

Thirty years of the BTWC: 'Back to the Future'?

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Good afternoon ladies and gentlemen.

As our Chair's mentioned, I've been asked to offer some brief remarks on the future of the Bacteriological (Biological) and Toxin Weapons Convention (BTWC) regime. This is a difficult task, and I have two tough acts to follow.

Moreover, mental alarm bells ring in my mind about trying to make predictions about the BTWC process. I'm reminded of the difficulties of weather forecasting more than a few days ahead: weather forecasters can predict with a pretty high degree of accuracy whether it will rain or shine tomorrow, a fair degree of confidence of what next week will do, but are basically guessing—beyond the broadest seasonal ideas—about weather conditions in a given place a month or a year from today. There are so many variables that can change the weather, and the international security environment is no different.

So 'futurology' rather than 'crystal ball gazing' might be more apt in describing the ideas I'll put forward today. My remarks are on two aspects of the BTWC's future.

Firstly, I'll outline in the broadest of brushstrokes what I see as the changing nature of the challenges that the BTWC regime's going to face over the next years and decades. These technological challenges can be summed up by the word *heterogeneity*, and they're imminent. Looking behind us to arms control history isn't necessarily going to help the international community in addressing these new issues, hence the title of these remarks—'Back to the Future'. Fresh thinking's going to be required, and that will, in turn, necessitate the BTWC's political regime being more forward-looking than it has sometimes been.

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Indeed, that political regime currently finds itself in a weakened and vulnerable state. The second theme of my remarks relates to the overall strategic direction I believe the BTWC needs to take in order to remain vital and relevant as a norm, and in order to put the ghosts of the past—particularly those of 2001—behind it. Because I only have 15 minutes or so to present these ideas, I'm not going to be able to talk in much detail. For this reason I suggest that, if interested, you consult my recent article discussing some of these matters on UNIDIR's website.² In addition, I've drawn heavily from two papers available on the Weapons Of Mass Destruction Commission website; one by Jez Littlewood, and the other on a modular approach to enhancing BTWC implementation by Trevor Findlay and Angela Woodward of VERTIC, which I understand will shortly evolve into an expanded VERTIC publication.³ Moreover, the BioWeapons Prevention Project's 2004 BioWeapons Report goes into much more depth than I can today.⁴

I

The basic outline of the threat of biological weapons is, I expect, fairly well known to this audience. Without going into detail, the traditional perceived threat from biological weapons was focused on 'classical' bio-warfare agents such as anthrax, plague and smallpox, especially in the context of clandestine state biological weapons programmes.

Make no mistake; clandestine state programme are a problem that hasn't gone away. But it's long been recognized that advances in legitimate science are broadening the range of possibilities for the creation and use of new hostile agents.⁵ Indeed, concrete signs from the scientific literature are now beginning to materialize of the much vaunted "biotech revolution". In due course its consequences will make hostile use of the life sciences potentially far more varied in its effects, more difficult to detect, and thus more attractive to those with hostile intent.⁶

In particular, I want to pick out three of the trends that I think are likely to make efforts to prevent new advances being misused for hostile purposes more complex.

The first relates to growing understanding of biological structures as information. The discovery of DNA in 1953 by Watson, Crick and others brought with it the realization that genetic sequences are, at root, strings of information written in code. This formed the basis for the further development of molecular biology and related disciplines—including the ability to recombine information in genetic sequences to modify organisms and, ultimately, the ability to create those genetic sequences.

Although such synthesis is in its infancy, it's developing rapidly. Certain viruses, for instance, have indeed recently been created without requiring original samples, using

² John Borrie, "The dual-use dilemma in life science research: the approach of the International Committee of the Red Cross": http://www.unidir.ch/html/en/for_comment.html.

³ Jez Littlewood, *Managing the Biological Weapons Problem: From the Individual to the International*, (paper no. 14) Stockholm: Weapons of Mass Destruction Commission: 2004; Trevor Findlay & Angela Woodward, *Enhancing BWC Implementation: A Modular Approach*, (paper no. 23) Stockholm: Weapons of Mass Destruction Commission: 2004. Both papers are available for download at: <http://www.wmdcommission.org>.

⁴ Available for download at: <http://www.bwpp.org/publications.html>.

⁵ A useful, and brief, introduction to these issues is by Mark Wheelis & Malcolm Dando, "New Technology and Future Developments in Biological Warfare", *Disarmament Forum*, No. 4, 2000, Geneva: United Nations, pp. 43-50.

⁶ For background, see Professor Malcolm Dando's statement on "Biotechnology, Weapons and Humanity" to the Conference Commission of the 28th International Conference of the Red Cross and Red Crescent, Geneva, 4 December 2003, <<http://www.icrc.org/web/eng/siteeng0.nsf/iwplList515/3E56B5C2E41BC67FC1256DFD003ECAAB>> .

mail-order materials and recipes from the Internet instead.⁷ Bacteria may follow.⁸ The ease with which this kind of information can be spread, virtually and irrespective of national borders, will make traditional methods of regulation—for instance, physical controls on dangerous pathogens or permits for their transfer—less relevant if those pathogens can be created to requirement using common equipment, materials and knowledge. Thus, the intangibility of advances in the life sciences is growing.

If this sounds far-fetched, then consider the record industry. This well-established sector signally failed to anticipate the effects of such a transformation from the tangible to the intangible on information, combined with the wider spread of more advanced technologies within society. The record industry's in trouble because demand has fallen for music purchased on compact discs, tapes and other physical (or tangible) formats. Instead, music's increasingly downloaded from the Internet in the form of compressed computer files—a situation to which the big music companies have been slow to adapt.⁹

Although legal downloads of music, for which the consumer pays (and which usually contain built-in restrictions on copying and further distribution), are now increasingly common, peer-to-peer file-sharing networks including Napster (in its first iteration), Kazaa, BitTorrent and Limewire have provided the means for unauthorized and largely anonymous transfers of music, as well as many other forms of proprietary data file.¹⁰

Of course, bootlegging or pirating music is nothing new. But file sharing allows illicit transfer of information files on a massive scale. How long before dangerous viral sequences or biological warfare 'cookbooks' are being swapped over the Internet? It's perhaps occurring already. Scientific researchers have historically been at the forefront of new technologies, including the Internet and file sharing networks, and tend to dim views of restrictions on their efforts to collaborate unless these reasons are clearly and adequately explained.¹¹

This highlights the second trend: the potential for further diffusion or democratization of technologies within society that have 'dual-use' application in making biological weapons. Of course, the potential for physical—or tangible—proliferation will continue to exist, and require appropriate safeguards. But potential for the proliferation of digitally encoded, transmitted and duplicated complex information (like genetic sequences, or instructions for synthesizing viral or bacterial organisms) is escalating, in principle, to anyone with a PC and an Internet connection.

Such risks might seem far-fetched. As the world has discovered with computer viruses, however, it only takes a few people with malicious intent, among many millions of legitimate users of information, to create havoc. By analogy, it also raises the prospect that the culprits of a future biological weapons attack may not be terrorists, despite current preoccupations. A 2003 BBC news article reported that while at least a few virus-writing computer hackers, for instance, are genuinely malicious, psychological profiling shows the majority are simply curious, or unaware of the potential consequences of their actions.¹² If

⁷ See, for instance, Jeronimo Cello, Aniko V. Pail, Eckard Wimmer, "Chemical Synthesis of Poliovirus cDNA: Generation of Infectious Virus in the Absence of Natural Template", *Science*, Vol. 297, 9 August 2002, pp. 1016-1018.

⁸ See "The Journey of the Sorcerer", *The Economist: Technology Quarterly*, 4-10 December 2004, pp. 27-28.

⁹ For background, see "Music's Brighter Future", *The Economist Technology Quarterly*, 30 October-5 November 2004, pp. 79-81.

¹⁰ See "In Praise of P2P", *The Economist: Technology Quarterly*, 4-10 December 2004, pp. 25-26.

¹¹ For instance, many of the protocols governing the 'world wide web' were originally pioneered by Tim Berners-Lee and other researchers at the European Organization for Nuclear Research's high-energy particle physics laboratory (CERN) near Geneva.

¹² BBC News, "A Glimpse Inside the Virus Writer",

the information to synthesize a dangerous biological agent is available to the general public, as well as off-the-shelf or mail order equipment and materials that might facilitate it with a modest amount of biological knowledge, then equivalent scenarios are conceivable. "Getting a computer virus" may take on an entirely new meaning.

The third trend concerns so-called 'non-lethal' biochemical weapons. These have the potential to seriously undermine the BTWC. Their development in several countries (most prominently in the Russian Federation and the United States) is troubling in this regard.¹³ Such weapons are sometimes rationalized on the basis that they'd be more humane than the use of conventional 'lethal' weapons.¹⁴ But the BTWC and Chemical Weapons Conventions (CWC) unambiguously ban use of such agents as weapons. There's no threshold for lethality within the prohibitions of these treaties—nor should there be. This is because the lethality of a given weapon is denoted by context, not only by its technical characteristics. 'Non-lethal' or 'less-lethal' agents are, in other words, marketing terms, as the tragic consequences of the 2002 Moscow Theatre siege showed.¹⁵

These trends, deriving not only from technological invention in itself, but from its wide scale distribution and penetration of society, will require a change in thinking about traditional relationships between proliferation and prevention. Such fresh thinking is required because traditional approaches of government policymakers to regulate or stop proliferation of 'dual-use' or 'dual-capable' technologies are going to be increasingly ineffective on their own in the face of such changes.

Evidence of this fresh thinking among governments in the BTWC process is currently rather limited. Most of the international disarmament and arms control community's experience in non-proliferation and accompanying verification comes from experience in the nuclear and chemical fields. In these domains it's possible to verify 'stuff', whether fissile materials or chemicals. The physical signature for making biological weapons is significantly smaller and potentially much harder to detect. However, this doesn't mean detection is impossible. It means that different tools and, just as crucially, different assumptions are needed.¹⁶ I'll return to this a bit later.

II

Where will this leave the BTWC regime? At the outset it's clear that the problems posed by biological weapons are very complex. There are no easy solutions, and attempts to fashion solutions based *only* on international treaties and other legislation will fail. The issue is *not* biological weapons and states, or biological weapons and terrorists. It's a nexus of challenges encompassing states, non-state actors and individuals that, as I

<http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/3240901.stm>, (5 November, 2003).

¹³ For general background on some so-called 'non-lethal' weapons see Mark Wheelis, "Non-Lethal Chemical Weapons: A Faustian Bargain", *Issues in Science and Technology*, Spring 2003, pp. 74-78. For more information on the United States' 'non-lethal' weapons program see Neil Davison & Nick Lewer, *Bradford Non-Lethal Weapons Research Project (BNLWRP)*, Research Report No. 5, Bradford, University of Bradford Centre for Conflict Resolution/Department of Peace Studies, May 2004.

¹⁴ For a brief survey of some of these debates, see "The Future of Crowd Control" in *The Economist*, 4-10 December 2004.

¹⁵ See Robin Coupland, "Incapacitating Chemical Weapons: A Year after the Moscow Theatre Siege", *The Lancet*, Vol. 362, 25 October 2003, p. 1346.

¹⁶ For a useful guide see UNIDIR and VERTIC's guide, *Coming to Terms With Security: A Handbook on Verification and Compliance*, UNIDIR, Geneva: United Nations, 2003. This handbook can be downloaded from the VERTIC (www.vertic.org) or UNIDIR (www.unidir.ch) websites.

mentioned just now, requires focusing on human behaviour and *intentions*, not only restricting the spread of technological *capabilities*.

It's also important to distinguish between the unequivocal norm prohibiting biological weapons that the Convention helps to comprise, and the process of political stewardship accompanying it.¹⁷ The BTWC is more vital than ever in light of contemporary developments. But it's not been well served by its political process, which at times has been characterized by shabby dealings and acrimony.

The past is behind us, however, and the BTWC political process has had three-and-a-half years to rehabilitate itself since the crises of 2001, when the United States rejected the draft compliance protocol and the Fifth BTWC Review Conference was plunged into turmoil.¹⁸ But that process, through the useful (but only deliberative) expert discussions agreed in late 2002, has come at the cost of being sidelined at a key juncture in its history. This is a period in which pre-occupation with terrorism, including attacks using weapons of mass destruction, and the issue of alleged Iraqi weapons of mass destruction dominate the news headlines. Instead, alternative arrangements—such as the United Nations Security Council, through Resolution 1540, for instance, and the United-States led Proliferation Security Initiative—have moved to the fore.¹⁹ Even Interpol has proclaimed its commitment to building capacity to fight 'bioterror'.²⁰

Jez Littlewood has set out six components that, in his view are essential in order to tackle the threat posed by hostile misuse of the life sciences. These are:

1. A real understanding of the problem that biological weapons pose;
2. A willingness to go well beyond the traditional arms control paradigm;
3. A short-term strategy to overcome the political difficulties in the BTWC;
4. A medium-term strategy to strengthen the Convention;
5. A willingness to actually enforce existing laws and norms; and
6. Recognition that there are no permanent solutions to this problem: it requires ongoing and unceasing vigilance and risk management.²¹

My impression is that, at present, the international community would be hard-pressed to tick many of the boxes on this checklist.

Of the thinking that's gone into the BTWC regime's future by states, most has been focused on the 2006 Sixth Review Conference and what the current deliberate meetings

¹⁷ It should be noted that the BTWC is only one (albeit an important) component of norms against poisoning and deliberate spreading of disease. There is the 1925 (Geneva) Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, and the 1993 Chemical Weapons Convention also bans toxin weapons. Moreover, there is a strong basis in customary international law for the illegality of biological weapons, the use of which throughout history has generally been considered abhorrent.

¹⁸ Documents from these meetings are available at www.opbw.org. For a useful summarization of this period and of the BTWC process that resulted, see Nicholas A. Sims, "Biological Disarmament Diplomacy in the Doldrums: Reflections After the BTWC Fifth Review Conference", *Disarmament Diplomacy*, Issue no. 70, April-May 2003.

¹⁹ United Nations Security Council Resolution S/RES/1540 of 28 April 2004. For analysis of the United States-led Proliferation Security Initiative see Andrew Prosser & Herbert Schoville Jr., *The Proliferation Security Initiative in Perspective*, 16 June 2004, available online from the Centre for Defense Information at: <http://www.cdi.org>.

²⁰ BBC News, "Interpol sounds bio-terror alarm" (23 February 2005), available online at: <http://news.bbc.co.uk/go/pr/fr/-/2/hi/europe/4289485.stm>.

²¹ See Jez Littlewood, *op. cit.*, p. 2.

of experts will herald. It's entirely possible that, cobbled together to keep the BTWC political process alive, they herald *nothing*. The success of the Sixth Review Conference will depend on political consensus and, more than that, the pro-active support of countries in positions of international leadership like the United States. I can discern no clear signs that such commitment is there to bolster the multilateral regime in the current environment.

What's clear, however, is that there's no prospect of Ad Hoc Group negotiations on the rejected BTWC protocol making a successful return. The United States has been unswerving in its insistence on this point since 2001. Those few states not intellectually reconciled to this need to get real: if a viable international front to proceed with the Ad Hoc Group negotiations was ever to develop it would have done so by now. It hasn't. Not least, this is because some of the countries protesting loudest and most critically about the United States' rejection of the draft compliance protocol and Ad Hoc Group were secretly pleased an inspection regime was not agreed.

Those who are still insisting on resurrection of the Ad Hoc Group as a political excuse for point scoring or obfuscation need to move on. Notes of displeasure at perceived American unilateralism now sounded, those states claiming their commitment to the BTWC norm need to turn to restoring the BTWC political process's credibility as a platform for improving its effectiveness. Failure to do so will not only harm their security interests in the longer run, it will foul the watering hole for others working to repair this credibility.

Moreover, failure to agree to engage on meaningful actions to strengthen compliance with the BTWC would certainly over-draw on the limited political credibility the political process has painstakingly rebuilt since the failure of the Ad Hoc Group negotiations. It would also demonstrate to proliferators or others with hostile intent that despite its tough talk on non-proliferation and terrorism, the international community doesn't really mean it. This would be disastrous.

It's therefore incumbent on those concerned with combating biological threats—and I'm not just talking about bioterrorism—that the BTWC consensus banning biological weapons isn't undermined by its members through poor, lacklustre or political neglectful management of the Convention's political process.

Easier said than done. Fortunately, some useful ideas have already been put forward. Nicholas Sims outlined his views today, for instance.²² Also, Jonathan Tucker of the Monterey Centre and (separately) Trevor Findlay and Angela Woodward have also proposed ideas. Both of these latter approaches focus on *building blocks* or *modules*. Tucker's ideas concern achieving agreement to negotiate freestanding protocols on bio-security and investigations, as well as setting up a BTWC inspectorate.²³ These proposals are worthy of serious consideration and would help take the BTWC regime forward. However, they were set down before recent United States presidential elections. I fear that in the current international climate they may be unlikely to fly.

Findlay and Woodward's ideas appear more do-able. As well as reaffirmation through robust Six Review Conference Final Declaration language of the BTWC's prohibitions, especially Article I—which I regard as essential, and conspicuously lacking from 2002's

²² See Nicholas Sims' remarks earlier in this BWPP Occasional Paper.

²³ See Jonathan Tucker, "Strengthening the Biological Weapons Convention: a Way Forward", *Disarmament Diplomacy*, Issue no. 78, July/August 2004.

timid effort—they propose the following modules.²⁴ These could be free-standing or combined:

1. An interim BWC secretariat;
2. An enhanced BW use investigation mechanism;
3. A confidence-building measures unit;
4. A legal advisors' unit;
5. A BWC national authorities network;
6. A BWC technical implementation support unit.²⁵

This menu of potential proposals, which would all be of tangible value to strengthening implementation of the BTWC, has additional political value, in my view. The logic of this is as follows: those countries supporting the strengthening of norms against poison and deliberate spreading of disease are going to need to be united and robust in their commitment. If countries like the United States, Russia and China—who should be helping to lead such efforts from the vanguard—won't, then this shouldn't be allowed to prevent bolstering of the BTWC norm. A willingness by enough governments to engage on some of these largely non-controversial measures, even if they're denied a formal consensus for political reasons at the Review Conference, is paradoxically likely to enhance its chances of success by indicating that the progressive majority mean business on strengthening implementation of the Convention. At least some of their preferences need to be taken account of.

Moreover, implementation of such measures by some, or all, BTWC states parties would be entirely consistent with the Convention itself, whether they attract consensus at the Sixth Review Conference or not. Such 'likeminded' approaches aren't without precedent, as participants in the Proliferation Security Initiative or the Mine Ban Convention's valuable Implementation Support Unit in Geneva (funded through voluntary contributions) can attest.

My final word is on the imperative to 'Think Different' concerning these issues. The international community is not helpless. Nor is it omnipotent. It's time to recognize the need for synergy here—with the public health, bio-safety and environmental fields to name but a few—as well as the usual suspects like intelligence, law enforcement and so-called 'bio-defense' measures that are getting the money and the attention at present. In particular, the latter—through actions like the construction of more high-containment labs and so-called "Big Science" work with dangerous pathogens, may prove to be riskier than they are worth, unless tied in to a strong 'web of prevention' at the individual and institutional level in terms of ethical and legal awareness and commitment.²⁶

²⁴ See Fifth Review Conference of The States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction (Geneva, 19 November-7 December 2001 and 11-22 November 2002) *Final Report* (BWC/CONF.V/17). This document can be downloaded from <http://www.opbw.org>.

Article I of the BTWC says: "Each State Party to this Convention undertakes never in any circumstances to develop, produce, stockpile or otherwise acquire or retain:

(1) Microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes;

(2) Weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict."

²⁵ See Trevor Findlay & Angela Woodward, *op cit*.

²⁶ For background see Jonathan B. Tucker, "Biological Threat Assessment: Is the Cure Worse Than the Disease?", *Arms Control Today*, October 2004. This article can be downloaded at:

States Parties to the BTWC often overlook an important element in prevention: the work of trans-national civil society. Examples include the International Committee of the Red Cross (ICRC)'s *Biotechnology, Weapons and Humanity* appeal, as well as complementary work by national academies of science and medical associations and NGOs in raising awareness of risks, rules and responsibilities against hostile use of the life sciences.²⁷ Hitherto this work has largely gone un-noticed, or been marginalized in the BTWC context because states traditionally consider these issues almost solely through the prism of state security.

Yet civil society is where the best ideas often emanate, and where useful reality checks reside on myopic assumptions by governments. For example, a group of industry scientists in the United States recently took a fresh look at onsite compliance activities, and concluded that a system of checks would be feasible without compromising proprietary information.²⁸

The value of this kind of civil society input and experience is sure to be apparent in BTWC expert discussions on codes of conduct, to be chaired by the United Kingdom, in summer 2005. Embracing these new partners is important because, as outlined earlier in my remarks, the profile of the proliferation of advances in the life sciences that could be turned to hostile use requires increased attention on checking hostile *intent*. A mindset focused solely on states' concerns and on regulating the diffusion of technologies is like King Canute trying to hold back the ocean tide. To be successful, the ban on biological weapons also needs increased awareness and support by individuals and institutions: the best way to ensure this is to involve those trying to help governments spread the message.

New circumstances will not let the BTWC process go on the way it has without damaging the norm against biological weapons it's supposed to safeguard and consolidate. The BTWC has been through a difficult period, and the attention of participating governments has, since 2001, been focused on not tripping up. It's now time for participants to look up and point the Convention where it should be going. Is it going to go forward, in order to tackle the sorts of challenges I've outlined, or will it have its back to the future?

<<http://www.armscontrol.org>> .

²⁷ Information on the ICRC's work is available at <<http://www.scienceforhumanity.org>>. For examples of the work of national academies of science in this area, see the Royal Society, *Making the UK Safer: detecting and decontaminating chemical and biological agents*, (Policy document 06/04), April 2004 and *The individual and collective roles scientists can play in strengthening international treaties* (Policy document: 05/04), April 2004 both available online at www.royalsoc.ac.uk. For the United States, the so-called "Fink Report" (after its Chair, Professor Gerald Fink) is a useful introduction: National Research Council of the National Academies, *Biotechnology Research in an Age of Terrorism*. 2004, Washington DC: National Academies Press.

²⁸ See *Resuscitating the BioWeapons Ban: U.S. Industry Experts' Plans for Treaty Monitoring: A Collaborative Research Report of Experts from the U.S. Pharmaceutical and Biotechnology Industries*, Washington: Center for Strategic and International Studies, 2004.