

THE USE OF WHITE PHOSPHORUS AND THE LAW OF WAR¹

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1. INTRODUCTION

The controversy surrounding the use of white phosphorus (hereinafter WP) by the American armed forces to ‘flush-out’ suspected insurgents in Fallujah, in 2005,³ followed by the use of ‘phosphorous shells’ by the Israeli forces against the Hizbullah ‘in attacks against military targets in open ground’ in Lebanon in 2006,⁴ has led to a renewed interest in the legal status of WP-based munitions. Fear of fire and of burn injury is deeply embedded in the human psyche, so a dislike for incendiary weapons is very natural, especially when women and children are the victims;⁵ but even in the case of combatants, one is entitled to ask whether the ‘laws of humanity, and the dictates of the public conscience’ should not prevail when it comes to anti-personnel uses of such weapons. In the absence of a specific treaty dealing with the use of WP, this article examines the use of such weapons in practice as well as the relevant legal and scientific background before attempting to reach conclusions about their legality.

2. MILITARY ASPECTS

The armed forces have a legitimate requirement for substances that can be used to illuminate a battlefield at night or to provide cover during daylight, to mark a target, to assist in range-finding or to set fire to material targets such as ammunition or fuel stores. WP is suitable for many of these tasks because it ignites easily when exposed to oxygen and produces dense white smoke. Ideal for laying a quick smoke screen, it can also be used as a component of incendiary weapons,⁶ or of tracer,⁷ or to indicate a target or illuminate enemy positions.

WP can be delivered on the target by artillery. However, because of its favourable smoke to weight ratio, WP can also be delivered by mortar, or even hand grenade. In the case of hand grenades, therefore, the decision to use WP may be made well below battalion or battle group headquarters level.

Projectiles are commonly found in one of three forms. Illuminating rounds disperse flares on parachutes. Smoke rounds eject canisters that fall to the ground, burn and emit smoke, or eject felt wedges saturated with WP that fall to the

3. A. Buncombe and S. Hughes, ‘The fog of war – white phosphorus, Fallujah and some burning questions’, *The Independent*, 15 November 2005. J. Wilson, ‘US admits using WP in Fallujah’, *The Guardian*, 16 November 2005. For balance, one should also read the article by A. Dworkin, ‘The use of white phosphorus in Fallujah: was it against the law?’, posted on the website of the *Crimes of War Project* on 17 November 2005 <www.crimesofwar.org/onnews/news-fallujah3-pf.html>.

4. C. Urquhart, ‘Israel admits it used phosphorus weapons’, *The Guardian*, 23 October 2006.

5. The German historian, Jörg Friedrich, in his book, *Der Brand* (Munich, Propyläen 2002) published in English as *The Fire*, translation by Allison Brown (New York, Columbia University Press 2006) has advanced a powerful ethical case against the allied fire-bombing of German cities during the Second World War.

6. It does not burn as fiercely as, say, thermite, so is better used against flammable targets.

7. Because it is luminous in the dark.

ground in an elliptical pattern each emitting smoke. Then there are burster rounds, either with a point-detonating fuse or a time fuse set to detonate at a given height above the ground. These burn with intense heat and emit dense white smoke.

Burning fragments may be attached to fragments of grenades or bombs that have blown apart and, as the munition explodes, the phosphorus itself will be scattered. WP will not be exhausted until it has all reacted with oxygen, so it is likely for individuals in the vicinity of the explosion to be hit by burning fragments.

When WP is used as a component of smoke or illuminating rounds, the risk to personnel is minimal. In the case of illumination, the most efficient burst height is 500 metres, well away from any personnel. Some danger could be caused if the flare is still burning when it reaches the ground but a greater danger is probably from the falling carrier-shell case. A smokescreen, by its nature, is usually created to provide cover in the open unless delivered close the enemy positions to obscure their view prior to an attack.

Even when WP is used for the legitimate purposes outlined above, personnel may be affected by its use. WP is toxic and can cause blistering to the skin and mucous membranes. Burning WP is difficult to extinguish and tends to reignite unless fully smothered. It also gives off phosphorus pentoxide, which can cause chemical burns, and, on contact with water, phosphoric acid, which is corrosive⁸. Smoke inhalation will certainly cause temporary discomfort; further injury or long-term effects will depend on the severity and length of exposure. Apart from being caught in a burning building or vehicle, the greatest health risk is when persons are struck by burning particles of WP. These will quickly burn through clothing and skin, causing painful burn injuries that do not heal quickly.

While people might accept that incidental injury to military personnel caused by uses of WP is just one of those things that happen in war, they are likely to be more concerned about the use of WP directly against personnel.

Both the British and American armed forces extensively used WP-based munitions during World War II⁹ and more recently there has been evidence for the use of its directed application against insurgents in the Middle East.¹⁰ The use of WP

8. Corrosive chemicals visibly destroy and/or irreversibly damage living tissue by breaking down fat and protein in the skin and removing water from affected tissues thus producing significant amounts of heat.

9. J. Emsley, *The shocking history of phosphorus: a biography of the Devil's element* (London, Macmillan 2000) pp. 133-158. Emsley talks of how phosphorus incendiary bullets were first used to bring down Zeppelin bombers, through to the mass production of the original Molotov cocktail containing phosphorus, culminating in phosphorus bombs being dropped on Hamburg during Operation Gomorrah in July 1943. Although the RAF's most effective incendiary weapon was the 4lb magnesium stick bomb, their arsenal included a 30lb phosphorous bomb, which was generally used as an aid to initial ignition, see F. Taylor, *Dresden* (London, Bloomsbury 2004) pp. 112-115. While it might be argued that the Second World War incendiary bombings were directed at material targets, i.e., buildings, there is no doubt that they caused huge numbers of casualties among personnel, mainly civilians.

10. The Israeli daily newspaper, *Haaretz*, reported that Israel had acknowledged the use of white phosphorus shells against Hizbullah targets in Lebanon. Although it was claimed by the Israeli defence minister that white phosphorus was directed against military targets, the President of Lebanon

over various eras of warfare is suggestive of a conscious intent for these munitions to have anti-personnel applications. In fact, the use of WP appears to be on the increase in 21st century warfare. After the initial reports of WP use in Fallujah brought attention to such munitions, heightened awareness has led to subsequent reports of WP deployment during other conflicts. With the Israeli government having admitted to using WP in Lebanon, and the Ethiopian military forces the subject of a report from United Nations arms monitors accusing them of targeting WP bombs against both insurgents and civilians,¹¹ it is difficult to ignore a growing trend towards anti-personnel use of WP.

There seems little doubt that WP was used for anti-personnel purposes in the battle of Fallujah. Indeed, a United States military journal contains the following passage:

WP proved to be an effective and versatile munition. We used it for screening missions at two breeches and, later in the fight, as a potent psychological weapon against the insurgents in trench lines and spider holes when we could not get effects on them with HE.¹² We fired ‘shake and bake’ missions at insurgents, using WP to flush them out and HE to take them out.¹³

The military justification advanced for using WP against combatants in the Fallujah case, therefore, seems to be that it is effective in clearing trenches and dug-outs and, by implication, that it is militarily necessary to use it in such cases where other methods have proved ineffective.

One has to assume that there is nothing in United States military doctrine that restricts anti-personnel uses of WP,¹⁴ so the question arises as to what, if anything, the law of war has to say on the subject.

accused the Israeli Defence Forces of also using WP against civilians in Lebanon. <<http://www.haar.etz.com/hasen/spages/777549.html>>.

11. US, Ethiopia accused over Somalia, *Financial Times* (UK), 27 July 2007, at <<http://cache.ft.com/cms/s/0/2bbc3932-3c60-11dc-b067-0000779fd2ac.html>>.

12. High explosive.

13. From the March-April 2005 edition of *Field Artillery*, p. 26, in an article by Captain James T. Cobb and others entitled ‘TF 2-2 in the FSE AAR: Indirect Fires in the Battle of Fallujah’. *Field Artillery* is a magazine published by the US Army Field Artillery, Fort Sill, Oklahoma.

14. In his article, US Army rules say: ‘don’t use WP against people’, in *The Independent* of 19 November 2005, Andrew Buncombe indicates that there is an instruction manual used by the US Command and General Staff School that states that it is against the law of land warfare to employ WP against personnel targets. He is probably referring to the *Battle Book/ST 100-3*, published in July 1999, which may have been superseded. Chapter 5, section III, dealing with field artillery munitions, refers to various projectiles including: ‘(4) Burst Type White Phosphorus (WP M110A2) rounds burn with intense heat and emit dense white smoke. They may be used as the initial rounds in the smokescreen to rapidly create smoke or against material targets, such as Class V sites or logistic sites. It is against the law of land warfare to employ WP against personnel targets’. However, what is important here is the interpretation of the law of war (which will be examined in the next section of this article) rather than matters of military doctrine. The US Army Field Manual FM 27-10, *The Law of*

3. LEGAL BACKGROUND

The use of weapons is as old as war itself. The law of armed conflict tolerates the use of weapons to incapacitate enemy combatants but has intervened to prohibit certain weapons, or certain uses of weapons, on the grounds of humanity, because their effects go beyond what is militarily necessary. When considering the lawfulness of a particular weapon or its use, therefore, one has to consider, first, whether it has been banned or regulated by an existing treaty and, if not, secondly, whether it has been banned or regulated by general principles of the law of armed conflict.

3.1 Control of weapons under existing treaty law

This is not always as straightforward as it may seem. It can be a matter of interpretation. For example, is WP an incendiary weapon, the use of which would be controlled but not prohibited, or is it poison or gas or a chemical weapon the use of which would be banned under treaty law? Relevant treaties, in outline, are as follows.

3.1.1 *Explosive, fulminating or inflammable projectiles*

The first treaty to deal with weapons was the St Petersburg Declaration of 1868. Here states were concerned about the development of explosive or incendiary bullets for use against the wagon trains of enemy forces. It was felt that these bullets might be used against enemy personnel¹⁵ and cause unnecessary injury.

The Contracting Parties agreed ‘mutually to renounce, in case of war among themselves, the employment by their military or naval troops of any projectile of a weight below 400 grammes, which is either explosive or charged with fulminating or inflammable substances’.

The declaration does not seem to have affected the practice of states in using tracer for range finding, even mixed with normal ammunition, nor the use of small explosive projectiles for anti-aircraft and anti-material uses.¹⁶ It did not prevent states from using four pound, thermite-based incendiary bombs during the Second World War. These, obviously, were more than 400 grammes in weight. Furthermore it could be argued that they were not ‘projectiles’, a term that certainly would not include illuminating flares or smoke canisters.

Land Warfare, Washington, Department of the Army, 1956, in paragraph 36, states that weapons employing fire should not be used ‘in such a way as to cause unnecessary suffering’.

15. See L.C. Green, *The Contemporary Law of Armed Conflict*, 2nd edn. (Manchester, Manchester University Press 2000) p. 134.

16. See e.g., Art. 18 of the draft Hague Rules of Aerial Warfare of 1923.

3.1.2 *Gas*

Later in the 19th century attention was turned to the prospect of gas being used as a weapon. In Hague Declaration 2 of 1899, the states party agreed to abstain from the use of projectiles ‘the sole object of which is the diffusion of asphyxiating or deleterious gases’. The declaration did not prevent the use of canisters for the diffusion of wind-blown gas during the First World War and retaliation in kind.¹⁷ The situation in practice was complicated by the declaration’s general participation clause, which meant that the declaration ceased to apply when a non-party became involved in the conflict, and that may explain later uses in the war of gas projectiles.¹⁸

Building on the 1899 Declaration and the experience of the First World War, the Geneva Gas Protocol of 1925 prohibits ‘the use in war of asphyxiating, poisonous or other gases and of all analogous liquids materials or devices’ and extends this prohibition to the use of bacteriological methods of warfare.¹⁹

Many states entered ‘no first use reservations’ to the 1925 Protocol,²⁰ but it has largely been observed in practice apart from isolated uses, most recently in the war between Iran and Iraq.²¹ Most infamous was the use of chemical weapons by Iraq against its own Kurdish minority population in March 1988.²²

3.1.3 *Poison*

An ancient prohibition, confirmed in Article 23 of the Hague Regulations 1907 concerned the employment of ‘poison or poisoned weapons’.

Writers of the age of enlightenment, basing their views on those of classical antiquity, roundly condemned the use of poison in warfare.²³ Among the many reasons given were that the practice was barbaric, cowardly, treacherous and abominable and rendered death inevitable. Their views were reflected in the Lieber Code of

17. See e.g., the description of the use of pressurised cylinders of chlorine down a favourable wind near Ypres on 22 April 1915 and at Loos on 25 September 1915 in J. Keegan, *The First World War* (London, Pimlico 1999) pp. 214, 218.

18. *Ibid.*, pp. 405, 427.

19. The Protocol has now been reinforced by the ban on the development, production and stockpiling of bacteriological weapons in the Bacteriological Weapons Convention of 1972 and the complete prohibition of chemical weapons in the Chemical Weapons Convention of 1993.

20. The United Kingdom has since withdrawn its reservations, see 6 *YIHL* (2003) p. 643

21. A. Roberts and R. Guelff, *Documents on the Laws of War*, 3rd edn. (Oxford, Oxford University Press, 2000) pp. 156-157.

22. While it might be argued that the Geneva Gas Protocol does not apply to non-international armed conflict, that does not in any way lessen this attack as a crime against humanity.

23. E.g., A. Gentili, *De Jure Belli*, 1612, in the translation by J.C. Rolfe (Oxford, Clarendon Press 1933) at pp. 155-161; or H. Grotius, *De Jure Belli ac Pacis*, in the translation by F.W. Kelsey (Oxford, Clarendon Press 1925) pp. 651-652.

1863²⁴ and in Hague Convention II of 1899²⁵ before finding final expression in the Hague Regulations.

Unfortunately, the regulations contain no definition of poison.²⁶ One can only suppose that the authors and drafters concerned had in mind poison in the vernacular sense of a substance ‘that destroys life by rapid action and when taken in small quantity’.²⁷ If the term is thus interpreted narrowly so as exclude gas, chemical agents and the by-products of nuclear, incendiary and other weapons, it seems to have been generally complied with in practice.

3.1.4 *Incendiary weapons*

The Convention on Certain Conventional Weapons of 1980 acts as an umbrella for several protocols that deal with different types of weapons. Protocol III is relevant to this article. It deals with incendiary weapons, such as flamethrowers, fougasses or munitions containing incendiary substances. It does not cover weapons having incidental incendiary effects, such as illuminants, tracers, smoke or signalling systems; nor does it deal with combined-effects munitions, such as armour-piercing projectiles, fragmentation shells or explosive bombs.²⁸

An incendiary weapon is defined as ‘any weapon or munition which is primarily designed to set fire to objects or to cause burn injury to persons through the action of flame, heat, or a combination thereof, produced by a chemical reaction of a substance delivered on the target’.

The only prohibition the protocol contains that is not already to be found elsewhere in the law of war is the prohibition ‘in all circumstances to make any military objective located within a concentration of civilians the object of attack by air-delivered incendiary weapons’.

That would preclude the type of incendiary bombing that was prevalent during the Second World War. But the protocol does not prohibit anti-personnel uses of incendiary weapons such as flame-throwers or WP.

24. Art. XVI.

25. Art. XXIII of the Annex.

26. According to *The Concise Oxford English Dictionary*, 11th edn., revised 2006, poison is a substance that causes death or harm when introduced into or absorbed by a living organism. A more scientific explanation might be that poison is a substance that can cause illness or death to an individual, usually through chemical reaction, when administered in toxic quantities. A poison can be distinguished from a toxin or venom. Toxins are naturally occurring poisons in nature that are the product of a biological function; venoms are biological toxins that are injected either via a bite or sting. Quantity is an important factor as even innocuous substances such as water or vitamins can be poisonous in excessive doses.

27. *The Concise Oxford English Dictionary*, 5th edn., 1964.

28. In these cases, the incendiary effect is not specifically designed to cause burn injury to persons, rather the weapon is designed for use against military objectives such as armoured vehicles, aircraft and installations.

3.1.5 *Chemical weapons*

Under the Chemical Weapons Convention 1993²⁹ each state party ‘undertakes never under any circumstances ... to use chemical weapons ... and ... not to use riot control agents as a method of warfare’.³⁰

The ban on use of chemical weapons is total. They may not even be used in internal security operations. The ban on riot control agents applies in warfare. That probably means both internal and international armed conflicts. The definition of chemical weapons is complicated, but in essence they are weapons consisting of or containing toxic chemicals or their precursors. A toxic chemical is one which, through its chemical action on life processes, can cause death, temporary incapacitation or permanent harm to humans or animals.³¹ Some such chemicals are listed in schedules to the convention.

3.1.6 *Summary*

There is no treaty dealing specifically with WP. The operative provisions of the St Petersburg Declaration seem to have little relevance today.³² In its advisory opinion on nuclear weapons, the International Court of Justice commented, with regard to Article 23 of the Hague Regulations and the Geneva Gas Protocol of 1925 and to the terms ‘poison or poisoned weapons’ and ‘analogous materials or devices’, ‘the terms have been understood, in the practice of States, in their ordinary sense as covering weapons whose prime, or even exclusive, effect is to poison or asphyxiate. This practice is clear, and the parties to those instruments have not treated them as referring to nuclear weapons’.³³ Had the term ‘poison’ been more widely interpreted, there would have been no need for the Geneva Gas Protocol.

Since the prime purpose of WP is not to gas, asphyxiate or poison, it is not proposed to examine the question of gas or poison further in this article. In sections 4 and 5, WP will be examined in the light of the law relating to chemical and incendiary weapons.

3.2 **General principles**

Even if a weapon, or its use, is not banned or regulated by existing treaty law, attention must be paid to the general principles of the law of armed conflict. Some of these principles have been addressed in treaty law, as follows.

29. Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction 1993 (CWC), which entered into force on 29 April 1997.

30. Art. I.

31. Art. II.

32. See Green, *supra* n. 15, pp. 133-134.

33. 110 *ILR* 163, para. 55.

In the oft-quoted preamble to the St Petersburg Declaration, it was stated that the object of war would be exceeded 'by the employment of arms which uselessly aggravate the sufferings of disabled men, or render their death inevitable'.

Article 23 of the Hague Regulations 1907 prohibited the use of 'arms, projectiles, or material calculated to cause unnecessary suffering (*propres à causer des maux superflus*)'.

This lays down a general standard against which weapons are to be measured, but there is a significant difference between the authentic French text (of a nature to cause superfluous injury) and the English version (calculated to cause unnecessary suffering). Article 35 of Geneva Protocol I of 1977 puts it thus: 'it is prohibited to employ weapons, projectiles and material and methods of warfare of a nature to cause superfluous injury or unnecessary suffering'.

This later expression of the general principle brings together the French and English texts of 1907. The notion of 'calculated to cause' has been dropped, so a higher standard has been imposed.

3.2.1 Applying the general principles in practice

So, to find out about a state's obligations in this regard, it is necessary to look at all the treaty provisions on weapons, whether specific or general, to see if any principles can be detected. One must remember that treaties are generally binding only between states that have accepted them but that they may enunciate principles, which, as a result of state practice over a period of time, have become accepted as legally binding. Such principles are part of customary law.

Probably four³⁴ such principles can be ascertained from a study of the existing treaties: that weapons must not be of a nature to cause unnecessary suffering or superfluous injury; must not be indiscriminate in their effects; must not be treacherous in their nature; and must not be abhorrent to ordinary people.

First, the *unnecessary suffering* principle. 'Unnecessary' in this context means suffering which is not necessitated by legitimate military requirements.

One author, James Spaight, writing in 1911, put it well thus:

The military commander, intent on victory, seeks to employ such instruments as will best achieve the end of war – the disabling of the greatest possible number of the enemy. Death, agony, mutilation – these he would avoid if he could: they are not ends in themselves ... commanders are quite ready to admit the claims of humanity to the extent of foregoing the use of any engine of war whose military effect is disproportionate to the military suffering it entails.

34. C.J. Greenwood, 'Battlefield laser weapons in the context of the law on conventional weapons', in L. Doswald Beck, ed., *Blinding Weapons* (Geneva, ICRC 1993) at p. 72, identifies the first three of these.

That is why Hague Declaration 3 of 1899 specifically prohibited the dum-dum bullet. Its effects went beyond that necessary to incapacitate enemy soldiers. For the same reason, Protocol I was drawn up in 1980 prohibiting weapons that wound by means of fragments that cannot be detected by X-ray. These weapons go beyond incapacitation by making medical treatment extremely difficult.

Nevertheless, unnecessary suffering is an elusive concept that means different things to different persons.

International law's attempts to control weapons have vacillated between prohibitions on specific weapons, which can be circumvented by introducing other weapons that produce the same effects, and the laying down of broad criteria, which can apply to a range of weapons but which give rise to arguments of interpretation. Since neither approach is satisfactory, sometimes the texts are a combination of both approaches. There is a constant striving to balance the military effectiveness or utility of a weapon with the amount of suffering caused by its use to the victim.³⁵ Inevitably, this balancing act involves a comparison of other weapons that are reasonably available³⁶ and their utility and effects. As the late Sir David Hughes-Morgan pointed out, however, consideration of the military utility of a weapon will include taking into account the circumstances in which it is likely to be used, so that at short range a more severe wound may be required to put an enemy out of effective action and that weapons designed to penetrate armour are likely to have devastating effects on the crew of armoured vehicles,³⁷ and that makes it impossible to prohibit weapons which cause injuries exceeding defined limits. The same would be true of bombs designed to crack open bunkers or explode minefields, which may have severe consequences for people nearby. Hughes-Morgan concluded that a weapon would be outlawed by the unnecessary suffering principle when it is 'in practice found inevitably to cause injury or suffering³⁸ disproportionate to its military effectiveness' though other experts thought this too cautious and it would be sufficient if the weapon normally caused disproportionate suffering or injury.³⁹

Medical staff of the International Committee of the Red Cross put forward a more scientific test for assessing unnecessary suffering or superfluous injury. They

35. *Ibid.*, p. 76, Greenwood rejects the notion that the effects on the victim's society should also be taken into account.

36. It might not merely be in the realms of science fiction, for example, for one country to develop and deploy a weapon system which temporarily incapacitates enemy combatants without any lasting effects but which is so expensive that it is beyond the means of most states in the world.

37. Colonel (later Major General and later still Judge) Sir David Hughes-Morgan, Bt., C.B., C.B.E., 'Legal Criteria for the Prohibition of or Restriction of Use of ... Conventional Weapons, a paper for the Lucerne Conference of Government Experts', 1974 [unpublished].

38. Hughes-Morgan considered 'suffering' too subjective a test and that it would be better to concentrate on injury. His views seem to have been shared by the late Major General Scott, a surgeon, see R. Scott, 'Unnecessary suffering – a medical view', in M.A. Meyer, ed., *Armed Conflict and the New Law* (British Institute of International and Comparative Law 1989).

39. Report of the Conference of Government Experts on the Use of Certain Conventional Weapons, Lucerne Session, ICRC, (1974) para. 28.

suggested that if, as a result of their design, weapons cause foreseeable effects falling within one of four categories, such weapons would fail the test.⁴⁰ This is an interesting idea that helps to some extent in the quantification of unnecessary suffering, though it does not take full account of the military necessity side of the equation such as the concerns expressed by Hughes-Morgan, namely that weapon use must be seen in its context. That includes factors such as the normal use of the weapon (weapons designed for use against material targets might cause incidental effects to personnel that exceed the proposed scale), the tactical situation, the urgency of the situation and the requirement for a soldier to be able to defend himself.

Secondly, the *discrimination* principle, which requires attacks to be directed against military objectives without disproportionate incidental damage to civilians and civilian property. Some critics challenged the use of anti-personnel landmines on this ground. If not fitted with self-destruct or self-neutralising mechanisms, these mines could present a danger to civilians, not only during an armed conflict but also for years afterwards. Similarly, because of the danger to civilians they pose, the use of air-delivered incendiary weapons against targets in populated areas is prohibited. For the same reason, concerns have been expressed about the use of cluster bombs.⁴¹

Thirdly, the *perfidy* principle, which forbids treacherous activity. This is probably the rationale behind the international prohibition of the use of poison, poison gas, chemical and biological weapons.

Fourthly, more controversially, and perhaps a sub-division of the third, is the principle that some weapons are not socially acceptable or are contrary to a sense of propriety.⁴² This could be termed the *abhorrence* principle. Anti-personnel blinding laser weapons probably fall into this category whatever their military utility, if responsibly used, might be.

Various tests that have been proposed for translating the general principles here outlined into useable rules. The US Operational Law Handbook suggests: 'Is the suffering occasioned by the use of the weapon needless, superfluous, or grossly disproportionate to the advantage gained by its use?'⁴³ The UK Ministry of Defence Manual proposes as the correct criterion 'whether the use of a weapon is of a nature to cause injury or suffering greater than that required for its military purpose.'⁴⁴

40. R.M. Coupland, ed., *The SirUS Project* (Geneva, ICRC 1997).

41. At the time of writing this article (29 May 2008), there are reports in the newspapers that a treaty banning cluster bombs has been negotiated in Dublin, see for example, C. Brown in *The Independent* of 29 May 2008.

42. Doswald-Beck, *supra* n. 34, p. 85. See also Gentili, *supra* n. 23, on poison.

43. UK Ministry of Defence, *The Manual of the Law of Armed Conflict* (Oxford, Oxford University Press 2004) p. 7-23.

44. *Ibid.*, para. 6.2.

In considering these tests, it is necessary to consider the following subsidiary questions and advice may be needed not only from military and ballistic experts, but also experts in the treatment of wounds or in forensic pathology:

- What is the military purpose for which the weapon is being used?
- What are the likely effects of such use on enemy combatants?
- Does this go beyond what is necessary to achieve the military purpose?
- Is that out of proportion to the military utility of the weapon?
- Is the effect of the weapons likely to be considered abhorrent by ordinary people?

The idea is to strike a balance between the military utility and the effects of use of the weapon. This balancing act involves a comparison of other weapons that are currently available, their utility and effects.

4. WP AND THE CHEMICAL WEAPONS CONVENTION

Continued calls by politicians of various states to condemn the use of WP as a direct contravention of the Chemical Weapons Convention (CWC) raise the question of whether WP can, and should, be classed as a chemical weapon so as to be subject to the restrictions set out in the CWC. The first step, therefore, is to look at the criteria for classification of weapons as chemical weapons under the CWC.

4.1 **Basis for designating chemical weapons**

Although WP is by its very nature a chemical, its use during warfare does not necessarily result in its classification as a chemical weapon. To determine whether WP is prohibited under the terms of the CWC it would have to be shown that not only is WP *de jure* a chemical weapon as defined by the convention but that its military uses are also proscribed by the treaty.

From the general obligations in Article I(1), the CWC amounts to a comprehensive ban on certain activities regarding the development, production, stockpiling and use of chemical weapons:

Each State Party to this Convention undertakes never under any circumstances:

- (a) To develop, produce, otherwise acquire, stockpile or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone;
- (b) To use chemical weapons;
- (c) To engage in any military preparations to use chemical weapons;
- (d) To assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Convention.

However, this apparent total ban has to be read in the light of Article II, the definitions and criteria that provide the foundation for the CWC, and Article VI, which defines the purposes not prohibited under the convention.

In order to understand which uses, if any, of specific chemicals are permitted, then one must look at WP using the criteria set out in the CWC. We must first turn to Article II(1), which provides an initial definition of such munitions.

Article II(1)(a) classes ‘chemical weapons’ as:

[t]oxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes.

To all intents and purposes, any toxic chemical, along with its precursor components, is a chemical weapon; the sole exception lies with those toxic chemicals applied in a manner that is not prohibited under the CWC, which escape definition as a chemical weapon. There is no dependency on a military context for this definition.

Paragraph (b) of the same Article touches on the methods of deployment for those toxic chemicals covered by paragraph (a) such that any munition or device that is ‘specifically designed’ to cause death or harm as a result of a chemical component can be classified as a chemical weapon:

(b) Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in subparagraph (a), which would be released as a result of the employment of such munitions and devices;

It has always been the assertion that WP and its derivatives are incendiary devices designed for the purposes of illumination or obscurant, such that it would fail to fulfil the condition of a ‘specifically designed’ chemical weapon.⁴⁵ As Article II(1) (b) is not relevant to WP munitions, so paragraph (c) of the same article is equally inapplicable:

(c) Any equipment specifically designed for use directly in connection with the employment of munitions and devices specified in subparagraph (b).

Despite its failure to meet the conditions of Article II(b) and (c), WP may still be classed as a chemical weapon as the initial statement of Article II – “Chemical Weapons” means the following, together or separately’ – permits each Article II definition to be applied independently of the others.

Had paragraph (a) based the ‘purposes not prohibited’ on the primary design rather than any potential use (which we shall see later is a feature of conventions dealing with incendiary devices) then WP would fail to fulfil the requirements of a chemical weapon. Its design is that for the production of a smokescreen or illumination, thus had Article II(1)(a) read: ‘[t]oxic chemicals and their precursors,

45. <<http://news.bbc.co.uk/1/low/world/americas/4483690.stm>>; <<http://news.independent.co.uk/world/americas/article327379.ece>> accessed on 5 August 2006.

except where *designed* for purposes not prohibited under this Convention...’, then WP would have been outside the jurisdiction of the CWC. Regardless of its intended primary purpose – be it for illumination, as an obscurant or to force enemy combatants out of hiding – there is potential for WP to be classed as a chemical weapon as a result of satisfying the requirements of Article II(1)(a).⁴⁶

Article II(1)(a) raises two focal points: which substances can be classed as ‘toxic chemicals’ and, as a result of this categorisation, which activities with such chemicals can be classed as not prohibited under the Convention? Dealing with the former first, Article II (2) provides that:

‘Toxic Chemical’ means: [a]ny chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions or elsewhere.

What distinguishes a toxic from a harmless chemical is its ability to cause varying degrees of incapacitation as a result of its adverse actions on normal physiological activity.⁴⁷ However, as Article II(1)(a) states, this is not restricted solely to the deployed toxic chemical, but also to its derivatives and those chemical components used to manufacture the toxic chemical.⁴⁸ The final restriction of paragraph (a) provides that regardless of whether the chemical was intentionally produced or is the waste or by-product of an industrial or any other process, it is still classed under the CWC as a ‘toxic chemical’.⁴⁹

4.2 WP as a chemical

In order to determine if WP fulfils the requirements of a toxic chemical, it is practical to look at what constitutes WP and its related chemical reactants.⁵⁰ WP is highly reactive with oxygen such that it ignites immediately upon contact with

46. CWC, Art. II(1)(a): “‘Chemical Weapons’ means the following, together or separately’.

47. Meaning normal bodily functions. CWC, Art. II, para. 2.

48. CWC, Art. II, para. 1(a).

49. CWC, Art. II, para. 3: ‘[a]ny chemical reactant which takes part at any stage in the production ...’.

50. WP is an allotrope of the element phosphorus such that they are chemically identical; however they exhibit distinct physical forms. A more common example of an allotrope is that of carbon. Coal, graphite and diamond are all composed of pure carbon but the element is in varying conformations. Variation in how individual carbon atoms link together will determine the final structure that is formed. The same holds true for phosphorus. D.D. Ebbing and S.D. Gammon, *General Chemistry*, 6th edn. (Boston, Houghton Mifflin 1999) at p. 969.

air.⁵¹ This reaction leads to the formation of a chemical by-product⁵² that rapidly absorbs even minute amounts of moisture from the surrounding environment, be it water from the air or that found in the tissues of an individual exposed to fragments of burning WP.⁵³ It is this absorption of water that leads to the formation of an effective smokescreen.⁵⁴

WP must detrimentally affect 'life processes' as a result of its chemical action so as to satisfy the required conditions for classification as a 'toxic chemical'.⁵⁵ The common assertion by various States' armed forces has been that WP is primarily an incendiary device and any subsequent injury as a result of exposure to WP, most likely to be skin and tissue burns, are a secondary effect due to the heat produced by burning phosphorus rather than a direct chemical interaction with an individual's physiology.

However, this premise is based on the most immediate, superficial injuries that may result from exposure and does not take into account the systemic and long-term effects that could arise from inhalation, oral or dermal (skin) exposure. Without digressing into a comprehensive review of the medical literature, a toxicological profile of WP, prepared by the US Agency for Toxic Substances and Disease Registry, provides a perspective on the extent of WP-related injuries.⁵⁶

Initial dermal exposure to burning WP will immediately result in local tissue destruction of the outer layers of the skin.⁵⁷ Depending on the quantity and size of WP particles an individual is exposed to, burn damage can continue beyond the superficial layers of the skin, penetrating deep into muscle tissue and on occasion as far as any underlying bone, until the burning WP is extinguished due to a lack of oxygen.⁵⁸

Using animal models, it has been shown that WP burns result in a vastly increased mortality rate compared to non-phosphorus burns.⁵⁹ Additionally, studies

51. *Ibid.* An everyday example of the phosphorus/oxygen reaction, and subsequently ignition, is the traditional safety match. In the mid-19th century, the match commonly contained white phosphorus. However, due to its toxicity, white phosphorus was subsequently banned from the production of matches by a number of European countries towards the end of the 19th and beginning of the 20th century. The safety match now contains the less toxic allotrope, red phosphorus, see Emsley, *supra* n. 9.

52. The by-product that is formed is phosphorus pentoxide.

53. *Ibid.*, at p. 970.

54. *Ibid.*

55. See above section 4.1.

56. *Toxicological Profile for WP*, prepared for US Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, September 1997, at <<http://www.atsdr.cdc.gov/toxprofiles/tp103.pdf>>.

57. *Ibid.*, at section 2.1, paragraph 4-5.

58. NATO Handbook, *Emergency War Surgery*, Part I, types of wounds and injuries, chapter III, burn injury, chemical burns and white phosphorus injury, US Government Printing Office, February 1988.

59. This is attributed to increased levels of phosphorus in the blood, which will lead to reduced levels of calcium. It is known that changes in normal physiological ratios of calcium/phosphorus can lead to potential lethal effects on heart function. *Ibid.*, at section 2.2.4.1, paragraph 2-3.

on individuals accidentally burned by WP have shown that dermal exposure can result in liver and kidney abnormalities.⁶⁰ The by-products of WP reacting with oxygen⁶¹ also contribute to the burn damage of the skin by absorbing moisture from local tissue and causing corrosive action.⁶²

Military physicians in the United States have also attempted to outline the extent of damage caused by various forms of exposure to WP.⁶³ An interesting point is that they qualify the chemical as an ‘extremely toxic’ substance. In their analysis, the effects of exposure to WP smoke can range from mild irritation, as a result of short-term exposure, through to those injuries sustained as a result of ‘continued’ exposure. Although lacking any definitive time-scale, continued exposure leads to a number of injuries that are related to the inherent toxicity of the chemical and could not be solely attributed to burns of the skin resulting from thermal exposure to ignited WP.⁶⁴

Recalling that the CWC definition of a toxic chemical is one that, via its chemical interaction with an individual’s physiology, causes temporary incapacitation – albeit without any qualification as to what this may include – then surely even mild irritation from exposure to WP smoke would justify its inclusion in the chemical weapons category.

In sum, there are a number of negative effects on human and animal physiology that occur, through various routes of exposure, as a direct result of WP chemical interactions. As a result of the above analysis, and using the definition of Article II (2), WP could be classified as a ‘toxic chemical’ and thus it has the potential to be classed as a chemical weapon under Article II(1)(a).

4.3 **Purposes not prohibited**

Toxic chemicals may be employed without contravention of the CWC provided that such uses fall within the remit of the purposes not prohibited. For the use of WP in warfare, Article II (9)(c) provides that toxic chemicals may be used for:

Military purposes not connected with the use of chemical weapons and not dependent on the use of the toxic properties of chemicals as a method of warfare.

60. *Ibid.*, at section 2.2.4.2, paragraph 6-9.

61. These by-products are phosphorus pentoxide and phosphoric acids.

62. *Ibid.*, at section 2.2.4.2, paragraph 10-11. The inflammatory action as a result of exposure to these chemicals is a physiological response in which the body actively attempts to remove the harmful agent. An over-vigorous inflammatory response may actually result in further damage to the individual.

63. US Army Center for Health Promotion and Preventive Medicine, Detailed Facts About White Phosphorous, at <<http://chppm-www.apgea.army.mil/dts/docs/detwp.pdf>>.

64. These include: bronchitis, persistent coughing, severe burns, weakness, anemia, loss of appetite, and possibly pneumonia. Exposure can also cause thirst, cyanosis, abdominal pain, jaundice; acute poisoning produces shock, coma and death in a short time (symptoms may subside and then return); liver and kidney damage may occur.

Having previously classified WP as a *de jure* chemical weapon, due to its negative interactions with human physiology, then the first part of Article II(9)(c) – military purposes not connected with the use of chemical weapons – would provide a blanket prohibition on the use of WP regardless of the military context. However, the subsequent condition – not dependent on the use of toxic properties – relaxes the initial stringency by requiring that any military deployment must not be actively reliant on the adverse effects of chemical weapons. As the traditional deployment of WP is for illumination or for the production of a smokescreen then this legitimate use cannot be prohibited as it does not rely on the toxic properties of WP.

What if WP were deployed with a dependency on the non-toxic capabilities of the chemical but in the knowledge that any human exposure was inherently toxic? Accepting the proposition that, in the context of any conceivable anti-personnel application, WP is a chemical weapon as a result of its fulfilment of Article II(1) and (2) criteria, then it still falls short of prohibition when engaged in ‘shake and bake’ tactics. Such tactics use the incendiary and smoke properties of WP deployment and thus are ‘not dependent on the use of the toxic properties’ of the substance, therefore working within the framework of Article II(1) and (9)(c).

Regardless of whether toxicity occurs as a side effect of the WP deployment, the use of toxic chemicals is still permissible provided that the military purposes did not primarily rely on the toxic properties of the munitions. As a result of the inclusion of this provision, the CWC fails to ensure adequate protection against the use of WP munitions.

The only remaining criteria to determine the permissibility of use of WP-based mutations would be those of Article II(1)(b), which does not take ‘purposes not prohibited’ into account and provides a blanket prohibition on munitions ‘specifically designed to cause death or other harm through the toxic properties...’ There has been no known re-design of munitions currently in use in order to take advantage of a harmful chemical component.

Although it appears difficult to quantify the amount of WP that may be employed during warfare, it could be taken that any restriction in quantity, stemming from Article II(1)(a), refers to each individual incendiary device rather than attempting to confine the total amount deployed in conflict. Thus, referring back to the assumption that there has been no radical change in engineering then it is likely that the types of devices and quantity of WP used would fall within the boundaries imposed by Article II.

Consequently, the ‘purposes not prohibited’ outlined in the Convention appear to proscribe the use of chemical weapons in warfare only when there is an attempt to exploit the adverse chemical effects of the munitions. Even though there may be unwarranted side-effects of deploying WP as a smokescreen or incendiary, the CWC appears to fall short by failing to ensure that all possible effects of WP deployment are prohibited whether they are intended or not.

5. WP AS AN INCENDIARY WEAPON

As previously mentioned, the general assertion by various States' military authorities has been that WP munitions should be classed as incendiary devices. Thus, a more specific application of international law would fall to the Convention on Certain Conventional Weapons (CCW)⁶⁵, specifically Protocol III.⁶⁶

Incendiary devices, as the very name suggests, are those designed to ignite objects or cause burn injuries to a person. Nevertheless, there is still debate as to whether Protocol III actually includes WP as a prohibited incendiary device, despite it seeming at first sight obvious that it should be so included. That is because munitions that have an *incidental* incendiary effect are not included in the primary definition of incendiary devices. It is necessary, therefore, to consider, in respect of each weapon or munition, its primary purpose and whether any incendiary effect is incidental to that primary purpose.

US military perception appears to be that WP is considered a conventional weapon capable of being used in an anti-personnel role, even making use of its burning properties:

It's part of our conventional-weapons inventory and we use it like we use any other conventional weapon.⁶⁷

Following on from this:

U.S. forces used white phosphorus both in its classic screening mechanism and (as an incendiary device) ... when they encountered insurgents who were in foxholes and other covered positions who they could not dislodge any other way.⁶⁸

And finally:

(It) can also function as an antipersonnel flame compound capable of causing serious burns.⁶⁹

In contrast, the UK government has asserted that the use of WP during combat is strictly reserved for screening purposes and that advantage is not taken of its incendiary capabilities.⁷⁰ Differences in practice may reflect the fact that ratification of the Incendiaries Protocol has yet to be effected by the USA.

65. See above.

66. See above.

67. Reuters Dispatch, Wednesday, 16 November 2005, 23:38:30 h.

68. Ibid.

69. *Supra* n. 56.

70. BBC News 'WP: weapon on the edge' accessed on 05 August 2006, at <<http://news.bbc.co.uk/1/hi/world/americas/4442988.stm>>.

If WP is a component of a munition that is specifically designed to cause burn injury to persons or to set fire to objects, then that would certainly make it an incendiary weapon covered by the protocol; but not, it seems, if the munition is designed to provide illumination of the battlefield or of a target or to provide a smokescreen, even if that munition is then used directly against personnel.

Casting back to the explanation earlier in this article on its action, it must be recalled that upon contact with air, WP ignites and as a result of this combustion produces hygroscopic⁷¹ by-products that rapidly form a dense smoke. Therefore, it is clear that the incendiary effects of WP are primarily for the production of smoke. Aptly put, there is indeed no smoke without the initial fire.

However, given possibly regular anti-personnel uses in practice, some might argue that WP munitions have been designed in the knowledge that they could serve in an anti-personnel role as well as for illumination or for a smokescreen. Its design then would be one with neither a sole primary purpose as a screening agent, nor as an incendiary device, but in the knowledge that the 'standard' function will be to provide a rapid smokescreen or illumination with the potential for anti-personnel incendiary uses.

If it is an applied incendiary effect that is intended during military deployment then by that very definition such an effect cannot be considered to be incidental. It would be difficult then to justify reasoning that would suggest that WP munitions are exempt from Protocol III solely as a result of their categorisation as, for example, a 'smoke system' identified in paragraph (b), particularly when this incendiary effect is put to direct effect in warfare. This view is supported by Reyhani, in an online publication, where he states 'those qualities [incendiary effect of WP] were the primary purpose of their use' and therefore should not be held to be an incidental effect of WP deployment.⁷² However, Reyhani goes a step further by asserting that, as the use of WP in 'shake and bake' tactics has no other purpose other than to exert the incendiary properties of WP, then it must fulfil the Protocol III Article 1 (1) definition of an incendiary weapon that is 'primarily designed to set fire to objects'.⁷³ Yet when trying to make this point, his analysis inadvertently highlights that it is an exploitation of WP incendiary devices rather than the use of munitions explicitly designed for 'shake and bake' tactics.⁷⁴

Nevertheless, this argument may be academic since Protocol III of the Convention on Conventional Weapons is not intended to prohibit incendiary devices but to better regulate military conduct to ensure the protection, amongst others, of civilians in conflict. Indeed, the protocol does not prohibit anti-personnel uses of incendiary weapons so long as they are directed against combatants.

71. I.e., water-absorbing.

72. R.O. Reyhani, *The Legality of the Use of White Phosphorus by the United States Military during the 2004 Fallujah Assaults*, Berkeley Electronic Press, at <<http://law.bepress.com/expresso/eps/1959>>, p. 88.

73. Ibid.

74. Ibid., Reyhani goes on to say that: 'Its employment was not as its other purpose of a smokescreen, rather, its utilization involved an intention to *exploit* its incendiary qualities.' (emphasis added).

6. CONCLUSIONS

6.1 **Incendiary weapons**

If used as part of an incendiary weapon, WP would fall within the controls of the Incendiary Weapons Protocol,⁷⁵ so for parties to the protocol, incendiary weapons may not be used:

- a. against civilians or civilian objects;
- b. against military objectives within concentrations of civilians unless clearly separated from them; nor
- c. against forests or other kinds of plant cover unless they are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives; and
- d. air-delivered incendiary weapons may not be used at all to attack military objectives within concentrations of civilians.⁷⁶

The definition of incendiary weapons excludes weapons having incidental incendiary effects as well as combined-effects munitions.

For states, such as the United States, that are not parties to the Incendiaries Protocol, sub-paragraph a above would be binding as a matter of customary law. Though the remaining sub-paragraphs would not be binding as such, states not party would still have, first, to verify that the object to be attacked was a military objective and, secondly, to observe the rule of proportionality with regard to any incidental death, injury or damage.⁷⁷

It follows that the use of incendiary weapons against military objectives such as fortified military positions may be perfectly legitimate, even if that has horrible consequences for the enemy military personnel inside. Furthermore, there is nothing in treaty law to suggest that the use of incendiary weapons directly against military personnel is prohibited.⁷⁸

The authors of the Rules of Customary International Humanitarian Law, while, seemingly, not taking issue with the legitimacy of use of incendiary weapons against military objectives, such as field fortifications, put direct anti-personnel

75. The US is not a party to this protocol.

76. Incendiaries Protocol, Art. 2, para. 2.

77. It should be noted here that there has been some criticism of the formulation of the rule of proportionality in the rules of customary law published in 2005 by the International Committee of the Red Cross, see G.H. Aldrich, 'Customary international humanitarian law – an interpretation on behalf of the International Committee of the Red Cross', 76 *BYIL* (2005) p. 503, at p. 510.

78. See Reyhani, *supra* n. 72, p. 69. It is true that some legal writers have condemned as unlawful anti-personnel uses of incendiary weapons, either as causing unnecessary suffering, see L. Oppenheim, *International Law*, Vol. II, 7th edn, by H. Lauterpacht (London, Longmans 1952) p. 340, or as rendering death inevitable, see M. Greenspan, *The Modern Law of Land Warfare* (Berkeley CA, University of California Press 1959) p. 361 but in neither case is there a discussion in the context of the concepts of unnecessary suffering or inevitable death.

use, *prima facie*, in the form of a prohibition, saying that incendiary weapons may not be used against combatants ‘unless it is not feasible to use a less harmful weapon to render a person *hors de combat*’. They explain the practice would be prohibited ‘if such use would cause unnecessary suffering, i.e., if it is feasible to use a less harmful weapon to render a combatant *hors de combat*’.⁷⁹ This formulation is said to be based on the general principle prohibiting means and methods of warfare which are of a nature to cause superfluous injury or unnecessary suffering and that the words ‘unless it is not feasible’ make room for military necessity.⁸⁰ It has, however, been criticised as being based on unconfirmed state practice, not on a treaty provision, and because it does not take account of the possible application of the doctrine of military necessity.⁸¹

The reference to rendering a person *hors de combat* seems, in any event, to cover only rare cases since incendiary weapons are generally deployed against military objectives rather than individual combatants.

The unnecessary suffering principle certainly cannot be ignored. The International Court of Justice has attached great importance to it as one of the cardinal principles of humanitarian law. According to the court’s formulation, ‘it is prohibited to cause unnecessary suffering to combatants: it is accordingly prohibited to use weapons causing them such harm or uselessly aggravating their suffering’. However, the meaning of *unnecessary* suffering is important. The court explained that this meant: ‘a harm greater than that unavoidable to achieve legitimate military objectives’.⁸²

The legal formulation to be found in the UK Manual, which states, ‘although these weapons can cause severe injury to personnel, their use is lawful provided the military necessity for their use outweighs the injury and suffering their use may cause’,⁸³ seems better to reflect the opinion of the International Court of Justice. The guidance on the direct anti-personnel uses of incendiary weapons that appears later in the UK Manual⁸⁴ is probably meant to be a statement of UK policy as to practice rather than as to law.

79. J.-M. Henckaerts and L. Doswald-Beck, *Customary International Humanitarian Law*, Vol. 1 (Cambridge, Cambridge University Press 2005) Rule 85, pp. 289-291.

80. J.-M. Henckaerts, Customary international humanitarian law – a rejoinder to Judge Aldrich, 76 *BYIL* (2005) p. 525, at p. 531.

81. D. Turns, ‘Weapons in the ICRC study on customary international humanitarian law’, 11 *JCSL* (2006) p. 201, at pp. 232-233. See also Aldrich, *supra* n. 77, at p. 521.

82. Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons of 8 July 1996, 110 *ILR*, p. 163, at p. 207.

83. Para. 6.12.1.

84. Para. 6.12.6 states: ‘Use of weapons such as napalm and flamethrowers against combatant personnel is not dealt with specifically in the Conventional Weapons Convention or any other treaty. Such uses are governed by the unnecessary suffering principle so that they should not be used directly against personnel but against armoured vehicles, bunkers, and built-up emplacements, even though personnel inside may be burnt. The same applies to white phosphorus, which is designed to set fire to targets such as fuel and ammunition dumps or for use to create smoke, and which should not be used directly against personnel.’

6.2 Chemical weapons

Military authorities maintain that WP is not a chemical weapon, rather it is a munition that happens to contain an intrinsic chemical component, whilst non-state actors, horrified by its perceived effects, consider that it must be prohibited by the CWC as a result of nothing more than its fundamental nature as a weaponised chemical. However, it appears that not much thought has gone into the possibility that WP may be a chemical weapon which has a legitimate purpose outside of those proscribed by treaty.

It is to be hoped that this analysis serves to qualify a statement, regarding the legitimacy of WP, made by the spokesman of Organisation for the Prohibition of Chemical Weapons (OPCW), which oversees the application of the CWC:

WP is normally used to produce smoke [...] if that is the purpose for which the WP is used, then that is considered under the Convention legitimate use [...] (if) the caustic properties, are specifically intended to be used as a weapon, that of course is prohibited.⁸⁵

Although this declaration forgoes explicitly identifying it as a chemical weapon, the OPCW recognises that there are two sides to the legitimacy of WP-based munitions.

6.3 Final remarks

It follows from the above discussion that, even if WP were classified as an incendiary weapon, there would be nothing unlawful, stemming from Protocol III, about the ‘shake and bake’ tactics adopted to clear fortified areas or entrenchments of enemy military personnel if that were the only way such military objectives could be neutralised. It is to be hoped, however, that attention will be paid to the principle of humanity and the dictates of public conscience when contemplating anti-personnel uses of WP, so that such decisions would be exceptional, when no alternative form of action is feasible, perhaps authorised only a suitably high level in the command chain. It should never become a matter of routine.

An analysis of the Chemical Weapons Convention has been less straightforward in that it demanded an interpretation of multiple aspects of the treaty before the legal status of WP could be fully determined. As the CWC does not insist that its definition of a ‘toxic chemical’ and ‘chemical weapon’ is solely confined to military applications, then, as we have seen, WP, due to its various harmful physiological interactions, is *de jure* a toxic chemical. By fulfilling that definition it has potential to be classed as a chemical weapon if it is then used for purposes that are proscribed by the treaty.

85. *Supra* n. 71.

However, further conditions are imposed that prevent its outright classification as a chemical weapon. It would appear that WP only becomes a chemical weapon insofar as it is applied in a prohibited manner. Thus, although WP deployment as a smokescreen may have adverse physiological consequences, unless its application was a conscious attempt to take advantage of its toxic properties, then its use is one that is not prohibited. Thus contextually it is not a chemical weapon.

There is a clear need for further insight into the international legal status of WP, with particular input from those States involved in conflict or whose armed forces are employed on extraterritorial duty. Nevertheless, current research into strengthening the Chemical Weapons Convention appears to overlook the flawed flexibility relating to the purposes by which chemical weapons may be legitimately used and should attempt to address the issue of munitions that have a secondary toxic effect even when their use is not dependent on the weapon's inherent toxicity.⁸⁶ It is an issue that has to be decisively addressed if chemical weapons are going to receive adequate prohibition.

86. The Harvard-Sussex Programme on Chemical and Biological Weapons, Draft Convention, at <<http://www.sussex.ac.uk/Units/spru/hsp/Harvard-Sussex-Program-draft-convention.htm>>.