

these methods have existed since the Middle Ages, does not lead to the progress of civilization. On such a basis we could never agree to try to eliminate torture for example.

On a more positive note, let me acknowledge that a lot of genuine work for the control of the development and use of weapons is being carried out and is to be encouraged.

All this is, of course, evident to you all, for I am privileged to be addressing an exceptionally experienced group of experts. The ICRC has intentionally invited you all here this week in your personal capacity so that you can carefully consider the particular subject we are discussing in the light of these fundamental considerations, a subject which has been addressed by three different gatherings convened by the ICRC since the International Conference of the Red Cross of 1986. We hope that this will allow a frank and constructive discussion, unencumbered by the limitations of strict prior governmental instructions. I wish you all an interesting and useful week and once again thank you very much for your presence and attention.

PROCEEDINGS OF THE ROUND TABLE

This address was given by the ICRC President at the opening of the fourth of a series of expert meetings which considered the use of new laser weapons to permanently blind enemy soldiers.

The ICRC had initially been alerted to this problem by the mention, in a number of technical and military publications, of the fact that both vehicle-mounted lasers and hand-held laser rifles are being developed which appear to have two purposes: the destruction of sensors on vehicles, and the targeting of soldiers' eyes. Several governments voiced their concern about this development at the International Conference of the Red Cross in 1986 and the ICRC decided to study the subject in more detail.

The ICRC hosted a first Round Table in June 1989 which comprised technical and military experts in laser weapons, ophthalmologists, psychologists specialized in the effects of blindness and specialists in international humanitarian law. This meeting indicated that the problem was sufficiently serious to warrant further study.

On 31 May-1 June 1990 the ICRC hosted a working group of highly specialized experts who studied the characteristics of these laser weapons according to unclassified reports and assessed the effects that they would have. The experts found that for the anti-personnel/anti-

sensor weapons under development it was probable that the range over which permanent damage to the eyes is caused would be about one kilometer with a beam width of about 50 cm. A person who is at a greater distance than this may suffer only flashblindness or dazzle, but the exact ranges for these lesser effects cannot be determined because the laser is affected by atmospheric changes and the threshold between flashblindness and permanent blindness is very narrow. The experts pointed out that the technology now exists to make very small and light lasers that are dangerous for eyesight and also recalled the fact that range-finders and target designators mostly use lasers that are non-eyesafe. It would appear that a number of accidents have already occurred with range-finders resulting in permanent blindness, and concern was felt that these could be intentionally used for this purpose outside their normal role. The experts pointed out that the damage caused to the eye would be irreversible in the vast majority of cases and that there is no viable protection that soldiers can wear.

On 5-7 November 1990 the ICRC hosted a second working group which assessed the impact of blindness in the context of the effects of other battlefield injuries. The group included specialists in the effects of different types of injuries and psychiatrists specialized in battle trauma. The group found that blindness is exceptionally debilitating, even when compared with the worst of injuries, and that rehabilitation is difficult, allowing at best the recovery of only a fraction of the person's previous skills. They also found that blindness-causing weapons increase the amount of mental illness suffered by soldiers: in most cases blindness causes severe and long-lasting depression and the fear of a weapon that can cause sudden blindness silently and invisibly is likely to be great.

The second Round Table of 9-11 April 1991 gathered 37 governmental officials from 22 countries, who attended in their personal capacity, and eight private experts. Its purpose was to use the information gathered by the working groups in order to study whether the use of such weapons to inflict permanent blindness amounts to cruelty that is excessive for military purposes, thereby violating international humanitarian law. The group also had the task of studying whether, irrespective of the legal assessment, there are sufficient policy reasons to take certain measures.

The President's speech, given at the beginning of this meeting, indicated some of the difficulties that the ICRC has faced when carrying out its work on the legal and humanitarian problems that arise from the use of certain new weapons. Apart from the difficulty of access to information (research on new weapons development is

mostly classified), the ICRC has also found that the legal rule prohibiting the use of weapons that cause unnecessary suffering is frequently interpreted as narrowly as possible in order to limit practical restrictions in weapons development and use. The President therefore appealed in his speech to the participants to consider this question more generally in the light of major policy factors.

At the beginning of the meeting's working sessions, the ICRC indicated that although it had not taken an official position as to whether the use of such weapons to permanently blind is already illegal under international humanitarian law, there is, in its opinion, a need for some sort of regulation given the seriousness of the situation as established by the two working groups of experts.

When considering *the lawfulness of the anti-personnel use of laser weapons*, the ICRC reviewed the legal rules that were of relevance for this discussion and indicated that as lasers are not inherently indiscriminate, the most pertinent legal provision for this discussion is the rule prohibiting the use of weapons of a nature to cause unnecessary suffering or superfluous injury. As this rule applies to both means and methods of warfare, a weapon may either inherently cause unnecessary suffering and thus all uses are prohibited, or it may cause such suffering in certain cases only. In making an assessment of whether the suffering caused is excessive in relation to the military purpose, a yardstick often used is whether another weapon, with a less serious consequence, could reasonably achieve the military aim. The ICRC recalled that in accordance with the wording of the 1868 St. Petersburg Declaration, anti-personnel weapons cannot render death inevitable or needlessly aggravate the suffering of disabled men. This principle appears to have been interpreted in not such a strict fashion as the wording may imply, since subsequent treaties have outlawed weapons which render death probable or cause excessive suffering in the majority of cases. The terror value of a horrific weapon was specifically rejected at St. Petersburg as a valid military aim within the meaning of this rule.

In making an assessment of the military value of laser weapons being used against soldiers, a number of military advantages of lasers were pointed out by participants during the discussion period: lasers travel at the speed of light and in a straight path, rendering ballistic calculations unnecessary, and the energy for laser weapons can be stored in renewable batteries, which are much lighter than heavy ammunition. Possible human targets for laser weapons include infantry, ground artillery teams, personnel using binoculars or sights, drivers of tanks and the crew of aircraft. Certain disadvantages were

also pointed out: lasers are affected by atmospheric conditions — warm air enhancing their effect and pollution and smoke reducing it. Lasers cannot be lobbed around a building or over a hill and have no effect on infantry if their backs are turned. It was generally considered that there is a military utility in the use of lasers against incoming aircraft in order to prevent an attack, although it was recognized that an aircraft definitely perceived as hostile would be shot down. Their use against tank crew was also thought possible in certain circumstances. On the other hand, it was thought that conventional weaponry would be more reliable for rendering infantry *hors de combat*. For any of these uses, lasers would be an additional weapon to those already existing rather than a replacement. Certain special cases were pointed out where the careful use of a laser would reduce the danger of collateral damage, such as the targeting of a sniper or a look-out post in a concentration of civilians.

The principal legal controversy arose in relation to the use of lasers against infantry. There was a great deal of argument around the fact that the laser weapons under consideration do not kill, whereas conventional weapons do. A number of participants pointed out that it would be fallacious simply to compare blindness with death. Weapons that render death inevitable or likely (e.g. poisoned weapons, dum-dum bullets) are prohibited, whereas other anti-personnel conventional weapons produce a wide range of effects with statistically a one-in-four chance of death.

Given the disagreement as regards the assessment of the rule prohibiting methods or means causing unnecessary suffering, an extensive discussion took place on the *policy factors* that should be taken into account in deciding on possible regulation. Views were put forward to the effect that civilization would be taking a retrograde step if it countenanced weapons which inflicted the cruel and unusual punishment of blinding and that it was disheartening that at a time when intensive efforts were taking place to reduce weapons, discussions were being held on the introduction of new ones. Many participants thought that intentionally blinding was socially unacceptable. Some participants thought that lasers would not particularly add to the suffering already seen in war.

A great deal of stress was laid on the likely proliferation of the laser weapons under development, in particular the portable ones. It was pointed out that these weapons are easy to transport and store and that they would find their way into all kinds of conflicts, including internal ones. Another policy concern that was voiced was the spread of these weapons to international terrorism and organized crime.

The meeting lastly considered the possible types of legal regulation. The ICRC pointed out the various means that can be used to prohibit or restrict the use of weapons, namely, the total ban on the use of a weapon; the prohibition of certain uses of a particular weapon; the prohibition of weapons that have a certain effect; and, lastly, the prohibition of certain types of behaviour without any reference to the characteristics of a weapon.

Although a small minority of participants thought that no legal regulation was necessary, the majority was in favour of the last legal option, namely, the prohibition of blinding as a method of warfare and, more specifically, the prohibition of intentionally blinding soldiers or certain categories of soldiers. Many participants explained their preference for this solution by pointing out that the prohibition of blinding as such would be better understood than express limitations on battlefield lasers which are, in general, viewed favourably. This solution would also cover blinding by any weapon, not just lasers, which are partly or exclusively developed for this purpose.

A further suggestion was made that a regulation might be undertaken in anticipation of possible future developments, to prohibit the use of any means or methods of warfare of a nature to cause serious permanent disability by deliberately impairing specific and critical bodily functions.

With regard to *the method by which a legal regulation could be undertaken*, the two principal proposals put forward were a separate diplomatic conference for this purpose or an additional protocol to the 1980 Convention on weapons. Many participants saw certain difficulties with both of these courses, and thought that in any event the will of States to outlaw the intentional blinding of soldiers needs first to be established before the method is considered.

A first discussion to this effect could take place at the International Conference of the Red Cross and Red Crescent in 1991 in Budapest, which has this subject on its agenda.

Louise Doswald-Beck
