Journal of Conflict & Security Law (2003), Vol. 8 No. 2, 391–410

INTERNATIONAL NORMS AGAINST CHEMICAL AND BIOLOGICAL WARFARE: AN AMBIGUOUS LEGACY

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ABSTRACT

Chemical and biological weapons (CBW) bear a moral opprobrium as they are widely viewed as indiscriminate agents of unnecessary suffering. This immorality is often presented as an article of faith. However, the belief system cannot be the sole legal, political and social reality, as otherwise CBW should logically have been banished a long time ago. While there is a long history of legal and social constraints against these weapons, such constraints are never absolute. Three aspects that have affected the application of the norm are: the lack of perceived equality between warring parties, competing legal doctrines, and the impact of technological innovation on norms. Since the social context in which the norms are developed and applied changes continually, it becomes clear that these norms must be continuously redefined in order to remain relevant. The historical analysis also shows that existing international norms have never placed the professional scientists engaging in CBW-related activities in either a moral or an ethical vacuum. Indeed, activities permitted to states under international law and custom have provided ample justification for scientists to work on CBW in support of national security. Until today, national security considerations place a great strain on the global disarmament treaties governing the development, possession and use of CBW.

1 INTRODUCTION

The constraints on chemical and biological weapons (CBW) are multifaceted and long-standing. Taken together, they have prevented the generalised assimilation of CBW into the mainstream military doctrine. On the one hand, the physical properties of the warfare agents and their dependence on environmental factors in order to reach the target have limited their military utility (although these factors can to a certain extent be manipulated or controlled to enhance their effectiveness). On the other hand, there are psychological and moral objections to the use of poisonous substances against humans. The sentiments, first expressed in customs on the conduct of war, later became codified in the laws of war, humanitarian law and the law of disarmament.

Some scientists, researchers and technicians, whether as individuals or members of professional groups, have objected to participation in CBW-relevant programmes. However, international custom does not always give unambiguous moral guidance. International law governs behaviour among states, and not the conduct of individuals. In a narrow sense, all state activities that fall outside the scope of an

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international prohibition are legal, contributing to a continuing tension between morality and legality.

This article outlines the history of legal and social constraints against CBW, and then argues that these were never absolute. Three aspects that have affected the application of the norm are considered in detail: the lack of perceived equality between warring parties, competing legal doctrines, and the impact of technological innovation on norms. The paper concludes, on the one hand, that norms must be continuously redefined in order to remain relevant and, on the other hand, that existing international norms have never placed the professional scientists engaging in CBW-related activities in either a moral or an ethical vacuum. Indeed, activities permitted to states under international law and custom have provided ample justification for scientists to work on CBW in support of national security. External threats have strengthened this justification.

2 CONSTRAINTS ON CHEMICAL AND BIOLOGICAL WEAPONS

There are several types of moral and legal constraints on chemical and biological weapons. The first and oldest category restricts their use. It consists of unilateral declarations and bi- and multilateral agreements. A second category, which is of relatively recent origin, aims to outlaw the acquisition and possession of these weapons, as well as preparations for their use.

2.1 Restrictions on the Use of Chemical and Biological Weapons

The earliest recorded statements against the use of poisons and poisoned weapons in combat were unilateral expressions of a particular society's moral values. The earliest recorded prohibition on the use of poison is contained in the *Manu Smrti* (the Tradition of Manu), compiled in the second or first century BC, which forms one of the foundations of the Hindu code. This exhorted a king not to use poisoned weapons.[1]

Religions have had a restraining influence on the conduct of war and on the use of poisons in particular. Fundamental writings such as the Bible or the Qur'an do not discuss poisoning, and consequently do not contain formal prohibitions, but the Jewish, Christian and Islamic inspired constraints were derived from other sources.[2]

[1] G. Bühler (Translator), *The Laws of Manu. Translated with Extracts from Seven Commentaries* (1886), reprinted under UNESCO sponsorship in *The Sacred Books of the East*, vol. 25 (1975) 230. Chapter VII 'The King', verses 87–98 laid down the ruler's conduct in war. The ban on the use of poison, as well as of treacherous and incendiary devices and weapons that cause superfluous injury, is contained in verse 90.

[2] As a consequence of the Diaspora, Jewish teachings did not further develop a code against the use of poison in war as the Jews did not have a homogenous territory to defend as a nation. From 1948 onwards, the debate on the legitimacy of CBW has been taken up by Israel as a sovereign state rather than as a religious entity.

The origins of contemporary laws of wars can be traced to the teachings of the Prophet Mohammed in the 7th century and the influence of Christianity and chivalry on the conduct of war in the Middle Ages.

The Prophet Mohammed opposed the personalised character of war, and as a result Islamic law developed precise directives whereby the civilian population and men of religion must be spared and protected from the suffering of war. Since combat operations must be limited to military objectives, Islam prohibits the use of indiscriminate weapons or modes of warfare that cause generalised destruction, such as flooding and arson. It also appears not to condone or authorise a blockade of nourishment against an enemy.[3] This general principle against indiscriminate warfare was expanded to cover the poisoning of wells and springs. After Mohammed's death in 632, the first Caliph Abu-Bakr reportedly exhorted his troops to overcome their enemies by bravery and never by poison in a campaign order.[4]

As Christianity emerged in the Roman Empire, it faced a strong and centralised state and had to coexist with it if it were to survive. This duality of religious and secular politics continued for many centuries. During the early middle Ages, the Christian Church experienced great difficulties in maintaining control over the worldly leaders, who engaged more in internal warfare than in expansionist wars against pagans. In the effort to restrain and redirect Christian warfare away from Christians the Church attempted to ban certain modes of warfare. It thus embraced a code of conduct among kings and knights not to use poison, which they viewed as dishonourable, because it enabled the weak to overcome armed warriors who had invested heavily in equipment and training. In 1139 the Lateran Council similarly outlawed the crossbow (which proved ineffective in the long term). The Renaissance in Europe stimulated the articulation of constraints on warfare, which, in some cases, reached back to Roman law. The Spanish theologian Francisco de Vitoria (1480–1546) condemned the barbaric practices, including the mutilation or massacre of prisoners, the total destruction of villages, perfidy, and the poisoning of weapons.[5] Albericus Gentilis (1552–1608), an Italian who fled to England, likewise enumerated the employment of poison, veneniferous substances and magic as acts prohibited in war. He also condemned the use of serpents.[6] According to the Dutchman Hugo Grotius (1583–1645) a belligerent may kill all enemy subjects, but his means to do so are not unlimited. He deemed the use of poison and poisoned

[3] M.A. Draz, 'Le Droit international public et l'Islam' (1949) 5 *Revue Egyptienne De Droit International* 2–23; Y.B. Ashoor, 'Islam and International Humanitarian Law' (1980) *International Review of the Red Cross* 8–9; and M. Bedjaoui, 'The Gulf War of 1980–1988 and the Islamic Conception Of International Law', in I.F. Dekker and H.G. Post (eds.), *The Gulf War of 1980–1988* (1992) 289.

[4] A. Rechid, 'L'Islam et le Droit Des Gens' (1937) 60 *Hague Recueil* 481 as cited in Bedjaoui, *op. cit.*, 291. According to Judge Mohammed Bedjaoui, Member of the International Court of Justice, this prohibition must today be extended to all non-conventional weapons.

[5] J. Barthélemy, 'François de Vitoria', in A. Pillet (ed.), *Les Fondateurs Du Droit International* (1904) 31.

[6] H. Nézard, 'Albericus Gentilis', in Pillet, *op. cit.*, 59.

weapons prohibited because it augmented the perils of wars too much.[7] These writers and later authors testified to certain practices in war that either were or ought to be banned.

Certain military formations adopted such prohibitions as part of their code of conduct. A pledge taken by German gunners in the late Middle Ages included an explicit prohibition against the construction or use of poisoned balls, 'because the first inventors of our art thought such actions as unjust among themselves as unworthy of a man at heart and a real soldier'.[8] Article 70 of the first US Army Field Manual (1863) similarly stated that 'the use of poison in any manner, be it to poison wells, or food, or arms, is wholly excluded from modern warfare. He that uses it puts himself out of the pale of the law and usages of war'.[9] During the second half of the 19th century, states convened international conferences to codify the customs and laws of war. The outcomes of these meetings (even where they did not produce a treaty) began to be reflected in national instructions guiding the conduct of armed forces in combat.

2.2 Bi- and Multilateral Agreements

The custom constraining the use of poisoned weapons in war found its first codification in Article 57 of the Strasbourg Agreement of 27 August 1675, by which French and German forces, and their respective allies, agreed to prohibit the firing of poisoned bullets and to severely punish any soldier using such munition.[10] The Strasbourg Agreement was valid for the duration of the war, during which Louis XIV tried to establish French control over Lorraine.

In general, however, until the 19th century no tacit or expressed comprehensive agreement on the conduct of war existed between states. Each nation had the discretion of issuing unilateral rules to govern its conduct or to seek an understanding with an adversary.[11] During the second half of the 19th century, as industrialisation and technological innovation rapidly changed the nature of warfare, the leading powers began to codify the customs of war. A milestone was reached with the St. Petersburg Declaration of 1868, which prohibited the use of explosive, fulminating or incendiary projectiles weighing more than 400 grammes. The agreement was soon obsolete, but it was the first time that a multilateral treaty referred to the custom that the 'employment of arms which uselessly aggravate the sufferings of

7 J. Basdevant, 'Hugo Grotius', in Pillet, *op. cit*., 207.

8 C. Siemienowicz, *Grand art D'artillerie* (1650), as quoted in J. Appfel., 'Les Projectiles Toxiques En 1650' (March 1929) 103 *Revue D'artillerie* 234.

9 F. Lieber, 'Instructions for the Government of Armies of the United States in the Field', promulgated as General Orders no. 100 by President Abraham Lincoln, 24 April 1863, reproduced in D. Schindler and J. Toman (eds.), *The Laws of Armed Conflicts. A Collection of Conventions, Resolutions and Other Documents* (1973) 3–23.

10 L. Lewin, *Die Gifte in Der Weltgeschichte* (1920) 563.

11 J.H. Choate, *The Two Hague Conferences. The Stafford Little Lectures for 1912* (1913) 20–21.

disabled men, or render their death inevitable' is 'contrary to the laws of humanity'.[12] This fundamental principle would be repeated in all future international agreements limiting the use of weapons in armed conflict. During the next three decades, the codification process accelerated. The Brussels Declaration of 1874 stated that belligerents do not have unlimited power in the adoption of means to injure an enemy. Among other instruments of war, poison or poisoned weapons are especially forbidden.[13] This declaration never took effect because some governments were unwilling to adopt it as a binding convention. However, together with the Oxford Manual (which proposed to outlaw the use of poison in any form whatever),[14] it laid the foundation of later agreements concluded at the Hague Peace Conferences in 1899 and 1907.

The Regulations Respecting the Laws and Customs of War on Land annexed to both the 1899 Hague Convention (II) with Respect to the Laws and Customs of War on Land and the 1907 Hague Convention (IV) Respecting the Laws and Customs of War on Land explicitly forbade the employment of poison and poisonous weapons.[15] The First Hague Peace Conference did not achieve its stated objective of arms limitation or reduction. Nevertheless, the delegates, representing 26 governments, extended the core principle that belligerents do not have unlimited power to injure an enemy to emerging technologies in three separate declarations. In particular, the contracting powers agreed with the 1899 Hague Declaration (IV, 2) Concerning Asphyxiating Gases 'to abstain from the use of projectiles the sole object of which is the diffusion of asphyxiating or deleterious gases'.[16]

This agreement did not survive the First World War: the German Army circumvented it by releasing the toxic chlorine cloud from cylinders dug into the trenches on 22 April 1915. All major belligerents adopted gas, and by the time that warfare agents were routinely delivered by shell, the document had become all but irrelevant.[17] After the Armistice the horrors of chemical warfare prompted some

[12] Declaration of St. Petersburg of 1868 to the Effect of Prohibiting the Use of Certain Projectiles in Wartime, signed at St. Petersburg, 29 November–11 December 1868, reproduced in Schindler and Toman, *op. cit.*, 95–97.

[13] International Declaration Concerning the Laws and Customs of War, signed at Brussels, 27 August 1874, reproduced in Schindler and Toman, *op. cit.*, 25–34.

[14] The Laws of War on Land, Manual adopted by the Institute of International Law at Oxford, 9 September 1880, reproduced in Schindler and Toman, *op. cit.*, 35–48. The Institute of International Law was founded in 1873 and was composed of individual members and associations from different countries.

[15] Schindler and Toman, *op. cit.*, 76–77.

[16] Schindler and Toman, *op. cit.*, 99–101. The other two declarations prohibited the launching of projectiles and explosives from balloons and the use of so-called dumdum bullets.

[17] Already in August 1914 the French may have used 26-mm rifle grenades filled with ethylbromacetate; the Germans introduced artillery shells filled with xylyl bromide and benzyl bromide to the battlefield in January and March 1915 respectively. As lachrymators (and other irritant agents) are harmful, the Hague Declaration (IV, 2) had already been technically violated in the first months of the war; however, as Augustin M. Prentiss noted, the effects of these early lachrymatory agents was so transitory that when they were introduced nobody appeared to consider them as falling under the then existing prohibitions on the use of poison. A.M. Prentiss, *Chemicals in War* (1937) 129 at 132–35.

governments to limit the use of chemical weapons. A first attempt was made at the 1922 Washington Conference on the Limitation of Armament, in which the five major allied powers (British Empire, France, Italy, Japan and the United States) agreed to the Treaty Relating to the Use of Submarines and Noxious Gases in Warfare. Article 5 sought to outlaw 'the use in war of asphyxiating, poisonous and other gases and all analogous liquids, materials or devices' and invited all other nations to join the prohibition.[18] The treaty never entered into force because of France's failure to ratify it for reasons related to submarine warfare. The essence of Article 5 was copied into the 1923 Convention for the Limitation of Armaments of Central American States,[19] and into the 1925 Geneva Protocol, which extended the prohibition on use to bacteriological weapons.[20] The latter document resulted from a proposal to ban the trade in chemical weapons, which the United States tabled at the Conference for the Supervision of the International Trade in Arms and Ammunition and in Implements of War, convened by the League of Nations in 1925.

However, after the First World War many politicians felt that, despite the deep revulsion against chemical warfare, they could not leave their country unprepared and believed that assistance with CW and the transfer of CW-relevant technology to smaller powers actually contributed to their own national security. In addition, they came across the so called dual-use problem posed by the chemicals that would be covered by the proposed ban. Their inability to discriminate clearly between military and legitimate civilian applications and the resulting impact such a ban might have on the chemical industry made the US proposal impractical to implement. The delegates nevertheless felt that, since the issue of chemical warfare had been raised, they should outlaw the use of CW in war.[21] Despite the fact that many contracting powers attached reservations to the Geneva Protocol, effectively turning it into a pledge of no-first use, the document constituted the core of the norm against chemical and biological warfare for most of the 20th century. Although it was violated several times (most recently in the 1980–88 Iran–Iraq war), it definitely had a restraining influence on CBW armament programmes. Most importantly, as it affected the military rationale for their employment, the Protocol laid the foundations for a total ban on their development and possession.

The latest stage in the development of the constraints on use is their inclusion in disarmament treaties that ban the acquisition and possession of such weapons.

[18] Treaty Relating to the Use of Submarines and Noxious Gases in Warfare, signed at Washington on 6 February 1922, reproduced in Schindler and Toman, *op. cit*, 657–59.

[19] Convention for the Limitation of Armaments of Central American States, signed at Washington on 7 February 1923, reproduced in A. Boserup, *The Problem of Chemical and Biological Warfare, Volume III: CBW and the Law of War* (1973) 154.

[20] Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 19 June 1925, reproduced in A. Boserup, *op. cit*., 155–56.

[21] R.J. McElroy, 'The Geneva Protocol of 1925', in M. Krepon and D. Caldwell (eds.), *The Politics of Arms Control Treaty Ratification* (1991) 125–66; and J.P. Zanders, 'The CWC in the context of the 1925 Geneva Debates' (1996) 3(3) *The Nonproliferation Review* 38–45.

Under the 1993 Chemical Weapons Convention (CWC) states parties undertake 'never under any circumstances' to use CW.[22] The 1972 Biological and Toxin Weapons Convention (BTWC) does not prohibit the use of BW in its own right, but refers to the Geneva Protocol.[23] In addition, following the unilateral renunciation of BW by the United States in 1969, the largest part of the international community chose to believe that BW had limited military utility.[24] In December1996, with the entry into force of the CWC imminent (29 April 1997), the Fourth Review Conference of the BTWC declared that the aim of the convention is to exclude completely and forever the possibility of BW use and that reservations to the Geneva Protocol concerning retaliation with BW are totally incompatible with the aims of the BTWC.[25]

Although there is a long record of prohibitions on the use of poisons and CBW in armed conflict, the requirement to punish the individual who violates the prohibition has only been stipulated in the 1675 Strasbourg agreement. The BTWC and CWC do this indirectly through the obligation for states parties to adopt measures to ensure that no activities prohibited for a state take place on the territory of a state party. 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. In order to address the limited individual responsibility for such violations under international law the Harvard Sussex Programme has undertaken the initiative to develop a draft 'Convention to Prohibit Biological and Chemical Weapons Under International Criminal Law'. Under the

[22] Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, 1993, Article I, available from the SIPRI Chemical and Biological Warfare Project, at <http://projects.sipri.se/cbw/docs/cw-cwc-mainpage.html>.

[23] Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, 1972, at <http://projects.sipri.se/cbw/docs/bw-btwc-mainpage.html>. Article VIII states that nothing in the BTWC shall be interpreted as in any way limiting or detracting from the obligations assumed by any state under the Geneva Protocol. In the light of the reservations many states attached to the Geneva Protocol, the provision could be interpreted as meaning that the use of BW is still legal under certain circumstances. Many states have now withdrawn their reservations to the Geneva Protocol. The issue of prohibition of use is also the subject of preambular paragraphs 9 and 10 of the BTWC.

[24] Some countries like France and Sweden were very sceptical about the claim that BW only had limited military value. Sweden reluctantly became a party to the BTWC in 1976. France refused to join the convention because of its lack of verification measures until 1984, but implemented the BTWC in its domestic legislation.

[25] Final Declaration of the Fourth Review Conference BWC/CONF.IV/9, Part II, art. I, para. 4, 15 and art. VIII, para. 7, 22–23. The language was inserted following an Iranian amendment proposal to insert a formal ban on BW use in the title and article I of the BTWC (which defines the scope of the convention). The amendment was not adopted because of the fear that its adoption might lead to other amendment proposals, which may ultimately weaken the BTWC regime, and that, in view of the required ratification procedures by states parties, states that do not accept the amendment would appear to condone BW use. Fourth Review Conference, Report of the Committee of the Whole, BWC/CONF.IV/9, Part III, 39.

proposal, any person who commits any of the prohibited acts (which, besides use, also include participation in the development, production, retention and transfer of CBW) anywhere would face the risk of apprehension, prosecution and punishment or of extradition in any state that is party to the convention.[26] Building on a resurgent interest in the concept of 'international crime', the authors draw on a growing body of international agreements that define certain crimes as particularly dangerous or abhorrent to all and a growing willingness of the international community to prosecute individuals for such crimes.

2.3 The Law of Disarmament

All the documents up to the BTWC and CWC belong to the customs and laws of war: they did not ban the possession of the weapons. Besides setting a general standard against the use of poisons and later more specifically of CBW, these texts did not affect the legitimacy of developing, producing and stockpiling such weapons. The rise of chemical and biological weapons in the 20th century was closely correlated to industrialisation and technological innovation. In the 19th century the impact on warfare of the industrial revolutions taking place in West Europe was keenly felt in Russia. As an agrarian society it was unable to match the rapid advances in military technology and strategy. It tried to constrain the development of new weapons by means of international agreement, but its arms limitation efforts failed. After both world wars, which amply demonstrated the devastating impact of technology on combatants and non-combatants alike, efforts were undertaken to limit the possession of certain types of weapons. Two broad categories of measures exist: limitations imposed by the victors on the vanquished after a war and negotiated agreements.

The 1919 Versailles Treaty formally ended the First World War and imposed strict conditions on Germany.[27] Articles 170 and 171 forbade Germany CW use in war as well as the importation and exportation of arms, munitions and war material of every kind, and of chemical weaponry in particular. In addition, it forced Germany to disclose its manufacturing processes to the Allies. Following the 1990–91 Gulf War, UN Security Council Resolution 687 (1991) similarly required Iraq to disclose its CBW programmes and to destroy all existing CBW stockpiles.[28] In both cases the resistance to these obligations has been tenacious and the two countries maintained illegal armament programmes. The measures ultimately

[26] 'A Draft Convention to Prohibit Biological and Chemical Weapons Under International Criminal Law' (1998) 42 *CBW Conventions Bulletin* 1–5.

[27] The Peace Treaty of Versailles, signed at Versailles on 28 June 1919, available from the World War 1 Document Archive, at <http://www.lib.byu.edu/~rdh/wwi/versailles.html>. Treaties with similar provisions were negotiated with each of Germany's wartime allies.

[28] SC Res. S/RES/687 (1991), 3 April 1991, reproduced in *The United Nations and the Iraq–Kuwait Conflict 1990–1996* (1996) 193–98. In addition, Iraq was forced to ratify the BTWC. The legal consequences of this move are still unclear as states normally voluntarily enter into international agreements.

failed because of the weakening resolve of the international community to enforce its own disarmament requirements.[29] After the Second World War the western allies quickly integrated the Federal Republic of Germany into the international community. Upon its entrance to the Western European Union in 1954 Germany undertook 'not to manufacture in its territory any atomic weapons, chemical weapons or biological weapons'.[30]

During the first half of the 1930s, the League of Nations started multilateral negotiations to reduce the levels of armaments. Several proposals contained clauses to prohibit the development and production of chemical and biological weapons in peacetime and to destroy existing stockpiles. A special committee was set up to deal with issues such as the definition of chemical and biological weapons, the verification of treaty compliance and the imposition of sanctions in case of violations. In March 1933 Great Britain submitted a far-reaching draft treaty.[31] In an entirely new development, the agreement would also have prohibited the use of CW against non-parties to the treaty. Since the right of retaliation was maintained, the development and production of CW would still have been permitted. Resort to biological weapons, by contrast, would have been banned under all circumstances. The disarmament conference, however, ceased its activities in January 1936 as a consequence of the worsening international climate in Europe and Asia, and the negotiation of a CBW disarmament treaty would not be taken up again until the late 1960s.

The BTWC and the CWC represent major qualitative steps forward in arms control: a state party voluntarily agrees to entirely eliminate certain types of weapons from its arsenal and to never acquire them in future, even when another state threatens to use or actually uses such weapons against it. The BTWC, however, lacks verification and enforcement instruments. Continuing concerns about prohibited BW-relevant activities (e.g. Russia and Iraq), and the inability of the BTWC to decisively deal with them, affects the credibility of the treaty regime. Major progress in biotechnology since the 1970s poses another challenge to the treaty regime, although through the quinquennial review conferences states parties have been able to incorporate these new developments within the scope of the

[29] The Iraq case is not yet closed, but it is highly unlikely that in the light of the deep divisions within the UN Security Council that the matter of the verified destruction of Iraq's CBW capabilities will be satisfactorily resolved. M. Wahlberg, M. Leitenberg and J.P. Zanders, 'The Future of Chemical and Biological Weapon Disarmament in Iraq: From UNSCOM to UNMOVIC' (2000) *SIPRI Yearbook 2000: Armaments, Disarmament and International Security* 560–575. After the war in Iraq in March–April 2003 it is unclear what role the UN will play in the final confirmation of Iraqi compliance with UN Security Council Resolution 687 (1991). The United States has, thus far, refused the return of the UN inspectors and brought in its own units to uncover Iraq's holdings of unconventional weapons. Up to September 2003, these units did not find any CBW, precursors, or evidence of recent research, development, or production programmes.

[30] Western European Union, Final Act of the Nine Power Conference, London, 28 September–3 October 1954, at <http://www.weu.int/eng/documents.html>.

[31] British Draft Disarmament Convention, 16 March 1933. The relevant passages are available from the SIPRI Chemical and Biological Warfare Project, at <http:// projects.sipri.se/cbw/docs/cbw-hist-britishdraft.html>.

convention. In the summer of 2001 an Ad Hoc Group of States Parties terminated its efforts to negotiate a legally binding protocol, which would have added verification and enforcement mechanisms to the BTWC. The political fallout from this failure all but derailed the Fifth Review Conference (which had to adjourn for one year in 2001), and in November 2002 the parties to the BTWC agreed to a series of expert meetings on specific topics until the Sixth Review Conference in 2006 in order to preserve the process of regularly reviewing the convention.[32] The CWC is the most complex disarmament treaty so far and has elaborate verification mechanisms to certify the destruction of CW and related facilities and the non-production of CW in inspected civilian and military installations. In April–May 2003, the first Review Conference was held.

Both conventions require that no prohibited activities take place on the territory of states parties. The BTWC is less specific than the CWC. It requires only 'any necessary measures' (Art. IV), whereas the CWC requires states parties to incorporate the prohibitions in their penal legislation as part of their national implementation measures (Art. VII). However, the conventions do not mean that all CBW-relevant activities have ceased: states parties are permitted to develop activities that contribute to the defence, protection and prophylaxis against chemical and biological warfare agents.

3 AMBIGUITIES IN THE CONSTRAINTS ON CHEMICAL AND BIOLOGICAL WEAPONS

Historical overviews suggest that the ban on CBW is universal in time and place. It is therefore easy to conclude that the moral and ethical constraints on academics and professionals not to engage in CBW-related activities are straightforward and unambiguous and that people who are involved in such undertakings have a moral and ethical deficit. This conclusion not only dissociates these people from their social and normative environment, but also assumes that the international norms themselves were uncontested.

A linear reconstruction of the growth of constraints against CBW hides a number of important paradoxes. First, codified restraints also reflect past practices: the societies that have developed rules against poison warfare must have either been commonly subjected to such practices or have used poisons themselves. Similarly, many more societies employed poisonous substances in war without moral or legal inhibitions. Second, until very recently the laws and customs of war unvaryingly only forbade the use of poisons and CBW and not poisons or CBW as such. Third, the ban only applied among contracting powers and it ceased to do so as soon as one of the belligerents broke the rule. Against non-contracting powers and non-state actors, poisoning or chemical and biological warfare remained technically

[32] J. Hart, F. Kuhlau and J. Simon, 'Chemical and Biological Weapon Developments and Arms Control' (2003) *SIPRI Yearbook 2003: Armaments, Disarmament and International Security* 646–50.

legitimate. These limits on the scope of the prohibitions, in addition to the doctrines of belligerent reprisal and deterrence, provided governments and military planners with the rationale to set up or continue CBW armament programmes. Finally, restrictions on the use of poisonous substances as implements of war include the belief that the means to injure an enemy are not unlimited. Proponents of CBW programmes have argued that chemical arms are more humane than conventional ones. For example, they can be used to disable rather than to kill. They could also shorten an armed conflict, thereby reducing the overall number of casualties. Novel developments were, therefore, accompanied by suitable humanistic arguments designed to counter opposition based on international rules or moral objections.

The following sections discuss three interrelated factors that have influenced judgments about the justness and need to engage in CBW armament programmes, namely competing legal doctrines, the perception of equality, and technological innovation.

3.1 Competing Legal Doctrines

A historical reconstruction of the prohibition on CBW ignores that at several junctures the direction of the development of international law was far from clear. For instance, in the decades leading up to the First World War two important legal doctrines on the conduct of war competed for prominence. It is widely assumed that war regulations have systematically aimed at restricting the application of violence in combat. Imperial Germany, however, made consistent unilateral statements to the contrary.

In the late 18th and 19th century German literature on 'Kriegsrecht', the law of war, distinguished between 'Kriegsmanier', the conduct of war according to the ordinary customs and laws of war, and 'Kriegsraison', the non-observation of these customs and laws dictated by the necessity of war (*ratio belli*).[33] 'Kriegsraison' took precedence over 'Kriegsrecht'. All proven means that led to the enemy's inability to continue the armed struggle are licit; all acts of violence that do not contribute to this goal are illegal and barbarous.[34] German legal thought considered that all violations of the laws of war ('Kriegsmanier') authorised the enemy to violate these rules as legitimate reprisals.[35] In other words, acts justifiable by 'Kriegsraison' offered no legal grounds for reprisals. This legal opinion was also reflected in military doctrine.[36]

[33] 'Kriegsraison' was rooted in natural law, which placed few restrictions on the means to achieve a satisfactory peace. The concept was discussed by Grotius (*jus s. titulus necessitatis*) and accepted by several 17th and 18th century jurists. G.F. de Martens, *Précis du Droit des gens Moderne de l'Europe, Tome II* (1864) 226 (the first edition was printed in 1788). J.L. Klüber, *Droit des gens Moderne de l'Europe*, reviewed, annotated, and completed by M.A. Ott (2nd edn., 1874) 347. (The first French edition was published in 1819).

[34] F. de Holtzendorff, *Eléments de Droit international Public*, translated by G.C. Zographos from German (1891) 166, and A. Rivier, *Lehrbuch des Völkerrechts* (1899) 393–94.

[35] Holtzendorff, *op. cit.*, 167.

[36] Rivier, *op. cit.*, 399.

International law allowed for breaches of the laws of war based on the fundamental principle of the self-preservation of the state. These breaches, however, were also governed by rules.[37] Extreme necessity, in contrast, occurred when a belligerent could not achieve his war aims or escape an extreme danger if he observed the limitations imposed by the law of war. In order to avert these outcomes, the derogation was justified on the grounds that war was too serious a business and that defeat or ruin were unacceptable outcomes for any state.[38] It authorised under given circumstances the use of all means except for absolute prohibitions explicitly adopted by convention or means of warfare subject to long-time condemnation by mankind, such as poison or items infected by disease.[39] Yet, logically, the principle of extreme necessity could also apply to these cases.[40]

Especially after the 1870–71 Franco-Prussian war 'Kriegsraison' came under international criticism. Article 1 of the 1899 Convention (IV) Respecting the Laws and Customs of War on Land required the contracting states to issue instructions in conformity with the regulations to their armed forces. When in 1902 the German General Staff issued with governmental approval 'Kriegsgebrauch im Landkriege', the instructions met with severe criticism because it appeared to legitimise the 'barbaric forms of warfare of earlier ages'.[41] In particular, the manual emphasised the place of 'Kriegsraison' and made scant, derisory reference to the Hague documents. It warned military commanders against the humanitarian tendencies of the time and referred to the humane principles of the Hague Conventions as 'Sentimentalität und weicheliche Gefühlsschwärmerei'.[42]

'Kriegsraison' as an overruling part of 'Kriegsrecht' remained a long-standing unilateral statement on the conduct of war by Germany. The concept was firmly rejected following Germany's defeat in two world wars. Yet, some of its aspects gained broader international acceptance as part of total war and the envisaged future of offensive strategic air power.[43] The competing legal doctrines explain in part why there was no absolute and unconditional prohibition on CBW use on the eve of the First World War and why there was no universal moral code to guide

37 B. Cheng, *General Principles of Law as Applied by International Courts and Tribunals* (1987) 97–99.

38 The principle as developed by Professor Lueder of the University of Erlangen was discussed at length by the American jurist John Westlake. See L. Oppenheim (ed.), *The Collected Papers of John Westlake on Public International Law* (1914) 244–46.

39 Holtzendorff, *op. cit.*, 67; Rivier, *op. cit.*, 400.

40 Westlake in Oppenheim, *op. cit.*, 246.

41 H. Bonfils and P. Fauchille, *Manuel de Droit International Public*, (7th edn., 1914) 725; and J.W. Garner, *International Law and the World War, Volume 1* (1920) 4–6.

42 Translated by Garner as 'sentimentalism and flabby emotion', *ibid.*, 5.

43 When drawing up the plans for the British air campaigns in 1917 and 1918, Air Marshal Trenchard developed his theories of an air force capable of hitting the enemy heartland without engaging its military forces and viewed the breaking of the enemy's morale, whether military or civilian, as a legitimate military objective. G.H. Quester, *Deterrence Before Hiroshima: The Airpower Background of Modern Strategy* (1986) 52 at 53. Between both world wars air strategists from different countries envisaged an important strategic role for aerial chemical bombardment against towns.

individuals in the preparations for chemical and biological warfare. 'Kriegsraison' provided Imperial Germany with the legal framework for resorting to gas in 1915 when the Western front became stalemated.

3.2 The Principle of Equality

The equality of states irrespective of their territorial size or relative power was one of the fundamental principles in international law that emerged from the 1648 Peace of Westphalia. Sovereign states have defined borders, which should be recognised by other sovereign states. They have an internal hierarchy, which enables the domestic enforcement of their international commitments. This principle led to the recognition of the rights of neutral states and of the status of non-combatants, individuals who do not bear arms as agents of the state. Certain modes of warfare were therefore unacceptable if these rights were to be preserved. This development contributed to the codification of the customs of war, as exemplified by the 1675 Strasbourg agreement.

Other types of societal organization exercised control and jurisdiction over their members irrespective of physical location. In some cases, as in feudal Europe, a variety of authorities claimed the right to govern and exercise jurisdiction over the same space.[44] The universalist religious empire in particular developed a concept of sovereignty that had no territorial boundaries. It was the secular extension of the church and membership of that church was not dependent on physical location. Most importantly, divine sanction implied the existence of only one church. As a consequence, the religious empire rejected the equivalent legitimacy of rival authorities, whether secular or religious. Non-members were infidels and the rules of the church did not concern them.[45] This differentiation based on membership had an important bearing on religiously-inspired codes of conduct in war and on the legitimacy of poison. Therefore, the bans and codes of chivalrous conduct did not apply to heathens. A certain Wulff von Senftenberg expressed reservations about his own proposals for poisonous fumes if used against Christians, but had fewer misgivings as regards use against the Turks or other infidels.[46] De Vitoria, who argued strongly in favour of the rights of the Indian nation in the early days of the Spanish occupation of the Americas, accepted the validity of massacres and atrocities committed against the Turkish Muslims.[47]

Historically, Islam suffered less from the dual source of power than Christianity. The origin of the prohibition on the use of poison on war in Islam is unclear, but the principle probably functioned as in the Christian world. Muslim soldiers are reported to have used toxic, but not necessarily lethal, substances against 'infidels'.

[44] H. Spruyt, *The Sovereign State and Its Competitors* (1994) 34.
[45] *Ibid.*, 35–36.
[46] J. Meyer, *Der Gaskampf und die Chemischen Kampfstoffe* (1925) 277. D.P. Jones, *The Role of Chemists in Research on War Gases in the United States During World War I* (1969) 40.
[47] Barthélemy, *op. cit.*, 33, n. 1.

In 1342, Moors utilised nauseating agents to defend the town of Algeciras in the south of Spain against the siege by Alfonso XI of Castile. Turks employed copper bombs that spread a thick smoke and nauseating smell during the siege of Rhodes in 1522.[48] Arabs reportedly applied ushâr, a heart poison derived from the Asclepiadaceae calotropis procera, on arrows in Africa, although it is not known how widespread its usage was.[49]

Some Islamic legal scholars referred to the principle of military necessity. One jurist, el-Nohekkik, noted that Muslim legal practice forbade – or at least considered improper – the poisoning of wells and rivers, but thought it permissible if victory was unattainable by other means.[50] This view, however, was far from a consensus opinion. Regarding the conduct of warfare classical Muslim jurists distinguished between a functional methodology, which considered ultimate benefits and interests, and a moralistic methodology, which upheld the supremacy of certain principles regardless of practical advantage. A sharp tension existed between these methodologies.[51] It is unclear whether the constraint, as formulated by el-Nohekkik, applied in wars against non-Muslims or whether it regulated warfare among Muslims.

The Bible or the Qur'an do not discuss the ethics of poisoning and consequently do not contain formal prohibitions. Christian or Islamic constraints were most likely derived from other principles, customs or religious writings, or adopted from other cultures. However, they were far from absolute since they did not apply to members of another church. Similarly, the norms of a religious cult may differ significantly from those of the broader society. Cult members may differentiate themselves from the rest of society to such an extent that the elimination of non-members, even on a large scale, can easily be justified. For example, the Japanese Aum Shinrikyo, which carried out the sarin attacks in Matsumoto in 1994 and in Tokyo in1995, held a world view that encourage the use of CBW for apocalyptic purposes.[52]

In modern nation-states nationalism may foster perceptions of superiority, which in turn affect normative behaviour. The German and Japanese societies condoned human experimentation in the 1930s and 1940s because of their perceived racial superiority over their victims.[53] All societies facing existential threats or engaged in war tend to debase the opponent while reinforcing their own values as superior. Nationalism or racism contributes greatly to the lowering of international prohibitions. Consequently, it becomes easier for individual scientists or technicians to justify their engagement in controversial armament programmes.

48 Apffel, *op. cit.*, 242, n. 1.
49 Lewin, *op. cit.*, 555.
50 *Ibid.*, 533.
51 K.A. El Fadl, 'The Rules of Killing at War' (1999) 84 (2) *The Muslim World* 144.
52 J.P. Zanders, 'Assessing the Risk of Chemical and Biological Weapons Proliferation to Terrorists' (1999) 6 (4) *The Nonproliferation Review* 28.
53 U. Deichmann, *Biologists under Hitler* (1996) 321–226; S.H. Harris, *Factories of Death. Japanese Biological Warfare 1932–45* (1994) 45–47.

3.3 Technological Innovation

The 1899 Hague Peace Conference produced two documents establishing international norms regarding chemical warfare. The reference to poisoned weapons in the Convention (II) with Respect to the Laws and Customs of War on Land, on the one hand, and to asphyxiating or deleterious gases in the Declaration (IV, 2), on the other hand, reflected a semantic bifurcation of toxic substances into separate weapon categories. The high level of consensus among the negotiators, as well as the US refusal to sign the Declaration, pointed to the common understanding of the nature of contemporary weaponry.[54]

The use of poison was well-understood in the middle of the 19th century. The listed modes of application included the poisoning of water sources and food provisions, the sending to the enemy armed forces of people, animals or objects infected by diseases, and the use of poisoned weapons.[55] A ban on the use of poison was not controversial and its scope was easily extended to other domains of international law.[56]

The issue of new technologies, such as the use of electricity and chemicals in war, surfaced in various commissions of the 1899 Hague Peace Conference. As there was prior agreement that items not listed in the agenda would be excluded from the discussions,[57] the delegates in various commissions and sub-commissions refused to consider the issue of the application of chemicals in war. (The issue did not refer to explosives as there was an agenda item on new firearms, new explosives and more powerful powders.) During the procedural debate in the First Commission, German representative Col. Gross van Schwarzhoff accepted the Russian point that 'existing methods of war are sufficient', but countered that 'we should not tie our hands in advance so that we should have to ignore more humane methods which may be invented in future'.[58] This statement is remarkable for two reasons. First, it did not reject the use of chemistry in war as repulsive. Instead, chemistry might yield a more humane, morally preferable, weapon. Second, had the negotiators associated chemistry in war with poison they might have included the issue in their deliberations or referred it to the Second Commission, which had the ban on the use of poisoned weapons on its agenda.

Asphyxiating gases also came up in the discussions on new explosives in the Second Sub-commission of the First Commission on naval war. After the defeat of

54 On the common understanding and diverging national interests, see 'Rapport Oral de M. Louis Renault sur les travaux du Comité de Rédaction de l'Acte final, 25 et 27 juillet 1899', in *Rapports Faits aux Conférences de La Haye de 1899 et de 1907* (hereinafter *Rapports*) (1920) 23.

55 Klüber, *op. cit.*, 348.

56 Rapport à la Conférence de la Deuxième Commission relatif aux Lois et Coutumes de la Guerre sur Terre, in *Rapports*, *op. cit.*, 145. See also the debate on Naval Warfare in the Fourth Commission of the 1907 Hague Peace Conference, *op. cit.*, 635.

57 A. Pillet, *Les Conventions de La Haye du 29 Juillet 1899 et du 18 Octobre 1907. Etude Juridique et Critique* (1918) 51.

58 W.I. Hull, *The Two Hague Conferences and their Contribution to International Law* (1908) 180–81.

a proposal to prohibit qualitative improvements in explosives, Russian representative Captain Schéine submitted a new one to ban the use of 'those projectiles whose object is to diffuse asphyxiating gases'. Austria-Hungary, Denmark, France, Great Britain, Portugal and Russia endorsed the proposal on the following grounds:

- the task of the conference being to restrict the means of destruction, it is logical to prohibit 'new' means, especially when they have a barbarous character and partake of treachery and cruelty similar to the poisoning of drinking water;
- directed against a besieged city, they would destroy more non-combatants than ordinary projectiles;
- death from asphyxiation is more cruel than death from bullets;
- means should be sought for putting enemies out of battle, but not out of this world.[59]

Instead of rejecting the discussion on procedural grounds, the Second Subcommission was prepared to outlaw the use in war of asphyxiating gases on the basis of fundamental humanitarian considerations. It believed that their action is perfidious, indiscriminate and cruel. In doing so, it stated that asphyxiating gases were a *new* means of destruction and that its treachery and cruelty was *similar* to that of the poisoning of drinking water. Semantically, the delegates associated asphyxiating gases with technological innovation, which distinguished these substances from poison in the sense of the Hague Convention (II).

This distinction also formed the basis for the US rejection of the Declaration (IV, 2). In a report to his government US delegate Captain Alfred T. Mahan explained the reasons:

> (i) That no shell emitting such gases is as yet in practical use, or has undergone adequate experiment; consequently, a vote taken now would be in ignorance of the facts as to whether the results would be of a decisive character, or whether injury in excess of that necessary to attain the end of warfare, the immediate disabling of the enemy, would be inflicted.
> (ii) That the reproach of cruelty and perfidy, addressed against these supposed shells, was equally uttered formally against firearms and torpedoes, both of which are now employed without scruple. Until we know the effects of such asphyxiating shells, there was no saying whether they would be more or less merciful than missiles now permitted.
> (iii) That it was illogical, and not demonstrably humane, to be tender about asphyxiating men with gas, when all were prepared to admit that it was allowable to blow the bottom out of an iron-clad at midnight, throwing four or five hundred into the sea, to be choked by water, with scarcely the remotest chance of escape. If and when, a shell emitting asphyxiating gases

[59] *Ibid.*, 87–90.

> alone has been successfully produced, then, and not before, men will be able to vote intelligently on the subject.[60]

Mahan believed that the new technological qualities of the weapon might prove decisive in a future war while avoiding superfluous suffering. He viewed technology itself as value-neutral: not the weapon as such, but its mode of application might be immoral. As US Ambassador A. White recorded in his diaries, traditional values and norms ceded to technological imperatives and technocratic arguments.[61] Because of the lack of unanimity, the British also refused to sign the Declaration (IV, 2).[62]

The delegates at the First Hague Conference in 1899 made no direct association between poison and poison gas. They considered the former an ancient barbarous mode of warfare, whose long-standing customary prohibition generated no controversy. In contrast, poisonous or deleterious gases were clearly perceived by all as a novel development spawned by the growing impact of science on society and industry. The negotiators recognised their perfidy and thought that the overall customary rules of humanity in war should also apply to their use. However, technology held out the promise of shortening wars or even of rendering them impossible because of the potential decisiveness of the new weapons in combat. The optimism in progress supported the view that – at least theoretically – such weapons would actually contribute to humanity in war by reducing the overall number of casualties. Therefore, they should not be listed as specifically banned by the customs and laws of war. Declaration (IV, 2) expressed the compromise between both positions. On the one hand, the traditional norms were made applicable to poison gas. On the other hand, the mere act of making poisonous and deleterious gases the object of a separate legal document rather than incorporating them into the regulations regarding war on land in itself constituted their recognition as a novel type of weaponry.

After the First World War, many German and Allied experts and public figures supported the distinction between poisoned and chemical weapons. According to a German opinion, poisoning was an act of war committed by savage peoples,[63] and not by the 'civilized peoples' who had established the Hague Conventions. Chemical weapons, in contrast, were a milestone in civilisation: '[I]f the German Army achieved such great successes in gas battles and gas defence, so this speaks only for its intellectual superiority, but has nothing whatsoever to do with customs and morals'.[64] The Germans thus denied any direct legal or moral link between

[60] *Ibid.*

[61] A.D. White, *Autobiography*, II, 319–20, as cited in Hull, *op. cit.*, 89.

[62] Rapports, *op. cit.*, 175–77. Britain acceded to the agreement during the 1907 International Peace Conference. Several South and Central American states, which had not participated in the 1899 conference, also acceded. The United States remained the only country opposing the prohibition.

[63] R. Hanslian and Fr. Bergendorff, *Der chemische Krieg. Gasangriff, Gasabwehr und Raucherzeugung* (1925) 7.

[64] J. Meyer, *Der Gaskampf und die Chemischen Kampfstoffe* (1925) 273. (Translated from German by the author.)

modern chemical warfare and the savage practice of using poison.[65] An authoritative textbook on international law noted that the restrictions on CW imposed on Germany by Article 171 of the Versailles Treaty had to be interpreted in function of the 'sole purpose' criterion in the Hague Declaration (IV, 2), and made no link to the ban on the use of poisons.[66] The Germans also contended that Article 23(e) of the Annex to the 1907 Hague Convention, which prohibits 'arms, projectiles, or material calculated to cause unnecessary suffering', was not applicable because of the ability to protect against chemical warfare agents. Poisons, in contrast, are administered secretly and the victim is consequently defenceless.[67]

War documents and legal writings from Allied sources demonstrate a similar clear-cut distinction between the Hague Declaration (IV, 2) and the 1907 Hague Convention. After investigating the first German chemical attacks near Ypres in April 1915, Dr. J.S. Haldane never referred to 'poison' in his report dated 27 April 1915 to Earl Kitchener, Secretary of State for War. He wrote about 'asphyxiating gas', 'irritant gas', 'gas', and so on.[68] The XIVth Report by the Commission of Inquiry on the Violation of the Rules of the Rights of Nations, and of the Laws and Customs of War transmitted to the Belgian Minister of Justice, M. Carton de Wiart, on 24 April 1915, similarly referred only to asphyxiating gases and the Declaration (IV, 2) and not to the 1907 Hague Convention.[69]

After the Armistice the Commission on the Responsibility of the Authors of the War and on Enforcement of Penalties, which was appointed to inquire, *inter alia*, 'the facts as to breaches of the laws and customs of war committed by the forces of the German Empire and their Allies, on land, on sea, and in the air,' charged the central powers with no less than thirty-two specific violations, including '(26) Use of deleterious and asphyxiating gases' and '(32) Poisoning of wells'.[70] The accusation of poisoning was highly specific and distinct from that of chemical warfare. Contemporary specialised literature on international law supported a similar differentiation. One leading French publicist cited several specific uses of poison by the Germans: the contamination of wells during the African campaigns and after abandoning positions in northern France in 1917 with arsenic; the repeated throwing of poisoned sweets or other mixtures behind Allied lines from planes; the poisoning of food left behind in abandoned positions, etc.[71] The Allies thus

65 A notable exception was Lewin, *op. cit.*, who as a toxicologist saw no difference between poisons and war gases. He pleaded strongly to extend the historical moral constraints to any use of poison under any circumstance.

66 F. von Liszt and M. Fleischmann, *Das Völkerrecht* (1925) 475.

67 Meyer, *op. cit.*, 37–38.

68 Report dated 29 April, 1915 by Lt. Col. Geo. O. Squier, S.C., Military Attaché, London, entitled 'Asphyxiating Gases' transmitted to the War Department, Office Chief of Staff, War College Division, n° 2463–1, 11 May 1915 (RG 165, WC 2463 series).

69 The text is cited in full in *ibid*.

70 Commission on the Responsibility of the Authors of the War and on Enforcement of Penalties, 'Report Presented to the Preliminary Peace Conference', Versailles, March 1919, reproduced in L. Friedman (ed.), *The Law of War. A Documentary History – Volume I* (1972) 852.

71 P. Fauchille, *Traité de Droit International Public. Tome II: Guerre et Neutralité* (1921) 124.

consistently adopted a distinction between poison and toxic gases similar to the German one.

The semantic bifurcation suggests that the oppositions against CBW may not be as long-standing as that against poison. The then prevalent perception of technology as value-neutral meant that few people would have developed moral or ethical objections against the development and production of especially CW (the understanding of the propagation of diseases was still in its infancy at the end of the 19th century). The moral judgment was reserved for the way in which such weapons were to be used. CW were thus subjected to the general laws and customs of warfare. Moreover, the modernisation ideology supported the belief that CW might actually contribute to the humanisation of warfare. Nationalism and patriotism, combined with a conviction of intellectual superiority, reinforced the belief CW were to certain key sections of society not as morally objectionable as they are today.

4 CONCLUSIONS: THE DIALECTIC BETWEEN PROHIBITION AND PERMISSIBILITY

Contrary to other highly lethal types of weaponry, such as nuclear and certain conventional arms, CBW bear a moral opprobrium, which it is claimed is rooted in their perfidy and insidiousness. They are described as indiscriminate agents of unnecessary suffering and their use is said to contradict the universal and chivalrous principles of conduct in war. The immorality of CBW is often presented as an article of faith. However, this belief system raises the question whether a particular type of weaponry can be intrinsically evil independent of the consequences of its existence and use. In other words, does the physical constitution of CBW differentiate them from other types of weapons? If the reply is affirmative, then it becomes impossible to explain why different periods and cultures did not always agree on which weapons were fair and which were not. An affirmative response also implies the existence of an objective standard by which it can be determined that the use of high explosive for tearing people apart is morally more acceptable or more humane than killing them through asphyxiation or infection.[72] The belief system nevertheless constitutes a reality in decision-making processes: moral and legal constraints have been of critical importance in preventing widespread use of CBW.

Yet, the belief system is not the sole reality; otherwise CBW should logically have been banished a long time ago. Moral codes and laws against the use of CBW have in some cases proved to be insufficient. Often the scope of the prohibition did not cover all the circumstances in which CBW could be used. Moreover, until the entry into force of the BTWC and the CWC, states were not prohibited, under international law, from arming themselves with CBW. Accepting universality, both in time and place, of human abhorrence and moral rejection of CBW at face value leads to an apolitical and ahistorical analysis. It also ignores that popular attitudes

[72] M. van Crefeld, *Technology and War* (1991) 72.

towards chemical and biological weapons were set during and after the First World War.[73] Much of the early history of chemical warfare was written by the Allies and Germans during and just after the war in order to demonstrate that chemical warfare was an ancient mode of combat that merely developed its full potential during the war.[74] Similarly, the post-war inquiry into the history of legal constraints was not neutral as the results served to underpin the position of the opponents of chemical warfare during the *interbellum* and later. By viewing technology as a value-neutral phenomenon the historical analyses treated the ancient and modern modes of chemical warfare in exactly the same manner. The chemical weapon was thus an invariable rather than an expression of the specific synthesis between a culture's technological achievements on the one hand and the mores and norms regarding the application of that technology on the other hand. Taking the ban on chemical and biological warfare as an invariable ignores why civilisations created the prohibition in the first place.

This treatment of CBW as an invariable extends universal contemporary beliefs in time and place. Consequently, there was no compelling necessity to restrain technology itself. The moral judgment was reserved for its application in war, hence the constraints on use. The linear reconstruction of the antecedents of modern chemical warfare and the prohibitions on the use of poison also obscured the past existence of competing legal doctrines and the ambiguities inherent in religious codes because of the absence of perceived equality between belligerents.

For the scientist and the professional, history leaves an ambiguous moral and ethical legacy. The constraints on CBW do not follow from the mere existence of international rules prohibiting their employment, development or possession. They are constantly redefined by the dialectic between prohibition and permissibility as influenced by the international environment in which a society functions. An international rule reflects the highest possible degree of international consensus on a particular prohibition at a particular moment. Dissent consequently also exists and rules may become obsolete. In order to retain its prohibitory quality a rule will require reaffirmation and indeed reinforcement with the passage of time. For the moral or ethical assessment of their activities scientists and professionals must not only be aware of international rules, but also of how these rules evolve.

[73] V.A. Utgoff, 'Preliminary Observation on the Implications of Historical Experience for Future Chemical Warfare', in G.M. Hammerman, *Implications of Present Knowledge and Past Experience for a Possible Future Chemical/Conventional Conflict*, IDA Paper P–1819, prepared for the Office of the Under Secretary for Defence for Research and Engineering (January 1985) B-1.

[74] Jones, *op. cit*, 38.