17 Gas, Biological, and Chemical Weapons Treaties

17.0. Introduction

At Strasbourg, in 1675, a Franco-German accord prohibited the use of poisoned bullets for the duration of the war between the two parties. Article 16 of Lieber's 1863 Code reads, "Military necessity . . . does not admit of the use of poison in any way . . ." In 1901, twenty-three of twenty-eight states attending the 1899 Hague Peace Conference ratified Declaration (IV, 2) Concerning Asphyxiating Gases. By 1907, four more states had either ratified or signed adhesions* to the Declaration. (The United States was the sole nation to not sign.) "The contracting Powers," the 1899 Declaration reads, "agree to abstain from the use of projectiles the sole object of which is the diffusion of asphyxiating or deleterious gases." According to 1907 Hague Regulation IV, Article 23, " . . . [I]t is especially forbidden – (a) To employ poison or poisoned weapons."

> In late 1914, however, amid the futile slaughter of [World War I] trench warfare, the traditional legal and moral restraints on the use of poison gas began to erode under the pressure of military necessity . . . [T]he German High Command had interpreted the Hague gas-projectile declaration as banning only the release of lethal gases from shells specifically designed for that purpose. . . . [Chemist Fritz Haber, winner of the 1918 Nobel Prize for chemistry] proposed instead that chlorine be released directly from pressurized gas cylinders, allowing the wind to carry the poisonous cloud over the enemy's trenches. This tactic offered a number of potential advantages: chlorine released directly from cylinders would blanket a far larger area than could be achieved with projectiles, and the gas would dissipate rapidly, allowing the affected areas to be occupied by friendly troops.[1]

By that point in 1914, both Germany and France had already fired thousands of artillery rounds of tear gas, but lethal gases had not been used. Now, General Erich von Falkenhayn, chief of the German General Staff, selected Ypres, Belgium, for first use of the chlorine gas against the enemy, intending to reduce a nine-mile bulge of Allied trench line into the German lines. Informed of the pending use of poison gas, the local commander, General Bertthold von Deimling, was at first resistant. But, illustrating the elasticity of military necessity as it was interpreted in that day, the General was persuaded: " . . . [T]he commission for poisoning the enemy . . . was repulsive to me. If, however, the poison gas

* The entrance of a state into an existing treaty with respect to only such parts of the treaty as are specifically agreed to. Compare: accession, by which a joining state accepts and is bound by the entire treaty.

[1] Jonathan B. Tucker, *War of Nerves* (New York: Pantheon, 2006), 11–12.

were to result in the fall of Ypres, we would win a victory that might decide the entire campaign. In view of this worthy goal, all personal reservations had to be silent."[2]

Lethal poison gas made its combat debut on April 22, 1915, in the Second Battle of Ypres. "More than six hundred French and Algerian troops lay blinded and dying in the wake of the poisonous cloud . . . Drowning on dry land as their lungs filled with fluid, [they] gasped painfully for air and coughed up a greenish froth flecked with blood. Gradually their faces changed from pallid white to grayish yellow, and their eyes assumed the glassy stare of death."[3] The poison gas allowed Germans to reduce the salient but, after heavy losses on both sides, the British Second Army stemmed further German advances.

Within months, the British and French armies formed special gas companies, and gas warfare became an established weapon of the war. When the Americans arrived in Europe in 1917, "[g]as held special horrors for the Doughboys."[4] Army General Pershing ordered the formation of the First Gas Regiment to defend against, and to employ, gas. The Chemical Warfare Service was formed. There were setbacks, of course. At the 1915 battle at Loos, Belgium, a British force attacked German lines after releasing a chlorine gas attack. An unanticipated wind shift blew the gas back on the attackers, resulting in more British than German casualties.[5]

More potent gases were introduced – initially phosgene and mustard gases. By the war's end, thirty-nine different toxic agents had been employed, resulting in roughly 1,000,000 casualties, of which an estimated 90,000 were fatal. Many survivors were left blinded or chronically disabled.[6] In an odd juxtaposition, both Lance Corporal Adolf Hitler and Colonel Douglas MacArthur were gassed and survived.[7]

17.1. The 1925 Geneva Protocol for the Prohibition of Poisonous Gases and Bacteriological Methods of Warfare

The 1919 Versailles Treaty, and the other treaties ending World War I, all incorporated articles referring to the prohibition of poisonous gases in warfare. In 1925, in Geneva, the Council of the League of Nations convened a Conference for the Supervision of the International Trade in Arms and Ammunition and Implements of War, but "attention was focused on the use of asphyxiating and other gases . . . the horrifying effects of which had been amply demonstrated during the First World War . . . This resulted in the adoption of the Geneva Protocol of 1925 . . . "[8] It is "[t]he watershed instrument on gas warfare . . . "[9]

The brief, one-page 1925 Protocol for the Prohibition of Poisonous Gases and Bacteriological Methods of Warfare is an arms control agreement, rather than a law of war document. As the title indicates, it goes beyond the banning of poisonous gases. "The Gas Protocol reinforced the earlier prohibition in the Hague Declaration Respecting

[2] Id., at 13, citing Berthold von Deimling, *Aus der alten in die neue Zeit* (Berlin, 1930), 201.
[3] Id., at 15.
[4] Frank E. Vandiver, *Black Jack*, vol. II (College Station: Texas A & M University Press, 1977), 885.
[5] Obituary: Albert Marshall, *The Economist*, May 28, 2005, 87. Marshall was the last surviving British cavalryman of World War I.
[6] Tucker, *War of Nerves*, supra, note 1, at 20.
[7] William Manchester, *American Caesar* (Boston: Little, Brown, 1978), 89.
[8] Frits Kalshoven, *Reflections on the Laws of War* (Leiden: Martinus Nijhoff, 2007), 342.
[9] Yoram Dinstein, *The Conduct of Hostilities Under the Law of International Armed Conflict* (Cambridge: Cambridge University Press, 2004), 74.

Asphyxiating Gases of 1899. The Protocol of 1925 both consolidated that prohibition and extended it to 'bacteriological methods of warfare.'"[10] The 1925 Protocol reads:

> Whereas the prohibition of such use [in war of asphyxiating, poisonous or other gases] has been declared in Treaties to which the majority of Powers of the world are Parties; and to the end that this prohibition shall be universally accepted as part of International Law . . . declare: That the High Contracting Parties, so far as they are not already Parties to Treaties prohibiting such use, accept this prohibition, agree to extend this prohibition to the use of bacteriological methods of warfare and agree to be bound as between themselves . . .

Within five years, twenty-eight states had ratified the Protocol. Today, there are 135 state Parties, and the Protocol's prohibitions are customary law with regard to both international and non-international armed conflicts.[11] Similar to the 1925 Protocol, employing asphyxiating, poisonous, or other gases or all analogous liquids, materials, or devices is a war crime pursuant to Article 8 (b)(2)(xviii) of the Rome Statute of the International Criminal Court.

17.1.1. *Parsing the 1925 Gas Protocol*

The 1925 Protocol, "having regard to the many reservations, [amounts] to a prohibition of the first use of chemical and biological methods of warfare."[12] The Protocol does not ban the acquisition, development, production, or stockpiling of poisonous gas or bacteriological agents. Only their first use. Nor does it define that which it prohibits. "When this prohibition was introduced . . . the meaning of the word 'poison' was apparently so clear that there was no debate about it."[13] A 1969 UN resolution, adopted without dissent, remedies the 1925 Protocol's lack of definition. It interprets the Protocol as prohibiting the use of:

(a) Any chemical agents of warfare – chemical substances, whether gaseous, liquid or solid – which might be employed because of their direct toxic effects on man, animals or plants;
(b) Any biological agents of warfare – living organisms, whatever their nature, or infective material derived from them – which are intended to cause disease or death in man, animals or plants, and which depend for their effects on their ability to multiply in the person, animal or plant attacked.[14]

The Protocol does not provide an investigative mechanism to verify alleged violations. That, too, has been addressed, at least provisionally, by UN resolution.[15]

[10] Col. G.I.A.D. Draper, "The Development of International Humanitarian Law," in Michael A. Meyer and Hilaire McCoubrey, eds., *Reflections on Law and Armed Conflicts* (The Hague: Kluwer Law International, 1998), 69, 75.
[11] Jean-Marie Henckaerts and Louise Doswald-Beck, eds., *Customary International Humanitarian Law*, vol. I, *Rules* (Cambridge: Cambridge University Press, 2005), Rule 72, at 251.
[12] UK Ministry of Defence, *The Manual of the Law of Armed Conflict* (Oxford: Oxford University Press, 2004), para. 1.2.7., at 11.
[13] Antonio Cassese, Paola Gaeta, and John R.W.D. Jones, eds., *The Rome Statute of the International Criminal Court: A Commentary*, vol. I (Oxford: Oxford University Press, 2002), 406.
[14] UN General Assembly Resolution 2603A (XXIV) (Dec. 16, 1969).
[15] UN General Assembly Resolution 37/98 (D) (Dec. 13, 1982): " . . . 4. Requests the Secretary-General to investigate, with the assistance of qualified experts, information that may be brought to his attention by

During World War II, many states maintained poison gas stocks, and several planned for their possible use or actually used them. Just prior to the war, "Italy used gas in 1935–6 during its invasion of Ethiopia . . . The most important exception was the Japanese use of gas and experimentation with biological weapons in China between 1937 and 1945."[16] For the most part, however, nations refrained from use of poison gases, one reason being the fear of retaliation.

President Franklin D. Roosevelt publicly proclaimed America's policy of not engaging in gas warfare and was personally opposed to its use.[17] Late in the war, however, the United States had plans to employ gas in the invasion of the Japanese home islands. In June 1945, the Army's Chemical Warfare Service submitted a plan to the Chief of Staff, General George C. Marshall, that called for artillery and aerial bombing of Japan, using phosgene, hydrogen cyanide, cyanogen chloride, and mustard gases. Army planners "had chosen 50 'profitable urban and industrial targets,' with 25 cities listed as 'especially suitable for gas attacks.'"[18] Of course, many military plans are formulated, few are executed. The atomic bomb rendered the Chemical Warfare Service's plan moot.

SIDEBAR. In 1943, President Roosevelt approved the shipment of chemical munitions to the Mediterranean theater of war. On November 29, the American ship SS *John Harvey* arrived in the bustling port of Bari, Italy, which had been captured by the Allies only months earlier. The *John Harvey*'s secret cargo included 1,350 tons of mustard gas bombs. General Dwight Eisenhower wrote, "One of the ships was loaded with a quantity of mustard gas, which we were always forced to carry with us because of uncertainty of German intentions in the use of this weapon . . . [W]e manufactured and carried this material only for reprisal purposes . . . "[19] Moored in the stream with fourteen other ships close by, the *John Harvey* awaited a berth at a pier where she could be unloaded. On the evening of December 2, "[s]everal thousand Allied servicemen and Italian spectators sat in the oval Bambino Stadium near Bari's train station as a baseball scrimmage between two quartermaster squads entered the late innings under the lights."[20] At about 1930, a score of German bombers attacked Bari – and the ships in its harbor. As port buildings and surrounding houses and businesses went up in flames, the *Joseph Wheeler* was among the first

any Member State concerning activities that may constitute a violation of the Protocol . . . to ascertain thereby the facts of the matter, and promptly to report the results of any such investigation to all Member States . . . "

[16] Adam Roberts and Richard Guelff, *Documents on the Laws of War*, 3d ed. (Oxford: Oxford University Press, 2000), 156. As to Italy's use of gas in Ethiopia, see: Lassa Oppenheim, *International Law*, vol. II, *Disputes, War and Neutrality*, 7th ed., H. Lauterpacht, ed. (London: Longman, 1952), 344, fn. 1.

[17] Barton J. Bernstein, "Why We Didn't Use Poison Gas in World War II," 36–5 *American Heritage* (Aug./Sept. 1985), 40, 42.

[18] Norman Polmar and Thomas B. Allen, "The Most Deadly Plan," U.S. Naval Institute *Proceedings* (Jan. 1998), 79.

[19] Gen. Dwight D. Eisenhower, *Crusade in Europe* (Garden City, NY: Doubleday, 1948), 204. General Eisenhower, writing shortly after the war, chooses to not reveal the casualties caused by the *Harvey*'s sinking: "Fortunately the wind was offshore and the escaping gases caused no casualties. Had the wind been in the opposite direction, however, great disaster could well have resulted. It would have been indeed difficult to explain . . . " (p. 204.) Then-Major General Jimmy Doolittle, whose headquarters were in Bari, and who was present during the raid, describes it in some detail, but omits any mention of gas. Gen. James H. Doolittle, *I Could Never Be So Lucky Again* (New York: Bantam, 1991), 368–9.

[20] Rick Atkinson, *The Day of Battle* (New York: Henry Holt, 2007), 272.

of the ships to be hit. The *John Bascom* followed. Set afire and adrift, the *Bascom* collided with the *John L. Motley*, whose cargo of ammunition exploded. On shore, Italian civilians were killed in the rush to reach already full air raid shelters. In the harbor, other ships were hit, including the *John Harvey*, which soon exploded, scattering its cargo of mustard gas throughout the harbor, as well as contaminating the seawater in which survivors swam.

"By dawn, the [hospital] wards were full of men unable to open their eyes, 'all in pain and requiring urgent treatment.' Surgeons were mystified to also find themselves operating with streaming eyes . . . The first skin blisters appeared Friday morning . . . The first mustard death occurred eighteen hours after the attack."[21] More than 1,000 Allied military personnel were killed or missing. Eventually, 617 were confirmed killed from exposure to mustard gas, including eighty-three Allied servicemen.[22]

News of the raid, the only case of deaths from chemical weapons in World War II, was censored.

The United States signed the 1925 Protocol in June 1925 and "every peacetime President from Warren G. Harding to Franklin D. Roosevelt had defined gas as immoral and pledged to abide by the agreement."[23] Still, the United States only ratified the Protocol in 1975, half a century after signing.

> [O]ne of the main problems arising out of this text has been whether it includes teargas and other so-called "riot control agents" (RCAs). For most countries, it does; but the United States has always maintained grave objections against this interpretation. Its underlying concern . . . was that the text when given this broad meaning would not only exclude the use of such substances in war, against an enemy, but also, by implication, would throw doubt on the legality of their use by the police as riot control agents.[24]

Given the possible divergent interpretations of the Protocol's RCA prohibition, states other than the United States have had the same concern. As early as 1930, efforts were made by the International Committee of the Red Cross's (ICRC's) Preparatory Commission to clarify the prohibition's meaning. In Commission meetings the United States asserted that "it would be inconsistent to prohibit the use in warfare of gases which could still continue to be used within states in peacetime for police purposes."[25] Finally, in 1975, the United States ratified the 1925 Protocol with an understanding, much like that of the UK, that the Protocol did not extend to RCAs or to chemical herbicides but, as a matter of policy, the use of such substances would be restricted. The Protocol applies only in time of armed conflict, so it has no bearing in peacetime riot control situations. Upon ratification the United States also entered a reservation similar to one entered by several other major powers: "The said Protocol shall cease to be binding on the Government of the United States . . . in regard to an enemy state if such state or any of its allies fails to respect the prohibitions laid down in the Protocol."

[21] Id., 275–6.
[22] Id.; and, Albert J. Mauroni, *Chemical and Biological Warfare: A Reference Handbook*, 2d ed. (Oxford: ABC-Clio, 2006), 102.
[23] Bernstein, "Why We Didn't Use Poison Gas in World War II," supra, note 17, at 41.
[24] Kalshoven, *Reflections on the Laws of War*, supra, note 8, at 139.
[25] Roberts and Guelff, *Documents on the Laws of War*, supra, note 16, at 155–6.

Since World War II, Protocol violations have been alleged. In 1982, the Soviet Union was accused by the United States of using chemical and toxin weapons in Laos, Cambodia, and Afghanistan. In the Iran–Iraq war (1980–1988), chemical weapons were in fact repeatedly used, including the first battlefield use of nerve gas.[26] In Oregon, in a 1984 biological incident involving civilians, rather than combatants, the Bhagwan Shree Rajneesh cult sickened 751 people with *Salmonella enteritidis* grown in a home laboratory and placed in restaurants in doctored salad dressing. In Japan, in 1995, in another civilian-instigated noncombat incident, members of a religious cult employed a form of nerve gas in Tokyo's subway system, killing twelve.[27] In March 1991, during the first Gulf War, approximately 110,000 U.S. troops were exposed to low levels of an unspecified nerve gas when Iraqi munitions and rockets found at the Khamisiyah weapons depot were destroyed by the U.S. Army.[28]

The most notorious recent use of gas was Iraq's use of poison gases in the town of Halabja. During the Iran–Iraq war, in 1988, Kurdish rebels, accompanied by Iranian army elements, captured and occupied the Iraqi town of Halabja, just south of the Iranian border and 150 miles northeast of Baghdad. Saddam Hussein, seeking to repel the Iranian force and, at the same time, deliver a psychological blow to his own rebellious Kurdish *peshmerga*, authorized a poison gas attack. A day later, on March 16, eleven Soviet-made Sukhoy bombers of the Iraqi Air Force bombed Halabja from a low level. An Iranian officer reported, "'The sound of the explosions was unlike that of conventional bombs, more like a 'tap.' The smoke went up, then down to the ground.' . . . The chemical strikes continued intermittently until the next morning, he said."[29] More than 5,000 Iraqi Kurds were estimated killed by the Iraqi bombing barrage of mustard gas, sarin, tabun, and VX.[30]

"The [1925] Geneva Gas Protocol was the principal basis for asserting the illegality of the use of chemical weapons in the Iran-Iraq conflict 1980–88."[31] Despite its age, the 1925 Gas Protocol continues to gain new state parties into the twenty-first century. By now, however, its prohibitions on biological and chemical weapons have been supplemented and overtaken by two other treaties – the 1971 Biological Weapons Convention and the 1993 Chemical Weapons Convention. The 1925 Gas Protocol nevertheless remains enforceable, even if superseded.

17.2. The 1971 UN Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction

"In 1971 a historic attempt to create the world's first international legal regime banning the development and possession of an entire class of weapons of mass

[26] Joost R. Hiltermann, *A Poisonous Affair* (Cambridge: Cambridge University Press, 2007), 34; and Dept. of Defense, *Conduct of the Persian Gulf War* (Washington: GPO, 1992), 15.

[27] AP, "Two Sentenced to Death for 1995 Gas Attack on Tokyo Subways," *NY Times*, July 18, 2000, A10; "Japan: Death Sentence for Nerve Gas Attack," *NY Times*, Oct. 12, 2002, A7: Seiichi Endo, leader of the Aum Shinrikyo cult, admitted to producing the sarin gas used in the attack.

[28] Pauline Jelinek, "Figures on Gulf War Gas Exposure Revised," *NY Times*, Oct. 28, 2000, A4.

[29] Hiltermann, *A Poisonous Affair*, supra, note 26, at 121.

[30] Donna Miles, "Halabja Revisited After 16 Years," U.S. Dept. of Defense, *News Articles* (March 16, 2004), available at: http://www.defenselink.mil/news/newsarticle.aspx?id=27063.

[31] UK MOD, *The Manual of the Law of Armed Conflict*, supra, note 12, para. 1.27.3, at 12.

destruction . . . culminated in the conclusion of the Biological Weapons Convention (BWC)."[32]

Biological warfare is older even than gas warfare. In 590 B.C., the Athenian, Solon, is said to have used hellebore root to contaminate the drinking water of the besieged Greek city of Kirrha. During the French and Indian War, the British used smallpox against the Delaware Indians. In World War I, in addition to poison gas, the Germans employed anthrax and glanders against horses and mules of the U.S. Army. In World War II, the Japanese used typhoid against attacking Russians as well as Chinese civilians.[33]

The simultaneous prohibition of chemical and biological weapons had been discussed and debated before the 1925 Gas Protocol. The gas protocol, as its title indicates, attempted twin bans on both gas, a present danger, and bacteriological weapons, which were perceived as an emerging danger. In 1969, the UN reported on the problems raised by chemical and biological warfare,[34] and the World Health Organization issued reports detailing the unpredictability of such weapons and their extraordinary threat to both civilians and combatants.[35]

In the late 1960s, the UN Committee on Disarmament decided to attack the chemical weapon/biological weapon issue serially. It proposed a concentrated effort at banning biological weapons alone, leaving the issue of chemical weapons for another day. Thus, biological weapons were delinked from gas warfare. Although the use of biological weapons is not addressed in the 1971 Convention, they were already proscribed, however ineffectually, in the 1925 Gas Protocol.

"A factor which facilitated this development was the unilateral renunciation of biological weapons by the United States, announced in November 1969, and the decision by the US government to destroy its stockpile of these weapons, irrespective of a possible future international agreement."[36] In February 1970, the United States also renounced the production, stockpiling, and use of toxins for purposes of war, confining military programs to research and development for defensive purposes. There were both ulterior and altruistic motives behind the U.S. moves. President Richard M. Nixon saw the cost of biological weapon programs ballooning, and the announcement would also deflect, at least temporarily, growing protests against the Vietnam conflict.[37] Regardless of motive, the U.S. announcements generated renewed negotiations that in less than two years

[32] Jack M. Beard, "The Shortcomings of Indeterminacy in Armed Control Regimes: The Case of the Biological Weapons Convention," 101–2 *AJIL* (April 2007), 271.

[33] Col. (Dr.) Jim A. Davis, USAF, "The Looming Biological Warfare Storm," *Air & Space Power J.* (Spring 2003), 57, 58, footnotes omitted.

[34] United Nations, *Chemical and Bacteriological (Biological) Weapons and the Effects of Their Possible Use* (New York: UN, 1969).

[35] World Health Organization, *Health Aspects of the Use of Chemical and Biological Weapons* (Geneva: WHO, 1970).

[36] Jozef Goldblat, "The Biological Weapons Convention – An Overview," 318 *Int'l Rev. of the Red Cross* (June 1997), 251. The account of the BWC given here is based on the Goldblat article.

[37] Richard Nixon, "Remarks Announcing Decisions on Chemical and Biological Defense Policies and Programs" (25 Nov. 1969), available at: http://www.presidency.ussb.edu/ws/index.php?pid=2344: "First, in the field of chemical warfare, I hereby reaffirm that the United States will never be the first country to use chemical weapons to kill . . . I am asking the United States Senate for its advice and consent in ratification of the Geneva [Gas] Protocol of 1925 . . . Second, biological warfare . . . I have decided that the United States of America will renounce the use of any form of deadly biological weapons . . . "

resulted in the 1971 BWC. "The question of chemical weapons in their totality was laid to rest . . . "[38] Problems of enforcement remained, however.

17.2.1. *Parsing the 1971 BWC*

The BWC, continuing and expanding the prohibitions of the 1925 Gas Protocol, bans the development, production, stockpiling, acquisition, or retention of microbial or other biological agents or toxins, and their delivery systems. Although the Convention, like the Gas Protocol, does not define what it prohibits, World Health Organization definitions relating to biological weapons are often looked to: "***Biological agents* include those that depend for their effects on multiplication within the target organism, and are intended for use in war to cause disease or death in man, animals or plants**."[39] "**Toxins are poisonous products of organisms; unlike biological agents, they are inanimate and not capable of reproducing themselves**. The Convention applies to all natural or artificially created toxins 'whatever their origin or method of production' . . . Since toxins are chemicals by nature, their inclusion in the BWC was a step towards the projected ban on chemical weapons."[40] The key to the definition is in BWC Article II: A chemical weapon is one that is toxic; "its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals."

Another striking feature of the BWC is found in Article II. "Each State Party . . . undertakes to destroy, or to divert to peaceful purposes, as soon as possible but not later than nine months after the entry into force of the Convention, all agents, toxins, weapons, equipment and means of delivery . . . which are in its possession or under its jurisdiction or control . . . " This disarmament provision, as mentioned, is the first treaty providing for the abolition of an entire category of arms. The United States soon announced that its biological and toxin agents, other than small amounts for defensive research purposes, had been destroyed. It would be some time later that U.S. chemical weapons would be destroyed. [41] The Soviet Union stated that it had no biological or toxin agents, a statement that would later prove false.

The BWC's prohibitions are not absolute. They apply "only to types and quantities that have no justification for prophylactic, protective or other peaceful purposes. Retention, production or acquisition . . . of certain quantities of biological agents and toxins may thus continue, and there may be testing in laboratories and even in the field."[42] States may continue to use biological agents for medical purposes like therapy, diagnosis, and immunization, as well as in the development of protective masks, clothing, and detection, warning, and decontamination systems. There are no standards, no parameters, however, for quantities of agents or toxins that may be retained. These permitted uses and undefined limits offer clear opportunities to circumvent the prohibitions, so the Convention is widely seen as porous, at best.

[38] Dinstein, *The Conduct of Hostilities*, supra, note 9, at 75.
[39] World Health Organization, *Health Aspects of Chemical and Biological Weapons* (Geneva: WHO, 1970), Chapter 4, at 12.
[40] Goldblat, "The Biological Weapons Convention," supra, note 36, citing the WHO and Art, I of the Convention.
[41] Jeffrey Gettleman, "Army Begins Burning Biological Weapons in Alabama Town," *NY Times*, Aug. 10, 2003, A12.
[42] Id.

The Convention itself raises issues of construction. Article III, for instance, requires state Parties "not to transfer to any recipient whatsoever, directly or indirectly, and not in any way to assist, encourage, or induce any State . . . to manufacture or otherwise acquire any of the agents, toxins . . . or means of delivery specified" in the Convention. Yet, Article X commits state Parties "to facilitate . . . the fullest possible exchange of equipment, materials and scientific and technological information for the use of bacteriological (biological) agents and toxins for peaceful purposes . . . " These seemingly inconsistent provisions are an inviting portal for a state wishing to evade the Convention's prohibitions.

The BWC and the 1925 Gas Protocol overlap in significant particulars. Article VIII of the BWC clarifies that, for Parties to both the Convention and the 1925 Protocol, nothing in the Convention limits or detracts from the obligations assumed by a state under the 1925 Protocol to ban the use of poisonous gases. This overlap could raise a problem, however, if a state's reservation to the 1925 Gas Protocol allows it to use poison gas in retaliation against another state using gas against it. Such retaliatory use, permissible under the Gas Protocol reservation, would be a violation of the BWC's Article I, banning use "in any circumstances." Because a number of Parties to the 1925 Gas Protocol entered just such a reservation, the conflict has been addressed by many states by withdrawing their Gas Protocol reservations. "They have thereby recognized that since the retention and production of biological weapons are banned, so must, by implication, be their use, because use presupposes possession."[43]

SIDEBAR. Georgi Markov was a popular Bulgarian novelist and playwright. Becoming disenchanted with the authoritarian Communist government of Bulgaria, Markov defected in 1969, eventually residing in London. Working as a broadcaster for the British Broadcasting Corporation (BBC) World Service, he also made anti-Communist broadcasts to his homeland for Radio Free Europe. Given his continuing popularity in Bulgaria, his anti-Soviet programs were a continuing thorn in the Russian bear's paw. One morning in 1989, on London's Waterloo Bridge, as Markov waited for a bus to his BBC office, he felt a sharp pain in his leg. Turning, a man apologized as he picked up the umbrella he had dropped. The man had a foreign accent, Markov said as he lay ill, that evening. Markov died three days later, at age 49. An autopsy found a small metal pellet embedded in his leg. It was coated with a substance that melted at body temperature, releasing from a tiny cavity within the pellet 0.2 milligrams of ricin, a highly toxic biological agent derived from the castor plant.[44] An Italian suspect was identified in a newspaper account, but Markov's killer was never arrested or tried. Markov's murder was not a war crime. Was it a violation of the 1971 BWC?

British Professor Geoffrey Best, always pithy, has written, "Legal prohibitions of weapons . . . are mere plowings of the sand unless they are accompanied by convincing

[43] Id.

[44] Lt.Col. Terry N. Mayer, USAF, "The Biological Weapon: A Poor Nation's Weapon of Mass Destruction," in Berry R. Schneider and Lawrence E. Grinter, eds., *Battlefield of the Future: 21st Century Warfare Issues* (Maxwell Air Force Base, AL: Air Warfare College, Sept. 1995); and, CNN.com, "Ricin and the Umbrella Murder (23 Oct. 2003), available at: http://cnn.com/2003/WORLD/europe/01/07/terror.poison.bulgarian/.

measures of verification."[45] The BWC contains no compliance or verification provisions, although they have long been sought.[46] Given advances in biological production capabilities, the absence is significant. It is not difficult to mask weapons research as defensive measures.[47] "The effort to bolt some monitoring provisions on to the BWC got a big push after Russia . . . admitted in the early 1990s that the Soviet Union had built up a huge biological-weapons programme."[48] Alarmed by the 1979 Sverdlovsk incident,[49] and by Iraq's apparent biological arsenal, revealed in the Iraq–Kuwait conflict (1990–1991), an international effort was mounted to create an enforcement protocol.[50] The effort failed, largely for reasons stated in the American announcement of nonsupport: "[T]he protocol could (1) allow foreign governments to harass U.S. government laboratories working on vaccines . . . to defend against the possibility of biological attacks, (2) cause U.S. companies to lose industrial secrets, and (3) undermine U.S. regulations designed to stem the export of technology used in biological weapons."[51] The proposed enforcement protocol raised the possibility of commercial espionage.

What the Convention does provide is that state Parties may not transfer or assist another state to manufacture or acquire any prohibited agent, toxin, weapon, or means of delivery (Article III). Article VI allows that "[a]ny State Party . . . which finds that any other State Party is acting in breach of obligations deriving from . . . the Convention may lodge a complaint with the Security Council of the United Nations. Such a complaint should include all possible evidence . . . as well as a request for its consideration by the Security Council." This is a thin reed upon which to base compliance expectations because, international politics aside, few states have the ability to gather evidence of breach in other states, and the UN Security Council is not empowered by the Charter to investigate compliance with arms control agreements.

There have nevertheless been formal complaints. In 1980, the United States accused the Soviet Union of maintaining an offensive biological weapons program. The complaint was based on a suspected 1979 airborne release of anthrax spores from a biological facility that caused an anthrax outbreak near Sverdlovsk. Although attributed at the time to contaminated meat, in 1992 the Soviet government admitted to the breach

[45] Geoffrey Best, *War and Law Since 1945* (Oxford: Oxford University Press, 1994), 308.

[46] Elizabeth Olson, "Talks Inching Ahead on Monitoring '72 Germ Warfare Pact," *NY Times*, May 14, 2001, A6; Elizabeth Olson, "U.S. Rejects New Accord Covering Germ Warfare," *NY Times*, July 26, 2001, A5; and, Michael R. Gordon, "Germ Warfare Talks Open in London; U.S. Is the Pariah," *NY Times*, July 24, 2001, A7: "European nations and other major powers today urged the completion of a draft agreement to enforce the 1971 ban on biological weapons, a move that puts them at odds with the Bush administration . . . The European endorsement . . . has left the Bush administration increasingly isolated . . . "

[47] Judith Miller, Stephen Engelberg, and William J. Broad, "U.S. Germ Warfare Research Pushes Treaty Limits," *NY Times*, Sept. 1, 2001, A1; Judith Miller, "When Is Bomb Not a Bomb? Germ Experts Confront U.S.," *NY Times*, Sept. 5, 2001, A5.

[48] "Bugs in the System," *The Economist*, June 16, 2001, 47; Tim Weiner, "Soviet Defector Warns of Biological Weapons," *NY Times*, Feb. 25, 1998, A1.

[49] In April 1979, anthrax in aerosol form was released from a Russian military bioweapons manufacturing facility near Sverdlovsk. Livestock and at least sixty-four humans were killed. See: Ken Alibek, *Biohazard* (New York; Arrow Books, 2000), 70–86.

[50] For an account of the unsuccessful protocol process, see, Onno Kervers, "Strengthening Compliance with the Biological Weapons Convention: The Protocol Negotiations," 7–2 *J. of Conflict & Security L.* (Oct. 2002), 275.

[51] Sean D. Murphy, ed., "Contemporary Practice of the United States Relating to International Law," 95–4 *AJIL* (Oct. 2001), 873, 901, citing U.S. Dept. of State Daily Press Briefing, Philip T. Reeker, Dept. Spokesman (25 July 2001), available at: http://www.state.gov/r/pa/prs/dpb/2001/.

and agreed to convert all previously secret military research centers to civilian use, in compliance with the BWC. In 1981, based on chemical analyses and eyewitness accounts of aircraft spraying, the United States accused the Soviet Union of the production and use of mycotoxins in Laos, Kampuchea, and Afghanistan. The eyewitness reports were eventually discredited, and medical analyses were unable to corroborate the allegations. In 2001, the United States accused North Korea, Iraq, Iran, Syria, and Libya of violating the Convention, as well. The accusations came to nothing.

17.2.2. *Negotiating the BWC*

Although there are significant weaknesses in the BWC, its negotiation proved quick, even with continuing disagreements over CS gas. The unpredictability of biological weapon effects, and their resulting limited combat value, combined with longstanding international repugnance toward biological weapons, allowed rapid treaty formation. (The same cannot be said with regard to chemical weapons, covered by the 1993 CWC.) At this writing, 163 states have ratified the 1971 BWC. The United States ratified in 1975.

> The aim of the BW Convention was not so much to remove an immediate peril, as to eliminate the possibility that scientific and technological advances, modifying the conditions of production, storage or use of biological weapons, would make these weapons militarily attractive . . . [T]he Convention is comprehensive enough to cover all relevant scientific and technological developments, including biological agents and toxins that could result from genetic engineering processes.[52]

Biological agents are difficult to weaponize, but their threat remains real. Although there has been vast improvement in bioweapon defenses, past exercises simulating biological attacks on civilian targets reveal a general American unpreparedness.[53] Anthrax, plague, smallpox, glanders, tularemia, foot-and-mouth disease, swine fever . . . all deadly, are within the reach of the trained terrorist. "Recently developed techniques permit the manipulation of key biological processes with a precision and power not dreamed of 20 years ago . . . [I]t is becoming possible to synthesize biological agents to military specifications. Thus, the world lies on the threshold of a dangerous era of designer bugs as well as designer drugs."[54]

The weaknesses of the BWC are summarized by a former Department of Defense Deputy General Counsel:

> Although the BWC purports to outlaw the development and possession of all biological weapons, deadlier and more sophisticated biological weapons than were imaginable in 1971 can now be and have been produced, as evidenced in October 2001 by two letters sent to the Capitol Hill offices of [two U.S.] Senators . . . These letters reportedly contained . . . a dangerous and sophisticated form of "weapons-grade" anthrax spores. . . . In addition to the empirical evidence of new "super" biological weapons, the failings of the BWC are further manifested by the growing significance that countries like the United States attach to the BW threat . . . and contentious review conferences of the

[52] Goldblat, "The Biological Weapons Convention – An Overview," supra, note 36.
[53] Lt.Col. Raymond S. Shelton, "No Democracy Can Feel Secure," U.S. Naval Institute *Proceedings* (Aug. 1998), 39, 44; "America the Unready," *The Economist*, Jan. 22, 2000, 34.
[54] Cmdr. Stephen Rose, "The Coming Explosion of Silent Weapons," 42 *Naval War College Rev.* (Summer 1989), 6.

> BWC states parties that have been unable to resolve cheating and compliance concerns. Furthermore, a significant number of states have not yet joined the BWC . . . prompting statements of concern about its lack of universality. . . . [55]

The same writer cites the indeterminate language of key BWC provisions as a primary cause for what he sees as the Convention's failure. Whatever the basis of the BWC's problems, the lack of effective international inspection and compliance regimes is a continuing problem for all states and for their armed forces who may be targeted.

17.3. The 1993 Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons

President Bill Clinton correctly said in his letter of transmittal to the Senate urging this treaty's ratification, "The Chemical Weapons Convention is unprecedented in its scope."[56] The roots of the 1993 CWC were in the 1899 and 1907 Hague Peace Conferences; 1899 Declaration IV, 2, Concerning Asphyxiating Gases, was ratified by twenty-five states. Article 23 of 1907 (and 1899) Hague Regulation IV forbade use of "poison or poisoned weapons."

By 1971, the international community realized that initial optimism regarding the banning of chemical and biological weapons was not justified, and the two were given separate consideration, the BWC resulting in 1971, the CWC in 1993. As of this writing, the CWC has been ratified by 186 states. The United States ratified in 1997, with numerous declarations.

The overlap of chemical, gas, and biological weapons is now clearly seen. For instance, the 1995 release of sarin gas in a Tokyo subway, in which twelve commuters were killed, was a chemical attack perpetrated through a gaslike aerosol delivery system. The delivery method involved a gas, whereas the poisonous substance was a chemical. In June 1990, the Liberation Tigers of Tamil Eelam, the "Tamil Tigers" of Sri Lanka, assaulted and overran a Sri Lankan Army Special Forces camp in Sri Lanka's Batticaloa district using a chemical-based chlorine gas. Such incidents underscore the value of the interlocking gas, biological, and chemical treaties.

17.3.1. *Parsing the 1993 CWC*

The lengthy CWC consists of twenty-four articles and three annexes that cover chemical warfare agents, implementation and verification, and the protection of confidential information. The CWC obligates state Parties to "never under any circumstances" use, develop, produce, acquire, stockpile, retain, or transfer chemical weapons, to not encourage or assist anyone to do so, to destroy any chemical weapons it owns or possesses, and to destroy any chemical weapons production facilities it owns or possesses. Retaliatory use of chemical weapons is also prohibited. (U.S. ratification of the CWC made moot its reservation to the 1925 Gas Protocol that preserved the right of retaliation to an enemy's gas attack.)

The internationally contentious argument that CS gas is a riot control agent rather than a weapon of war is not settled by the CWC. Article I.5 reads, "Each State Party

[55] Beard, "The Shortcomings of Indeterminacy," supra, note 32, at 271–2.
[56] Letter of transmittal, 1993 CWC (Nov. 23, 1993), cited in 88–2 *AJIL* (April 1994), 323.

undertakes not to use riot control agents as a method of warfare."[57] That language is short of a prohibition. In fact, RCAs for law enforcement purposes are specifically exempted in Article II.9.(d). Some hold that, in non-international armed conflicts,

> Additional Protocol II [of 1977] is a relevant source of applicable rules that should inform interpretation of Article II.9(d). Military action taken against insurgents who exercise control over part of a State's territory and carry out sustained and concerted military operations constitutes armed conflict rather than law enforcement, and thus falls outside Article II.9(d). The CWC's prohibition of the use of chemical weapons "under any circumstance" encompasses civil conflict as well as international conflict. This reasoning also suggests that use of RCAs in counter-insurgency operations would be a method of warfare prohibited by Article I.5 of the CWC. The State practice of military forces in Iraq to date supports this interpretation, because such forces have not used RCAs . . . [58]

Moving beyond RCAs, in the CWC chemical weapons are broadly defined in Article II:

(a) Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention . . . ;
(b) Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals . . . which would be released as a result of the employment of such munitions and devices;
(c) Any equipment specifically designed for use directly in connection with the employment of munitions and devices specified [above].

Article III requires a state Party to provide a number of declarations: declare if it owns or possesses chemical weapons and specify their location with an inventory of their quantity; another declaration is required of chemical weapons transferred or received since 1946, specifying the weapons. Production facilities require similar declarations, including present or past existence, transfers of production equipment since 1946, and the "general plan" for destruction or conversion to nonweapons use of production facilities.

The United States complies with its agreement to destroy its 31,000 metric tons of assorted chemical weapons through a network of destruction facilities;[59] VX, for instance, was destroyed at the Army's Newport Chemical Depot, in Indiana; bulk mustard agent was destroyed at Maryland's Aberdeen Proving Ground; chemical weapons previously deployed to European and Pacific military bases were destroyed at the Johnston Atoll Chemical Agent Disposal System, in the mid-Pacific.

Multinational treaty compliance and verification are always troublesome issues. In the case of the CWC, "the foundation [of the Convention] is a verification program so rigorous that potential disputes may be preempted even before they emerge."[60] State Parties agree that stored or destroyed chemical weapons shall be subject to systematic

[57] "Riot control agents" are described in Article II.7 as "Any chemical . . . which can produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time . . . "

[58] David P. Fidler, "The Meaning of Moscow: 'Non-lethal' Weapons and International Law in the Early 21st Century," 859 *Int'l Rev. of the Red Cross* (Sept. 2005), 525, 547. Footnote omitted.

[59] John R. Crook, ed., "Contemporary Practice of the United States Relating to International Law," 100–3 *AJIL* (July 2006), 690, 720. Tucker, *War of Nerves*, supra, note 1, at 356, puts the amount at 31,000 tons.

[60] David A. Koplow, 94–1 *AJIL* (Jan. 2000), 221, 222, (reviewing Michael Bothe, Natalino Ronzitti, and Allan Rosas, eds., *The New Chemical Weapons Convention* (2000)).

verification "through on-site inspection and monitoring with on-site instruments," and annual declarations are to be submitted regarding destruction plans.

There are compliance exemptions. State Parties may "develop, produce, otherwise acquire, retain, transfer and use toxic chemicals . . . for purposes not prohibited" by the Convention (Article VI). "Making the matter more complex, there is the unavoidable dual use of the technologies that create medicines and vaccines as well as biological toxins. The tricky task of distinguishing between the use of enriched uranium for energy and for nuclear weapons is child's play compared to the difficulty of maintaining a distinction between research for bioweapons and research for biotreatments."[61]

Cyanide and phosgene, for example, are dual-use chemicals (i.e., potential chemical weapons as well as innocent industrial agents) that are critical for innocent uses in the chemical industry. Malathion and parathion also have valuable agricultural uses, and mustard agents are used in cancer chemotherapy. Five million tons of ricin toxin, the chemical that killed Georgi Markov, is produced annually as waste mash in processing castor beans.[62] Refined ricin is also used in the treatment of severe glaucoma. Other purposes not prohibited by the CWC include "the right of any State Party to conduct research into, develop, produce, acquire, transfer or use means of protection against chemical weapons . . . " (Article X.2).

CWC Article VIII establishes the Organization for the Prohibition of Chemical Weapons. Located in The Hague, the Organization's Executive Council, forty-one representatives elected from the state Parties, handles the Organization's day-to-day business. The Conference of State Parties meets annually to, among other duties, hear verification challenges and plan routine inspections (Article VIII.B).

Monetary issues have strained the Organization's agenda.[63] For several years the United States refused to pay its organization dues because of its Brazilian director, whom the United States (and a large majority of the Executive Council) considered overreaching and focused on personal salary issues rather than organization business.[64]

Any state Party may request a "challenge inspection" to resolve any question in relation to another state's CWC compliance (Article IX.2 and 8). In a challenge inspection, inspected state Parties are obligated to make reasonable efforts to demonstrate compliance, although the inspected state may invoke "managed access" to protect sensitive installations and confidential information unrelated to the CWC (Article IX.11.(c)). The CWC has unique confidentiality provisions aimed at protecting private industries that use chemical agents and thus may be subjects of challenge inspections. For example, a challenged state might believe a challenge regarding alleged wrongful activity in, say, a civilian medical corporation's facility is actually aimed at the challenger learning proprietary secrets of the medical corporation's breakthrough in medical devices. The challenged state may assert a right to managed access to protect proprietary secrets. "The treaty's Confidentiality Annex spells out in elaborate detail how the inspectors will operate, what procedural protections will be in place for the acquired information, and

[61] Philip Bobbitt, *Terror and Consent* (London: Penguin Books, 2009), 104.
[62] Sherman McCall, M.D., "A Higher Form of Killing," U.S. Naval Institute *Proceedings* (Feb. 1995), 38, 43.
[63] Marlise Simons, "Money Short For Battle On Chemicals Used in War,: *NY Times*, Oct. 5, 2001, A5: " . . . The group, the Organization for the Prohibition of Chemical Weapons, has managed to make less than half the inspections scheduled for this year . . . because the United States and several other countries have been late in paying their dues . . . "
[64] Amy E. Smithson, "The Failing Inspector," *NY Times*, April 8, 2002, A23.

how the balance will be struck between the international community's 'need to know' about suspicious or problematic activities, and the facility's need to protect itself against unwarranted snooping."[65]

Article XII details sanctions for noncompliance with the CWC. They range from suspending a Party's rights under the Convention to, "in cases of particular gravity," bringing the issue to the UN General Assembly and Security Council. Like the 1971 BWC, the CWC does not provide for individual criminal responsibility for violators. Instead, both the BWC and the CWC "do this indirectly through the obligation for state parties to adopt measures to ensure that no activities prohibited . . . take place . . . However, the ability to prosecute a violator depends on the quality of the national implementation legislation (if adopted at all) and the presence of relevant provisions in the national penal code."[66]

Neither the Articles nor annexes of the CWC are subject to reservations "incompatible with its object and purpose" (Article XXII). U.S. implementation of the CWC was initially by Executive Order and codification as federal law.[67]

Binary weapons, not addressed in the CWC, remain a concern.* A binary chemical weapon is one in which the toxic agent remains physically separate from the munition, or *in* the munition, in the form of two nontoxic chemical precursors. When the munition is fired (or just before firing, if the nontoxic precursors are physically separate) the precursor chemicals combine to form a prohibited chemical weapon. The discovery of binary weapons is difficult, because the precursor chemicals are harmless until combined.

The ICRC study on customary law asserts that the prohibition of use of chemical weapons is a norm of customary law in both international and non-international armed conflicts.[68] It also finds the prohibition of use of biological weapons,[69] and RCAs as a method of warfare, norms of customary law.[70] A scholar writes, as to chemical weapons, however, "This, it is submitted, is a quite astonishing exercise in extrapolation of a detailed rule from very little hard evidence."[71] (See, however, Cases and Materials, this chapter, the *Tadić* opinion.) He makes a similar objection to the ICRC study's finding regarding biological weapons.[72] The question is not whether use of chemical or biological weapons in warfare is lawful; it surely is not. The question is whether their use in warfare is contrary to customary international law, as the ICRC study asserts.

Like the BWC, the CWC is not without critics. "[D]eterrence must also be maintained by producing retaliatory quantities of binary nerve agent . . . The military advantages and allure of surreptitious chemical weapons guarantee that the new treaty will be violated.

[65] Koplow, reviewing Bothe, Ronzitti, and Rosas, *The New Chemical Weapons Convention*, supra, note 60, at 222.

[66] Jean Pascal Zanders, "International Norms Against Chemical and Biological Warfare: An Ambiguous Legacy," 8–2 *J. of Conflict & Security L.* (Oct. 2003), 391, 397.

[67] Executive Order 13128, "Chemical Weapons Convention Implementation Act of 1998 (June 25, 1999); 22 U.S. Code, §§ 6701–6771.

* "Binary" is mentioned in Arts. 2.3, 2.4, and 8.(a)(ii) in defining other terms. The term is not used in any prohibitory form.

[68] Jean-Marie Henckaerts and Louise Doswald-Beck, eds., *Customary International Humanitarian Law*, vol. I, *Rules* (Cambridge: Cambridge University Press, 2005), Rule 74, at 259.

[69] Id., Rule 73, at 256.

[70] Id., Rule 75, at 263.

[71] David Turns, "Weapons in the ICRC Study on Customary International Humanitarian Law," 11–2 *J. of Conflict & Security L.* (Summer 2006), 202, 225.

[72] Id., at 221.

The experience of arms control says that deterrence is the only real hope of preventing their use."[73] Former U.S. Secretary of State James Baker replies, however, "The United States does not need chemical weapons as a deterrent . . . with our overwhelming conventional force and vast nuclear arsenal. Each is more than sufficient to deter a chemical attack."[74] Although Secretary Baker's 1977 response was before the day of nonstate actors and their resilience in the face of conventional armed forces, his conclusion probably remains accurate.

17.4. CS Gas

CS gas is not "tear" gas. As a matter of fact, CS is not a gas. Although tear gas and CS are often thought of as the same agent with different military designations, and although they have much the same effects, they are quite different.

Tear gas, first used in 1914 in World War I, is a chemical substance that produces tears, a runny nose, even temporary blindness, by irritating the mucus membranes of the eyes and nose through a process that is still not well understood.

CS, in contrast, was discovered in 1928 by Ben Corson and Roger Stoughton, at Middlebury College, Connecticut. Its name, CS, is the initials of the last names of its discoverers. CS is not a gas, but a solid form of an active chemical that comes in several varieties, ground extremely fine (particles one micron in size – 1/25,000 inch) and dispersed as a vapor. CS "gas" was first used in 1961 by British forces on Cyprus. Depending on its chemical makeup and concentration, its effects range from those of tear gas, to immediate vomiting, to prostration. Because mild CS formulations in common use cause the same tearing as tear gas, it is commonly referred to as tear gas. Neither CS, nor tear gas, nor other RCAs, are mentioned in the BWC.

The U.S. Army designated CS its standard riot control agent in 1959 and employed it against enemy bunkers in the U.S.–Vietnam conflict. In thickened form, it was used as a terrain denial agent, where its lingering effects closed trails, tunnels, and perimeters for days or, absent wind or precipitation, weeks. "One of the major uses of CS gas in Vietnam is to flush enemy soldiers out of bunkers preceding high explosive [artillery] fire or infantry assault . . . "[75] Adding liquid silicone to CS made it weatherproof, and dyeing thickened CS green made it less visible in vegetated terrain.[76]

In conflicts against terrorists, however, CS is not to be found on U.S. supply manifests. In U.S. military practice, the use of CS is controlled by Executive Order 11850.[77] "The United States renounces, as a matter of national policy, first use of . . . riot control agents in war except in defensive military modes to save lives. . . . " The Order's exceptions are to gain control of U.S. prisoners of war, situations in which civilians are used to screen attacks, rescue missions of downed aircrew, and to protect convoys in noncombat areas. "The Secretary of Defense shall take all necessary measures to ensure that the use by the Armed Forces . . . is prohibited unless such use has Presidential approval, in advance."

[73] McCall, "A Higher Form of Killing," supra, note 62, at 44.
[74] James A. Baker III, "Our Best Defense," NY *Times*, Feb. 16, 1997.
[75] Matthew S. Meselson, "Chemical and Biological Weapons," 222–5 *Scientific American* (May 1970), 3.
[76] Lt.Col. Rufus T. Brinn, "U.S. Policy and the Uncertain State of Military Usage of Riot Control Agents" (U.S. Army War College, Carlisle Barracks, PA Strategic Research Project, 1998), 12–15.
[77] Executive Order 11850, "Renunciation of Certain Uses in War of Chemical Herbicides and Riot Control Agents," 40 Fed. Reg. 16187 (April 8, 1975), available at: http://www.archives.gov/federal-register/codification/executive-order/11850.html.

Executive Order 11850, first issued by President Gerald R. Ford, has not been modified since it was issued, and it remains in effect.[78] In periods of armed conflict, presidential approval authority has doubtless been delegated to combatant commanders, if not to division commanders. Approval of use of CS in combat zones, however, remains tightly controlled.

17.5. Summary

The obvious dangers of gas, chemical, and biological weapons go beyond the effects of the weapons themselves. The acquisition of such weapons of mass destruction by an irresponsible State, or a nonstate armed opposition group, can be the basis for armed intervention, "not just reactively but preventively and before a latent threat becomes imminent."[79]

Although the 1925 Gas Protocol has been all but superseded by the 1993 CWC, issues of verification, clandestine production, and weapons destruction remain. The same issues are more significant in the 1971 BWC. The 1993 CWC goes far in providing credible verification procedures, but even the challenge inspection provisions of that pact depend on self-declaration, which has proven porous.[80] The CWC's destruction requirement has encountered technical problems and delays, as well.

Yet, despite gaps, and less than complete compliance, the good faith efforts of many state parties have reduced the potential for employment of these weapons.

CASES AND MATERIALS

THE UNITED KINGDOM'S MANUAL OF THE LAW OF ARMED CONFLICT[81]

Introduction. *The UK's 2004* Manual of the Law of Armed Conflict *provides a brief but thoughtful essay on basic issues involved in drafting weapons treaties. In doing so, the*

[78] Statement of Joseph Benkert, Principal Deputy Asst. Secretary of Defense for Int'l Security Policy, before the Senate Committee of Armed Services, Subcommittee on Readiness and Management Support (Sept. 27, 2006).

[79] "A More Secure World: Our Shared Responsibility," Report of the UN Secretary-General's High-level Panel on Threats, Challenges and Change (Dec. 2, 2004), para. 194, at 64. Available at: http://www.un.org/Pubs/chronicle/2004/issue4/0404p77.html.

[80] Barbara Crossette, "Countries Admit Use of Poisons in Weapons," *NY Times*, Aug. 17, 1997; Judith Miller, "Libya Discloses Production of 23 Tons of Mustard Gas," *NY Times*, March 6, 2004, A5.

[81] U.K. Ministry of Defence, *The Manual of the Law of Armed Conflict* (Oxford: Oxford University Press, 2004), 103–4, footnotes omitted.

Manual *mentions issues of military necessity and proportionality that go into treaty formation, illustrating the interplay of those core concepts in all considerations of LOAC/IHL.*

Although use of weapons is an integral feature of armed conflict, there have been several attempts over the centuries to ban certain weapons or to restrict their use. More recent international treaties on the use of weapons have been formulated in one of two ways. The first approach is an absolute ban on the use of a specific weapon or projectile. This has the advantage of precision, simplifying compliance and verification. On the other hand, the ban may be easily circumvented by equipping forces with another weapon that achieves the same result but is not caught by the precise terms of the prohibition. The second approach takes a more general form by referring to the effects of weapon use. But here there may be room for argument about whether the weapon use has that effect. An example of the first approach is the Hague Declaration 2 Concerning Asphyxiating Gases 1899 in which the parties agreed to abstain from 'the use of projectiles the sole object of which is the diffusion of asphyxiating or deleterious gases'. The use of canisters to release gas carried by the wind in the direction of the enemy lines was not caught by this treaty. An example of the second approach is the prohibition in Article 23(e) of the Hague Regulations [IV] of the employment of 'arms, projectiles, or material calculated to cause unnecessary suffering'. Arguments continue to this day about whether certain weapons that have undoubted military utility cause unnecessary suffering.

The current practice is to combine the two approaches by regarding the 'unnecessary suffering' provision as a guiding principle upon which specific prohibitions or restrictions can be built.

Application of the Guiding Principle

The correct criterion is whether the use of a weapon is of a nature to cause injury or suffering greater than that required for its military purpose.

In deciding the legality of use of a specific weapon, therefore, it is necessary to assess:

a. its effects in battle;
b. the military task it is required to perform; and
c. the proportionality between factors (a) and (b).

However, even if the use of a weapon is considered under this test to be generally lawful, its use in certain ways, or in certain circumstances, may still be unlawful.

Conclusion. *With these guidelines in mind, what is a lawful weapon that may be used in unlawful ways? We know that* all *lawful weapons may be used in unlawful ways. White phosphorus comes to mind, lawful for use against fortified enemy emplacements, unlawful if used directly against civilians. (There is no treaty outlawing the use of white phosphorus against combatants – even directly against them.) A most basic implement of warfare, a bullet, becomes unlawful if its tip is scored, making it a "dum-dum," or expanding, bullet. The dum-dum's military necessity is zero and its use causes unnecessary suffering.*

The British Manual's guidelines are a template for the legal review of new weapons required by 1977 Additional Protocol I, Article 36.

PROSECUTOR V. TADIĆ

(IT-94-1-A) Decision on Defense Motion for Interlocutory Appeal on Jurisdiction
(2 Oct. 1995)

Introduction. *The several Trial and Appeal Chamber opinions in the ICTY's* Tadić *case provide guidance in several LOAC/IHL areas. In this portion of the Trial Chamber's decision regarding a pretrial motion by the accused, the Chamber determines the applicability of weapons restrictions to non-international armed conflicts, using the Iraqi chemical attack on Halabja as the case in point. (The Iraq–Iran war predated the 1993 CWC, so the Trial Chamber refers to the 1925 Gas Protocol, which earlier banned chemical weapons in warfare.) Brackets are as in the original.*

119. . . . We shall now briefly show how the gradual extension to internal armed conflict of rules and principles concerning international wars has also occurred as regards means and methods of warfare. [A] general principle has evolved limiting the right of the parties to conflicts "to adopt means of injuring the enemy." The same holds true for a more general principle, laid down in the so-called Turku Declaration of Minimum Humanitarian Standards of 1990, and revised in 1994 . . . whereby "[w]eapons or other material or methods prohibited in international armed conflicts must not be employed in any circumstances. . . .

Indeed, elementary considerations of humanity and common sense make it preposterous that the use by States of weapons prohibited in armed conflicts between themselves be allowed when States try to put down rebellion by their own nationals on their own territory. What is inhumane, and consequently proscribed, in international wars, cannot but be inhumane and inadmissible in civil strife.

120. . . . By way of illustration, we will mention chemical weapons. Recently a number of States have stated that the use of chemical weapons by the central authorities of a State against its own population is contrary to international law. On 7 September 1988 the [then] twelve Member States of the European Community made a declaration whereby:

> "The Twelve are greatly concerned at reports of the alleged use of chemical weapons against the Kurds [by Iraqi authorities]. They confirm their previous positions, condemning any use of these weapons. They call for respect of international humanitarian law, including the Geneva Protocol of 1925, and Resolutions 612 and 620 of the United Nations Security Council [concerning the use of chemical weapons in the Iraq-Iran war]." . . .

121. A firm position to the same effect was taken by the British authorities: in 1988 the Foreign Office stated that the Iraqi use of chemical weapons against the civilian population of the town of Halabja represented "a serious and grave violation of the 1925 Geneva Protocol and international humanitarian law. The U.K. condemns unreservedly this and all other uses of chemical weapons . . . " A similar stand was taken by the German authorities . . .

122. A clear position on the matter was also taken by the United States Government. In a "press guidance" statement issued by the State Department on 9 September 1988 it was stated that:

> Questions have been raised as to whether the prohibition in the 1925 Geneva Protocol against [chemical weapon] use 'in war' applies to [chemical weapon] use in internal conflicts. However, it is clear that such use against the civilian population would be

contrary to the customary international law that is applicable to internal armed conflicts, as well as other international agreements." (United States, Department of State, Press Guidance (9 September 1988).)

On 13 September 1988, Secretary of State George Schultz, in a hearing before the United States Senate Judiciary Committee strongly condemned as "completely unacceptable" the use of chemical weapons by Iraq . . .

123. It is interesting to note that, reportedly, the Iraqi Government "flatly denied the poison gas charges." (New York Times, 16 September 1988, at A11.) Furthermore, it agreed to respect and abide by the relevant international norms on chemical weapons. . . .

It should also be stressed that a number of countries (Turkey, Saudi Arabia, Egypt, Jordan, Bahrain, Kuwait) as well as the Arab League . . . strongly disagreed with the United States' assertions that Iraq had used chemical weapons against its Kurdish nationals. However, this disagreement did not turn on the legality of the use of chemical weapons . . .

124. It is therefore clear that, whether or not Iraq really used chemical weapons against its own Kurdish nationals – a matter on which this Chamber obviously cannot and does not express any opinion – there undisputedly emerged a general consensus in the international community on the principle that the use of those weapons is also prohibited in internal armed conflicts.

Conclusion. *In the years since the Trial Chamber's opinion, clear proof of the Iraqi attack emerged. Was the Iraqi attack on Halabja, a city within Iraq, inhabited largely by Iraqis, albeit Kurdish Iraqis, an incident of an international armed conflict?*

THE MOSCOW THEATER HOSTAGE CRISIS AND THE CHEMICAL WEAPONS CONVENTION

On the evening of October 23, 2002, forty to fifty armed Chechen separatists, females among them, entered Moscow's *Nord-Est* theater during an opera performance. They took 850 to 900 civilian theater-goers and performers hostage. Some ninety civilians escaped. Russian secrecy at the time and afterward makes precise numbers impossible to obtain. The Chechens, several of whom wore explosive vests, wired the building with explosives.[82] They demanded that Russia withdraw its military forces from Chechnya, or hostages would be executed. Over the following two days, the Chechens released about 150 to 200 children, pregnant women, Muslims, and ill captives. Another fifty-four hostages were released for various reasons.

At 0505 on the morning of October 26, Russian military forces and security police pumped an unknown gas into the theater through the ventilation system. Visible to the naked eye, the gas quickly incapacitated most of the Chechens in the theater, as well as many hostages. Simultaneously, Russian Special Forces stormed the building from adjacent structures, from basement theater entrances and through the theater's main doors. In the assault several Russian soldiers were overcome by the gas.

Many of the Chechens were also killed by the gas. Those not killed by the gas or in the brief firefight when Russian forces stormed the theater were summarily executed as they lay

[82] Peter Baker and Susan B. Glasser, "Rebels Hold Hundreds Hostage in Moscow," *Washington Post*, Oct. 24, 2002, A1.

unconscious or incapacitated by the gas. Roughly twelve Chechens were apparently captured alive.

Numbers vary from report to report, but at least 127 civilian hostages were killed by the gas, another two by gunfire. Some hostages who reached medical workers were unconscious but still alive, but soon died from effects of the gas because Russian authorities would not, and to this day have not, identified the gas they used, precluding administration of an effective antidote.[83] The percentage of those killed by the gas was "a fatality rate of 16%, more than twice the fatality rate of 'lethal' chemical weapons used on World War I battlefields."[84]

The usual preliminary questions regarding an armed conflict incident, conflict status, and individual status, are of little relevance in this case. They are mooted by the treaty involved, the 1993 CWC, which applies in times of peace, as well as war.

What gas was used by the Russian forces, and did its use constitute a violation of the 1993 CWC? Most reports suggest that the gas probably was fentanyl, "a well-known drug with many medical applications, as a human incapacitant . . . used for treating chronic pain. . . . 'It's like heroin times 1,000' . . . "[85] If it was indeed fentanyl, it was employed in a situation and manner in which neither dosage nor exposure could be controlled.

> [S]ymptoms exhibited by the freed hostages, as well as analyses of fluid samples taken from some of the hostages, were [also] consistent with inhalation of halothane, a halogenated gas used for surgical anesthesia. Halothane has the advantage of being a gas . . . but it also has an extremely narrow range of safe dosing . . . [A] chemist who previously worked in the Soviet weapons program stated that the grey-purple colour of the gas suggests that the mixture contained a combination of halothane and Substance 78. Substance 78, which was developed by the Soviet chemical weapons program, is a hallucinogen . . . His suspicions are shared by American physicians.[86]

In determining if Russia violated the CWC, does the agent they employed make a difference if state Parties are obligated to "never under any circumstances" use, produce, acquire, or retain chemical weapons? In listing "Purposes Not Prohibited Under the Convention," CWC Article II.9 (d) provides, "Law enforcement including domestic riot control purposes." That exemption would seem to cover the chemical-based agents apparently used by Russian forces.

For those advocating the law enforcement exemption, the Moscow theater incident demonstrated that "the law enforcement provision offered room to develop the potential of incapacitating chemicals and demonstrate their utility for both law enforcement purposes and missions that the military would face in twenty-first-century armed conflict."[87] (The 127 dead hostages suggest a questionable utility.)

[83] Michael Wines, "Hostage Drama in Moscow: The Aftermath," *NY Times*, Oct. 28, 2002, A1.

[84] David P. Fidler, The Meaning of Moscow: 'Non-lethal' Weapons and International Law in the Early 21st Century," 859 *Int'l Rev. of the Red Cross* (Sept. 2005), 525, 532–3.

[85] Judith Miller and William J. Broad, "U.S. Suspects Opiate in Gas In Russia Raid," *NY Times*, Oct. 29, 2002, A1.

[86] Maria Granovsky, "When the Right Action is Illegal: Russian Use of Toxic Chemicals to End the Theater Hostage Crisis in October 2002" (May 13, 2003), unpublished seminar research paper, Georgetown University Law Center (on file with author), citing: Clem Cecil, "Chechen Siege Hostages Still Dying of Gas Effects," *The Times* (London), Oct. 27, 2002, 1. Used with the kind permission of Ms. Granovsky who, besides a law degree, holds a doctorate in chemistry.

[87] Fidler, The Meaning of Moscow," supra, note 84, at 535.

Most experts consider the Russian use, however inexpert, of either fentanyl or halothane/Substance 78 no violation of the CWC,[88] but "the use of chemical incapacitants in paramilitary operations is dangerous because it blurs the line between law enforcement and warfare . . . that makes the battlefield use of chemical weapons more likely."[89]

[88] Mark Wheelis, "Will the New Biology Lead to New Weapons," *Arms Control Today* (July/Aug. 2004), 6, 8.
[89] Tucker, *War of Nerves*, supra, note 1, at 384.