Bay in the Philippines." A 2004 parliamentary report acknowledged that New Zealand soldiers in Vietnam were exposed to Agent Orange, but did not mention that New Zealand supplied the chemicals to the USA. Duynhoven alleges that the chemicals were produced at Ivon Watkins Dow's New Plymouth plant, but the general manager of successor company Dow AgroSciences New Zealand says: "The claim that Agent Orange was manufactured in New Zealand was exhaustively examined by a parliamentary inquiry in 1990. The company provided to that inquiry all existing documentation, including export records, and that committee concluded that there was no evidence whatever in support of the claim. We will of course answer any questions put to us by the government but it is clear from the weekend news reports that there is nothing new." Despite this, it is reported that Defence Minister Mark Burton ordered a new inquiry by the New Zealand Defence Force in November 2004. "He's still got an open mind so he's asked for a historical examination of the records the NZDF have", according to a spokesman.

Three days later however, Duynhoven, who had been on holiday in Europe when the *Sunday News* reported his claims, is reported as saying that the story was a "beat up" because there were no new claims in it. He says: "It's a put two and two together and get six approach." He tells the *Taranaki Daily News* that he had been told the ingredients were shipped to Subic Bay, but he had not seen evidence backing the claim.

**9 January** From the UK, the complete genome sequence of *Francisella tularensis* is published online by the journal *Nature Genetics*. The sequence of the bacteria, which had been weaponized in the past by both the USA and USSR, has been determined by a team of scientists from the USA, UK and Sweden. The team state that their results "have implications for our understanding of how highly virulent human pathogens evolve and will expedite strategies to combat them."

**9 January** In Florida, federal officials are attempting to trace 51 vials of botulinum toxin sent to 13 customers. The toxin is suspected of causing paralysis in four people who used it as a facial-smoothing alternative to Botox. Two days later, a Fort Lauderdale judge orders Arizona-based Toxin Research International to stop distributing raw botulinum toxin and to recall the 3,081 vials still in circulation.

**10 January** In Copenhagen, the parliament building and the office of Prime Minister Anders Fogh Rasmussen are evacuated and sealed off after a letter containing a suspicious white powder was found in the prime minister's office. The letter is sent to a laboratory in Stockholm where the substance is subsequently found to be harmless. The following day, Danish police arrest a 35-year old woman who turned herself in at a police station and admitted sending the letter. She could face up to 12 years in prison.

**10 January** In the UK House of Commons, there is an adjournment debate on the Porton Down service volunteer programme. A number of MPs describe experiences of constituents who participated in trials at Porton Down during the 1950s and who are now suffering ill effects which they attribute to the trials. Responding to the debate, Parliamentary Under-Secretary of State for Defence Ivor Caplin says that throughout Porton Down's history some 20,000 volunteers have participated in the service volunteer programme and that 5,000 have participated in the past 30 years. Currently, between 100 and 150 participate every year. Mr Caplin says: "As part of the volunteer programme, some volunteers, particularly during the 1950s, were involved in studies to evaluate the effects of very low concentrations of chemical weapons agents such as nerve gases and mustard gas on the ability of unprotected personnel to operate normally. It is important to emphasise that the general purpose of the programme was not hidden. Other volunteers were involved in trials to develop effective clothing and medical counter-measures to protect service personnel, or to assess the ability of personnel to function with new equipment." He continues: "I am pleased to say that the vast majority of the service volunteers who participated in the programme are quite unconcerned about their attendance. Indeed, there is no evidence of any pattern of specific long-term ill health in former volunteers." Responding to calls for a public inquiry, Mr Caplin says: "Although I appreciate the concerns of veterans, I am not convinced that a public inquiry is appropriate. It cannot address the central question of whether volunteers have suffered unusual mortality or illness."

**10 January** In Washington, DC, US Department of State press spokesman Adam Ereli provides journalists with details of Albania's declared chemical weapons stockpile [see 18-21 Mar 03] and US plans to destroy it [see 20 Oct 04]: "They have approximately 16 tons of bulk chemical agent that must be destroyed pursuant to the Chemical Weapons Convention. They have fully cooperated with the Organization for the Prohibition of Chemical Weapons in identifying the chemical weapons stockpile, in making a full stockpile declaration, in ensuring the stockpile is secure and in moving toward destruction as rapidly as possible. They have asked for US assistance and we are providing that assistance under the US Cooperative Threat Reduction program. The Department of Defense, which is responsible for this program is developing an implementation plan and overseeing agent destruction. That destruction will take place by the CWC convention-mandated deadline of April 29th, 2007. ... And the plan includes movement of a US-supplied portable chemical weapons destruction capability into Albania, the conduct of chemical weapons destruction operations by US contractors, and return of the portable capability back to the US upon completion of the destruction." The following day, the Chief of the General Staff of the Albanian Armed Forces appears on national television to say: "I believe that the public now knows that an initiative has already been undertaken to destroy certain chemical substances in our country. These chemical substances were obtained by the Albanian state decades ago."

A long article in the *Washington Post* on the same day reports that the stocks of sulphur mustard, lewisite and adamsite were supplied by China. The chemicals are stored in nearly 600 containers, many of which have Chinese characters on them. The newspaper says: "It was during this period, probably in the middle 1970s, that Albania acquired the chemicals, US and Albanian officials say. To analysts, the Chinese pedigree of the chemicals is self-evident, given the Chinese labels on the canisters and the close military ties

that existed between the two countries." The article also states that the Albanian discovery "appears to confirm something that US intelligence analysts have long suspected: China's past role as a purveyor of chemical weapons technology. While China is believed to have halted such exports long ago, the discovery of Chinese-made yperite in Albania has fueled concerns about the possible existence of similar forgotten or abandoned stockpiles in other countries." US officials note that China also provided military aid to Romania, Yugoslavia and to several Middle Eastern countries in the 1970s and 1980s. It continues: "China has never acknowledged transferring military chemicals abroad, and no stockpiles traced to China are known to have turned up until now."

Two days later, the Tirana *Gazeta Shqiptare* reports an interview with a former senior officer of the General Staff at the Defence Ministry in Tirana, identified only as 'HN', who was in charge of chemical weapons during Enver Hoxha's communist regime. 'HN' tells the newspaper: "Just like other weapons, chemical weapons (which were later called weapons for defence against weapons of mass destruction) came to our country from the Soviet Union and, after breaking up with Moscow, from China, according to orders made by the Defence Ministry. Weapons used to come from China in ships, hidden in grain shipments, because international law prohibited production, transport, selling and storage of such weapons. For this reason, ships going through the Suez Canal underwent strict controls. When Mehmet Shehu was prime minister and defence minister, he ordered studies for building a production line for Yperite mustard gas, which would also be used for the production of LHL [chemical warfare agent] at a later stage. The giant and top secret project, which was code-named 'Object 100 plus 300', envisaged the production of chemical ammunition for artillery and aviation. After the elimination of the gang of Xhevdet Mustafa in September 1982, the Central Military Laboratory produced considerable quantities of the LHL of the type 'BZ', (it can render people unconscious) to be used against terrorist elements and groups. Up until the 1990s, these weapons were part of the Albanian Army arsenal. I do not know what happened to them later."

Despite 'HN's' account, Albanian Deputy Defense Minister Besnik Bare tells a news conference: "We do not know where they came from. There exists no documentation on them." Two weeks later, the Tirana *Koha Jone* quotes former Albanian Army chemical warfare specialist Spiro Nakuci as saying: "There is one thing I can state with responsibility and publicly: that Albania has never had weapons of mass destruction. The poisonous chemical combat substances the Albanian Army had and still has have been used solely for the purpose of training the army and the population against chemical warfare."

**10 January** In the USA, the Sunshine Project and the Citizens Education Project appeal against a US Army decision not to release a 1999 study conducted under the D049 programme by the Dugway Proving Ground on "Chemical Warfare Agent Toxicity for Both Genders from Different Age and Ethnic Groups". The groups had requested the document under the Freedom of Information Act in August 2004 but the Army rejected the request in a letter dated 7 December 2004. Explaining the denial, the Army states that the document "is internal to the Department of Defense and contains information on the human toxicity of chemical warfare agents." It continues: "This information could enable unauthorized individuals to further develop chemical agents. This is particularly evident under a 'mosaic' theory. Disclosure also risks circumvention of international law. The development of chemical weapons is prohibited by international law under the Chemical Weapons Convention of 1993." The letter states that the study is also

withheld because it “contains technical data related to biological agents, which are listed on the US Munitions List.”

**11 January** In the USA, *Defense Environment Alert* reports that the CDC report on the Army’s plan [see 9 Jan 04] to treat approximately 4 million gallons of neutralized wastewater from the Newport Chemical Depot at DuPont’s commercial wastewater treatment facility on the Delaware River in New Jersey is being delayed while DuPont scientists evaluate new secondary waste treatment methods aimed at lowering phosphate discharges into the environment. The following day, Col. Jesse Barber, Chemical Materials Agency program manager for alternative technologies and approaches tells a meeting at Newport that the Army should no longer couple the beginning of VX destruction operations at Newport with a decision on the wastewater: “In my mind those two events could be de-coupled. Let’s destroy the agent and focus on the waste secondarily. I won’t back off on that. I still think continued storage of agent VX is the greatest threat.”

**11 January** *USA Today* reports that the US Army plans to delay building chemical weapons destruction facilities at Pueblo and Blue Grass by five years, thus meaning that the USA will miss the extended 2012 CWC deadline for destruction of its chemical weapons stockpile, according to documents obtained by the newspaper. Between them, the Pueblo and Blue Grass facilities are intended to destroy around 10 per cent of the total US stockpile. The 21 December 2004 budget documents from Acting Undersecretary of Defense for Acquisition, Technology and Logistics Michael Wynne indicate that major construction at the two sites will not begin until 2011 as funding is redirected to “ensure the continued and future success of our operational and constructed sites.” The Acquisition Decision Memorandum states: “Under the new funding profile, the PM ACWA and the Army shall develop alternatives to achieve the 2012 CWC deadline or, as necessary, to delay the ACWA program to allow for design changes while the operational viability and stability of the neutralization process is ascertained. The Army should also address safeguarding the chemical weapons stockpile, as needed, to minimize any additional risk incurred, including relocation if necessary among sites.” Undersecretary Wynne asks to be briefed on the alternatives in 90 days time.

On 19 January, the US Army announces that it has received official direction from the Office of the Deputy Assistant Secretary of Defense (Chemical Demilitarization and Threat Reduction) to consider and evaluate relocation of some of the chemical weapons stored across the country. The Army is also directed to investigate and develop other alternatives to achieve the 2012 CWC destruction deadline. Michael Parker, director of the Chemical Materials Agency, says: “CMA has been instructed to initiate an investigation that considers and evaluates relocation of some of the chemical weapons stockpile. This will be done in an effort to help the United States achieve the extended 2012 Chemical Weapons Convention (CWC) 100% destruction milestone.” The mention of relocation causes much criticism by residents and members of Congress from areas near to existing chemdemil facilities. The transport of chemical munitions between the different stockpile locations is currently banned under federal law. Colorado Senators Wayne Allard and Ken Salazar announce that they have been assured by Pentagon officials that no mustard gas from the Pueblo Chemical Depot will be shipped to the Tooele Chemical Agent Disposal Facility in Utah. On 26 January, Senator Allard introduces legislation to stop the Department of Defense study into the relocation of chemical weapons from the Pueblo Chemical Depot.

**12 January** In Iraq, the search for weapons of mass destruction conducted by the US-UK-Australian Iraq Survey Group was concluded at the end of 2004, according to the *Washington Post*. The newspaper reports that Special Advisor to the Director of Central Intelligence on Iraq’s WMD Charles Duelfer has returned to Washington as have other ISG staff members. The newspaper also reports that the search effort was wound up due to the continuing violence in Iraq and the lack of new information on WMD programmes. Duelfer is working on addenda to the ISG report [see 6 Oct 04] which is due to be reprinted shortly. The *Washington Post* quotes an intelligence official as saying: “There’s no particular news in them, just some odds and ends. The September 30 report is really pretty much the picture.” The same official thinks it unlikely that any WMD will be found: “We’ve talked to so many people that someone would have said something. We received nothing that contradicts the picture we’ve put forward. It’s possible there is a supply someplace, but what is much more likely is that [as time goes by] we will find a greater substantiation of the picture that we’ve already put forward.” Remaining ISG staff in Iraq and Qatar are focused on investigations into possible war crimes charges.

Confirming the newspaper story, White House press spokesman Scott McClellan says: “I think Charles Duelfer has made it pretty clear, and it’s my understanding that the comprehensive report he issued last year is essentially the completion of his work. He’s going to have an addendum that will be released at some point next month.” McClellan adds: “I think that others have already addressed that much of their physical search has – that their physical search has essentially ended, yes, but that they continue to go through documents. So they’re – some of their work continues, because there are thousands and thousands of pages of documents that they were able to recover that were part of the basis for the previous report that Charles Duelfer released.” Speaking a day later, US President George Bush says: “I felt like we’d find weapons of mass destruction – like many here in the United States, many around the world. We need to find out what went wrong in the intelligence-gathering. ... Saddam was dangerous and the world is safer without him in power.”

Answering a parliamentary question a week later in the UK House of Commons, Defence Secretary Geoff Hoon says: “Following the conclusions of the Comprehensive Report of the Special Adviser to the Director Central Intelligence published on 30 September 2004, the Iraq Survey Group is no longer conducting an active programme of field investigations into weapons of mass destruction, but it does continue to investigate information relating to WMD as it becomes available.”

**12 January** In the USA, the *Washington Times* reports that the State Department is to merge its Bureau of Arms Control and its Bureau of Nonproliferation following a critical report from the Department’s Inspector General. An unidentified State Department official quoted by the newspaper says that Secretary of State Colin Powell has approved the merger and adds: “The report of the inspector general found that we still have structures created for Cold War challenges. We need to reduce overlap by retooling and improving efficiency.” The report, undertaken on the fifth anniversary of the merger of the Arms Control and Disarmament Agency (ACDA) into the State Department, says: “OIG’s inspections found that the integration of ACDA into the Department produced a bureaucratic architecture that did not meet current needs. Performance of the three resultant bureaus – Arms Control (AC), Nonproliferation (NP), and Verification and Compliance (VC) – was impeded by unclear lines of authority, uneven

workload, and unproductive competition.” The report recommends the merger of the arms control and nonproliferation bureaus and the redefinition of the verification and compliance bureau as a specialized entity with direct, independent reporting responsibility to the Secretary of State.

**12 January** In Boston, USA, the city’s Zoning Commission Board unanimously approves the construction of Boston University Medical Center’s proposed BL-4 laboratory. Approval by the Commission is the final city regulatory approval needed before construction of the controversial laboratory can begin.

**12 January** At the Center for Strategic and International Studies in Washington, DC, Jeanne Guillemin, professor of sociology at Boston College and senior fellow at the Massachusetts Institute of Technology’s Security Studies Program, discusses her new book, *Biological Weapons: From the Invention of State-Sponsored Programs to Contemporary Bioterrorism*.

**12 January** In the USA, the Department of Justice submits to the District Court for the Eastern District of New York its statement of interest in the case of the Vietnam Association for Victims of Agent Orange/Dioxin, et al v. Dow Chemical Company, et al. In its submission, the Department states: “Plaintiffs seek such a breathtaking expansion of federal jurisdiction based on actions that were, at the time, the subject of great debate with respect to their status under international law. Indeed, the Executive branch considered – and repeatedly rejected – the contention that the use of chemical herbicides in Vietnam constituted a violation of the laws of war. Based in part on this determination, President Kennedy himself authorized the use of herbicides, and the United States requisitioned the chemicals at issue from the defendant manufacturers. In light of this background, plaintiffs’ international law claims should be dismissed for a variety of reasons.”

**12 January** In Ocala, Florida, police arrest Steven Ekberg and charge him with possession of a biological agent. Following a short investigation, officers had entered Ekberg’s home and found substances that later tested positive for the presence of ricin, along with a submachine gun and two semi-automatic rifles. In a press release, the FBI states: “Although the investigation is continuing, there is currently no known link between Ekberg and any groups or organizations having terrorist or extremist ideologies.” If convicted, 22 year-old Ekberg faces criminal penalties including up to 10 years to life in prison. At a preliminary court hearing a week later, an FBI agent testifies to finding terrorist-related material on Ekberg’s computer, including a common internet ‘recipe’ for producing ricin, as well as the Unabomber Manifesto and documents called the “Encyclopedia of Terror”, “Anarchy Cookbook for Early 2000” and “The Arsonist Proudly Presents Assorted Ways to Kill Someone.”

**12 January** In the USA, the Worldwatch Institute publishes *State of the World 2005: Redefining Global Security*. Launching the report, Worldwatch president Christopher Flavin says: “Poverty, disease, and environmental decline are the true axis of evil. Unless these threats are recognized and responded to, the world runs the risk of being blindsided by the new forces of instability, just as the United States was surprised by the terrorist attacks of September 11.” This year’s annual report by the environmental research institute carries chapters on food security and on infectious disease, both of which warn of the risks posed by biological warfare and

bioterrorism. The chapters also emphasize that measures which can improve public health and food security for the world’s population, also lessen the chances of the intentional use of disease by terrorists or by states.

**13 January** In the USA, the National Intelligence Council releases *Mapping the Global Future*, the report of its 2020 project which is based on consultations with non-governmental experts around the world. The 119-page report is the third such long-term study published by the National Intelligence Council [see 13 Dec 00] and is based on a number of conferences in various regions of the world.

On chemical and biological weapons, the report states: “Developments in CW and BW agents and the proliferation of related expertise will pose a substantial threat, particularly from terrorists ... . Given the goal of some terrorist groups to use weapons that can be employed surreptitiously and generate dramatic impact, we expect to see terrorist use of some readily available biological and chemical weapons. Countries will continue to integrate both CW and BW production capabilities into apparently legitimate commercial infrastructures, further concealing them from scrutiny, and BW/CW programs will be less reliant on foreign suppliers. Major advances in the biological sciences and information technology probably will accelerate the pace of BW agent development, increasing the potential for agents that are more difficult to detect or to defend against. Through 2020 some countries will continue to try to develop chemical agents designed to circumvent the Chemical Weapons Convention verification regime.”

On the subject of bioterrorism, the report states: “The most worrisome trend has been an intensified search by some terrorist groups to obtain weapons of mass destruction. Our greatest concern is that these groups might acquire biological agents or less likely, a nuclear device, either of which could cause mass casualties. Bioterrorism appears particularly suited to the smaller, better-informed groups. Indeed, the bioterrorist’s laboratory could well be the size of a household kitchen, and the weapon built there could be smaller than a toaster. Terrorist use of biological agents is therefore likely, and the range of options will grow. Because the recognition of anthrax, smallpox or other diseases is typically delayed, under a ‘nightmare scenario’ an attack could be well under way before authorities would be cognizant of it.” However, the report also states: “Most terrorist attacks will continue to employ primarily conventional weapons, incorporating new twists to keep counterterrorist planners off balance. Terrorists probably will be most original not in the technologies or weapons they employ but rather in their operational concepts – i.e., the scope, design, or support arrangements for attacks.”

**14 January** In Washington, DC, there takes place *Atlantic Storm*, a tabletop exercise simulating a global bioterrorist attack using smallpox. The exercise is organized by the Center for Biosecurity of the University of Pittsburgh Medical Center, the Center for Transatlantic Relations of the Johns Hopkins University School for Advanced International Studies and the Transatlantic Biosecurity Network and is funded by the Alfred P Sloan Foundation, the German Marshall Fund of the United States and the Nuclear Threat Initiative. Among those acting the roles of various national leaders meeting for a fictional transatlantic summit are former US Secretary of State Madeleine Albright, Gro Harlem Brundtland, former Director-General of the WHO and Jerzy Buzek, former Polish prime minister. In the scenario, on the eve of the summit, reports emerge of people infected with smallpox in various European countries. The scenario involves terrorists from the fictional ‘Al-Jihad Al-Jadid’ group releasing smallpox

in early January at Frankfurt Airport, the metro systems in Rotterdam and Warsaw, Los Angeles International Airport, Penn Station in New York and the Grand Bazaar in Istanbul. The terrorists were trained at US and Indian laboratories and acquired seed stocks of smallpox from a former Soviet biological weapons facility. Using a laboratory disguised as a small brewery in Klagenfurt, Austria and assistance from a scientist from the Soviet BW programme, the terrorists were able to process the seed stock into "a relatively high-quality dry powder" which was then disseminated in the target areas using commercially available dry powder dispensers hidden in backpacks carried by vaccinated terrorists. By the end of the one-day exercise, more than 600,000 people were projected to become infected and 25 per cent to die.

The exercise attracts much media comment. Tara O'Toole of the Center for Biosecurity is quoted as saying: "The scenario we posited is very conservative. This could have been much worse. The age of engineered biological weapons is here. It is now." In a later *International Herald Tribune* op-ed, she says: "Unless we forge new health security alliances to meet the bioterrorist threat, an attack of mass lethality is not a matter of whether it will happen, but when." However, there is also criticism of the exercise from non-governmental experts. Martin Furmanski says: "It really is a political set piece. They sent everybody home on Jan. 14 with this idea of a big smallpox outbreak. There's nothing about the scenario that's impossible. It's just that their particular twist is highly unlikely." Milton Leitenberg of the University of Maryland says that the exercise involved "thoroughly implausible assumptions". Regarding the ability of the 'Al-Jihad Al-Jadid' terrorists to produce dry powder smallpox, Furmanski asks why "al-Qaeda guys with a textbook of food processing and a commercial freeze-dryer that's supposed to make powdered milk succeed where the huge Soviet biological weapons program failed?" Leitenberg adds: "In the real world, there are no known well-trained al-Qaeda scientists." Furmanski also criticizes the exercise for overstating the risk and Western vulnerabilities while failing to stress Islamic vulnerabilities: "Here they've banged the drums and possibly gotten everyone interested in doing this. They should have banged the drums and said this could be a catastrophe for the Islamic world."

**15 January** In the USA, a 1994 document by the US Air Force Wright Laboratory on "Harassing, Annoying, and 'Bad Guy' Identifying Chemicals" posted on the Sunshine Project website attracts much media attention. The project proposal, which had actually been posted in late December 2004, was submitted to the Joint Non-Lethal Weapons Directorate. The document proposes the development of three types of "chemicals that can be sprayed onto enemy positions or onto infiltration routes used by enemy forces": "Category #1: Chemicals that attract annoying creatures to the enemy position and make the creatures aggressive and annoying. Stinging and biting bugs, rodents and larger animals would be candidates to be drawn into the enemy positions. Category #2: Chemicals that make lasting but non-lethal markings on the personnel. ... Category #3: Chemicals that affect human behavior so that discipline and morale in enemy units is adversely effected. One distasteful but completely non-lethal example would be strong aphrodisiacs, especially if the chemical also caused homosexual behavior. Another example would be a chemical that made personnel very sensitive to sunlight."

The international media attention leads the US Department of Defense to comment on the proposal. DOD Spokesman Lt Col Barry Venable tells Reuters that "[The proposal] was rejected out of hand" while JNLWD spokesman Capt Daniel McSweeney tells the BBC that "none of the systems described

in that [1994] proposal have been developed. It's important to point out that only those proposals which are deemed appropriate, based on stringent human effects, legal, and international treaty reviews are considered for development or acquisition." However, in response, Edward Hammond of the Sunshine Project points out that the 1994 paper was included on a 2000 JNLWD promotional CD and was submitted to a National Research Council panel [see 4 Nov 02] in 2002. Hammond says: "What the Pentagon's reaction shows is the biochemical dependency problem of the DOD 'non-lethal' weapons program. JNLWD has never divorced itself from biochemical weapons, and when confronted with that fact, it goes into denial. The denials are contradicted by DOD's own records. The fact of the matter is that Pentagon continues to pursue biochemical weapons, perhaps including those proposed by the Air Force, but certainly including those proposed by the Army."

**16 January** In South Korea, the *Chosun Ilbo* reports that the National Institute of Health has completed a secret nine-year project to develop an anthrax vaccine. The vaccine has been successfully tested on animals and the Korea Research Institute of Chemical Technology has been asked to undertake safety tests. Following clinical trials on humans, the vaccine is expected to be ready in 2009.

**16 January** From Amman, it is reported that former Iraqi President Saddam Hussein's legal team has witnesses who will testify that his regime was not responsible for the chemical attack on Halabja in 1988. Hussein's chief lawyer, Ziad al-Khasawneh, says that witnesses "are ready and willing to appear before the Iraqi court to testify that the regime of President Saddam Hussein had nothing to do with the chemical attack on the Kurdish population. Those witnesses cannot be challenged in terms of the weight of their testimonies, their persons, positions and connection to the event." The legal team had previously only claimed to have documentary evidence that Hussein was not responsible for the attack.

**17 January** In Moscow, the Deputy Head of the Federal Agency for Industry Viktor Kholstov and a group of US congressmen and representatives of the US Defense Threat Reduction Agency meet to discuss Russian-US chemdemil cooperation. The Russians brief the US delegation on progress in construction of chemdemil facilities at Maradykovskiy, Kambarka and Shchuch'ye and in the ongoing destruction of lewisite stocks at Gorny.

**17 January** In Libya, the five Bulgarian nurses [see 5 Dec 04] sentenced to death for infecting patients in a children's hospital with HIV/AIDS are demanding compensation for being tortured while in captivity. A case against ten accused police officers is due to start shortly. The Libyan People's General Conference had recently called for the death sentences to be carried out as soon as possible, a call which Bulgarian President Georgy Parvanov describes as an "alarming signal". However, Libyan Prime Minister Shukri Ghanem says: "The wishes of the Libyan people will not affect the judges' deliberations or their independence."

**17 January** In the UK House of Commons, Minister of State for Health John Hutton gives details of the amount of smallpox vaccine currently held by the UK in answer to a parliamentary question: "We currently have sufficient vaccine to mount a mass vaccination campaign for the United Kingdom population if required to do so. This would involve use of current stocks of both old and new vaccines, which are unlicensed. We have an on-going contract for the supply of licensed

vaccine, which will provide sufficient undiluted doses of new vaccine for the entire UK population. Preparations for submission of a licence application for the vaccine are in progress and the vaccine will be supplied after completion of the necessary clinical trials and the granting of a licence."

**17 January** At City Hall in London, the British American Security Information Council (BASIC) convenes a roundtable meeting on *The Threat of Bio-Terrorism: Information Tools for First-Responders*. Participants are invited to discuss a draft BASIC report on *An Assessment of the Emergency Response in the United Kingdom to Test-Tube Terrorism*.

**17 January** In the USA, the *New Yorker* reports that the US Administration is conducting covert reconnaissance missions inside Iran. Reporter Seymour Hersh writes: "Much of the focus is on the accumulation of intelligence and targeting information on Iranian nuclear, chemical, and missile sites, both declared and suspected. The goal is to identify and isolate three dozen, and perhaps more, such targets that could be destroyed by precision strikes and short-term commando raids." Hersh quotes an unidentified former high-level intelligence official as saying: "This is a war against terrorism, and Iraq is just one campaign. The Bush Administration is looking at this as a huge war zone. Next, we're going to have the Iranian campaign. We've declared war and the bad guys, wherever they are, are the enemy. This is the last hurrah—we've got four years, and want to come out of this saying we won the war on terrorism." While not categorically denying Hersh's allegations regarding the covert missions, Pentagon spokesman Lawrence DiRita says: "Mr. Hersh's article is so riddled with errors of fundamental fact that the credibility of his entire piece is destroyed." DiRita adds that Iran's "apparent nuclear ambitions and its demonstrated support for terrorist organizations is a global challenge that deserves much more serious treatment than Seymour Hersh provides in *The New Yorker* article titled 'The Coming Wars'."

**18 January** In Maradykovskiy, Russia, workers lay the first stone of the chemdemil facility planned for the site. The first processing line is due to begin operation in December 2006 and the second in December 2008. All chemical weapons stocks at the facility are due to be destroyed by 2011.

**18 January** In the UK, the Home Office organizes a CBRN Science and Technology Bidders Conference to discuss the requirements for submission of outline proposals for funding to the Home Office. Proposals received by the deadline of 18 February will be sifted by a cross-government panel and the most promising of these will be invited to proceed to the next stage of the process. Proposals are sought in nine broad areas: Agriculture, Analysis, Behavioural Science, Decontamination, Detection Environmental Protection, Epidemiology and Modelling, Medical Countermeasures, and Protection Equipment. The Home Office later announces that 540 proposals were received by the deadline and a total of 165 have been shortlisted for the second stage of the bidding process.

**18 January** In Boston, USA, the University announces that three scientists became ill last year after being exposed to *Francisella tularensis* in a laboratory accident. Two workers became ill in May and another one in September and work on the tularaemia project was stopped in October. The researchers were working on a federally-funded project to develop a tularaemia vaccine and had believed that the strain they had acquired from the University of Nebraska was harmless. Investigations by local and federal authorities blame the exposure on lax laboratory practices by the researchers but

the incident serves to heighten local concerns about the construction by the University of a BSL-4 laboratory in the city [see 12 Jan]. Dr Thomas Moore, acting provost of BU's medical campus says: "The security levels in a BSL-4 laboratory are so far beyond what you would see in a BSL-2 laboratory that this would never happen there. This has for sure heightened our awareness and attentiveness to safety issues in labs that operate at a lower level of security." However, Philip Warburg of the Conservation Law Foundation says: "The assurances that BU has given that it can maintain perfect control of these facilities are called into question. We're also disturbed that this incident is only coming to light today."

A few days later, four Boston city councillors sponsor a measure to block construction of the BSL-4 facility, despite its recent approval by the city's Zoning Commission. Councillor Maura Hennigan says: "From my perspective, if BU is having difficulties with its Level 2 facilities, how can we deal with a Level 4, which is the most threatening to public safety?"

**19 January** In Moscow, Canada and the UK sign a second [see 19 Nov 03] memorandum of understanding on cooperation to support Russian chemdemil activities. Under this MoU, Canada will provide an initial \$10 million (approximately £4.5 million) for further key industrial infrastructure projects at the Shchuch'ye chemical weapons destruction facility. Canada also plans to make additional contributions over the next two years which will be used by the UK to provide equipment for the facility's second main destruction building.

**19 January** In Geneva, the 115th session of the WHO Executive Board receives a report from the Secretariat on the proposal for a global smallpox vaccine reserve which was reviewed by the WHO Ad Hoc Committee on Orthopoxvirus Infections in September 2004. The report states: "WHO is finalizing mechanisms for its acquisition and release of smallpox vaccine for emergency response, taking into consideration comments from the Ad Hoc Committee." Daniel Lavanchy, smallpox project leader at the WHO's alert and response office tells reporters: "It is clear that we will have some stocks in a few months, but it would take two to three years to set up the whole stockpile."

**19 January** In London, Scientists for Global Responsibility launch a new report entitled *Soldiers in the Laboratory: Military Involvement in Science and Technology – And Some Alternatives*. The report details four case studies on: new nuclear weapons; nanotechnology; biological sciences; and the 'missile defence' programme. The author of the report, Chris Langley says: "Today the military sector plays a disproportionate role in setting the research agenda for science and engineering. Yet we face a whole variety of security threats which are not addressed by current military thinking which is out-dated and reminiscent of the Cold War."

The report makes a number of recommendations with regard to the biological sciences: "International agreements on limiting the production and use of both biological and chemical agents must be supported at a senior level within the scientific community. International scientific advisory panels would be a pivotal way of keeping abreast of the technological advances in the various sciences involved and would provide advice to policy makers. Members of the research community should exercise judgement in the publication of their work and raise awareness through various fora about the ethical and legal dimensions of the research they undertake.... There should be an internationally agreed consensus on good practice, especially in combating the misuse of scientific advances in ways which could pose a threat to global security and peace."

Full examination should be undertaken, as a matter of priority, of legal constraints on biological weapons development nationally and internationally in order to strengthen these constraints and build an enforceable code of practice, especially in light of the many advances being made in the biosciences. Some form of expert-based verification system should be built to oversee this process and, of necessity, this should be under the auspices of the Biological Weapons Convention. Military biodefence programmes should not be allowed to undermine pressing research on naturally occurring diseases.”

**19 January** At the Newport Chemical Depot in Indiana, workers dismantling the former chemical weapons production facility discover a small metal sealed tank containing 20 gallons of VX. Lt Col Scott Kimmell, commander of the facility, says that the tank had been part of the VX-manufacturing process. He adds that there had been no release of VX into the environment and that the tank had been safely sealed and moved to the VX storage area.

**21 January** In the USA, the *Los Angeles Times* reports that the US Administration has deferred to strong opposition from Afghan President Hamid Karzai and decided against using aerial spraying to destroy Afghanistan’s opium poppy crop. The USA will instead help develop alternative livelihoods for poor farmers, build up the police and counter-narcotics forces, and pay teams of Afghans to cut and burn poppy fields by hand. However, US Secretary of State Condoleezza Rice indicates that the decision may be revisited: “At this point, manual is all we can do, but we’ll see whether aerial is needed.”

**22 January** In London, the Foreign and Commonwealth Office confirms that Porton Down carried out tests of LSD on service personnel in 1953 and 1954 at the behest of the Secret Intelligence Service (MI6). The London *Guardian* has spoken to three men, all of whom volunteered for service at Porton but who were not told they would be given hallucinogens. One of the men had submitted an open government request to the Ministry of Defence and was told that “much of the information concerning LSD involves research conducted at the behest of the Secret Intelligence Service ... We are more than happy to speak to them on your behalf and will pursue the question of downgrading the security classification of certain documents to allow us to disclose them to you.” The newspaper also quotes from a document held in the National Archives which describes the tests as “tentative and inadequately controlled.” One scientist who was believed to have been involved, the late Harry Cullumbine, wrote in his unpublished autobiography that “We stopped the trials ... when it was reported that in a few people it might produce suicidal tendencies.”

**23 January** In Halabja, Iraqi Deputy Prime Minister Barham Saleh tells Kurdish survivors of the 1988 chemical attack on the town that Ali Hassan al-Majid, otherwise known as ‘Chemical Ali’ who is believed to have ordered the attack, will be tried in the town. Saleh says: “We will bring you Chemical Ali, so that he can be tried in front of the families of the victims of the gassing.”

**23 January** The London *Observer* reports 1976 papers released under the Freedom of Information Act which demonstrate that the Government at the time had approved the use of CR gas in Northern Ireland. The documents show that from 1973 the Government permitted CR to be used on prison inmates in the event of an attempted mass breakout. In one document dated 16 March 1976, a senior MoD official,

David Omand (who is currently Security and Intelligence Co-ordinator in the Cabinet Office) emphasizes the sensitive nature of activities involving CR: “All concerned should be told of the consequences of idle talk.” Other documents state that training had to be carried out in absolute secrecy at a secure training area; documents note that there was “no way the public could find out about the intention to use chemicals.” For many years, the Government has denied allegations from inmates that CR was used during rioting at Long Kesh prison in October 1974 [see 14 Oct 01].

**23 January** In Canada, the *Toronto Sun* reports that the Department of National Defence has identified six sites where chemical and biological agents have been buried and “pose a potential risk to human health and/or the environment.” The four land and two marine locations identified by the Warfare Agent Disposal programme include three at DRDC Suffield.

**24 January** In the UK, the Government is making preparations to deal with an influenza pandemic, so it is reported. Under consideration are contingency plans including inflatable mortuaries, quarantine facilities and the evacuation of big cities. An unidentified “senior government source” tells the London *Guardian*: “People think terrorist attacks are the most serious threat to us but influenza is currently regarded as the most likely. Our statisticians say an epidemic is overdue. Some of the details are graphic. They’re the things that keep me awake at night.” The Department of Health is soon to publish an Influenza Pandemic Contingency Plan.

**25 January** In the UK House of Commons, Elliot Morley, Minister of State for Environment and Agriculture announces the creation of the Government Decontamination Service as an executive agency of the Department for Environment, Food and Rural Affairs. In a written ministerial statement, Morley describes the GDS’s main roles: “Firstly, it will provide advice and guidance to responsible authorities during their contingency planning for CBRN incidents, and regularly help test the arrangements that are in place.... Secondly, it will rigorously assess the ability of companies in the private sector to carry out decontamination operations, and ensure that responsible authorities have access to those services if the need arises. If required, the Agency will also help co-ordinate decontamination operations. Finally, the Service will advise central government on the national capability for the decontamination of buildings and the environment in the event of a major release of chemical, biological or radioactive materials.” Responding to the announcement, the Royal Society welcomes the creation of the GDS but adds: “However, the Society believes that such a service should also encompass the detection of CBRN materials in the event of an incident because the two measures are so intrinsically linked. Quickly and accurately establishing the nature of a release is essential to deciding what decontaminating steps need to be taken. In addition, the service is limiting itself to the decontamination of buildings and the environment when easy access to expertise on the decontamination of people, animals and vehicles at the scene of an incident is also urgently needed.”

**26 January** From Gujarat state in India, *Business Standard* reports that the number of chemical companies to submit declarations to India’s CWC national authority has been surprisingly low. The state is a leader in the manufacture of dyes, pharmaceuticals, chemicals and pesticides but of its 10,000 small, medium and large chemical companies only 160 have submitted information. Only 30 chemical industry

representatives attended a recent awareness-raising seminar organized in the state by the Ministry of Chemicals and Fertilisers and the Gujarat chapter of the Indian Chemical Manufacturers' Association, despite 500 invitations having been sent. The chair of the ICMA Gujarat chapter, Ravi Kapoor, says: "We expected the response to be much better. I am obviously disappointed but this is something all chemical units will have to do sooner or later." According to AKA Rathi, technical advisor (chemicals) to the government of Gujarat, Atul Products, United Phosphorous and Transpek Industries had been inspected by the OPCW.

**26 January** At the World Economic Forum in Davos, Switzerland, there is a panel discussion on weapons of mass destruction moderated by Gareth Evans, the President of the International Crisis Group. Participating are Graham Allison, the Director of the Belfer Center for Science and International Affairs, John F Kennedy School of Government at Harvard University, Tara O'Toole, the Director of the Center for Biosecurity, University of Pittsburgh Medical Center, Alyson Bailes, the Director of SIPRI and Mahmood Sariolghalam of the National University of Iran. The following day there is a panel on biological threats to societies. Participating are William Frist, Majority Leader in the US Senate, John Deutch, a former CIA director and Tara O'Toole. Senator Frist attracts much media attention with his claim that "the greatest existential threat we have in the world today is biological. It's a global threat. It's not just one country's problem." Senator Frist also states: "I think we need to do something that even dwarfs the Manhattan Project to stay ahead, to be prepared, in a flexible way, to [respond to] agents that can be altered, that can be changed."

**26 January** In the UK House of Commons, Minister of State for Foreign and Commonwealth Affairs Denis MacShane announces that the Government is reviewing its previous decision [see 24 Jan 01] not to publish its return under the BWC Confidence Building Measures: "Some States Party have now published their Confidence-Building Measure returns under the Biological and Toxin Weapons Convention on the internet. For example, the 2004 US return is on the US State Department website at <http://www.state.gov/documents/organization/32486.pdf>. This is a positive development in the interests of transparency. The Government are currently pursuing with those who provide the information for the UK return whether they are prepared to make their information publicly available, including returns from 2003 and 2004."

**26 January** In the US House of Representatives, Ellen Tauscher introduces *The 9-11 Commission Combating Proliferation Implementation Act* (HR 422) which would establish an Office for Combating the Proliferation of Weapons of Mass Destruction within the Executive Office of the President. The bill also states: "(1) The President should strive to expand and strengthen the Proliferation Security Initiative announced by the President on May 31, 2003, placing particular emphasis on including countries outside of NATO; and (2) the United States should engage the United Nations to develop a Security Council Resolution to authorize the Proliferation Security Initiative under international law, including by providing legal authority to stop shipments of weapons of mass destruction, their delivery systems, and related materials." To support the PSI, the bill would appropriate \$50 million to conduct joint training exercises. In addition, the bill would also give the President permanent waiver authority over provisions prohibiting the use of certain CTR funds for chemical weapons destruction facilities in Russia.

**26 January** In the USA, Undersecretary of Defense for Policy Douglas Feith tells reporters that the Department of Defense is putting more emphasis on combating terrorism and unconventional threats as it considers its priorities for the next four years [see 30 Sep 01]. The classified terms of reference which Feith's office are preparing will set the framework for the Quadrennial Defense Review (QDR) and will take into account experiences since 2001 such as the insurgency in Iraq and global counter-terrorism operations. Feith is quoted as saying: "The traditional focus was on conventional military threats. We're now talking about things much broader than that."

In addition, *Inside the Pentagon* reports a 10 January memorandum by Acting Undersecretary of Defense for Acquisition, Technology and Logistics Michael Wynne proposing a new framework for combating WMD within the Defense Department. Wynne's memo establishes a Defense Science Board Summer Study on Reducing Vulnerabilities to Weapons of Mass Destruction. The panel is tasked to assess: "Which types of weapons of mass destruction the United States is most vulnerable to and what factors might affect future vulnerability. The functional requirements of a full-spectrum defensive capability against all WMD. Current and planned investments in defenses against WMD. The type of organization needed to implement an integrated defense against WMD." Commenting on the proposal, CBACI President Michael Moodie says: "Over the last decade you've seen a growing appreciation that chemical and biological and nuclear are all quite distinct kinds of challenges. And that may require a different mix of responses than attacking them as one big category – that if you can deal with one part of the challenge, then you can effectively deal with the other. I think we've seen an education process under way over these things among the general public and the policy makers who have not necessarily focused on the full range of these issues."

**27 January** From Ramallah in the occupied West Bank, it is reported that a package containing what is variously described as "chemical powder" or "bacteria" has been sent to the wife of late Palestinian leader Yasser Arafat at her mother's house. According to *Ha'aretz*, a preliminary investigation by a biological laboratory at Beir-Zeit University, near Ramallah, reveals traces of bacteria in the powder. The bacteria has not been identified.

**27 January** In the UK, Ivor Caplin, Minister for Veterans, announces the publication of a paper on "Review of Modelling of the Demolitions at Khamisiyah in March 1991 and Implications for UK Personnel." The paper presents the MOD's assessment of the 2002 US Department of Defense modelling of the events at Khamisiyah. As estimated in a previous paper, about 9,000 UK personnel might have been within the area of possible exposure. The paper also states that: "The level of nerve agent would have been too low to have any biologically detectable effect on UK troops and would have a minimal impact on health; again this is consistent with previous findings." Caplin says: "I welcome the revised DoD modelling. I am reassured that our assessment of the revised Department of Defense modelling concludes that any possible exposure to these low levels of nerve agent would have had no detectable effect on the health of any British troops."

**27 January** In Baltimore, The US Departments of Defense and Homeland Security and the Technical Support Working Group organize the *First Annual National Conference on Environmental Sampling for Bio-Threat Agents* to create a forum for dialogue between government, industry, academia,

and first responders to address issues in environmental sampling.

**27 January** In the USA, UPI reports on a possible expansion of the role of the WHO in investigating suspicious outbreaks of disease in relation to the report of the UN Secretary-General's High Level Panel on Threats, Challenges and Change [see 1 Dec 04] and the ongoing negotiations to revise the *International Health Regulations*. Paragraph 144 of the High Level Panel's report states: "Given the potential international security threat posed by the intentional release of an infectious biological agent or an overwhelming natural outbreak of an infectious disease, there is a need for the WHO Director-General, through the Secretary-General, to keep the Security Council informed during any suspicious or overwhelming outbreak of infectious disease. In such an event, the Security Council should be prepared to support the work of WHO investigators or to deploy experts reporting directly to the Council, and if existing International Health Regulations do not provide adequate access for WHO investigations and response coordination, the Security Council should be prepared to mandate greater compliance." UPI quotes WHO spokesman Iain Simpson as saying: "Virtually no one has the ability to enter a country without permission and investigate – virtually nobody. All parts of the United Nations have to have discussions with the government. If we don't have a visa and we don't have official permission from the government to come, they are not going to let us leave the airport anyway. The idea that WHO would be some sort of super national investigator – it can't happen the way the world works at the moment."

**28 January** In Moscow, the quadrilateral working group on Russian chemdemil at Shchuch'ye set up by the USA, Russia, Canada and the UK decides that "work on earlier signed contracts worth 94.5m dollars will continue in 2005 at the expense of US funds. Moreover, additional contracts on construction and installation work, including direct equipment and materials supplies worth a total of 150m dollars, will be concluded", so Interfax quotes Viktor Kholstov, deputy head of the Russian Federal Industry Agency.

**28 January** In Washington, DC, Moldova deposits its instrument of accession to the BWC with the USA. Moldova thus becomes the 154th state party to the treaty.

**28 January** In The Hague, an appeal judge orders the release of Frans van Anraat, the Dutch businessman who was recently arrested [see 6 Dec 04] on suspicion of supplying Saddam Hussein's Iraq with chemical precursors and charged with complicity in genocide. The judge's decision is understood to relate to custodial issues rather than the prosecution case against the businessman. The London *Guardian* quotes an official from the Dutch public prosecutors office as saying: "This is a very complicated case. It's the first time that a person is being prosecuted in the Netherlands for involvement in genocide that took place in another country a long time ago. We need to prove that there was genocide, that it happened with chemical weapons, that he supplied the precursors, and that he knew they would be used for genocide purposes."

**28 January** In Washington, DC, Assistant Secretary for Verification and Compliance Paula DeSutter addresses the Congressional Defense and Foreign Policy Forum on the subject of "Are Our Old Concepts of Verification Obsolete?" DeSutter states that the US Administration views verification, compliance assessment and compliance enforcement as "the

three components of a policy process wherein information about a state's actions is weighed against its obligations and commitments, and if it is determined that the state is not fulfilling its obligations and commitments, steps are identified and taken to induce or enforce compliance." On the question of what the USA means when it states that a treaty should be "effectively verifiable", DeSutter says: "The US considers an arrangement or treaty to be effectively verifiable if the degree of verifiability is judged sufficient given the compliance history of the parties involved, the risks associated with noncompliance, the difficulty of response to deny violators the benefits of their violations, the language and measures incorporated into the agreement and our own national means and methods of verification."

She goes on to say that "it is a common misperception that a combination of international data declarations, international cooperative measures (including technical measures) and on-site inspection regimes by themselves will be sufficient for detecting noncompliance. In fact, data declarations, cooperative measures and on-site inspections can provide useful and often invaluable information. ... However, inspections provide information according to the agreed access and collection capabilities negotiated by the parties, and only provide such information as is available at the specific time and place of the inspection." She goes on to say: "When resort to such tools will not enhance verifiability—and/or when their adoption would simply result in a false sense of security—the international community must be prepared to turn away from them even if it means acknowledging that a desired treaty is not effectively verifiable."

On the utility of challenge or suspect site inspections to address compliance concerns, DeSutter says: "The facts related to a challenge inspection may be difficult to determine, depending on the nature of the concern, the degree and nature of access provided, whether the inspectors are looking in the right place and whether they have the means to determine whether the activities at that location are permitted or prohibited. Failure to appreciate the inherent limitations of on-site measures and to presume that they can do more than they can will only build a dangerous and false sense of security."

DeSutter emphasizes that it is for states, not international organizations, to make compliance judgements: "There also is a compelling need for all states to recognize that responsibility for compliance assessment and compliance enforcement is a national responsibility of all states parties to an agreement. It is not the sole province of any one state or group of states, and certainly not the province of any multilateral implementing organizations' technical secretariat."

Finally, DeSutter urges that "States must take seriously – more seriously – their role in this effort and not acquiesce quietly in violations of fundamental obligations. They must devote the resources that they have in the past devoted to devising agreements to enforcing agreements."

**28 January** In the US Congress, the Government Accountability Office transmits to the Senate and House Armed Services Committees a report on *Weapons of Mass Destruction: Nonproliferation Programs Need Better Integration*. The report finds that "there is no overall strategy that integrates the threat reduction and nonproliferation programs of the DOD, DOE, and others. ... Given the involvement of multiple agencies, and the expansion of the threat reduction and nonproliferation programs beyond the FSU, integration of agencies' strategies is important." On the efforts of the Departments of Defense, Energy and State to redirect former biological weapons scientists, the report says: "The biological weapons scientist employment programs in DOD, DOE, and

State are well coordinated and also have NSC staff guidance addressing roles, interactions, and disputes.” However, on the departments’ border security programmes, the report says: “By contrast, there is no governmentwide guidance delineating the roles and responsibilities of agencies managing border security programs. According to DOD and DOE officials managing these programs, agencies’ roles are not well delineated and coordination could be improved.”.

**30 January** In Ukraine, recently elected President Victor Yushchenko says in an interview with CBS television that the dioxin with which he was poisoned [see 10 Sep 04] had come from a foreign source: “Dioxin like this is produced in four or five military labs in Russia, America, and a few other countries. Our security services have informed me how this material got into Ukraine, but that evidence is now with our general prosecutor, who eventually must answer this question.” Yushchenko is also certain about who was responsible for the poisoning: “I have no doubts this was by my opponents in the government, that’s who would benefit the most from my death.”

**31 January** In Tripoli, Libyan leader Colonel Muammar Gaddafi tells *Time* magazine why Libya began its WMD programmes: “The program started at the very beginning of the revolution. The world was different then. It was not only Libya that was thinking along these lines. I know [former Romanian leader] Ceausescu used to boast that Romania was able to manufacture the nuclear bomb.” Gaddafi also explains why he decided to renounce these programmes [see 19 Dec 03]: “We started to ask ourselves, ‘By manufacturing nuclear weapons, against whom are we going to use them?’ World alliances have changed. We had no target. And then we started thinking about the cost. If someone attacks you and you use a nuclear bomb, you are in effect using it against yourself.” Asked whether Libya has been rewarded for its action, Gaddafi says: “Libya and the whole world expected a positive response – not just words, although they were nice words – from America and Europe. Blair and Bush expressed their satisfaction. But there must be at least a declaration of a program like the Marshall Plan, to show the world that those who wish to abandon the nuclear-weapon program will be helped. They promised, but we haven’t seen anything yet.”

**31 January** From OPCW headquarters, the Technical Secretariat notifies CWC states parties that the technical change to the Verification Annex of the Convention recommended by the Executive Council has entered into force. The new paragraph 72 *bis* in Part V of the Annex reads as follows: “If a State ratifies or accedes to this Convention after the six-year period for conversion set forth in paragraph 72, the Executive Council shall, at its second subsequent regular session, set a deadline for submission of any request to convert a chemical weapons production facility for purposes not prohibited under this Convention. A decision by the Conference to approve such a request, pursuant to paragraph 75, shall establish the earliest practicable deadline for completion of the conversion. Conversion shall be completed as soon as possible, but in no case later than six years after this Convention enters into force for the State Party. Except as modified in this paragraph, all provisions in Section D of this Part of this Annex shall apply.” An OPCW press release states: “With the entrance into force of this technical change, the conversion of the former chemical weapons production capacity declared by the Libyan Arab Jamahiriya to purposes

not prohibited by the Convention is approved. ... The option to convert former chemical weapons production capacity is now extended to any State that may join the Convention in future. This possibility serves as an additional incentive to the twenty-seven States have not yet acceded or ratified the CWC to do so as soon as possible.”

**31 January** In the USA, the Wisconsin Project on Nuclear Arms Control’s latest *Iran Watch Bulletin* focuses on what it describes as “Iran’s forgotten weapons”; its alleged chemical and ballistic missile programmes. The bulletin claims that “these programs are being built with help from Russia and China, whose companies are helping Iran improve the range and accuracy of its missiles, and to master the indigenous production of chemical agents.” On chemical weapons, the bulletin states: “To make chemical warheads for the missiles to carry, Iran has been able to buy glass-lined equipment from Chinese firms.” It quotes an unidentified senior US official as saying: “This gear is what you need for indigenous chemical weapon production.”

**31 January - 4 February** At the International Maritime Organization in London, the Legal Committee’s intersessional working group on the review of the 1988 Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation (the SUA Convention) convenes for its second session. The draft protocol being negotiated by the Group is intended to criminalize the transportation by ship of weapons of mass destruction. The Group agrees to incorporate mention of UN Security Council resolution 1540 [see 28 Apr 04] into its preamble. In Article 1 of the draft protocol, biological weapons were already described in accordance with the BWC definition and the Group agrees to incorporate definitions of “toxic chemical” and “precursor” as contained verbatim in the CWC.

There is much debate within the Group over the inclusion of a “dual-use offence” in Article 4 of the draft protocol. While there is general agreement to include such a paragraph, consensus cannot be reached on its wording. The current, square-bracketed, text reads: “[any equipment, materials or software or related technology knowing that it is intended to be used in the design or manufacture or delivery of a prohibited weapon]”. The report of the meeting states: “Although some delegations underlined the importance of approaches based on national export control and licensing systems, other delegations expressed their reluctance to make a link to lists not accepted by all State Parties to the SUA Convention, or to national lists that would not be uniform.” Compromise wording as follows is agreed by “a substantial majority” but not all of the delegations: “Any equipment, materials or software or related technology that significantly contributes to the design, manufacture or delivery of a prohibited weapon, with the intention that it will be used for these purposes.”

The draft protocol will be further considered by the 90th session of the IMO Legal Committee from 18-29 April with a view to a diplomatic conference in October at which the draft will be considered for adoption.

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*This Chronology was compiled by Nicholas Dragffy and Daniel Feakes from information supplied through HSP’s network of correspondents and literature scanners.*

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## Recent Publications

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- Abe, Nobuyasu. "The importance of the BTWC for Africa and the role of African states in multilateral disarmament initiatives", *African Security Review*, vol 14 no 1 (2005), pp 119022.
- Ackerman, Gary, and Kevin Moran. *Bioterrorism and Threat Assessment*, Paper no 22, Stockholm: The Weapons of Mass Destruction Committee, 2005, 18 pp.
- Albright, David, and Corey Hinderstein. "Unraveling the AQ Khan and future proliferation networks", *The Washington Quarterly*, vol 28 no 2 (Spring 2005), pp 111-28.
- al-Marashi, Ibrahim. "Saddam's Iraq and weapons of mass destruction: Iraq as a case study of a middle eastern proliferant", *Middle East Review of International Affairs*, vol 8 no 3 (September 2004), pp 81-90.
- Axelsson, Anders, Pål Jonson, Anders Lindblad, Lena Norlander, Anders Norqvist, Wilhelm Unge, and Lars Wigg. *Indian and Pakistani Weapons of Mass Destruction in a Security Policy Context: A Comparative Analysis of Capabilities, Objectives and Consequences*, Umeå: Swedish Defence Research Agency, report FOI-R-0437-SE, March 2002, 80 pp.
- Bennett, Debra. "Terrorists and unconventional weapons: is the threat real?" *Low Intensity Conflict & Law Enforcement*, vol 12 no 1 (Spring 2004), pp 20-50.
- Blair, John, Myron Fottler, and Albert Zapanta (eds). *Bioterrorism, Preparedness, Attack and Response*, Advances in Health Care Management, vol 4, Amsterdam: Elsevier, 2004, 366 pp.
- Borrie, John, and Dominique Loye. "Why preventing hostile use of the life sciences is relevant to Africa: the ICRC Appeal on Biotechnology, Weapons and Humanity", *African Security Review*, vol 14 no 1 (2005), pp 93-106.
- Breeze, Roger. "Agroterrorism: betting far more than the farm", *Biosecurity and Bioterrorism*, vol 2 no 4 (December 2004), pp 251-64.
- Brookmeyer, Ron, Elizabeth Johnson, and Robert Bollinger. "Public health vaccination policies for containing an anthrax outbreak", *Nature*, vol 432 (16 December 2004), pp 901-04.
- Brown, Cameron. "Israel and the WMD threat: lessons for Europe", *Middle East Review of International Affairs*, vol 8 no 3 (September 2004), 26 pp [available online at <http://meria.idc.ac.il/journal/2004/issue3/jv8n3a4.html>].
- Claborn, David. "Environmental mimics of chemical warfare agents", *Military Medicine*, vol 169 no 12 (December 2004), pp 958-61.
- Croddy, Eric, and James Wirtz (eds). *Weapons of Mass Destruction: An Encyclopedia of Worldwide Policy, Technology, and History (2 vols)*, Santa Barbara, California: ABC Clio, 2005, 449 pp (vol 1), 601 pp (vol 2).
- Cserveny, Vilmos, Jozef Goldblat, Faawzy Hussein Hammad, Hannelore Hoppe, Jez Littlewood, Ibrahim Othman, Enrique Román-Morey, and Mohammed Kadry Said. *Building a Weapons of Mass Destruction Free Zone in the Middle East: Global Non-Proliferation Regimes and Regional Experiences*, Geneva: United Nations Institute for Disarmament Research, 2004, 310 pp.
- Dando, Malcolm. "The malign misuse of neuroscience", *Disarmament Forum*, 2005 no 1 (January 2005), pp 17-24.
- DeWaal, Caroline Smith. "Rising imports, bioterrorism, and the food supply", *Food and Drug Law Journal*, vol 59 no 3 (2004), pp 433-39.
- Ember, Lois. "The biodefense enterprise", *Chemical & Engineering News*, vol 83 no 7 (14 February 2005),
- Enemark, Christian. *Disease Security in Northeast Asia: Biological Weapons and Natural Plagues*, Canberra: Strategic and Defence Studies Centre, The Australian National University, 2004, 135 pp.
- Fidler, David. "International law and weapons of mass destruction: end of the arms control approach", *Duke Journal of Comparative International Law*, vol 14 (2004), pp 39-88.
- Findlay, Trevor. "The lessons of UNSCOM and UNMOVIC", in Trevor Findlay (ed), *Verification Yearbook 2004*, London: VERTIC, 2004, pp 65-86.
- Findlay, Trevor, and Angela Woodward. *Enhancing BWC Implementation: A Modular Approach*, Paper no 23, Stockholm: The Weapons of Mass Destruction Commission, 2005, 10 pp.
- Findlay, Trevor (ed). *Verification Yearbook 2004*, London: VERTIC, 2004, 232 pp.
- Gould, Chandré. "Preventing the spread of biological weapons", *African Security Review*, vol 14 no 1 (2005), pp 1-2.
- Harris, James. "Gassed", *Archives of General Psychiatry*, vol 62 (January 2005), pp 15-17.
- Hawkins, William. "Interdict WMD smugglers at sea", *Proceedings of the US Naval Institute*, vol 130 no 12 (December 2004), pp 49-53.
- Hearne, Shelley, Laura Segal, Michael Ears, and Patty Unruh. *Ready or Not? Protecting the Public's Health in the Age of Bioterrorism*, Washington DC: Trust for America's Health, 2004, 66 pp. [available online at <http://healthyamericans.org/reports/bioterror04/>].
- Henderson, D A. "The threat of aerosolized biological weapons", *ASHRAE [American Society of Heating, Refrigerating & Air-Conditioning Engineers] Journal*, December 2004, pp 50-53.
- Hicks, Rickey, Mark Hartell, Daniel Nichols, Apurba Bhattacharjee, John van Hamont, and Donald Skillman. "The medicinal chemistry of botulinum, ricin and anthrax toxins", *Current Medicinal Chemistry*, vol 12 no 6 (2005), pp 667-90.
- Jones, Brian. "Intelligence, verification and Iraq's WMD", in Trevor Findlay (ed), *Verification Yearbook 2004*, London: VERTIC, 2004, pp 195-211.
- Jouejiati, M. "Syrian motives for its WMD programs and what to do about them", *Middle East Journal*, vol 59 no 1 (2005), pp 52-61.
- Kelle, Alexander. "Science, technology and the CBW control regimes", *Disarmament Forum*, 2005 no 1 (January 2005), pp 7-16.

- Kernchen, Roman. "Bioterrorism: potential hazards and countermeasures: a technological assessment", *Military Technology*, November 2004, pp 103-04.
- Kilshaw, Susie. "Friendly fire: the construction of Gulf War Syndrome narratives", *Anthropology & Medicine*, vol 11 no 2 (August 2004), pp 149-60.
- Kosal, Margaret. "Art or bioterrorism? Implications of the Kurtz case for research science and for limiting terrorist threats", *INESAP Information Bulletin*, no 24 (December 2004), pp 85-88.
- Kouzminov, Alexander. *Biological Espionage: Special Operations of Soviet-Russian Intelligence in the West*, London: Greenhill Books, 2005, 192 pp.
- Lake, Edward. *Analyzing the Anthrax Attacks: The First Three Years*, Racine, WI: Edward G Lake, 2005, 266 pp.
- Langley, Chris. *Soldiers in the Laboratory: Military Involvement in Science and Technology, and Some Alternatives*, Folkestone UK: Scientists for Global Responsibility, January 2005, 79pp.
- Lee, Harry, Roger Gabriel, Amanda Bail, and Dawn Welch. "Clinical findings in 111 ex-Porton Down volunteers", *Journal of the Royal Army Medical Corps*, vol 150 no 1 (March 2004), pp 14-19.
- Lee, Myeong Soo, Won-Hong Woo, Hyun-Ja Lim, Sung-Soo Hong, Hye-Jung Kim, and Sun-Rock Moon. "External Qi therapy to treat symptoms of Agent Orange sequelae in Korean combat veterans of the Vietnam War", *American Journal of Chinese Medicine*, vol 32 no 3 (September 2004), pp 461-66.
- Littlewood, Jez. "Strengthening the role of the BTWC and CWC", in Vilmos Cserveny, Jozef Goldblat, Faawzy Hussein Hama, Hannelore Hoppe, Jez Littlewood, Ibrahim Othman, Enrique Roman Morey, and Mohammed Kadry Said (eds), *Building a Weapons of Mass Destruction Free Zone in the Middle East: Global Non-Proliferation Regimes and Regional Experiences*, Geneva: UNIDIR, 2004, pp 25-46.
- Littlewood, Jez. *The Biological Weapons Convention: A Failed Revolution*, Aldershot, UK: Ashgate, 2005, 250 pp.
- Littlewood, Jez. "What would be a successful outcome for the BTWC Sixth Review Conference in 2006?" in Graham Pearson and Malcolm Dando (eds), *Strengthening the Biological Weapons Convention*, [University of Bradford, Department of Peace Studies], *Review Conference Paper* no 11, March 2005, 10 pp.
- Mahley, Donald. "Dismantling Libyan weapons: lessons learned", *The Arena* [CBACI], vol 10 (November 2004), pp 1-9.
- Manley, Ron. "Building an international organisation", in Mary Louise Pratt, Ron Manley and Susan Bassnett (eds), *Intercultural dialogue*, London: The British Council, 2004, pp32-46.
- McLeish, Caitriona, and Paul Nightingale. "The impact of dual use controls on UK science: results from a pilot study", *SPRU Electronic Working Paper* no.132 (April 2005), 14pp. [available online at <http://www.sussex.ac.uk/Units/spru/hsp/sewp132.pdf>]
- Menon, Raja (ed). *Weapons of Mass Destruction: Options for India*, New Delhi: Sage Publications, 2004, 278 pp.
- Moodie, Michael and John Callahan. *Fighting Bioterrorism: Tracking and Assessing US Government Programs*, Washington DC: Chemical & Biological Arms Control Institute, 2004, 111 pp.
- Nixdorff, Kathryn. "Assault on the immune system", *Disarmament Forum* [UNIDIR], 2005 no 1, pp 25-36.
- Njuguna, James Thuo. "Evaluating the threat of biological weapons in eastern Africa", *African Security Review*, vol 14 no 1 (2005), pp 13-21.
- Ohtani, Toshiyuki, Akira Iwanami, Kiyoto Kasai, Hidenori Yamasue, Tadafumi Kato, Tsukasa Sasaki, and Nobumasa Kato. "Post-traumatic stress disorder symptoms in victims of Tokyo subway attack: a 5-year follow-up study", *Psychiatry and Clinical Neurosciences*, vol 58 (2004), pp 624-29.
- Olajos, Eugene (ed). *Riot Control Agents, Issues in Toxicology, Safety and Health*, Boca Raton: CRC Press, 2004, 368 pp.
- Oyston, Petra, Anders Sjostedt, and Richard Titball. "Tularaemia: bioterrorism defence renews interest in *Francisella Tularensis*", *Nature Reviews in Microbiology*, vol 2 no 12 (December 2004), pp 967-78.
- Patterson, Jean, and Ricardo Carrion. "Demand for nonhuman primate resources in the age of biodefense", *International Laboratory Animal Research Journal*, vol 46 no 1 (January 2005), pp 15-22.
- Pearson, Graham. "21 years of CBW protection: a changing world", *The ASA Newsletter*, no 102 (24 June 2004), p1 and 11-14.
- Pearson, Graham, and Nicholas Sims. "Preparing for the BTWC Sixth Review Conference in 2006", in Graham Pearson and Malcolm Dando (eds), *Strengthening the Biological Weapons Convention*, [University of Bradford, Department of Peace Studies], *Review Conference Paper* No 10, February 2005, 33 pp.
- Preslar, Dorothy. "Biological weapons control and disease surveillance: assessing the role of transparency", *African Security Review*, vol 14 no 1 (2005), pp 123-28.
- Ramachandran, R. "For a controls regime", *Frontline*, vol 22 no 1 (1-14 January 2005), 6 pp.
- Rappert, Brian. "Biological weapons and the life sciences: the potential for professional codes", *Disarmament Forum*, 2005 no 1 (January 2005), pp 53-61.
- Robbins, Ira. "Anthrax hoaxes", *American University Law Review*, vol 54 no 1 (October 2004), pp 1-72.
- Roberts, Brad. "The prospects for biological war in the middle east", in Jim Davis and Barry Schneider (eds), *The Gathering Biological Warfare Storm*, Westport Connecticut, and London: Praeger, 2004, pp 103-21, 227-30.
- Rotz, Lisa, and James Hughes. "Advances in detecting and responding to threats from bioterrorism and emerging infectious disease", *Nature Medicine*, vol 10 no 12 (December 2004), pp S130-36.
- Rudd, Philip. "Weapons of mass destruction: the unshared referents of Bush's rhetoric", *Pragmatics*, vol 14 no 4 (December 2004), pp 499-525.
- Schuler, Ari, Joseph Fitzgerald, Thomas Inglesby, and Tara O'Toole. "Executive government positions of influence in biodefense: the Bio-Plum book", *Biosecurity and Bioterrorism*, vol 2 no 4 (December 2004), pp 328-41.
- Shoham, Dany. "Image vs reality of Iranian chemical and

- biological weapons", *International Journal of Intelligence and Counterintelligence*, vol 18 no 1 (January-March 2005), pp 89-141.
- Sims, Nicholas. "Remedies for the institutional deficit of the BTWC: proposals for the Sixth Review Conference", in Graham Pearson and Malcolm Dando (eds), *Strengthening the Biological Weapons Convention*, [University of Bradford, Department of Peace Studies], *Review Conference Paper* no 12, March 2005, 11 pp.
- Steinbruner, John, and Stacy Okutani. "The protective oversight of biotechnology", *Biosecurity and Bioterrorism*, vol 2 no 4 (December 2004), pp 273-80.
- Steyn, Ben. "Understanding the implications of UN Security Council Resolution 1540", *African Security Review*, vol 14 no 1 (2005), pp 85-91.
- Swiderski, Richard. *Anthrax: A History*, London: McFarland & Co Inc, 2004, 266 pp.
- Szeto, AL, F Rollwagen, and WB Jonas. "Rapid induction of protective tolerance to potential terrorist agents: a systematic review of low- and ultra-low dose research", *Homeopathy*, no 93 (October 2004), pp 173-77.
- Taback, Nathan, and Robin Coupland. "Towards collation and modelling of the global cost of armed violence on civilians", *Medicine Conflict and Survival*, vol 21 no 1 (January-March 2005), pp 19-27.
- Tabassi, Lisa, and Scott Spence. "Improving CWC implementation: the OPCW action plan", in Trevor Findlay (ed), *Verification Yearbook 2004*, London: VERTIC, 2004, pp 45-64.
- Tabassi, Lisa, and Scott Spence. "The case of the Organization for the Prohibition of Biological Weapons", in Peter van Krieken and David McKay (eds), *The Hague: Legal Capital of the World*, The Hague: TMC Asser Press, distributed by Cambridge University Press, 2005, pp 483-513.
- Tarzi, Amin. "The role of WMD in Iranian security calculations: dangers to Europe", *Middle East Review of International Affairs*, vol 8 no 3 (September 2004), pp 91-111.
- Walker, William. "Weapons of mass destruction and international order", *Adelphi Paper*, [OUP, for International Institute for Strategic Studies, London] no 370, November 2004.
- Willis, Elizabeth. "Contamination and compensation: Gruinard as a 'menace to the mainland'", *Medicine Conflict and Survival*, vol 20 no 4 (October-December 2004), pp 334-43.
- Woodward, Angela. "Non-state actors and WMD. UN Security Council Resolution 1540: monitoring implementation", *INE-SAP Information Bulletin*, no 24 (December 2004), pp 89-91.
- Woodward, Angela. "Banning biological weapons: national legislation in Africa", *African Security Review*, vol 14 no 1 (2005), pp 23-32.
- Young, Alvin, Paul Cecil, and John Guilmartin. "Assessing possible exposures of ground troops to Agent Orange during the Vietnam war: the use of contemporary military records", *Environmental Science and Pollution Research*, vol 11 no 6 (October 2004), pp 349-58.
- Young, Alvin, John Giesy, Paul Jones, and Michael Newton. "Environmental fate and bioavailability of Agent Orange and its associated dioxin during the Vietnam war", *Environmental Science and Pollution Research*, vol 11 no 6 (October 2004), pp 359-70.
- Zanders, Jean Pascal, and Chandré Gould. "Civil society and the norm against the weaponisation of disease: meeting the challenge", *African Security Review*, vol 14 no 1 (2005), pp 5-12.
- Zilinskas, Raymond, Bruce Hope, and Warner North. "A discussion of findings and their possible implications from a workshop on bioterrorism threat assessment and risk management", *Risk Analysis*, vol 24 no 4 (August 2004), pp 901-08.
- Zisser, Eyal. "Syria and the question of WMD", *Middle East Review of International Affairs*, vol 8 no 3 (September 2004), 8 pp. [available online at <http://meria.idc.ac.il/journal/2004/issue3/jv8n3a5.html>].

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