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Unnecessary Suffering, The Red Cross and Tactical Laser Weapons

BURRUS M. CARNAHAN*

I. INTRODUCTION

[B]linding as a method of warfare is a superfluous injury and a cause of unnecessary suffering, both of which are prohibited under existing international humanitarian law.¹

In May 1995, as part of its campaign efforts, the International Committee of the Red Cross (ICRC)² emphatically agreed with this general assessment of blinding laser weapons.³ This action was a striking policy departure for the ICRC. For the first time in its history, the ICRC publicly denounced a specific method of warfare as a violation of international law.⁴

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1. INT'L COMM. OF THE RED CROSS, BLINDING WEAPONS 7 (1995) [hereinafter ICRC BLINDING WEAPONS].

2. The ICRC founded the Red Cross movement in Geneva, Switzerland in the 1860s, to care for sick and wounded soldiers during wars. It is international in scope only in humanitarian activities. The ICRC is a Swiss nonprofit corporation whose governing body has always been composed entirely of Swiss citizens. The Swiss government provides the majority of its budget. The ICRC should not be confused with other elements of the Red Cross movement that cooperate with the ICRC but are independent of it, such as the National Red Cross Societies that exist in most countries (including Switzerland), the International Conference of the Red Cross, and the League of Red Cross Societies. See DAVID FORSYTHE, HUMANITARIAN POLITICS 6-24 (1977).

3. ICRC BLINDING WEAPONS, *supra* note 1, at 7.

4. The closest parallel occurred over seventy-five years earlier, when the ICRC, almost three years after the first use of poison gas in World War I, protested "with all the forces at [its] command against such warfare, which can only be called criminal." The basis

Because the ICRC possesses a unique status in public international law, its departure from precedent is more than a mere change in policy by an old and prestigious human rights organization. The 1949 Geneva Conventions (Geneva Conventions)⁵ give the ICRC a distinct role in protecting prisoners of war, civilians and other victims of armed conflict, even though it has no international legal personality and is merely a private organization of Swiss citizens. Generally, the Geneva Conventions recognize the legitimacy of "humanitarian activities which the [ICRC] . . . may, subject to the consent of the Parties to the conflict concerned, undertake for the protection . . . [of war victims]."⁶ Several

of this appeal was ambiguous and may have expressed a moral rather than a legal position. Jean Mirimanoff-Chilikine, *The Red Cross and Biological and Chemical Weapons*, in *A TREATISE ON INTERNATIONAL CRIMINAL LAW* 356, 357 (M. Cherif Bassiouni & Ved Nanda eds., 1973) (quoting ICRC Appeal of Feb. 6, 1918). The ICRC has occasionally proposed new restrictions on weapons *de lege ferenda*, on the basis of entirely new law. In 1920, for example, it advocated a ban on asphyxiating gases in a letter to the League of Nations Assembly. *Id.* In 1956, it proposed a ban on delayed action munitions and "weapons whose harmful effects, which resulted in particular from the dissemination of incendiary, chemical, bacteriological, radioactive or other agents, could spread to an unforeseen degree or escape . . . from the control of those who employ them . . ." Draft Rules for the Limitation of the Dangers Incurred by the Civilian Population in Time of War, art. 14, in *THE LAWS OF ARMED CONFLICTS* 187, 191 (Dietrich Schindler & Jiri Toman eds., 2d ed. 1981). Because of their potential impact on nuclear weapons, the ICRC Draft Rules received no more than perfunctory attention. See FORSYTHE, *supra* note 2, at 118-19.

In the early 1970s, the ICRC was again active in sponsoring expert meetings at Lugano and Lucerne to discuss new restrictions on specific weapons. In the end, however, the ICRC decided not to support new restrictions on any particular weapon, in order to maintain its political neutrality. See Frits Kalshoven, *Conventional Weaponry: The Law from St. Petersburg to Lucerne and Beyond*, in *ARMED CONFLICT AND THE NEW LAW* 251, 254-62 (Michael Meyer ed., 1989).

5. Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field, Aug. 12, 1949, 6 U.S.T. 3114, 75 U.N.T.S. 31 [hereinafter Convention on Armed Forces]; Geneva Convention for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea, Aug. 12, 1949, 6 U.S.T. 3217, 75 U.N.T.S. 85 [hereinafter Convention on Armed Forces at Sea]; Geneva Convention Relative to the Treatment of Prisoners of War, Aug. 12, 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135 [hereinafter Convention of Prisoners of War]; Geneva Convention Relative to the Protection of Civilian Persons in Time of War [hereinafter Convention on Civilians], Aug. 12, 1949, 6 U.S.T. 3516, 75 U.N.T.S. 287.

6. Convention on Armed Forces, *supra* note 5, art. 9, 6 U.S.T. at 3120, 75 U.N.T.S. at 36; Convention on Armed Forces at Sea, *supra* note 5, art. 9, 6 U.S.T. at 3222, 75 U.N.T.S. at 90; Convention on Prisoners of War, *supra* note 5, art. 9, 6 U.S.T. at 3323, 75 U.N.T.S. at 142, 144; Convention on Civilians, *supra* note 5, art. 10, 6 U.S.T. at 3528, 75 U.N.T.S. at 294. The Geneva Conventions contain specific provisions regarding access by prisoners of war and civilians to the ICRC and the ICRC's access to camps and other areas where such persons work or are detained. See Convention on Prisoners of War, *supra* note

provisions recognize the ICRC's traditional role in providing relief shipments to prisoners of war, civilian internees and inhabitants of occupied territories.⁷ In particular, the Geneva Conventions mandate signatory parties to recognize and respect "at all times [the] special position of the [ICRC] in this field."⁸

Disputes over the lawfulness of weapons and methods of warfare are not likely to affect the ICRC's ability to carry out these functions. The ICRC's role in monitoring criminal trials of prisoners of war, however, may be impaired. Under the Convention on Prisoners of War, the Protecting Power, a neutral state that protects prisoners of war, should supervise such trials,⁹ including trials for violations of war crimes.¹⁰ Unfortunately, Protecting Powers have rarely been allowed to exercise such functions in armed conflicts since the end of World War II. As a result, the ICRC has often assumed the responsibility of a Protecting Power, both formally and informally.¹¹

Trials of prisoners of war are subject to international supervision to ensure protection of the defendant's rights under the Geneva Conventions. Perhaps the most fundamental of these rights is that "[n]o prisoner of war may be tried or sentenced for an act which is not forbidden by the law of the Detaining Power or by International Law, in force at the time the said act was commit-

5, arts. 79, 81, 126, 6 U.S.T. at 3378, 3381, 3383, 3418, 3420, 75 U.N.T.S. at 196, 198, 200, 234, 236; Convention on Civilians, *supra* note 5, arts. 30, 143, 6 U.S.T. at 3537, 3613, 3617, 75 U.N.T.S. at 308, 384, 386. The ICRC may also use its offices to seek agreement on safety zones for the sick and wounded, the aged, children under fifteen, expectant mothers and mothers of children under seven. See Convention on Armed Forces, *supra* note 5, art. 23, 6 U.S.T. at 3130, 75 U.N.T.S. at 46; Conventions on Civilians, *supra* note 5, art. 14, 6 U.S.T. at 3527, 75 U.N.T.S. at 298.

7. See Convention on Prisoners of War, *supra* note 5, arts. 72-73, 75, 6 U.S.T. at 3371, 3374, 3376, 75 U.N.T.S. at 190, 192, 194; Convention on Civilians, *supra* note 5, arts. 61, 108, 6 U.S.T. at 3555, 3591, 75 U.N.T.S. at 326, 360.

8. Convention on Civilians, *supra* note 5, U.S.T. at 3516, 75 U.N.T.S. at 287.

9. See Convention on Prisoners of War, *supra* note 5, arts. 8, 100-101, 104-105, 107, 6 U.S.T. at 3324, 3385, 3393, 3397, 3399, 75 U.N.T.S. at 142, 210, 212, 214, 216.

10. War crimes are violations of the different laws and customs of war. *Id.*

11. See FORSYTHE, *supra* note 2, at 116. The third paragraph of Article 10 of the Convention on Prisoners of War provides that if the belligerent powers cannot agree on a neutral state as Protecting Power, "the Detaining Power shall request or shall accept . . . the offer of the services of a humanitarian organization, such as the International Committee of the Red Cross, to assume the humanitarian functions performed by Protecting Powers under the present Convention." Convention on Prisoners of War, *supra* note 5, art. 10, 6 U.S.T. at 3327, 75 U.N.T.S. at 144.

ted.”¹² If a prisoner of war is accused of using “blinding as a method of warfare,” the ICRC will now apparently accept that charge as stating an offense under international law, regardless of the position of the prisoner’s own government on the legality of blinding lasers.

Unfortunately, the ICRC chose a poor issue on which to break precedent. This Article asserts that the ICRC is wrong as a matter of law and that blinding as a method of warfare, particularly with a laser weapon, does not violate existing international law norms. In Part II, this Article discusses the ICRC’s stand regarding blinding laser weapons. Parts III and IV detail the international principle of superfluous injury and unnecessary suffering and analyze the principle’s application to various military weapons. In Part V, this Article applies the principle of superfluous injury and unnecessary suffering to tactical laser weapons. Finally, this Article concludes that blinding laser weapons and their use in military combat do not violate international law.

II. THE ICRC’S POSITION ON “BLINDING AS A METHOD OF WARFARE”

Any effort to analyze the ICRC’s position must determine precisely what the ICRC believes is prohibited under existing international humanitarian law. The ICRC campaign brochure, quoted at the beginning of this Article, is vague on the question of exactly what constitutes “blinding as a method of warfare.” The campaign paraphernalia twice refers favorably to a pending proposal to ban “intentional laser blinding,”¹³ but makes no other

12. Convention on Prisoners of War, *supra* note 5, art. 99, 6 U.S.T. at 3393, 75 U.N.T.S. at 210.

13. See ICRC BLINDING WEAPONS, *supra* note 1, at 8. This proposal would have added a protocol on blinding laser weapons to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, *opened for signature*, Apr. 10, 1981, 19 I.L.M. 1524 [hereinafter CCW]. The CCW was opened for signature with three annexed protocols. Upon ratification or accession, a party was required to agree to be bound by at least two protocols. *Id.* art. 4, para. 3, at 1525. Protocol I prohibits weapons that use fragments not detectable by X-ray. *Id.* Protocol I, at 1529. Protocol II regulates land mines and booby-traps. *Id.* Protocol II, at 1529. Protocol III deals with incendiary weapons. *Id.* Protocol III, at 1534.

On October 12, 1995, a consensus of the 44 participants in the CCW Review Conference adopted Protocol IV on Blinding Laser Weapons. *Additional Protocol to the Convention on the Prohibition or Restriction on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects*,

mention of the need for an intent to blind.

Elsewhere, the brochure implies that unintentional blinding with a combat laser may also constitute "blinding as a method of warfare." Campaign propaganda notes the development of "[l]asers which are usable against both personnel and against certain sensors"¹⁴ and ominously states that "[t]hose [lasers] which are easily portable are more likely to be used as anti-personnel weapons."¹⁵ The brochure devotes almost a full page to the development of portable, battery-powered lasers and "laser rifles."¹⁶ Although the ICRC acknowledges in passing that lasers have a variety of military uses, including range-finding and marking targets for precision guided munitions,¹⁷ the impression that portable combat lasers are inherently sinister markedly shines through. One sub-heading, for example, labels such weapons as "a terrorist's tool."¹⁸ Thus, any soldier captured in possession of a portable combat laser should be regarded with suspicion.

The ICRC would be skeptical of any claim that a soldier captured with a laser weapon merely intended to temporarily impair enemy vision by "flash-blinding" or "dazzling" with a laser. In the discussion of portable lasers, the brochure states that at a range of one kilometer, "[a]nyone whose eyes are hit by the beam would be blinded, in most cases permanently."¹⁹ Even more significant is the following statement: "Although 'flash blinding' or

Protocol on Blinding Laser Weapons (Protocol IV), CCW/CONF.1/7 (Oct. 12, 1995) [hereinafter *Protocol IV*]. Under article 1 of Protocol IV, "[i]t is prohibited to employ laser weapons specifically designed, as their sole combat function or as one of their combat functions, to cause permanent blindness to unenhanced vision, that is to the naked eye or to the eye with corrective eyesight devices." *Id.* art. 1. Under Article 5 of the CCW, the protocol will enter into force six months after twenty CCW parties notify the U.N. Secretary General of their consent to be bound by it. CCW, *supra*, art.5, para. 3, at 1526.

14. ICRC BLINDING WEAPONS, *supra* note 1, at 2.

15. See ICRC BLINDING WEAPONS, *supra* note 1, at 3.

16. *Id.*

17. On the military uses of lasers, see Mark Hewish, *Battlefield Lasers*, INT'L DEF. REV., Feb. 1995, at 39. By allowing more accurate delivery of munitions, the target-marking and range-finding functions of lasers are expected to reduce collateral civilian casualties. One critic of blinding laser weapons has stated that "[l]asers, as such, are not the problem. They have made major contributions to making warfare more discriminate and less destructive." William Arkin, *Ban Tactical Laser Weapons*, DEF. NEWS, July 17-23, 1995, at 20, 20. "Even peacekeeping operations, with their emphasis on multinational involvement and minimizing collateral damage, now involve routine use of lasers." Hewish, *supra* at 39.

18. ICRC BLINDING WEAPONS, *supra* note 1, at 3.

19. *Id.*

'dazzling', in which temporary blindness is caused, has attracted the interest of some military planners *it is impossible to develop a laser which can only flash blind.*"²⁰

If these statements accurately reflect the ICRC's conclusions, then eliminating "blinding as a method of warfare" may go far beyond a ban on "intentional laser blinding." Any use of lasers to temporarily impair enemy vision would have to be prohibited, and any combat use of portable lasers that may foreseeably blind an enemy permanently may be regarded as intentional, under the maxim that a person intends all effects that naturally and reasonably follow from his or her acts.

At a minimum, "blinding as a method of warfare," which the ICRC labels as "a superfluous injury and a cause of unnecessary suffering . . . prohibited under existing international humanitarian law,"²¹ includes any deliberate use of lasers to affect the vision of enemy combatant personnel. According to the ICRC, such impermissible tactics may also include any use of laser weapons, especially portable lasers, that would necessarily affect human sight as a collateral effect.

III. THE PRINCIPLE OF SUPERFLUOUS INJURY OR UNNECESSARY SUFFERING

The ICRC claims that "blinding as a method of warfare" violates existing international law. The "existing international humanitarian law" to which the ICRC refers is found in Article 23(e) of the 1899 and 1907 Hague Regulations on Land Warfare (Hague Regulations). These regulations provide that it is especially forbidden "[t]o employ arms, projectiles, or materials of a nature to cause superfluous injury,"²² or "[t]o employ arms, projectiles or material calculated to cause unnecessary suffering."²³ The phrases "superfluous injury" and "unnecessary suffering" are alternative English translations of the French phrase, "*maux superfluous*,"

20. *Id.* at 4 (emphasis added). Human Rights Watch gives prominence to the idea that "many medical and military experts believe it is not possible to design a laser that can only temporarily blind or dazzle." *United States: U.S. Blinding Laser Weapons*, HUM. RTS. WATCH ARMS PROJECT (Human Rights Watch, New York, N.Y.), May 1995, at 6.

21. ICRC BLINDING WEAPONS, *supra* note 1, at 7.

22. Convention with Respect to (II) on the Laws and Customs of War on Land, July 29, 1899, art. 23(e), 32 Stat. 1803, 1817.

23. Convention (IV) Respecting the Laws and Customs of War on Land, Oct. 18, 1907, art. 23(e), 36 Stat. 2277, 2302.

which both Hague Regulations use.²⁴ The most recent codification of the law of war utilizes both English phrases, thus prohibiting weapons, methods and means of warfare “of a nature to cause superfluous injury or unnecessary suffering.”²⁵

Several points should be noted about the principle of superfluous injury or unnecessary suffering. First, the obligation not to use weapons causing superfluous injury or unnecessary suffering is now undoubtedly part of customary international law, binding even states that are not parties to either the 1899 or the 1907 Hague Conventions on Land Warfare.²⁶ The International Military Tribunal at Nuremberg, for example, concluded that by 1939, the Hague Regulations “were recognized by all civilized nations and were regarded as being declaratory of the laws and customs of war,” and were therefore binding even during wars in which non-parties participated.²⁷ More recently, the U.N. Secretary General, in his report on the proposed statute of the International Tribunal for the Prosecution of Persons Responsible for Serious Violations of International Humanitarian Law Committed in the Territory of the Former Yugoslavia, concluded that the 1907 Hague Regulations were among those parts of “conventional international humanitarian law which [have] beyond doubt become part of international customary law.”²⁸ Article 3(a) of the Tribunal Statute, which the Security Council accepted, includes the “employment of poisonous weapons or other weapons calculated to cause unnecessary suffering” as an offense that the Tribunal is competent to consider.²⁹

Second, the principle prohibiting superfluous injury and unnecessary suffering is intended to protect soldiers and other

24. See MICHAEL BOTHE ET AL., *NEW RULES FOR VICTIMS OF ARMED CONFLICTS* 195-96 (1982). Only the French text of the Hague Regulations is authentic. *Id.*

25. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), *adopted* June 8, 1977, art. 35, para. 2, 1125 U.N.T.S. 2, *reprinted in* THE LAWS OF ARMED CONFLICTS 551, 574 (2d ed. 1981) [hereinafter Protocol I].

26. The Nuremberg Judgment (Intn'l Military Trib. 1945-1946), *reprinted in* 2 THE LAW OF WAR: A DOCUMENTARY HISTORY 922, 961 (Leon Friedman ed., 1972) [hereinafter Nuremberg Judgment]. *Cf.* JULIUS STONE, *LEGAL CONTROLS OF INTERNATIONAL CONFLICT* 551 (1954).

27. The Nuremberg Judgment, *supra* note 26.

28. *Report of the Secretary-General Pursuant to Paragraph 2 of the Security Council Resolution 808* ¶ 35, U.N. SCOR, U.N. Doc. S/25704 (1993), *reprinted in* 32 I.L.M. 1163, 1170.

29. *Id.* at 1192.

personnel taking a direct part in hostilities, rather than civilians or other noncombatants. In the course of combat operations, it is, in principle, legitimate to deliberately injure or kill persons taking a direct part in hostilities. The rule against weapons causing unnecessary suffering or superfluous injury is a limit on means used to accomplish this legitimate injury and killing.

Finally, the "principle does not prohibit weapons causing *extreme* suffering or *extensive* injuries, but only those which cause *unnecessary* suffering or *superfluous* injuries."³⁰ It is not the high level of suffering or degree of injury, considered in isolation, that renders a weapon or method of warfare illegal under international law. Rather, the principle considers the expected suffering or injury in relation to the anticipated military advantages of the weapon. The U.S. delegation to the 1974 Conference of Government Experts on Weapons Which May Cause Unnecessary Suffering or Have Indiscriminate Effects (1974 Lucerne Conference), expressed the principle as follows: "the 'necessity' of the suffering must be judged in relation to the military utility of the weapons."³¹

It has been observed that "[t]he term 'unnecessary suffering' implies that there is such a thing as 'necessary suffering,'"³² because "the infliction of some suffering and injury are an inherent feature of armed conflict."³³ If the military advantages to be gained from a weapon may only be achieved by inflicting a certain level of suffering or injury on its victims, then the suffering is necessary, the injury is not superfluous, and the weapon is lawful. A distinguished U.S. commentator has summarized the law as follows:

All war instruments are 'cruel' and 'inhuman' in the sense that they cause destruction and human suffering. It is not, however, the simple fact of destruction, nor even the amount thereof, that is relevant in the appraisal of such instruments; it is rather the

30. C. Greenwood, *Battlefield Laser Weapons in the Context of the Law on Conventional Weapons*, in *BLINDING WEAPONS, REPORTS OF THE MEETINGS OF EXPERTS CONVENED BY THE INTERNATIONAL COMMITTEE OF THE RED CROSS ON BATTLEFIELD LASER WEAPONS 1989-1991*, at 71, 73 (Louise Doswald-Beck ed., 1993) [hereinafter *BLINDING WEAPONS EXPERTS REPORTS*].

31. *Resort to War and Armed Force*, 1974 DIGEST §1, at 707.

32. Memorandum of Law from Hugh R. Overholt, Major General, Judge Advocate General, U.S. Department of the Army, on the Use of Lasers as Antipersonnel Weapons, para. 4(c) (Sept. 29, 1988).

33. Greenwood, *supra* note 30, at 73.

needlessness, the superfluity of harm, the gross imbalance between the military result and the incidental injury that is commonly regarded as decisive of illegitimacy.³⁴

A highly effective weapon will remain lawful even though it inflicts a great deal of suffering on enemy troops. Humanitarians may shrink from this conclusion, yet the unnecessary suffering principle is not meaningless. The principle of unnecessary suffering prohibits "gratuitous violence which serves no military end" and "the infliction of suffering which serves no useful military purpose."³⁵ As Sir David Hughes-Morgan of the United Kingdom observed in his legal background paper delivered at the Lucerne Conference:

[A] prohibition so framed is of value in forbidding the use of any weapon which, while inflicting severe wounds, has no corresponding military significance. The difficult cases, in which the result of the proportionality equation are in dispute, can only be resolved by the agreement of states to prohibit the use of specific weapons.³⁶

In practice, international law only forbids the use of weapons that increase suffering without really increasing military advantage. Where suffering must be carefully balanced against military utility, new and specific limits must usually be negotiated to resolve the issue. Once a weapon goes beyond unnecessary suffering and superfluous injury, it has left the customary law of weapons use and has entered the realm *de lege ferenda*, on the basis of a new law.

A weapon's military utility includes factors beyond its power to injure or kill. All factors must be taken into account when deciding whether a weapon inflicts any unnecessary suffering. One U.S. diplomat summarized the issue as follows:

The difficulty of coming to an objective conclusion [on legality

34. MYRES S. MCDUGAL & FLORENTINO P. FELICIANO, LAW AND MINIMUM WORLD PUBLIC ORDER 616 (1961); Cf. U.S. DEP'T OF THE AIR FORCE, AFP 110-31, INTERNATIONAL LAW—THE CONDUCT OF ARMED CONFLICT AND AIR OPERATIONS ¶ 6-2 b(2) (1976) ("All weapons cause suffering. The critical factor in the prohibition against unnecessary suffering is whether the suffering is needless or disproportionate to the military advantages secured by the weapon, not the degree of suffering itself.")

35. MCDUGAL & FELICIANO, *supra* note 34, at 616.

36. Kalshoven, *supra* note 4, at 260. While the Swedish delegate Hans Blix "agreed with Sir David that proportionality was the applicable standard here he shrank back from accepting the consequences of its application in all cases." *Id.*

of a weapon] is compounded by the fact that "military effectiveness" cannot be measured simply in terms of battlefield casualties but must also take into account such factors as the destruction or neutralization of military material, restriction of movement, interdiction of lines of communication and effects on morale, command and control, stamina and cohesion of opposing forces, effectiveness against particular targets, availability of alternate weapons, cost, and the security of the troops involved.³⁷

IV. CURRENT APPLICATION OF THE PRINCIPLE OF UNNECESSARY SUFFERING

A. *Weapons Prohibited Under the Principle of Unnecessary Suffering*

An analysis of the scope and application of existing law on superfluous injury or unnecessary suffering involves an examination of the weapons currently prohibited and the reasons for those prohibitions. "What weapons or methods of warfare cause *unnecessary suffering*, and hence are unlawful *per se*, is best determined in light of the practice of states."³⁸ State practice has condemned, as *per se* unlawful, the use of poisoned weapons, barbed weapons, expanding (dum-dum) bullets, glass and other nondetectable fragments, and some uses of exploding or incendiary bullets.

1. Poisoned Weapons

The ban on poisoned weapons is one of the oldest continuing prohibitions in the law of war, dating back to at least the late Middle Ages.³⁹ Originally, chivalric ideals may have in part motivated the ban on poisoned weapons; today, however, poisoning is a classic illustration of a method of warfare that causes unnecessary suffering. A modern rifle bullet or shell fragment alone will generally place a soldier out of action (*hors de combat*). Little or no additional military advantage would be gained by poisoning the bullet or fragment.⁴⁰ In most cases, the poison would only make

37. Resort to War and Armed Force, *supra* note 31, §1, at 708.

38. U.S. DEP'T OF THE AIR FORCE, *supra* note 34, ¶ 6-2b(2). See also U.S. DEP'T OF THE ARMY, ARMY FIELD MANUAL 27-10, THE LAW OF LAND WARFARE ¶ 34b, at 18 (1956).

39. See, e.g., THEODOR MERON, HENRY'S WARS AND SHAKESPEARE'S LAWS 44, 116 (1993); MAJID KHADDURI, WAR AND PEACE IN THE LAW OF ISLAM 104 (1955).

40. MCDUGAL & FELICIANO, *supra* note 34.

the wound more difficult to treat, perhaps making death inevitable. Thus, from a military point of view, poisoned weapons cause suffering that is unnecessary or superfluous.⁴¹

2. Barbed Weapons

Barbed bayonets or knives are prohibited for similar reasons. A bayonet's thrust alone will usually place a combatant *hors de combat*. Barbs, which tear the flesh as the bayonet is withdrawn, would merely worsen the wound of a soldier who is already out of action. This aggravation of an existing wound would be unnecessary and superfluous.

3. Small-Caliber Incendiary or Explosive Bullets

Small-caliber incendiary or explosive bullets were the first weapons prohibited by multilateral treaties on the basis of what later became known as the unnecessary suffering principle. The St. Petersburg Declaration of 1868 (Petersburg Declaration) prohibited the employment of "any projectile of a weight below 400 grams, which is either explosive or charged with fulminating or inflammable substances."⁴² The Petersburg Declaration based this prohibition on the following reasoning:

That the only legitimate objective which States should endeavor to accomplish during war is to weaken the military forces of the enemy; That for this purpose it is sufficient to disable the greatest possible number of men; That this objective would be exceeded by the employment of arms which uselessly aggravate the sufferings of disabled men, or render their death inevitable. . . .⁴³

As in the case of poisoned weapons, a military rifle ball alone, will almost certainly place a soldier *hors de combat*. Therefore, if the bullet exploded or burned after impact, it would "uselessly aggravate"⁴⁴ the wound and cause unnecessary suffering.

The Petersburg Declaration refers to disabling "the greatest

41. "From the time the bow and javelin became obsolete, no recorded instance appears of the use of poisoned arms, projectiles, or bullets in war by modern armies. Obviously, bullets kill and disable with or without smearing with poison." *Id.* at 619.

42. Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grams Weight, Nov. 29/Dec. 11, 1868, *reprinted in* THE LAWS OF ARMED CONFLICTS, *supra* note 4, at 96.

43. *Id.*

44. Protocol I, *supra* note 25, at 552.

possible number of men,"⁴⁵ suggesting that the Declaration may have been intended to apply only to anti-personnel use of exploding or incendiary munitions. The circumstances leading to the adoption of the Declaration lend support to this view. In 1863, the Russian army first developed a rifle bullet that exploded on impact. This weapon, however, worked only if it hit a hard surface and was intended for use against ammunition wagons. Even if such a bullet hit a soldier, no unnecessary suffering followed.

In 1867, the rifle bullet's original design was modified to explode on impact with a soft target, such as the human body. It was only at this point, when the exploding bullet was no longer merely an anti-material weapon, that the Czar's government convened a conference in St. Petersburg to ban such ammunition.⁴⁶

On the other hand, the Petersburg Declaration contains no express exception for anti-material weapons, and the phrase "*any* projectile"⁴⁷ suggests that the prohibition was intended to be sweeping. The legality of using small-caliber explosive or incendiary bullets against ammunition wagons or other non-human targets was therefore doubtful at best. In any event, the issue remained moot for the remainder of the nineteenth century because no effort was made to use such weapons.

With the development of military aviation in World War I, the issue was no longer merely academic. Fighter airplanes' machine guns were far more effective against enemy aircraft if loaded with explosive or incendiary ammunition. When the Petersburg Declaration was negotiated in 1868, "the prohibition of small projectiles which are explosive or charged with fulminating substances could not possibly have been intended to apply to air warfare."⁴⁸

Nevertheless, Germany initially threatened to execute Allied airmen as war criminals for using such munitions. No trials, however, actually took place and the German air force eventually adopted similar ammunition. By 1916, both the Allies and the Central Powers were using explosive or incendiary munitions in air

45. *Id.*

46. *Id.* at 95.

47. *Id.* (emphasis added).

48. 2 GEORG SCHWARZENBERGER, INTERNATIONAL LAW AS APPLIED BY INTERNATIONAL COURTS AND TRIBUNALS 143 (1968).

warfare without serious challenge from the other side.⁴⁹ This use continued in World War II and later conflicts.⁵⁰

While the Petersburg Declaration remains a valid application of the unnecessary suffering principle for anti-personnel weapons in land warfare, small-caliber incendiary or explosive bullets are generally regarded as lawful against targets requiring their use in air warfare.⁵¹ Such munitions may painfully aggravate the wounds of enemy air crew members, but this suffering is a military necessity to achieve greater damage to, and higher destruction rates of, enemy aircraft.⁵²

There are other exceptions concerning the use of small-caliber incendiary or explosive bullets. Because a combat aircraft in flight cannot change its ammunition load, such aircrafts may use incendiary or explosive bullets when strafing enemy ground troops. Again, such munitions may cause greater suffering for the wounded, but such suffering is necessary in light of the realities of air warfare.⁵³

49. See MCDUGAL & FELICIANO, *supra* note 34, at 621.

50. "The universal use of these bullets in the last war [i.e., World War II] and the lack of any protest strongly suggest their legitimization, and the desuetude of the prohibition, at least in aerial war." *Id.*

51. See U.S. DEP'T OF THE AIR FORCE, *supra* note 34, at 6.

52. Compare 2 SCHWARZENBERGER, *supra* note 48, at 143.

Moreover, the intention of the Contracting Parties [to the St. Petersburg Declaration] is clearly described as fixing the 'technical limits at which the necessities of war ought to yield to the requirements of humanity' in such a manner as to exclude merely disproportionate inhumanity. If the use of these weapons is likely to lead to the disablement or destruction of an aeroplane, it is arguable that such disproportion no longer exists.

(footnotes omitted) with BOTHE ET AL., *supra* note 24, at 196-97

[W]eapons are designed and produced to be used to fulfill a variety of military requirements other than merely disabling enemy combatants. Some examples of such requirements include the destruction or neutralization of military movement, the interdiction of military lines of communications, the weakening of the enemy's war making resources and capabilities, and the enhancement of the security of friendly forces. Thus, an artillery projectile or missile designed to destroy field fortification or heavy material may be expected to cause injuries to personnel in the vicinity of the target which would be more severe than necessary to render these combatants *hors de combat*, but no authority has questioned the lawfulness of such projectiles despite the gravity of their incidental effect on personnel.

53. Cf. Kalshoven, *supra* note 4, at 259 (quoting David Hughes-Morgan, *Legal Criteria for the Prohibition or Restriction of Use of Categories of Conventional Weapons* (1974)).

[T]he requirements of the military task to be performed have to be taken into account [in applying the unnecessary suffering principle]. For example, some of the powerful weapons designed for use against armoured fighting vehicles are likely to inflict severe injuries on their crews. But such weapons may be necessary to penetrate the armoured protection on such vehicles and it is a legitimate act of war to put fighting vehicles and their crews out of action. Similarly, a

4. Dum-Dum Bullets

The next weapon to be prohibited in war was the "dum-dum" bullet, named after a British arsenal near Calcutta. Because ordinary rifle and pistol ammunition were not sufficient to stop the impetuous charges of certain Afghan warriors, the dum-dum bullet was developed to meet this threat. Dum-dum bullets have soft or hollow points, which expand upon hitting the target. This effect makes it less likely that the bullet will simply pass through the target and ensures that the maximum kinetic energy is transferred from the bullet to the target. Therefore, when used against a charging foe, the dum-dum has greater stopping power than ordinary hard-point ammunition.

The dum-dum, however, also produces a larger and more severe wound than ordinary ammunition, thus making it vulnerable to diplomatic attack as causing unnecessary suffering and superfluous injury. Over British objections, the 1899 Hague Peace Conference (Hague Conference), "inspired by the sentiments which found expression in the Declaration of St. Petersburg," adopted the Declaration Concerning Expanding Bullets (Hague Declaration) obligating its parties "to abstain from the use of bullets which expand or flatten easily in the human body."⁵⁴

Louise Doswald-Beck of the ICRC has drawn some general conclusions about the unnecessary suffering rule based on the ban on dum-dum bullets. For example, the Petersburg Declaration's reference to rendering death inevitable is not to be taken literally:

The prohibition of the use of expanding bullets . . . would appear to confirm the following: the rule is violated if death is rendered likely, because dum-dum bullets in fact did not render death 'inevitable,' and secondly, the rule is violated if excessive suffering is caused in the majority of cases: the proponents of these bullets argued that they were needed for certain human

particular level of penetration is required for small arms to defeat body armor or steel helmets, and a weapon which did not do this would not be militarily effective: its effect on an unprotected man, however, would be severe. Ideally, a military commander should have available to him a range of weapons such as to be able to meet exactly the degree of force needed in any particular situation. For obvious reasons this is impossible: a soldier can carry only one rifle, for example, and the varieties of artillery projectiles are necessarily limited.

Id.

54. Declaration (IV, 3) Concerning Expanding Bullets, July 29, 1899, *reprinted in THE LAWS OF ARMED CONFLICTS*, *supra* note 4, at 103.

targets whom ordinary bullets did not stop, but this argument was not accepted.⁵⁵

This last assertion, stating that a weapon is unlawful whenever unnecessary suffering would foreseeably occur in a simple majority of instances, is a more sweeping conclusion than the evidence warrants. The military value of a weapon in specific circumstances may be so great that it outweighs the fact that these circumstances were not present when the weapon produced the majority of casualties. Over the last eighty years, for example, war planes using small-caliber incendiary and explosive munitions have caused the vast majority of wounds during aerial strafing of ground forces, not during air-to-air combat. Yet the military value of such munitions in attacking other aircraft is so great that today no one would question the legality of their use by fighter aircraft.

In fact, the circumstances surrounding Hague Declaration negotiations suggest conclusions rather different than those of Ms. Doswald-Beck. Historian Barbara Tuchman gives the following account of events at the Hague Conference:

In the committee on limiting new weapons, the negative trend had become somewhat embarrassing. Everyone was therefore delighted to fall upon the question of dumdum, or expanding bullets, which offered an opportunity both to outlaw something and to vent the general anti-British feeling of the time. Developed by the British to stop the rush of fanatical tribesmen, the bullets were vigorously defended by Sir John Ardagh against the heated attack of all except the American military delegate, Captain Crozier, whose country was about to make use of them in the Philippines Unimpressed, the delegates voted 22-2, against the unyielding opposition of Britain supported by the United States, to prohibit the use of the dumdum bullet.⁵⁶

While Ms. Doswald-Beck reads too much significance into the Hague Declaration, Ms. Tuchman, by attributing it largely to anti-British prejudice, reads too little into it. In reality, the dum-dum was a weapon of "small military importance."⁵⁷ The "unyielding opposition of Britain"⁵⁸ to banning the dum-dum actually yielded

55. L. Doswald-Beck, *Lawfulness of the Anti-Personnel Use of Laser Weapons*, in *BLINDING WEAPONS EXPERTS REPORTS*, *supra* note 30, at 330, 331.

56. BARBARA W. TUCHMAN, *THE PROUD TOWER: A PORTRAIT OF THE WORLD BEFORE THE WAR, 1890-1914*, at 261-62 (1966).

57. STONE, *supra* note 26, at 552.

58. TUCHMAN, *supra* note 56, at 262.

less than ten years later when Great Britain acceded to the Hague Declaration.⁵⁹

In analyzing the Hague Declaration, it is significant that in an age when European governments uniformly believed in the justice of European colonialism, the other imperial powers at the Hague Conference, including Belgium, France, Germany, the Netherlands, Russia and Turkey, all supported a ban on dum-dum bullets. Although each of these powers had "fanatical barbarian[s]"⁶⁰ of their own, none of them saw the dum-dum as a particularly useful weapon. Their lack of support for the dum-dum suggests that the bullet was intended to solve a military problem that arose from the particular warrior customs of only two native peoples, the Afghans and the Filipino Moros. As a matter of legal drafting, however, the Hague Conference could hardly have written an exception for these groups by name, even in the age of imperialism. One of the justifications of imperialism was that native morals and customs would slowly improve under European tutelage. At some point, the Afghans and the Moros would be entitled to the same protection from dum-dums as other "civilized" peoples.

Further, the Hague Conference could not have practically stated an exception addressing both British and U.S. concerns. Phrases such as "fanatic tribesmen," "savage tribes" or similar terms have no clear legal content and would be too vague. This approach would also raise other problems, including the treatment of native peoples serving in or with European military units.

The only practical options at the Hague Conference were either to ban dum-dum bullets completely or to permit their use in all conflicts, including those between Europeans, with the consequent increase in the severity of wounds. Given these choices, the

59. Great Britain and Ireland acceded to the Hague Declaration on August 30, 1907. See THE LAWS OF ARMED CONFLICTS, *supra* note 4, at 104. The United States expressed the following position on the Declaration:

The United States is not a party to the agreement prohibiting the use of expanding bullets, or "dum-dums", signed at The Hague, July 29, 1899. In that Agreement, the parties agreed "to abstain from the use of bullets which expand or flatten easily in the human body, such as bullets with a hard envelope which does not entirely cover the core or is pierced with incisions." The United States has, however, acknowledged that it will abide by the terms of the agreement prohibiting expanding bullets.

Resort to War and Armed Force, *supra* note 31, §1, at 706.

60. TUCHMAN *supra* note 56, at 262.

Hague Conference chose to ban the dum-dum.⁶¹

This ban was not based on an assessment that dum-dums would cause "excessive suffering . . . in the majority of cases." Rather, it involved balancing the additional suffering, which would result from use of expanding bullets in all wars, against their military value in two specific, localized situations. The disproportion between increased suffering and military value was so great that the anticipated suffering appeared unnecessary to twenty-two of the twenty-four delegations at the Hague Conference.

5. Glass and Other Nondetectable Fragments

Weapons using fragments not detectable by X-rays are the most recent weapons to be formally outlawed on grounds of unnecessary suffering. Protocol I to the 1981 U.N. Convention on Prohibitions of Restrictions on Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects (CCW) provides: "[i]t is prohibited to use any weapon the primary effect of which is to injure by fragments which in the human body escape detection by X-rays."⁶²

Before the CCW, customary international law had already prohibited weapons using clear glass fragments as a means of injury.⁶³ Glass fragments are difficult for a surgeon to see and remove from a wound. By the time a wounded soldier sees a surgeon, he is *hors de combat*. It is therefore militarily unnecessary to use a weapon that makes the wound harder to treat.

Similar reasoning led to the ban on fragments not detectable by X-rays. "The prohibition is an expression of the principle that the purpose of a weapon should not be to hinder the healing of wounds it causes, and this principle is certainly one of the basic

61. By its terms, the Hague Declaration was "only binding for the Contracting Powers in the case of a war between two or more of them." Declaration (IV, 3) Concerning Expanding Bullets, *supra* note 54, at 103. Because Afghanistan never acceded to the Declaration and the United States never became party to it, both Great Britain and the United States could have continued to use dum-dum bullets against their enemies. Ignoring the Hague Declaration, however, could have incurred domestic and international political embarrassment, leading both powers to abandon the dum-dum for all purposes. This abandonment suggests that the dum-dum really had small military value. The U.S. Army later developed the .45 caliber automatic pistol, which achieved great stopping power by using a heavy and slow bullet, to replace the dum-dum.

62. CCW, *supra* note 13, Protocol I, at 1529.

63. See, e.g., U.S. DEP'T OF THE AIR FORCE, *supra* note 34, ¶ 6-2b(2).

elements for determining whether a weapon produces 'unnecessary suffering.'⁶⁴

B. Conclusions Based on Application of the Principle

The following broad conclusions may be drawn from state application of the rule against weapons causing unnecessary suffering or superfluous injury:

- (1) An otherwise effective weapon becomes unlawful when it is deliberately altered for the purpose of increasing the suffering it inflicts. Examples include poisoned bullets and barbed bayonets.
- (2) A new weapon or method of warfare may inflict unnecessary suffering if its military advantages are marginal, temporary or otherwise vastly disproportionate to the anticipated increase in suffering. The dum-dum bullet is an example.
- (3) The legality of a weapon may change depending on technological and military developments. Small-caliber explosives or incendiary ammunition in air warfare are examples of weapons whose status change according to technological developments.
- (4) A weapon may not be deliberately selected for the suffering that it inflicts when other, equally effective means are readily available. Examples include projectiles filled with glass or non-detectable fragments.

In considering the last conclusion, the phrase "readily available" should be emphasized. As is frequently observed, the soldier is not and cannot be required to carry a golf bag into battle with specific weapons and types of ammunition to be used only in specific circumstances. Availability of alternate weapons is properly taken into account in assessing the legality of weapons.⁶⁵

V. APPLICATION OF THE PRINCIPLE OF SUPERFLUOUS INJURY OR UNNECESSARY SUFFERING TO TACTICAL LASER WEAPONS

Application of the unnecessary suffering rule, as construed

64. Yves Sandoz, *A New Step Forward in International Law: Prohibitions or Restrictions on the Use of Certain Conventional Weapons*, INT'L REV. OF THE RED CROSS, Jan.-Feb. 1981, at 3, 11.

65. See, e.g., *Resort to War and Armed Force*, *supra* note 31, §1, at 708; U.S. DEP'T OF THE AIR FORCE, *supra* note 34, ¶ 6-6c.

through state practice, to tactical laser weapons, requires identification of the specific weapons involved as well as their potential military uses. As noted above, the ICRC concept of "blinding as a method of warfare"⁶⁶ appears to include any deliberate use of lasers to affect the vision of enemy combatant personnel and any use of laser weapons, especially portable lasers, that would necessarily affect human sight.

Three actual or proposed types of lasers appear to fall within this category of "blinding as a method of warfare": anti-aircraft lasers, portable anti-optical weapons, and laser rifles designed to blind the naked eye.

A. Anti-Aircraft Lasers

The speed and accuracy of laser beams would appear to make lasers an ideal weapon to "dazzle" or flash-blind pilots in low-level air attacks. In a U.S. military simulation test, all the aircraft attacking a laser-defended position were "lost" in the attack run. In a second run, even after a change of tactics, two of ten attack aircraft were lost.⁶⁷ A twenty percent enemy loss rate is very high for an anti-aircraft system,⁶⁸ and further aircrew training would probably bring down this figure. Nevertheless, this test suggests the militarily effectiveness of an anti-air laser weapon.

The British Royal Navy reportedly deployed one such weapon. "The system, known as a 'Laser Dazzle Sight' (LDS) is primarily intended to make the pilot abandon his attack, but the system can inflict serious eye damage and even blindness."⁶⁹ It is not known how often in actual combat a pilot will suffer serious long-term or permanent eye damage. For the sake of legal analysis, a very high rate of serious injury of fifty percent will be assumed.

In the cases where a pilot is flash-blinded and breaks off the attack as a result, a significant military advantage accrues to the defended, particularly in naval warfare. A single fighter aircraft

66. ICRC BLINDING WEAPONS, *supra* note 1, at 2.

67. See Doswald-Beck, *supra* note 55, at 333.

68. For example, in World War II, the U.S. Army Air Force (AAF) suffered a 19% loss rate in its August 17, 1943 raids on Schweinfurt and Regensburg, Germany. The AAF regarded these losses as intolerable, leading to major changes in tactics and equipment. See, ROBIN HIGHAM, AIR POWER, A CONCISE HISTORY 134 (1972).

69. Fermin Gallego & Mark Daly, *Laser Weapon in Royal Navy Service*, JANE'S DEF. WKLY Jan 13, 1990, reprinted in BLINDING WEAPONS EXPERTS REPORTS, *supra* note 30, at 170.

may carry missiles that will sink a frigate, destroyer or other small warship and may seriously damage even the largest vessels. In land warfare, forcing the enemy to break off an air to ground attack is militarily important, though probably not as significant in naval warfare. Because the effect on the pilot is only temporary, no question of unnecessary suffering arises.

Flash-blinding for more than ten seconds will cause a pilot to either crash or bail out.⁷⁰ In cases of more serious eye damage, the attacking pilot will most likely be unable to return to base, and the aircraft will be lost. Historically, destruction of enemy warplanes has been regarded as having great military value. For instance, in World War I and World War II, the destruction of enemy aircraft was regarded as so important that state practice, in effect, reversed the long-standing ban on small-caliber exploding or incendiary bullets. Today, when a single fighter plane's weapons load exceeds that of a World War II heavy bomber, the destruction of enemy aircraft has even greater military value.

It is difficult to support the position that the psychological suffering caused by long-term blindness, which the ICRC campaign brochure quoted at the beginning of this Article stresses, will often be as or even more severe than that accompanying the disfigurement caused by air-delivered small caliber explosive and incendiary munitions.

Assessing anti-aircraft lasers against the general criteria of unnecessary suffering established by state practice leads to the following conclusions:

- (1) There is no evidence that such lasers have been deliberately altered in order to increase the blindness or other suffering they inflict. The ICRC's assertion that it is impossible to build a laser that only flash-blinds suggests that blindness in a certain, undetermined number of situations is an inherent danger and not the product of deliberate design.
- (2) The anticipated military advantages, including protection of warships and more certain destruction of enemy aircraft, are significant rather than marginal, temporary or vastly disproportionate to the anticipated increase in suffering,

70. "If a pilot is flash-blinded for between ten and thirty seconds during the final phase of an attack, he will most certainly have to leave the aircraft or crash." Bengt Anderberg & Myron L. Wolbarsht, *Blinding Lasers: The Nastiest Weapon?*, *Military Tech.*, Mar. 1990, reprinted in *BLINDING WEAPONS EXPERTS REPORTS*, *supra* note 30, at 161, 162.

which may include permanent eye damage in a significant number of cases.

(3) These conclusions may change if it becomes technically possible to build a laser that will do no more than flash-blind.

(4) Other equally effective air defenses should not preclude deployment of anti-air lasers based on the suffering that they inflict. The anti-air laser would have both advantages and disadvantages that other anti-aircraft systems do not. Warships carry a variety of anti-aircraft systems, rapid fire guns, radar-guided and heat-seeking missiles to meet a variety of threats from the air. Each system has its own strengths and weaknesses, and the anti-air laser would be a valuable addition to such a defensive mix.

Based on the high military value accorded to destroying enemy military aircraft, the rule against unnecessary suffering does not prohibit the use of lasers as anti-aircraft weapons, even if it is assumed that a high percentage of surviving pilots would incur long-term or permanent eye damage. Such injuries are not superfluous to attaining the legitimate end of destruction of enemy military aircraft.

B. Portable Anti-Optical Lasers

A second type of system that involves blinding as a method of warfare is a portable anti-optical laser. These lasers are land warfare weapons intended to find, using a low-power laser beam, and neutralize, using a higher-power beam, enemy optical and electro-optical sights. They burn out an electro-optical sight system as follows:

In a typical engagement, the gunner searches the battlefield using his sight. A suitable target appears as a reflective cat's eye in his field of view. He then fires the weapon, which emits laser pulses that are effective out to ranges beyond 2km. A rifleman's inherent unsteadiness aids the destructive effect, as the resultant dispersion assists in burning out larger numbers of detector elements in an electro-optical sensor.⁷¹

These lasers also find and damage simple, non-electric, optical devices, such as telescopic sights, binoculars and tank periscopes. When damaging non-electric instruments, these lasers also injure

71. Hewish, *supra* note 17, at 39.

the eye of anyone using the optical device at the time. During the 1995 CCW Review Conference, the Netherlands delegation classified anti-optics lasers as "anti-materiel [sic] lasers" that also had an "anti-personnel component."⁷² Critics charge that because of these systems, "human eyes would always be targets,"⁷³ because the user cannot distinguish electro-optical targets from simple optical targets.

The military utility of these systems would be greatest when they are used in an anti-tank role. The crews of tanks and other armored fighting vehicles must use optical and electro-optical systems during combat. If an anti-optical laser temporarily slows or halts a hostile armored vehicle, friendly anti-armor weapons would have time to aim and fire, thereby destroying the vehicle. Like the destruction of an enemy warplane, destruction of an armored fighting vehicle must be given high military value. While anti-optics lasers would not directly destroy such vehicles, they would make an important contribution to this result.

Current state practice recognizes that a high level of suffering such as wounding and death by molten metal fragments or asphyxiation, may legitimately be imposed on an entire tank crew in order to render the vehicle inoperative. As Sir David Hughes-Morgan observed during the 1974 Lucerne Conference:

[S]ome of the powerful weapons designed for use against armored fighting vehicles are likely to inflict severe injuries on their crews. But such weapons may be necessary to penetrate the armored protection on such vehicles and it is a legitimate act of war to put fighting vehicles and their crews out of action.⁷⁴

Anti-optical lasers may be used to make anti-armor weapons more effective. Judging the overall injury and suffering necessarily imposed on soldiers in modern armored warfare, the additional injury of one crew member's eye does not seem excessive or disproportionate to the anticipated military advantages. The primary target would be the vehicle, not the sight of individual crew members.

Another valuable military use of anti-optical lasers would

72. U.N. Information Service, Review Conference of States Parties to Conventional Weapons Convention, Vienna, 25 September-13 October, Adopts Ban on Use, Transfer of Blinding Laser Weapons, Press Release DC/2535 (Oct. 17, 1995).

73. Arkin, *supra* note 17, at 20.

74. Kalshoven, *supra* note 4, at 259.

probably be as an anti-sniper weapon. By killing officers and other key personnel and forcing soldiers to take cover at unexpected times, snipers may have an adverse impact on enemy forces far out of proportion to their numbers. Anti-optical lasers would detect the lens of the sniper's sight and then destroy it, while also injuring the sniper's eye, perhaps seriously and permanently.

Injuring a sniper's sighting eye is the most discriminating and certain way to place such a specialist soldier *hors de combat* with minimal physical injury. More than any other organ, the sniper's sighting eye threatens harm to the enemy. A sniper may continue to fight effectively with wounds elsewhere in his body, but an injury to the eye will certainly and immediately remove him as a threat without unnecessary injury.

From a military standpoint, the most questionable use of anti-optical lasers would be to randomly detect and then attack binoculars or other optical devices in use on the enemy's lines. Because private soldiers are rarely issued binoculars in any army, this use is far more likely to injure an officer or a specialist, such as a tank gunner, a forward air controller or an artillery observer.

Air controllers and artillery spotters are somewhat similar to snipers because their eyes are their primary weapons. Both may function effectively with other wounds, but an eye injury will place them *hors de combat* with a minimum of unnecessary injury.

Even if anti-optical lasers produce blindness or permanent injury in a high percentage of cases, these injuries will not be militarily unnecessary or superfluous in most instances. Anti-optical lasers are likely to be useful against armored vehicles, snipers, artillery observers, air controllers and enemy leaders, and thus, are unlike dum-dum bullets.

Assessing portable anti-optical lasers against the four general criteria of unnecessary suffering leads to the following conclusions:

- (1) These weapons have not been altered to enhance their blinding power against the human eye. The possibility of eye injury depends more on the target's characteristics (simple optical or electro-optical) rather than the traits of the laser.
- (2) In an anti-armor or anti-sniper role, the military utility of the portable anti-optical laser is not marginal, temporary or disproportionate to any increase in suffering. Armored vehicles and snipers are high-value targets in modern war. Even in the case of general battlefield use, the anti-optical laser has an inherent bias towards selecting targets of higher

military value, including officers, artillery spotters and forward air controllers.

(3) These conclusions may change depending on developments in laser technology, particularly if it becomes possible to damage simple optical instruments with less danger to the eye.

(4) An anti-optical laser would often be the best weapon to render specialist troops, who are most likely to be issued optical equipment, *hors de combat* without causing unnecessary suffering. Snipers, artillery observers and forward air controllers pose a primary threat, which is closely linked to accurate vision. Damaging their eyes is the most effective and discriminate way of eliminating that threat. If it were possible to choose between wounding a sniper or an artillery observer in the leg or in the eye, a good argument could be made that a leg wound is more likely to produce unnecessary suffering because it may not place him *hors de combat* but instead, may leave him in a position to be injured again or killed.

C. Laser Rifles Designed to Blind the Naked Eye

The most questionable weapons are laser rifles designed to blind the naked eye, or lasers attached to rifles for a similar purpose. No such weapons are known to exist, except possibly a Chinese system that is being advertised as a blinding weapon.⁷⁵ Both the practicality and military utility of these weapons are speculative. At the 1991 ICRC Roundtable of Experts on laser weapons, several military experts were skeptical that such weapons would ever be generally used in combat.⁷⁶

Some participants questioned whether such a development was in fact likely to occur. One said he would find it difficult to justify such a procurement. The incorporation of this device with the rifle would increase the cost of each rifle and bring with it a longer support tail. Further, it would make the rifle heavier, involve additional training for soldiers and complicate the operational and support aspects. Therefore, although such devices might be used in limited numbers, he could not foresee them being issued to all infantrymen. Another participant

75. See Peter Felstead, *China Markets Blinding Laser*, JANE'S INTELLIGENCE REV., June 1995, at 1, 1.

76. Doswald-Beck, *supra* note 55, at 333.

supported these objections Further, although a laser may be more accurate than a bullet there remained the additional difficulty of hitting a small portion of a running and bobbing enemy and lasers fired at the back of retreating combatants would be totally ineffective. Lasers would therefore have to be used in combination with rifles which would increase logistic problems by requiring batteries as well as ammunition.⁷⁷

The ICRC claims that "if lasers were used intentionally to inflict blindness, so that blinding as a method of warfare became common practice, serious eye damage might account for between 25 and 50 percent of all casualties." This estimate contradicts a century of military history. In modern war, indirect-fire weapons, bombs and mines inflict most casualties. Directly-aimed rifle fire produces only a fraction of casualties. For example, the ICRC's own experience in treating 12,958 Afghan refugees for war wounds found that only 2975 (23%) had suffered bullet wounds. Indirect fire fragmentation weapons and mines accounted for almost three-fourths of the injuries.⁷⁸ It is very difficult to believe that the introduction of laser weapons would significantly increase the number of casualties from directly-aimed fire.

From a legal standpoint, a more modest projection of the combat role of laser rifles cuts both ways. On the one hand, fewer casualties will mean potentially less unnecessary suffering or superfluous injury. On the other hand, as the military role of blinding laser rifles decreases in significance, there is less basis for arguing that military utility justifies the suffering that is caused.

Special operations, rather than general combat, would appear to be the arena in which a blinding laser rifle would most likely be useful. For example, in a raid to capture a specific enemy figure for interrogation, blinding the target may ease his or her capture. A blinding laser rifle may be useful from a humanitarian standpoint in dealing with hostage situations, where enemy forces are using civilians as a shield. Blinding some or all of the enemy forces may, in some circumstances, permit the hostages to escape. In neither of these scenarios does a blinding laser appear essential.

If the psychological effects of blinding are as bad as the ICRC suggests, blinding laser rifles may be considered useful as a "terror" weapon. In principle, it is permissible to spread terror among

77. *Id.*

78. BLINDING WEAPONS EXPERTS REPORTS, *supra* note 30, at 181.

enemy combatant personnel, but not civilians.

Blinding has occasionally been used to spread terror in warfare, most notoriously by the Byzantine Emperor Basil II who, in A.D. 1014, reportedly blinded 14,000 Bulgarian prisoners of war and then released them. The Bulgarian tsar is said to have collapsed and died when he saw his blind army.⁷⁹

The military effects of blinding are difficult to predict. Acts designed to demoralize an enemy often simply increase his hatred and determination to resist. Terror induced by the frightfulness of wounds has never been considered a military benefit in assessing the legitimacy of weapons, and this approach should continue. Louise Doswald-Beck correctly concludes that "the terror value of a certain weapon is not a factor that can validly be taken into account when making an assessment of the military utility of a weapon"⁸⁰

The blinding laser rifle resembles the dum-dum bullet because its military value appears marginal at best. Even if such weapons needlessly blind only a few combatants, it will be difficult to argue that their suffering was militarily necessary.⁸¹

It is significant that, in 1995, the U.S. Department of Defense unilaterally renounced this type of weapon, a laser designed to cause permanent blindness to the unaided eye⁸² and that Protocol

79. See ROMILLY JENKINS, *BYZANTIUM, THE IMPERIAL CENTURIES, A.D. 610-1071*, at 326-27 (1969).

80. Doswald-Beck, *supra* note 55, at 331.

81. The concept of suffering includes psychological as well as physical injury. Greenwood, *supra* note 22, at 75. The ICRC campaign brochure emphasizes this point. See, ICRC *BLINDING WEAPONS*, *supra* note 1, at 4-6. The post-war social effects of a weapon's use, however, are not to be considered when assessing whether it causes unnecessary suffering.

The social consequences of an injury, in the sense of the effects upon the victim's society of having to cope with people who have suffered a particular type of injury such as blinding, however, seems to fall outside the concept of injury in the existing law. Such effects are difficult to assess and are likely to vary greatly from one society to the next. There is no evidence that this factor was taken into account in the past development of the law of weaponry.

Greenwood, *supra* note 30, at 76. Thus, the social and economic costs of rehabilitating and caring for blind veterans, see ICRC *BLINDING WEAPONS*, *supra* note 1, at 6, while certainly pertinent to the policy question of whether new prohibitions should be negotiated, are not relevant to the legality of binding weapons under existing international law.

82. "The Department of Defense prohibits the use of lasers specifically designed to cause permanent blindness of unenhanced vision and supports negotiations prohibiting the use of such weapons." Office of the Assistant Secretary of Defense (Public Affairs), U.S. Department of Defense, News Release No. 482-95, DOD Announces Policy on Blinding Lasers (Sept. 1, 1995).

IV to the CCW will subsequently ban it. The 1995 CCW Review Conference appears to have struck the right balance on the issue of tactical laser weapons. A good argument may be made that such weapons, if they are ever created and deployed, would violate the unnecessary suffering principle in addition to the provisions of CCW Protocol IV.

VI. CONCLUSION

The ICRC, in contrast to the CCW Review Conference, has only created confusion in this area of international law. By declaring the undefined concept of "blinding as a method of warfare" unlawful and making exaggerated claims for the destructiveness of lasers, the ICRC has helped to lay the basis for false war crime charges against any soldier captured with a portable laser. The ICRC may have compromised its own ability to prevent abuse of prisoners of war subjected to such charges.

For similar reasons, caution should be exercised in response to Ann Peters' call to apply "the spirit behind the prohibitions" in Protocol IV to the CCW.⁸³ Protocol IV, like any treaty, should instead be applied in good faith, in accordance with the ordinary meaning of its terms.⁸⁴ In addition, other rules of international law should be taken into account in treaty interpretation.⁸⁵ Such rules include the customary rule that violations of the law of war give rise to individual penal responsibility as war crimes.⁸⁶ As part of the law of war, Protocol IV is penal legislation and should be carefully construed to give reasonable notice of the exact prohibited behavior. Improper application may result in unfair war crimes prosecution of prisoners of war captured with legitimate target-marking or range-finding lasers.

Assessing the legality of weapons under the rule against unnecessary suffering and superfluous injury requires a balancing of military utility against anticipated injuries. Human rights organizations, including the ICRC, are singularly ill-equipped to assess the military aspect of this equation. This is well illustrated by Dr. Robin Coupland, the ICRC surgeon cited by Ms. Peters as

83. Peters, *supra* note 34.

84. See Vienna Convention on the Law of Treaties, *opened for signature* May 23, 1969, art. 31, para. 1, 8 I.L.M. 679, 691-92.

85. See *id.* art. 31, para. 3, at 692.

86. See, e.g., U.S. DEP'T OF THE AIR FORCE, *supra* note 34, at 15-3.

having "drawn up a list of health effects by which any weapon system could be objectively judged to inflict superfluous injury and unnecessary suffering."⁸⁷ None of the cited criteria relate to the military value of the weapons system. As demonstrated earlier, such an approach finds no support in state practice or other accepted sources of international law.

Human rights organizations make their most valuable contribution to the debate over legality of specific weapons by gathering data and publicizing the non-military effects of weapons. These organizations should beware of claiming the authority to declare specific weapons to be in violation of existing international law. In the end, such declarations may do more harm than good.

87. Peters, *supra* note 34. As to the feasibility of establishing "objective" medical standards for suffering in war, see R. Scott, *Unnecessary Suffering?—A Medical View*, in ARMED CONFLICT AND THE NEW LAW, *supra* note 4, at 272, 277.

During the conference at Lucerne in 1974 a number of physicians met together to discuss the concept of 'suffering' and to consider whether it could be defined or quantified in some scientific way. They agreed that it could not whereas 'injury' probably could. . . . However the legal experts agreed that 'suffering' was a valid concept, even if the physicians found it difficult to quantify.

Id.