# The Banning of Anti-Personnel Landmines

The Legal Contribution of the International Committee of the Red Cross 1955–1999

Edited by Louis Maresca, Stuart Maslen

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# THE BANNING OF ANTI-PERSONNEL LANDMINES

## The legal contribution of the International Committee of the Red Cross

The International Committee of the Red Cross (ICRC) has played a key role in the international efforts to ban anti-personnel landmines. This book provides an overview of the work of the ICRC concerning landmines from 1955 to 1999. It contains ICRC position papers, working papers, articles, and speeches made by its representatives to the international meetings convened to address the mines issue, including the 1995–1996 Review Conference of the 1980 Convention on Certain Conventional Weapons and the diplomatic meeting which adopted the Ottawa treaty banning anti-personnel mines. These documents provide critical insights into the development of international humanitarian law on this issue, and will form the basis for discussions on landmines and other conventional weapons for years to come.

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Stuart Maslen is an independent consultant who advised the ICRC on landmines between 1997 and 1998.

# THE BANNING OF ANTI-PERSONNEL LANDMINES

The legal contribution of the International Committee of the Red Cross

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The International Committee of the Red Cross (ICRC) is an impartial, neutral and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of war and internal violence and to provide them with assistance. It directs and coordinates the international relief activities conducted by the Movement in situations of conflict. It also endeavours to prevent suffering by promoting and strengthening humanitarian law and universal humanitarian principles. Established in 1863, the ICRC is at the origin of the International Red Cross and Red Crescent Movement.

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# FOREWORD BY CORNELIO SOMMARUGA

## PRESIDENT, INTERNATIONAL COMMITTEE OF THE RED CROSS

The signing by 123 States of the Convention on the Prohibition of Anti-personnel Landmines (Ottawa treaty) in December 1997 was the culmination of lengthy efforts to lay down international rules against the use of anti-personnel mines. Only nineteen months earlier many in the international community had been disappointed by the failure of the 1995–1996 Conference reviewing the 1980 Convention on Certain Conventional Weapons to take decisive action against anti-personnel mines. Rather than consider the issue closed, governments and civil society continued to push for the comprehensive ban they felt was essential to halt the carnage caused by this weapon. By late 1997, some fifty governments had committed themselves to the treaty. When the signing ceremony was held this number had more than doubled and it took only ten months to attain the forty ratifications needed to bring the treaty into force. This was the fastest-ever entry into force of a multilateral arms-related agreement.

Bringing about a ban on anti-personnel mines was truly a remarkable achievement. Never before had such a diverse group of governments, organizations and UN agencies come together to put an end to a crisis of this type; never before had so many people around the world felt compelled to voice their outrage at the effects of a weapon designed to strike indiscriminately at soldiers and civilians alike. This had been a unique alliance between civil society and governments to bring into existence a treaty of international humanitarian law. The process involved was a true manifestation of what humanitarian law describes as 'the dictates of public conscience' and showed how that concept can change the world.

Like other humanitarian organizations, the International Committee of the Red Cross (ICRC) has been a direct witness to the horrific effects of landmines in war-torn societies. It was in the late 1980s and early 1990s that our medical staff began to sound the alarm, warning that the mines' impact on civilians had reached intolerable levels. The ICRC came to believe that a

total prohibition on anti-personnel mines was the only truly effective solution to the crisis; existing restrictions were not effective or were not being followed. From the humanitarian point of view, a total ban was the only viable option.

Given the modest results of the 1995–1996 Review Conference, the ICRC and dozens of National Red Cross and Red Crescent Societies embarked on an unprecedented public campaign to raise awareness of the landmine problem, the need for a treaty banning them and the plight of mine victims themselves. The Red Cross / Red Crescent campaign was complemented by the extremely effective activities of the International Campaign to Ban Landmines, which was awarded the 1997 Nobel Peace Prize for its work. The campaign's goal was to stigmatize the weapon in the public mind and help generate the political will to outlaw it.

From the beginning, the ICRC stressed the need for a comprehensive ban based on an unambiguous definition of the anti-personnel mine. As the weapon was already in widespread use, its production, stockpiling and transfer also had to be prohibited. An essential step forward was to remove the ambiguity found in amended Protocol II as to what an anti-personnel mine actually was. A ban based on an imprecise definition might result in attempts to bypass the prohibition; and it risked having little impact in the field. Mine clearance, mine awareness and programmes to help the victims were also essential. Through the tireless efforts of many in the diplomatic and non-governmental-organization communities, all these elements came to be included in the Ottawa treaty.

The ban on anti-personnel mines bears witness to the power of humanity. Even States unable for the moment to adhere to the Ottawa treaty have nevertheless recognized the high price in human terms that is paid for these weapons. Many non-signing States have instituted a moratorium on their export, shown a willingness to reconsider their military doctrine, and are searching for alternatives that will allow them to comply with the ban at a future date.

Despite the speed with which a ban was achieved, the materials presented here are evidence of the huge investment in expertise from the medical, legal and political realms that was required by the process. Owing to its mandates in the fields of both humanitarian assistance and international humanitarian law, the ICRC was able to bring these resources together in a unique and credible manner. Yet this compilation of ICRC materials is only part of the broader mass of documents prepared by

humanitarian agencies and non-governmental organizations. For its part, the ICRC is delighted to have been part of the effort to bring about the ban. Our organization remains committed to strengthening further and universalizing the law and to continuing its work to assist the victims of both mines and other effects of war.

# FOREWORD BY AMBASSADOR JACOB S. SELEBI

SOUTH AFRICA

Throughout the turbulent times of our recent history, the International Committee of the Red Cross has persistently and unstintingly focused the attention of the world on the devastation caused by war on innocent people and sought to strengthen the rules and principles of international humanitarian law, in order to save lives and alleviate suffering caused during and after armed conflict.

The ICRC was amongst the first campaigners to address the horrifying civilian casualties caused by anti-personnel mines long after conflicts have ended. On the African continent, which is particularly affected by this landmine scourge, these mines remain hidden to prey on those who venture out to seek firewood or to fetch water for the family, or dare to hunt or to plough the fields. These deadly killers lay to waste economic infrastructure and stifle socio-economic development.

Governments have for too long argued that anti-personnel mines are a necessary instrument of war. Nations have acquired large quantities of these mines in the misguided belief that such weapons will give them security.

The sustained efforts by the ICRC, amongst others, to raise awareness of the effect such mines have on civilians, prompted States to recognize that the right of parties to an armed conflict to choose methods of warfare is not unlimited. From this belief was born 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 (CCW). As an instrument of international humanitarian law, the objective of this Convention is to save lives and alleviate suffering during armed conflict. However, realizing that the only lasting solution to the anti-personnel mine problem is the banning of such mines, and mindful of the limitations of the CCW to achieve this goal, the Ottawa process was initiated. This process built momentum towards the conclusion of a legally binding international agreement, complementary to the CCW, to ban anti-personnel mines.

The Ottawa process stemmed from the recognition that the extreme

humanitarian and socio-economic costs associated with the use of these landmines required urgent action on the part of the international community to ban and eliminate this scourge to society.

As a result of this initiative we now have the Convention on the Prohibition of the Use, Production, Transfer and Stockpiling of Anti-Personnel Mines and on their Destruction, a treaty which sets a benchmark in the achievement of international disarmament, and establishes an international norm by also addressing humanitarian concerns.

The provisions for assistance to landmine victims and the requirements to clear emplaced landmines in support of humanitarian assistance and economic development, especially in the field of agriculture, are central to the comprehensiveness of the treaty. This Convention is not only about banning a particular type of weapon, but also about the restoration of communities which have literally been crippled by the presence of these mines in their midst. It provides us with the tool to move swiftly into action now to meet these challenges. The major issues requiring urgent attention are the task of coordination, of the removal of the millions of emplaced landmines which are causing thousands of casualties each year, and addressing the priority needs of mine victims, in terms of both adequate medical attention and rehabilitation, as well as social and economic reintegration. These elements are interdependent and need to be addressed in a comprehensive manner.

The conclusion of this Convention would not have been possible had it not been for the success of the ICRC and the International Campaign to Ban Landmines, along with many other non-governmental organizations involved with the landmine issue, in generating widespread public support for such a ban. Without the ground-swell of public opinion in favour of a ban, we would probably not have seen such a high level of political will to ban these mines on the part of governments around the world.

This publication, documenting the development of international humanitarian law on landmines, is a fitting tribute to the lobbying, campaigning, negotiating and commitment of our leaders, civil society, diplomats, military, landmine survivors and so many others who made the banning of anti-personnel mines a reality.

Ambassador Jacob S. Selebi was president of the Oslo Diplomatic Conference on an International Total Ban on Anti-Personnel Landmines. He is currently High Commissioner for the Police in the Republic of South Africa.

# FOREWORD BY AMBASSADOR JOHAN MOLANDER

SWEDEN

Fourteen years after its adoption, preparations began for the First Review Conference of the 1980 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 (CCW) and, in particular, its Protocol II on Landmines. Governments approached the subject matter warily. At the very outset, few proposals for amendments were made – and they were modest at best. Generally, governments considered the Protocol a good treaty text. The problem was rather insufficient adherence and lack of implementation. Not until the third meeting of the preparatory Group of Governmental Experts did one country (Sweden) formally submit a proposal for a ban on the use of anti-personnel mines.

However, the cumbersome diplomatic process, based on universality and consensus, set in motion a chain reaction that was difficult to foresee. It created the ideal focal point for the international efforts to ban landmines. The haggling over seemingly unimportant details and procedure in comfortable Geneva, on one hand, and the nameless suffering of children, women and men torn to pieces by the hidden killers in the rice paddies of Cambodia, the valleys of Afghanistan or the fields of Angola, on the other – this contrast was too stark, too brutal not to bring home the message to millions around the globe that anti-personnel mines represent an evil that must be stopped.

The complications of the review process grew. Some mine-using and mine-producing countries stiffened their resolve to make only concessions that would be compatible with continued routine use of anti-personnel mines, at least in international conflicts. Changing instructions to other delegations, however, went in the opposite direction; the number of countries supporting a total ban was steadily growing. A fourth meeting of the preparatory Group had to be added in January 1995. Its final – and still heavily bracketed report – was adopted, thanks to exhaustion, only at 5 a.m. on a bleak Geneva Saturday morning.

When the Review Conference itself finally convened in Vienna, in September 1995, differences between delegations had again increased. So, however, had the expectations for substantive results among non-governmental organizations and the public at large.

Thus, the only success of the Vienna session, its adoption of Protocol IV banning blinding laser weapons, went unnoticed in the uproar created by the failure to agree on an amended Protocol II on landmines.

The new delay, until the Conference reconvened in Geneva in May 1996, was effectively exploited by international campaigners to galvanize public opinion. The President of the Review Conference, for his part, made good use of the time for intensive shuttle diplomacy, which took him to a number of capitals. He also arranged informal and private consultations in Geneva. Eventually, the necessary compromises were struck and the amended Protocol adopted. The political price for failure had become too high.

The outcome of the review was in substance far better than could have been expected originally. Let me just point out the extension of the scope of application to internal conflicts, the prohibition of non-detectable anti-personnel mines, the first transfer provisions in a humanitarian law treaty regarding a widely deployed weapon, the strict responsibility of mine-laying parties, the provisions aimed at protecting humanitarian missions, etc. Still, a total ban was unobtainable in a forum based on universality and consensus; that is where the Ottawa process took over. In a setting which excluded a number of major mine-using and mine-producing countries, some hundred States were able to translate their understanding of the 'dictates of public conscience', in the words of the Martens clause, into a treaty text banning anti-personnel landmines.

So where are we now?

The reality is that a number of countries, including major military powers of the North and the South, as well as key countries in conflict-prone regions, are ready to restrict in different ways the use and transfer of anti-personnel mines but are definitely not yet ready to renounce their use.

At the same time, a vast number of States, including significant military powers, have made the decision that the humanitarian cost of continued use of anti-personnel mines outweighs their military utility and have therefore banned them. It is also clear that some States, which currently depend on anti-personnel mines in their defence planning, would be willing to renounce their use, as and when alternative area-denial technologies develop.

It is my personal view that the two new international instruments are inadequate to respond to this situation, which is inherently dynamic.

Ideally, the two Conventions should complement each other, making the passage from the restrictions under Protocol II to the prohibition under the Ottawa Convention as easy as possible. As they now stand, there is a risk that they are seen as in some way antagonistic.

Protocol II of the CCW contains significant new restrictions and prohibitions, but they could be undermined if use is made of the unnecessarily long transition periods allowed. Furthermore, the text has become so complex that it could hardly survive another amendment, unless it were a radical and simple one – a total ban on anti-personnel mines.

The Ottawa Convention could have been formulated as a potential 'Protocol V' of the CCW permitting States Parties to add to their obligations the key provision not to use, transfer, produce or stockpile anti-personnel mines. It seems to me, however, that the Ottawa drafters have added elements to the treaty which make it unacceptable to a number of countries even if, at some point, these countries were ready to undertake to ban anti-personnel landmines. In plain words: the Ottawa Convention provides excuses not to join it.

I have two particular points in mind.

The first – which might be of minor importance – is the redefinition of an 'anti-personnel mine' under the Ottawa Convention. Admittedly, the new definition is marginally better, from the humanitarian point of view, than the one under Protocol II because it is more specific. The definition in the Protocol, however, was elaborated with the concurrence of all major military powers. If we want them to join, was it a clever move to change their definition?

The second point is more troublesome. It was evident from the proceedings of the CCW Review Conference that a number of important countries vehemently resist the idea of verification, in particular of production and stockpiling, for reasons ranging from principle to practicality. Still, the Ottawa Convention contains provisions on verification which make an unusual combination of total intrusiveness in principle and considerable weakness in practice.

The scope, in principle, for inspections is extremely far reaching, while the political filter for triggering it is so tightly knit that only a politically totally isolated State would run the risk of being the object of challenge inspections under the Ottawa Convention.

Thus, in my view, the treaty provides an excuse for countries resisting intrusive inspections regimes in principle not to join it. At the same time, it sets an unsatisfactory precedent for verification procedures in other disarmament negotiations, in particular if they deal with offensive capabilities.

In conclusion, we have two international instruments dealing with the same weapon, albeit on the basis of slightly different definitions.

Protocol II is universal in the sense that it was adopted by consensus in a global forum. In substance, however, it does not go far enough. It represents an unsatisfactory lowest common denominator.

The Ottawa Convention, in substance, attains what the 'dictates of public conscience' will eventually dictate to all. It, however, also contains provisions unrelated to its essential subject matter, which create obstacles – which I personally find unnecessary – to future adherence by those who did not participate in the process, and who currently use and produce anti-personnel landmines.

The landmine crisis is not over and will not be over for a long time. The situation calls for continued efforts in diplomacy including international humanitarian law, as well as in mine clearance, assistance, etc.

Efforts must continue to press for adherence to both international instruments. While it is clear that some countries will not be able to join the Ottawa Convention, they must be made to ratify the amended Protocol II, which they have adopted. Likewise, it is equally important that countries that ratify the Ottawa Convention do not forget to adhere to the CCW. While insufficient, Protocol II contains important advances in international humanitarian law. Furthermore the CCW as a whole is an international Convention of global importance to the continued development of international humanitarian law, as demonstrated by the adoption of Protocol IV on blinding laser weapons.

Finally, the CCW represents the only accepted global forum in which mine-users and those favouring a ban can continue to discuss landmine issues. It is therefore all the more important that all those that adhere to the Ottawa Convention also adhere to the CCW. The relationship between the two instruments must be discussed. It would be unfortunate if the present situation resulted in two different camps, each with its own Convention. It would bring the mine issue no further and the 1980 CCW, created as a dynamic instrument elaborated to provide legal responses to dangerous technological developments, would fall victim and risk becoming irrelevant.

There is thus a continued need for dialogue and creative diplomacy.

As is clear from this publication, the ICRC has already made an extremely valuable contribution to both the CCW and the Ottawa treaty. I am confident that it will continue its fruitful work on behalf of landmine victims and these important treaties in the years ahead.

Ambassador Molander was president of the 1995–1996 Review Conference of the States Parties to the 1980 CCW and is currently the Permanent Representative of Sweden to international organizations in Geneva, Switzerland.

The notes for each of the original documents reproduced in this publication are to be found at the end of the documents concerned.

# INTRODUCTION

The International Committee of the Red Cross (ICRC) is perhaps best known for its work in the midst of armed conflict bringing aid and assistance to the injured and sick, prisoners of war and civilians affected by the fighting. Yet, the institution also has a long history of being closely involved in the development of international humanitarian law. It was the efforts of the founder of the ICRC, Henry Dunant, which led to the adoption of the first humanitarian law treaty, the 1864 Convention for the Amelioration of the Condition of the Wounded in Armies in the Field. Since that time the ICRC has continued to play an important role in the subsequent development of humanitarian law. It prepared the drafts which were the bases for the negotiations of the 1929 Geneva Convention on Prisoners of War, the four Geneva Conventions of 1949 and the Additional Protocols adopted in 1977.[1]

The formal basis for the ICRC's role in this area is found in the Statutes of the International Red Cross and Red Crescent Movement. This movement, which is comprised of the ICRC, National Red Cross and Red Crescent Societies and their International Federation, and which works

[1] The full titles and dates of signature or adoption are: Convention Relative to the Treatment of Prisoners of War, signed at Geneva 27 July 1949; Convention (I) for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field, signed at Geneva 12 August 1949; Convention (II) for the Amelioration of the Condition of the Wounded, Sick and Shipwrecked Members of the Armed Forces at Sea, signed at Geneva 12 August 1949; Convention (III) Relative to the Treatment of Prisoners of War, signed at Geneva 12 August 1949; Convention (IV) Relative to the Protection of Civilian Persons in Time of War, signed at Geneva 12 August 1949; Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of the Victims of International Armed Conflicts (Protocol I), adopted at Geneva 1 June 1977; Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of the Victims of Non-International Armed Conflicts (Protocol II), adopted at Geneva 1 June 1977.

closely with all States Parties to the Geneva Conventions of 1949,[2] has charged the ICRC with the task of working '*for the understanding and dissemination of knowledge of international humanitarian law applicable in armed conflicts and to prepare any development thereof*'[3] (emphasis added). Thus, the ICRC's involvement in the development of a ban on anti-personnel landmines was neither a unique nor an unexpected action. It was part of a long tradition.

What was unique, however, was the public campaign the ICRC embarked upon to raise awareness about the landmine problem and the plight facing mine victims and to help create the political will in favour of a treaty banning anti-personnel mines. While the ICRC has spoken out publicly in the past about the use of specific weapons, such as poison gas, its dissemination activities and advocacy on the landmine issue were of a scale never before undertaken by the institution. Its campaign focused on stigmatizing anti-personnel mines in the public conscience and supporting international, regional and local efforts to address the mines problem.

Thus, expert and non-expert literature was prepared and distributed throughout the world by National Red Cross and Red Crescent Societies and ICRC delegations. The ICRC organized scores of meetings and conferences around the world in which its medical and legal experts participated, and ICRC field delegations in mine-affected countries hosted visits of hundreds of journalists, film crews and officials, including the highly publicized visit of Princess Diana to Angola. Print and television advertisements were also produced and placed in international media on a *pro bono* basis. The value of the donated space by the media is estimated to be over 3 million US dollars, with a potential audience of over 700 million people. Never before had the ICRC undertaken such an initiative.

Long before the public campaign was launched in 1995, the ICRC was engaged in efforts to reduce the effects of the weapons and to help develop restrictions or prohibitions on their use. It consulted experts and convened several meetings and seminars to shed light on the landmine problem and to study how it could be addressed, both by legal means and in the field. Of particular relevance are the expert meetings convened in the 1970s that formed the basis of the 1980 Convention on Certain Conventional Weapons (1980 CCW), the Montreux Symposium convened by the ICRC

[2] As at 1 May 2000, there were 188 parties to the 1949 Geneva Conventions. The set of treaties remains one of the most universally ratified.

[3] Article 5 (g) of the Statutes of the International Red Cross and Red Crescent Movement.

in 1993, and the ICRC's statements and contributions during the 1995–1996 Review Conference of the 1980 CCW. This work continued through the Ottawa process, and the negotiation and conclusion of the Ottawa treaty at the Oslo Diplomatic Conference in 1997.

Throughout this period the ICRC was also at the forefront of efforts to bring aid and assistance to mine victims and communities in mine-affected areas. The ICRC developed surgical standards for treating mine victims and pioneered the production of low-cost, high-quality artificial limbs. It also operated mine awareness programmes to teach those living in mined areas how to recognize and avoid potentially dangerous places. As hundreds of thousands of people remain affected by the weapons, these efforts still continue today.

The ICRC was, of course, not the only organization working to bring a comprehensive ban into existence. Parallel efforts were undertaken by the International Campaign to Ban Landmines (ICBL) which was awarded the 1997 Nobel Peace Prize for its work on this issue, National Red Cross and Red Crescent Societies, United Nations agencies and governments. The ICRC worked closely with all those striving for a comprehensive ban treaty. Today it remains engaged with these partners to ensure that the Ottawa treaty is implemented and respected.

This book is a chronology of the major events and a compilation of key documents charting the ICRC's contribution to the 1980 CCW, to the CCW's Review Conference held in 1995–1996, and to the Ottawa process. It is published to facilitate research and reflection on the role of the ICRC in international efforts to respond to the landmines problem. The documentation includes statements and declarations made at major conferences and meetings, the texts of many ICRC publications on mine-related issues, ICRC reports and contributions submitted to negotiating sessions as well as other texts on legal issues and victim assistance. The first part of the book provides an overview of the humanitarian law principles applicable to all weapons and the development of the rules regulating the use of anti-personnel mines in Protocol II of the 1980 CCW. The second part covers the period leading up to and through the 1995–1996 CCW Review Conference. Finally, the third part covers the Ottawa process and the development and adoption of a comprehensive ban treaty.

PART 1

# From principles to rules: regulating mines up to the 1980 Convention on Certain Conventional Weapons

# 1

# Historical background: the international law governing weapons

International humanitarian law is the branch of international law concerned with the waging of warfare.[1] It regulates the conduct of hostilities and the treatment of those not actively participating in the conflict (namely, civilians, the wounded and sick, and prisoners of war). It seeks to minimize suffering and ensure that both combatants and civilians are treated humanely. Although international treaties on the subject are of fairly recent origin, practices regulating armed hostilities are evident throughout history. Even before there were States, battles fought between tribes, clans or other groups were often governed by rules to mitigate the effects of armed violence. The ancient texts of many civilizations show that in war, prisoners were not to be killed but taken and well treated; women, children and the elderly were not to be harmed; and warriors should not use barbarous weapons or methods of attack.[2] While such practices were often founded on grounds of religion, morality or honour, they are the forerunners of the legal regime States have developed to regulate armed conflict.

International humanitarian law is based on the precept that the sole objective of war is to overpower the armed forces of the opponent.[3] Men become the legitimate object of attack solely because of their relationship

[1] International humanitarian law was traditionally known as the 'law of war' and today is also commonly referred to as the 'law of armed conflict'.

[2] See Sumio Adachi, 'A Process to Reaffirmation of International Humanitarian Law – A Japanese View', *Proceedings of the National Defence Academy*, 48 (March 1994), 437–477, on the Japanese code of behaviour 'Bushido', and Nagendra Singh, 'Armed Conflicts and Humanitarian Laws of Ancient India', in Christophe Swinarski (ed.) *Studies and Essays of International Humanitarian Law and Red Cross Principles in Honour of Jean Pictet* (Geneva: Martinus Nijhoff, 1984), pp. 531–536.

[3] H. Lauterpacht (ed.), *Oppenheim's International Law*, 7th edn (London: Longmans, 1952) vol. II, pp. 226–227.

with the making of warfare. In his renowned work *The Social Contract* (1762) Jean-Jacques Rousseau formulated one of the law's philosophical footings:

> War is in no way a relationship of man with man but a relationship between States, in which individuals are only enemies by accident, not as men but as soldiers'.[4]

From this, States have concluded that, at all times, a distinction must be made between the fighting forces of an adversary and its civilian population. Civilians cannot be the object of attack and the lives of soldiers who are wounded or lay down their weapons must be spared. Like its early antecedents, international humanitarian law is founded upon the precept that the infliction of gratuitous violence offends certain human values.

As the waging of warfare became the province of States, governments sought to ensure that many of the early practices would become legally binding rules and, in the late nineteenth century, began to codify some practices in international treaties. The 'father' of the Red Cross and Red Crescent Movement, Henry Dunant, helped initiate this process by the publication of *A Memory of Solferino* in 1863[5] as did Professor Francis Lieber, author of a document on the rules of war for government troops in the American Civil War.[6] Dunant's book drew world attention to the realities of war and the dangers posed by the 'new and frightful weapons of destruction which are now at the disposal of the nations'. His efforts prompted the Swiss government to invite many of the world powers to a diplomatic conference to adopt the first international humanitarian law treaty, the 1864 Convention for the Amelioration of the Condition of the Wounded in Armies in the Field. This helped set in motion the process through which the international community came to ban the use of exploding bullets, poison gas and bacteriological warfare and, more recently, blinding laser weapons and anti-personnel landmines.

Early international humanitarian law treaties did not specifically address deployment of landmines even though ancestors of the devices were used

[4] Jean Jacques Rousseau, *A Treatise on the Social Contract,* Book I, Ch. IV.

[5] Henry Dunant, *A Memory of Solferino* (Geneva: International Committee of the Red Cross, 1986).

[6] Instructions for the Government of Armies of the United States in the Field (General Orders No. 100) commonly referred to as the 'Lieber Code'. In addition to being one of the factors inspiring the codification of the laws of war, it was also the impetus for the development of military manuals.

in the American Civil War. These treaties did, however, prohibit the use of certain types of weapons and established a number of fundamental principles generally applicable to all weapons. Over time these principles were confirmed as part of customary international law and as such apply to all States and every side in an armed conflict.[7] Of particular relevance to the use of landmines are the following principles:

- The right of the parties to a conflict to adopt means of injuring the enemy is not unlimited.
- It is forbidden to use weapons which 'cause superfluous injury or unnecessary suffering'.
- In the conduct of hostilities, parties to a conflict must always distinguish between civilians and combatants.

From these restrictions, it follows that weapons which inflict injury or suffering greater than what is required to render a soldier *hors de combat* are prohibited. Furthermore, it is forbidden to attack civilian and soldier without discrimination and, consequently, any weapon which is inherently indiscriminate must not be used. While the development of international treaties concerned with anti-personnel landmines is discussed throughout the remainder of this book, it was these principles which were most often at the forefront of the legal discussions about the banning of the weapons. They are recognized in the preamble of the Ottawa treaty as one of the bases for the instrument's prohibitions[8] and remain valid restrictions on the use of anti-tank and anti-vehicle mines. Below is a brief overview of the international instruments outlining the development of the above-mentioned principles and providing additional historical and legal background for the comprehensive ban which came to fruition in the Ottawa treaty.

[7] International law is not only found in international treaties. Customary international law is unwritten law and is comprised of the practices which States undertake believing that they are under a legal obligation to do so. It often allows the law to develop without the need for convening formal negotiations but rather through the consensus of action. While a treaty applies only to those States that have formally adhered to it, customary law applies to all States unless they have consistently objected to the practice involved.

[8] The 11th paragraph of the preamble reads as follows, 'Basing themselves on the principle of international humanitarian law that the right of the parties to an armed conflict to choose methods or means of warfare is not unlimited, on the principle that prohibits the employment in armed conflicts of weapons, projectiles and materials and methods of warfare of a nature to cause superfluous injury or unnecessary suffering and on the principle that a distinction must be made between civilians and combatants'.

## The Declaration of St Petersburg 1868[9]

The Declaration of St Petersburg is the first formal international agreement banning the use of a particular weapon. In 1868 the czar of Russia, Alexander II, invited governments to St Petersburg to 'examine the expediency of forbidding the use of certain projectiles in the time of war between civilized nations'. The impetus behind this conference was the development of a bullet which exploded upon impact with 'soft' substances, including the human body. This was an advance on an earlier bullet developed by the Imperial Russian Army, which detonated solely on hard surfaces, the primary purpose of which was to destroy ammunition wagons. When used against humans the new projectile was no more effective than the ordinary bullet yet caused injuries and suffering beyond what was required to render a soldier *hors de combat.* Recognizing the danger that the new bullets posed to the troops of all States, the representatives of nineteen governments adopted the Declaration of St Petersburg.

The declaration prohibits the use of lightweight explosive projectiles, which are defined as bullets weighing less than 400 grams and either explosive or charged with fulminating or inflammable substances. While the declaration is exceptional because it is the first formal agreement prohibiting the use of a certain weapon in war, it is also significant because it established a number of fundamental principles concerned with the conduct of hostilities and which would come to play an important role in the future development of international humanitarian law. In banning these munitions, the participating governments concluded that:

> The only legitimate object which States should endeavour to accomplish during war is to weaken the military forces of the enemy;
>
> For this purpose it is sufficient to disable the greatest possible number of men;
>
> This object would be exceeded by the employment of arms which uselessly aggravate the sufferings of disabled men, or render their death inevitable;
>
> The employment of such arms would, therefore, be contrary to the laws of humanity.

[9] Declaration Renouncing the Use, in Time of War, of Explosive Projectiles under 400 Grams Weight. St Petersburg. Entered into force 11 December 1868.

These principles build upon the canon set forth by Rousseau and from them one can conclude that the parties to a conflict do not have unlimited choice in the way they wage war, and that weapons which cause gratuitous suffering or injury or certain death are not to be used.

In renouncing the use of lightweight explosive projectiles, therefore, governments balanced the military value of such a weapon against humanitarian considerations. This balance would also become an important formula in the future examination of weapons. As was provided in the final paragraph of the declaration:

> The Contracting or Acceding Parties reserve to themselves to come hereafter to an understanding whenever a precise proposition shall be drawn up in view of future improvements which science may effect in the armament of troops, in order to maintain the principles which they have established, and to conciliate the necessities of war with the laws of humanity.

## The Brussels Declaration of 1874

Following the meeting in St Petersburg, Alexander II again took the initiative and convened a conference to discuss a possible agreement outlining the laws and customs of war. Fifteen European governments attended the conference in Brussels and considered a draft treaty proposed by the Russian government. While the conference participants adopted the document with minor alterations, it was never ratified by States, and thus, did not become a binding international instrument. Article 12 of the document is particularly notable for including, in addition to the ban on the use of projectiles established in the Declaration of St Petersburg, a prohibition on the use of poison or poisoned weapons and 'arms, projectiles or material calculated to cause unnecessary suffering'. Although the text never came into force, the conference and the draft document were important steps in the movement towards the codification of the laws of war and many subsequent developments can be traced back to them.

## The Hague Conventions of 1899 and 1907

A prohibition on specific types of weapons was also one result of the Hague International Peace Conference of 1899. This conference brought together twenty-six States and sought, among other things, the most effective means of 'limiting the progressive development of existing armaments' and 'the

revision of the declaration concerning the laws and customs of war elaborated in 1874 by the Conference of Brussels, and not yet ratified'.[10] The Hague conference resulted in the conclusion of three conventions and two declarations relevant to the conduct of warfare, all of which were eventually ratified and became international law.

Most relevant to this discussion is Convention II and its regulations[11] which cover land warfare. Importantly, the Convention confirms the norms outlined in the Declaration of St Petersburg and those considered at the Brussels Conference.[12] It also affirms an obligation to distinguish between those persons taking part in the hostilities and those who are *hors de combat*.[13] Two declarations attached to the Convention outlaw the use of specific kinds of weapons. The first (Declaration IV, 3) prohibits the use of projectiles which expand or flatten upon entering the human body.[14] These so-called 'dum-dum' bullets cause injuries similar to the horrific wounds inflicted by the lightweight projectiles proscribed in 1868. They were developed and manufactured by the British in India for use in colonial warfare and their development and use were the subject of intense debate within and outside the United Kingdom.[15]

The second declaration (Declaration IV, 2) bans the use of projectiles diffusing asphyxiating or deleterious gases.[16] This reflects an initial attempt to ban gas warfare and its scope was later broadened by the 1925 Geneva Protocol presented below.

The Hague Convention of 1899 is also noteworthy for introducing the so-called 'Martens clause'. This clause, found in the instrument's preamble and named after its author, the Russian delegate de Martens, provides:

[10] Russian Circular note of 30 December 1898.

[11] Convention (II) with Respect to the Laws and Customs of War on Land and its annex: Regulation concerning the Laws and Customs of War on Land. The Hague, 19 July 1899. Entered into force 4 September 1900.

[12] See Article 22 and Article 23 (e).

[13] The Convention requires that prisoners of war are to be treated humanely (Article 4) and prohibits a declaration that no quarter will be given (Article 23(d)). In Article 21 it also affirms the obligations upon belligerents under the Convention for the Amelioration of the Wounded in Armies in the Field. Geneva, adopted 22 August 1864. Entered into force 22 June 1965.

[14] Declaration (IV, 3) concerning Expanding Bullets. The Hague, 29 July 1899. Entered into force 4 September 1900.

[15] Edward M. Spiers, 'The Use of Dum-Dum Bullets in Colonial Warfare', *Journal of Imperial and Commonwealth History* 4 (1975), 3–14. The bullets were so called because they were manufactured at the cantonment of Dum-Dum, located several miles north-east of Calcutta.

[16] Declaration (IV, 2) concerning Asphyxiating Gases. The Hague, 29 July 1899. Entered into force 4 September 1900.

> Until a more complete code of the laws of war is issued, the High Contracting Parties think it right to declare that in cases not included in the Regulations adopted by them, populations and belligerents remain under the protection and empire of the principles of international law, as they result from the usages established between civilized nations, from the laws of humanity, and the requirements of the public conscience.

The Martens clause establishes a legal safety net whereby soldiers and civilians alike remain protected by basic humanitarian principles in the event that the existing rules of international law are inadequate or non-existent. It makes clear that, in the absence of positive rules, the conduct of warfare shall not be left to the arbitrary judgement of military commanders.

In 1907, a second Hague Peace Conference was held to continue the work of its predecessor. At this meeting Convention II on land warfare was slightly revised and again adopted.[17] Yet, for the most part, the rules and principles discussed above remained unchanged. The declarations on expanding bullets and asphyxiating projectiles were not reconsidered at the 1907 conference and remained as adopted in 1899.

### 1925 Geneva Protocol on Poisonous and Asphyxiating Gases[18]

Declaration II of the Hague Convention of 1899 prohibited the use of projectiles diffusing asphyxiating or deleterious gases. Nonetheless, during the First World War various types of chemical agents were used in gas form and dispersed into the wind through canisters on the ground as opposed to projectiles. Thus, Declaration II was not deemed to have been violated, at least in purely technical terms. However, the suffering which such toxins produced on the ground among the troops of all sides provoked outrage in both public and governmental circles. Subsequently, an international conference convened by the League of Nations adopted the 1925 Geneva Protocol which broadened the prohibition on gas warfare. The Protocol banned the 'use in war of asphyxiating, poisonous or other gases and of all analogous liquids, materials or devices'. As the instrument recognizes that such weapons have 'been justly condemned by the general opinion of the

[17] Convention (IV) respecting the Laws and Customs of War on Land and its annex: Regulation concerning the Laws and Customs of War on Land. Entered into force 26 January 1910.

[18] Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva 17 June 1925. Entered into force 8 February 1928.

civilized world' and that their use is prohibited 'in Treaties to which the majority of Powers of the world are Parties', it supports and develops the principles and rules of earlier instruments. Furthermore, and with some foresight, the Protocol also banned the use of bacteriological methods of warfare, a manner of warfare which had not been extensively developed at that time.

For the most part, the treaty law regulating the use of weapons and the conduct of hostilities remained unchanged until the Additional Protocols to the 1949 Geneva Conventions, which were concluded in 1977. Nonetheless, the rules and principles that had been established comprise some of the most fundamental norms of international humanitarian law and, as was recognized by the International Military Tribunal at Nuremberg, they are part of the customary international law applicable to all States.[19] They reflect the early developments of the international law regulating the use of weapons in armed conflict and are the framework within which States, through the Ottawa treaty, came to ban anti-personnel landmines.

[19] *Trial of the Major War Criminals Before the International Military Tribunal, Nuremberg*, Vol. XXII, p. 497. See also International Court of Justice, *Legality of the threat or use of nuclear weapons*, Advisory Opinion of 8 July 1996.

# 2

## The ICRC's draft rules to protect civilian populations 1955–1956

As early as the 1950s the ICRC identified the landmine as a weapon of special concern. One of the first efforts to limit the consequences of landmines was the ICRC's *Draft Rules for the Limitation of the Dangers Incurred by the Civilian Population in Time of War* published in 1956[20] (referred to below as *1956 Draft Rules*). These rules were issued in response to developments in armaments and military doctrine, and the widespread injury and damage to civilian populations during the Second World War. As international humanitarian law was founded on the fundamental distinction between combatants and non-combatants, the ICRC was concerned that the proliferation of so-called 'blind' weapons and methods of warfare, which were unable or failed to take this distinction into account, would severely undermine the protection it afforded. The *1956 Draft Rules* sought to affirm and supplement many of the principles found in earlier international humanitarian law treaties.

Work on the draft rules began in April 1954 with a meeting of outside experts. Based on the results of this meeting, the ICRC prepared a first draft document entitled 'Draft Rules for the Protection of the Civilian Population from the Dangers of Indiscriminate Warfare' (referred to below as the '1955 draft') which it then submitted to National Red and Red Crescent Societies and other individuals for comment. While this draft contained regulations on means and methods of warfare, there was no specific rule on the use of landmines. The ICRC nevertheless recognized the danger that these weapons posed to civilian populations. While Article 10(3) of the 1955 draft covers the use of 'delay-action' projectiles, the ICRC in its commentary discussed the broader category of 'delay-action' weapons, including both

[20] *Draft Rules for the Limitation of the Dangers Incurred by the Civilian Population in Time of War.* Published by the International Committee of the Red Cross with commentary, Geneva, April 1958.

submarine mines and landmines. Article 10(3) and the relevant parts of the ICRC commentary are reproduced below.

Following the comments of National Red Cross and Red Crescent Societies, an Advisory Working Group was constituted with a view to finalizing the document in time for the forthcoming conference of the Red Cross Movement. In the Advisory Working Group, the dangers mines pose to civilian activity were raised by several Red Cross Societies, which voiced concern about the impact of newly developed submarine mines on civilian navigation. Subsequently, in the *1956 Draft Rules*, the ICRC introduced an article to lessen the potential effects of mines in a post-conflict environment. Article 15, covering both landmines and submarine mines, is notable because, like the draft rules as a whole, it was intended to apply not only to armed conflicts between States but also to conflicts 'not of an international character'. [21] This would have set an important precedent, had the draft rules been developed into a binding international instrument. While the *1956 Draft Rules* were presented to the 19th International Red Cross Conference and submitted to governments for consideration, no action was taken to turn them into an international treaty. The use of landmines nevertheless remained subject to the norms established in the Declaration of St Petersburg and The Hague Conventions and Declarations of 1899 and 1907, which the *1956 Draft Rules* sought to reaffirm and develop.

**Draft Rules for the Protection of the Civilian Population from the Dangers of Indiscriminate Warfare**

Geneva
1955

*Article 10, sub-paragraph 3*

*The use of so-called delay-action projectiles is only authorized when their effects are limited to the objective itself.*

Commentary

I – The ICRC consulted the Experts who met in 1954 about the problem of incendiary and "delay-action" bombs, as being among the weapons likely to cause unnecessary damage.

[...]

[21] *1956 Draft Rules*, Article 2.

On going into the subject in greater detail, the ICRC was led to consider three cases of so-called "delay-action" weapons. The first is that of submarine mines, the use of which is, as we know, expressly governed by the Eighth Hague Convention of 1907. Then there are the delay-action mines which are used by armies during land operations and are, for example, buried in the ground or hidden in houses, and explode after the enemy has taken possession of the terrain. Finally, there is a third category – bombs and mines which are dropped from the air and have a delayed action in the sense that they explode after a given lapse of time or when they are touched.

Since the question of submarine mines is already governed by an international Convention, there is no call to consider it here. A legal solution of the second case, that of land mines etc., raises great difficulties and the ICRC's study of the subject is not sufficiently advanced to enable it to propose a rule concerning it. The Committee proposes to continue its study of the question, however – and would greatly appreciate any opinions expressed with regard to it – in view of the danger to which this type of mine exposes the civilian population when they reoccupy their homes, even after peace has been re-established.

The ICRC has accordingly confined itself, for the time being, to drafting a rule referring solely to the third category, that is to say, to delay-action projectiles – having more particularly in mind the missiles of this type which would be used in "strategic" bombing. It appeared difficult, however, to prohibit the use of such weapons completely, for if they are confined to the military objectives themselves, their use is really equivalent to repeating the attack on the objective, and that being so, the justice of prohibiting them in particular might be questioned. [...]

**Draft Rules for the Limitation of the Dangers Incurred by the Civilian Population in Time of War**

Geneva
1956

*Art. 15 – Safety measures and devices*

*Paragraph I.*
*"If the Parties to the conflict make use of mines, they are bound, without prejudice to the stipulations of the VIIIth Hague Convention of 1907, to chart minefields. The chart shall be handed over, at the close of hostilities, to the adverse Party, and also to the authorities responsible for the safety of the civilian population."*

Commentary

In its Comments on the Draft Rules (1955), the ICRC had indicated that it was continuing to study the question of mines employed in land operations. These devices, whether buried in the ground or hidden in buildings, may constitute grave dangers for the civilian population. Many children have been killed as a result of mines which exploded while, all unwitting, they were playing with them.

For their part, several Red Cross Societies drew the ICRC's attention, in their Remarks and Suggestions on the Draft Rules (1955), to the question of submarine mines. They stressed the new developments in connection with these devices, which explode not only when the enemy comes into contact with them, but also as a result of other factors (such as pressure). These Societies considered that, in consequence, the VIIIth Hague Convention of 1907 on Automatic Submarine Contact Mines no longer regulates this problem satisfactorily. The result is an increase in the danger to civil navigation.

As noted in connection with Article 5, the ICRC could not in the present Draft and at this stage, settle this particular question which is one for international law relating to maritime war.

The ICRC decided to adhere to a very broad rule after studying the question of landmines, which appears difficult to circumscribe within strict limits, and in view of its attitude to the problem of submarine mines. The content of the present paragraph, in so far as it concerns landmines, conforms to the general practice of armed forces and in so far as it concerns submarine mines, to the spirit of the VIIIth Hague Convention, the provision of which, incidentally it reserves.

A rule of this kind, however limited, may afford valuable safeguards. Moreover it forms a starting point and it will be for the military and Government Experts to say to what extent they wish to go beyond it. Would it be possible, for example, in certain cases to hand the charts of minefields to the adverse Party and to the Authorities who are responsible for the safety of the population before the termination of active hostilities?

# 3

## Expert contributions to the Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts 1973–1977

In its role as depository for the Geneva Conventions, the Swiss government convened a diplomatic conference in the mid-1970s to supplement the existing international humanitarian law. The Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts (1974–1977) sought to increase the protection afforded to the victims of armed conflict, particularly against the effects of hostilities, and resulted in the adoption of the two Additional Protocols to the Geneva Conventions of 1949.

In preparing the drafts which were the bases for the diplomatic negotiations, the ICRC did not include prohibitions or restrictions on the use of particular weapons. Instead, because of the potentially sensitive nature of such discussions, it chose to restate the fundamental rules governing the use of weapons in earlier international humanitarian law treaties, which by this time were considered to be part of customary international law.

Nonetheless, in spite of the absence of additional restrictions in the drafts, the experts of nineteen governments requested the ICRC to consult with specialists on the problem of conventional weapons which may cause unnecessary suffering or have indiscriminate effects. The purpose was to have detailed reports and information available should governments wish to address the regulation of these weapons at the Diplomatic Conference.

Three expert meetings were convened between 1973 and 1976:

- Expert Meeting on Weapons that may Cause Unnecessary Suffering or Have Indiscriminate Effects, held in Geneva, 26 February to 2 March and 12 to 15 June 1973;
- Conference of Government Experts on the Use of Certain Conventional Weapons, Fırst Session, held in Lucerne, 24 September to 18 October 1974; and

- Conference of Government Experts on the Use of Certain Conventional Weapons, second session held in Lugano, 28 January to 26 February 1976.

The Diplomatic Conference created an *ad hoc* working group to examine the issue and the group was provided with the results of the expert meetings. In the end, however, the conference chose not to include additional prohibitions or restrictions. Instead, it called for the issue to be dealt with in the framework of the United Nations. The United Nations General Assembly endorsed this recommendation which led to the negotiation and adoption of 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.

Each of the three expert meetings convened by the ICRC between 1973 and 1976 produced a report outlining the types of weapons which might be considered to cause unnecessary suffering or have indiscriminate effects. These included small-calibre projectiles, blast and fragmentation weapons, time-delay weapons and incendiary weapons. The reports are closely interrelated so it is helpful to present them together. For the most part, only those sections pertaining to landmines, which were treated under the heading of 'Time Delay Weapons', are reproduced in the following pages. The paragraph numbers indicated are from the original reports. As only selected chapters are reproduced here, the numbering of paragraphs is not necessarily consecutive.

## Weapons that may Cause Unnecessary Suffering or Have Indiscriminate Effects

### Report on the Work of the Experts

*held in Geneva, Switzerland*
*26 February – 2 March and 12–15 June 1973*

Extracts from the 1973 report produced by the ICRC are reproduced below. The report summarizes the work of the forty-three experts from various countries, international agencies and non-governmental organizations participating in the meeting. It gives a descriptive overview of the technical characteristics of mines, the general strategy behind their use and the medical characteristics of the injuries they cause. The report does not

provide analysis or conclusions on the weapon's characteristics or effects in relation to humanitarian law rules. The chapter on time delay weapons has been reproduced in its entirety. Also reproduced are the chapters on the existing legal prohibitions at that time and on the principal categories of weapons and their effects. The final remarks found at the end of the report are also reproduced.

## CHAPTER I

## Existing legal prohibitions or limitations regarding the use of specific weapons

### 1. General Principles

18. At the outset of this report a brief discussion may be useful of the concepts upon which the employment of specific weapons has in the past been viewed as prohibited. The prohibition of use of specific weapons might, of course, be agreed upon between States regardless of the concepts and criteria that may be discerned behind prohibitions adopted in the past. Nevertheless these concepts and criteria retain their validity and still offer guidance.

19. The legal concepts discussed here are of direct relevance only to the questions of the use of particular weapons and of whether that use should be deemed permissible, or be subject to or be made the subject of prohibition. These concepts have no necessary bearing on measures of disarmament in the sense of elimination of development, production and stockpiling of particular weapons, though such measures may be deemed desirable as regards one or more of the weapons discussed in this report.

20. Any legal evaluation of problems related to the use of weapons in armed conflicts must proceed from the principle that the choice of means and methods of combat is not unlimited (cf. Hague Regulations concerning the Laws and Customs of War on Land, Art. 22). Rules which specify this general principle are those which explicitly or by implication seek to prevent the use of weapons causing unnecessary suffering, and indiscriminate weapons or methods of combat. In addition, the general maxim embodied in the Martens clause (Hague Convention No. IV, preamble para. 8) may be referred to here, namely that in cases not included in applicable conventions, civilians and combatants remain under the protection and the authority of the principles of international law, as they result from the principles of humanity and the dictates of public conscience. This underlines the applicability of international law even in such cases where prohibitions of specific weapons do not appear in existing international conventions.

(a) *Unnecessary suffering*

21. The principle that weapons causing unnecessary suffering must be avoided is set forth in the Hague Regulations, Art. 23, sub-para. (e). However, the authentic French version and the English translation of this Article differ in some respects: the French text provides that "il est . . . interdit . . . d'employer des armes, des projectiles ou des matières *propres à* causer des *maux* superflus", while the English version reads "it is forbidden . . . to employ arms, projectiles, or material *calculated to* cause *unnecessary suffering*" (emphases added). The English version would be the narrower if its contents were taken to add a subjective element to the original rule. In conformity with the authoritative French text, the principle must be stated to be that – irrespective of the belligerents' intentions – any means of combat are prohibited that are *apt* to cause unnecessary suffering or superfluous injury. While the authentic French text uses the term "superfluous injury" (maux superflus), the phrase "unnecessary suffering" used in the English translation has acquired a relevance of its own through the practice of States. Hence, both concepts are of importance for the assessment of whether particular weapons shall be deemed prohibited for use.

22. The principle referred to in the preceding paragraph is, indeed, found expressed already in the preamble of the St Petersburg Declaration to the Effect of Prohibiting the Use of certain Projectiles in Wartime (29 November/ 11 December 1868), which states:

". . .
(2) that the only legitimate object which States should endeavour to accomplish during war is to weaken the military forces of the enemy;
(3) that for this purpose it is sufficient to disable the greatest possible number of men;
(4) that this object would be exceeded by the employment of arms which uselessly aggravate the sufferings of disabled men, or render their death inevitable;
(5) that the employment of such arms would therefore be contrary to the laws of humanity."

The St Petersburg Declaration imposes a ban on the employment of "any projectile of a weight below 400 grammes, which is either explosive or charged with fulminating or inflammable substances". The Hague Declaration concerning the Prohibition of Dum-Dum Bullets (1899), in pursuance of the same object of avoiding unnecessary suffering, prohibits 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".

23. What suffering must be deemed "unnecessary" or what injury must be deemed "superfluous" is not easy to define. Clearly the authors of the ban on dum-dum bullets felt that the hit of an ordinary rifle bullet was enough to put a man out of action and that infliction of a more severe wound by a bullet which flattened would be to cause "unnecessary suffering" or "superfluous injury". The circumstance that a more severe wound is likely to put a soldier out of action for a longer period was evidently not considered a justification for permitting the use of bullets achieving such results. The concepts discussed must be taken to cover at any rate all weapons that do not offer greater military advantages than other available weapons while causing greater suffering/injury. This interpretation is in line with the philosophy that if a combatant can be put out of action by taking him prisoner, he should not be injured; if he can be put out of action by injury, he should not be killed; and if he can be put out of action by light injury, grave injury should be avoided. In addition the concepts "unnecessary suffering" and "superfluous injury" would seem to call for weighing the military advantages of any given weapon against humanitarian considerations.

(b) *Indiscriminate effects*

24. The basic principle that the parties to an armed conflict shall confine their operations to defeating the military objectives of the adversary, and shall ensure that civilians and civilian objects are respected and protected, is embodied in international instruments, e.g., the St Petersburg Declaration, preamble, para. 2, and the Hague Regulations. It was often violated by methods of indiscriminate warfare, but is nevertheless firmly established in international law. The XXth International Conference of the Red Cross (Vienna 1965), in its Resolution XXVIII, confirmed "that distinction must be made at all times between persons taking part in the hostilities and members of the civilian population to the effect that the latter be spared as much as possible". The same text was included in Resolution 2444 (XXIII), of the UN General Assembly which was unanimously adopted on 19 December 1968.

25. It follows from this principle that weapons and other means of combat must never be directed against civilians or civilian objects. This principle has not been taken to mean a ban upon weapons and other means of combat which, though directed against military targets, entail the risk of incidental civilian casualties or damage to civilian objects in the vicinity of the targets. It does imply, however, that weapons which by their nature are incapable of being directed with any certainty to specific military targets, or which in their typical or normal use are not delivered with any certainty to such targets, are in violation of this principle.

26. Some international conventions prohibit the use of certain weapons because of their indiscriminate effects. The Hague Convention No. VIII concerning the

Laying of Automatic Submarine Contact Mines prohibits "1st – to lay unanchored automatic contact mines, except when they are so constructed as to become harmless one hour at most after the person who laid them ceases to control them; 2nd – to lay anchored automatic contact mines which do not become harmless as soon as they have broken loose from their moorings; 3rd – to use torpedoes which do not become harmless when they have missed their mark". Likewise, the most significant instrument prohibiting the use of specified weapons, i.e. the Geneva Protocol of 1925 for the Prohibition of the Use in War of Asphyxiating, Poisonous and other Gases, and of Bacteriological Methods of Warfare, is at least in part based on the concept of preventing indiscriminate effects of combat.

27. The prohibition of indiscriminate warfare relates more often to methods of warfare and methods of using weapons than to specific weapons *per se.* All weapons are capable of being used indiscriminately. This is not, of course, sufficient ground for prohibiting their use in armed conflicts, but a ground for prohibiting such types of use. However, in some cases weapons may be indiscriminate by their very nature. Moreover, in some other cases the normal or typical use of the weapons may be one which has indiscriminate effects.

## 2. Military Manuals and Regulations

28. It is of considerable value to know in which way international law in force is reflected in some military manuals and regulations. Only a limited number of national service manuals were available for evaluation for the purpose of this report, and no manuals concerning rules of engagement have been available.[1] The manuals taken into consideration deal expressly with prohibitions of the use of weapons in armed conflicts. This permits some detailed comments touching on the implementation of the various legal principles in State practice.

29. In the light of the development which has taken place in the practice of States, confirmed by stands taken in their military manuals, the *St Petersburg Declaration* continues to apply under present-day conditions to projectiles weighing considerably less than 400 grammes that are not capable of incapacitating persons other than those who have received a direct hit, thus causing unnecessary suffering.

30. The *Hague Declaration concerning the Prohibition of Dum-Dum Bullets,* which was modelled on the lines of the St Petersburg Declaration, did not raise much legal controversy, nor did it lead to difficulties in State practice. The British Government originally objected to an express prohibition of dum-dum bullets (named after a British arsenal near Calcutta) but ratified the Declaration in 1907. The United States was not a party to the Declaration; yet US Army Department

pamphlet No. 27–161–2 (p. 45) points out that the U.S. delegation at the 1899 Peace Conference had pressed for the adoption of more stringent limitations; "The use of bullets inflicting wounds of useless cruelty, such as explosive bullets, and in general all kinds of bullets which exceed the limit necessary for placing a man *hors de combat* should be forbidden".[2] During the First World War, belligerent Parties accused each other in several instances of having used dum-dum bullets. There is, however, no reason to believe that the Declaration had not been implemented on the whole. Difficulties might arise from the somewhat uncertain definition of "bullets which expand or flatten easily in the human body". The examples given in the Declaration: "bullets with a hard envelope which does not entirely cover the core or is pierced with incisions" do not appear to be exhaustive. Hence the German ZDv 15/10 (para. 75) states that projectiles which produce the same effects by other means, e.g. hollow-point projectiles, are covered by the prohibition of the Declaration.

31. The prohibition of means causing unnecessary suffering set forth in the *Hague Regulations,* Art. 23 sub-para. (e) is reflected in almost every military manual dealing with the subject of international law of war. The United States FM 27–10 (para. 34) states that the question as to what weapons cause "unnecessary injury" can only be determined in the light of the practice of States in refraining from the use of a given weapon because it is believed to have that effect. Like the British manual (para. 110), the US manual stresses that this prohibition certainly does not extend to the use of explosives contained in artillery projectiles, mines, rockets or hand grenades. Both manuals give the same examples of means to which the prohibition of the Hague Regulations, Art. 23 sub-para. (e), would apply: lances with barbed heads, irregular shaped bullets, and projectiles filled with broken glass, the use of any substance on bullets that would tend unnecessarily to inflame a wound inflicted by them, and the scoring of the surface or the filing off of the ends of the hard cases of the bullets. The US DA PAM 27–161–2 (p. 45) adds that this amounts to an official prohibition of bullets which tear an unnecessarily large hole.

32. The use of *shotguns* during the First World War gave rise to legal controversy. In September 1918, the German Government lodged a protest with the United States against the use of shotguns by the US Army. The US Secretary of State replied in a note stating that in the opinion of the US Government the Hague Regulations Art. 23 sub-para. (e) did not forbid the use of shotguns, that in view of the history of the shotgun as a weapon of warfare, the well-known effects of its use, and a comparison of it with other weapons approved in warfare, the shotgun then in use could not be made the subject of legitimate and reasonable protest, and that the United States would not abandon its use.[3] The US DA PAM 27–161–2 (p. 45) quotes an opinion of the Office of the Judge Advocate General

of 1961 stating that, while there is no conventional or customary rule of international law prohibiting the use of shotguns as such, international law does impose restrictions on the types of bullets that may be used in both smoothbore and rifled small arms. According to the author of DA PAM 27–161–2, the legality of the use of shotguns depends on the nature of the shot employed and its effect on a soft target: while the use of an unjacketed lead bullet is considered a violation of the laws of war, the use of shotgun projectiles sufficiently jacketed to prevent expansion or flattening upon penetration of a human body, and the employment of shot cartridges, with chilled shot regular in shape, is regarded as lawful. The German ZDv 15/10 (para. 76) regards shotguns as an illegal means of warfare which offers no real military advantage while causing unnecessary suffering.

33. The prohibition of *poison or poisoned weapons* contained in Art. 23 subpara. (a) of the *Hague Regulations* has raised the question of whether the poisoning or contamination of water supplies from which the enemy may draw drinking water can be made lawful by posting up a notice informing the enemy that the water has thus been polluted. The adoption of that practice by a commander of German troops in South-West Africa in 1915 led to a British protest which was rejected by the German Government. A former official American opinion which regarded it as legal to contaminate water by placing dead animals therein or by other means, provided that such contamination is evident or the enemy is informed thereof, was squarely in conflict with the British position (British manual, para. 112). The American FM 27–10 (para. 37) now refers to the prohibition of poison without qualifications, and so does the German ZDv 15/10 (para. 77).

34. The use *of flame throwers* and *napalm* has been a matter of dispute. The British manual (para. 110) regards these means as lawful only when directed against military targets, and states expressly that their use against personnel is contrary to the law of war in so far as it is calculated to cause unnecessary suffering. The US FM 27–10 (para. 36) states that it is not violative of international law to use weapons which employ fire, such as tracer ammunition, flame throwers, napalm and other incendiary agents, "against targets requiring their use". The US DA PAM 27–161–2 (p. 42) points out that these words have been inserted in order to preclude practices such as the wanton use of tracer ammunition against personnel when such use is not called for by a military necessity.

35. An express reference to *indiscriminate weapons* is contained in the German manuals. The HDv 100/1 Anhang Teil III (para. 607) states that flying bombs (e.g. rockets) must be designed in such a way that they can be launched against military objectives with sufficient accuracy. Accordingly, the ZDV 15/10 (para. 90) confirms that the use of such weapons would be illegal if their inaccu-

racy makes it likely for the civilian population to be hit with full power. Yet the ZDv adds that even inaccurate weapons may lawfully be employed against military targets if, due to the situation or extension of the target, there is but little danger that the civilian population will suffer disproportionately.

36. The use of *mines* is dealt with in a specific manner by the German manuals. The HDv 100/1 Anhang Teil III (para. 58) states that mines as such cannot be considered to be treacherous means, provided they are used in places where the enemy might reasonably suspect them. The HDv adds that the use of mines is forbidden in places that are exclusively used for peaceful purposes. The same rule is repeated in the ZDv 15/10 (para. 89).

37. *Delayed action weapons* and, more specifically, *booby-traps* should also be mentioned in this context. While the problems posed by their use relate apparently in the first place to methods rather than means of warfare, some weapons of this category might be considered as illegal means. The German ZDv 15/10 (para. 70) describes as prohibited booby-traps that look like "peaceful objects", e.g. fountain pens, watches, or toys. The Austrian manual (para. 40), too, declares that booby-traps camouflaged as toys are illegal means of combat.

### 3. Implementation and International Co-operation

38. The continuous development of new weapons and weapon systems necessitates an equally continuous assessment of such development in the light of the guiding principles of international law of armed conflicts, viz. the prohibition of use of means that cause unnecessary suffering/superfluous injury and the prohibition of indiscriminate warfare. These assessments must evidently take place in the first instance at the national level.

39. While there can be little doubt about the desirability for States to carry out negotiations and consultations with a view to determining whether the use of new weapons or weapon systems will be compatible with the laws of armed conflict, contemporary international co-operation in this field still calls for improvements. In the interest of international cooperation, topical problems touching on the employment of new weapons and weapon systems should be the object of periodical consideration among Governments, as was envisaged already in the St Petersburg Declaration. The progressive development of international law in this field will enhance the protection of civilians against indiscriminate warfare and of combatants against means of combat that cause unnecessary suffering.

CHAPTER II

## Principal categories of weapon, and the questions of indiscriminateness and degrees of suffering or injury

40. This chapter provides a brief introduction to the major types of weapon and their effects in order to place the subsequent discussion in perspective. It summarizes briefly the principal features, both of those weapons whose properties are described in detail in subsequent chapters, and of those other weapons forming part of present-day arsenals whose properties are not so described. The chapter goes on to discuss, in broad terms, some of the military applications of the different categories of weapon with particular reference to the concepts of indiscriminateness, unnecessary suffering and superfluous injury. The legal significance of these concepts has been described in Chapter I.

### 1. The Principal Categories of Weapons

41. The major categories of weapon and their effects are summarized in Table II.1. Since this report is primarily concerned with the effects of weapons on people, and less with their effects on material, the focus is on the casualty-producing properties of the different categories.

42. *Explosive and penetrating weapons* cause a variety of different physical injuries. These may be grouped into injuries due to blast and injuries due to penetration of the human body by one or more missiles, such as projectiles or fragments. Penetrating weapons cause the latter type of injury, whereas explosive weapons may cause either or both types. As is described in Chapter IV, explosive weapons can be designed to maximize one or other of these two casualty effects, in which event they may be classified either as blast weapons or as fragmentation weapons.

43. Blast injuries sustained from the shock-waves created by explosive weapons result from the transmission of the shock-wave through the human body and its internal cavities. They vary in nature according to the medium (e.g. air, water or solid materials) through which the shock wave is transmitted to the body. They may be compounded by a variety of secondary effects, such as penetration by fragments, crush injuries from falling debris, and so forth.

44. As regards penetrating weapons, projectiles and fragments are responsible for the majority of injuries in modern conventional warfare. In recent conflicts they have caused 70–80 per cent of all battle injuries. Of this percentage, about three quarters of the injuries have resulted from fragments released by explosive weapons and about one quarter from single projectiles such as rifle or machine-gun bullets.

45. The wounds from penetrating weapons result from the transfer of kinetic energy during penetration of the human body by the projectile or fragment. This is described in more details in Chapter III. Death is particularly likely where vital organs are penetrated. Death may also result from loss of body fluids and shock, or subsequently from infection, particularly where there is the massive tissue destruction that may be caused by large projectiles, exploding projectiles, projectiles which flatten, expand or tumble on impact, or which enter the body with high velocity.

46. *Incendiary weapons* depend for their effects upon the action of incendiary agents. The latter have been defined by the UN Secretary-General as "substances which affect their target primarily through the action of flame and/or heat derived from self-supporting and/or self-propagating exothermic chemical reactions".[4] Against man, their casualty effects may sometimes also include asphyxiation and poisoning, for example by carbon monoxide generated during combustion, or by certain components of incendiaries such as white phosphorus. These burns are frequently difficult to treat, and death, due to a number of causes, may sometimes ensue several weeks after the initial injury. This is discussed in more detail in Chapter VI.

47. *Nuclear weapons* are, in effect, incendiary explosive weapons of great power. They are also radiological weapons because of the ionizing radiation released by the nuclear explosion, both immediately, and subsequently in the form of radioactive "fallout".[5] The dominant casualty effects are those of blast, thermal radiation and ionizing radiation. For the last of these, there may be an extended period of days, weeks or even years before symptoms of ill-health are displayed. Ionizing radiation may also delay the healing of other injuries, and affect the progress of certain diseases.

48. *Biological weapons* depend for their effects upon biological-warfare agents. The latter have been defined by the UN Secretary-General as "living organisms, whatever their nature, or infective material derived from them, which are intended to cause disease or death in man, animals or plants, and which depend for their effects on their ability to multiply in the person, animal or plant attacked".[6] Against man, the weapons might be used, conceivably over very large areas, either to kill or to cause disablement lasting for days, weeks or months. One of the principal characteristics of the weapons is the incubation period that extends between the initial infection by the biological-warfare agent and the onset of disease; this may be of between a day and a month. Another characteristic is the poor degree of control, whether in space or in time, which the user of the weapons can exert over their effects. The agent may be carried far beyond the intended target area by natural processes of wind or drainage, or by living carriers of the

Table II.1
The Principal categories of weapons and their effects

| *Category of weapon* | *Principal casualty effects* |
|---|---|
| Explosive | blast,<br>fragmentation,<br>other secondary effects |
| Penetrating | penetration,<br>high-velocity effects |
| Incendiary | burns,<br>asphyxiation,<br>toxic effects |
| Nuclear | burns,<br>blast,<br>ionizing radiation |
| Biological | disease |
| Chemic | |

agent or of the disease. In some cases also, the disease may be directly transmissible from man to man, thereby creating the risk of a spreading and persistent epidemic. These factors militate against the military utility of biological weapons.

49. *Chemical weapons* depend for their effects upon chemical-warfare agents. The latter have been defined by the UN Secretary-General as "chemical substances, whether gaseous, liquid, or solid, which might be employed because of their direct toxic effects on man, animals, and plants".[7] Against man, the weapons may be used either to kill or to cause disablement for a period of between a few minutes and a few days. Chemical weapons have much in common with biological weapons, but a greater degree of control can be exerted over their effects, and the time-lag before their effects become manifest rarely exceeds a few hours. They are therefore considered to have greater military utility than biological weapons. The area of effectiveness of a single chemical weapon may range between a fraction of a hectare and several square kilometres.

## 2. Military Classifications of Weapons and the Question of Indiscriminateness

50. The weapons described in the preceding paragraphs may also be classified according to certain of their military characteristics. In one widely used

classification of this type, a distinction is made between "antipersonnel" and "antimateriel" weapons. Another convention is to distinguish between point targets and area targets and, as a corollary, between "point weapons" and "area weapons". Area weapons, whose effects are extended in space, have a further counterpart in "time-delay weapons", whose effects are extended in time. These distinctions are discussed further in the following paragraphs. They are of assistance in relating concepts of military necessity to such questions as the discriminateness, or otherwise, of particular weapon applications.

51. Antipersonnel weapons are those which are primarily directed towards killing or otherwise incapacitating people. The distinction between them and antimatériel weapons is not clear-cut, however, for in the interests of flexibility there is a military requirement for multifunctional weapons. Thus, many of the weapons that are commonly described as antipersonnel are also intended to be effective against light matériel, such as trucks. Likewise, antimatériel weapons for use against armoured targets may exert their principal effects by penetrating the armour and then killing or injuring the crewmen. A spectrum of target "hardnesses" may be envisaged that necessitates a range of weapons having different combinations of penetrating and destructive abilities. Antipersonnel weapons are those which lie at the "softer" end of the spectrum. Those lying at the "harder" end of the spectrum, the antimatériel weapons, are, generally speaking, considerably more powerful than antipersonnel weapons; their effects on the human body may therefore be correspondingly greater.

52. Chemical, biological and radiological weapons are examples of weapons that are primarily antipersonnel in their nature, for they have little or no effect upon inanimate objects. The human body is also vulnerable to thermal and mechanical stresses such as those created by incendiary or explosive weapons. Thus all the principal categories of weapon described in the previous section of this chapter may be used as antipersonnel weapons.

53. In distinguishing between point and area weapons, it is necessary also to distinguish between, on the one hand, the means of warfare, which are the weapons available to field commanders, and, on the other hand, the methods of warfare, which are the ways in which the weapons are actually used.

54. Point targets are, by definition, well defined and usually small in size. Weapons for use against them, namely point weapons, are matched to the scale of the target and depend for their effectiveness upon accurate delivery. Point targets may, however, also be attacked with weapons whose area of effectiveness is substantially greater than the area of the target. This may be considered militarily necessary in cases where the target is moving, or where only its general location, not its precise location, is known.

55. Area targets are, by definition, large in size and present no specific aiming point to an attacker. Examples include enemy troops deployed over a wide area, or targets comprising many buildings or other fixed installations. These types of target may be attacked with a multiplicity of weapons that individually have so small an area of effectiveness as to be classifiable as point weapons. Artillery bombardment, or the use of high rate-of-fire machine guns, are illustrations of this. Alternatively, the targets may be attacked with a smaller number of weapons that, individually, are effective over a broad area; examples include large fragmentation or incendiary weapons, or poison gas.

56. Weapons which are effective over a broad area, whether they are used against point targets or area targets, are known as area weapons. Information on the areas of effectiveness of representative weapons having, *inter alia,* antipersonnel applications is given in Table II.2.

57. The area of effectiveness of a particular weapon is obviously a dominant factor in determining the discriminateness with regard to combatants and noncombatants with which the weapon may or may not be used. The closer the proximity between combatants and noncombatants, the smaller must be the area of effectiveness of the weapon in order for discriminate use of it to become possible. However, since there may be circumstances in which there is no proximity between combatants and noncombatants, it is not possible to define the degree of discriminateness of a weapon solely in terms of its area of effectiveness. All that can be said is that, in circumstances where combatants and noncombatants are sufficiently close to one another, area weapons will inevitably be less discriminate than point weapons, regardless either of the accuracy with which they are delivered or of the diligence of the user in attempting to avoid injury to noncombatants.

58. Proximity between combatant and noncombatant may be specified in terms not only of distance but also of time. The foregoing remarks about the discriminateness of area weapons apply equally to time-delay weapons. These may either be of the type that are fitted with delayed-action fuses set to function after a predetermined or random time interval; or they may comprise target-activated devices such as sea-mines, landmines, or traps. Weapons of these types may remain active for hours, days or even years, and since the circumstances of war may change considerably during this period, the weapons may expose noncombatants to a grave and prolonged hazard.

### 3. Problems in Measuring Degrees of Injury and Suffering Experienced from War Wounds

59. Towards the end of the last century, a number of military and medical experts attempted to calculate lower limits for the amount of energy needed to kill a man

Table II.2

Areas of effectiveness of representative weapons having antipersonnel uses

| *Type of weapon* | *Category of area effectiveness (a) (hectares)* |
|---|---|
| Hand grenade, high-explosive or fragmentation<br>70 mm rocket, high-explosive<br>81 mm mortar projectile, high-explosive<br>105 mm shell, high-explosive | 0.01–0.05 |
| 81 mm mortar projectile, fragmentation *(b)*<br>155 mm shell, high explosive<br>Antipersonnel mine, Claymore type<br>81 mm mortar projectile, white phosphorus | 0.05–0.2 |
| 350 kg firebomb, napalm<br>70 mm rocket, multiple fléchette | 0.2–1 |
| 155 mm shell, multiple fléchette<br>155 mm shell, chemical (sarin nerve-gas)<br>250 kg bomb, general purpose, high-explosive<br>250 kg cluster-bomb, fuel-air explosive<br>105 mm battalion fire, high-explosive shell *(c)* | 1–10 |
| 350 kg cluster bomb, fragmentation *(d)*<br>105 mm battalion fire, sarin shell *(c)* | 10–100 |
| 7000 kg bomb, light case, high-explosive | 100–500 |

*Notes:*

(a) The range of areas that includes the area of effectiveness of the weapon concerned, "area of effectiveness" meaning the area within which an unprotected man standing in the open has at least a 50 % probability of becoming a casualty. The figures are derived from a number of different military manuals and similar sources which refer specifically to the anti-personnel applications of the weapons (rather than antimatériel or smoke-screening applications.) Some of the figures are not strictly comparable, for, apart from operational considerations, there are differences in the severities of the casualties concerned.

(b) Notched-wire controlled fragmentation.

(c) A total of 72 rounds fired from six howitzers.

(d) Pre-fragmentation (pellet) bomblets.

or otherwise place him *hors de combat.* They were principally concerned with the design of new rifle bullets. By the beginning of the present century several different estimates were current in different countries. They ranged from 40 joules up to 240 joules.[8] While these figures still have some currency today, it is realized that attempts to set a precise value on the minimum energy needed to incapacitate a man require so many qualifications that the estimates have little practical value. Factors such as the velocity of the projectile, the position of the wound, and the strength and morale of the victim, strongly influence the degree of incapacitation caused, regardless of the energy of the projectile. These factors are discussed in subsequent chapters.

60. Similar difficulties attend the quantification of the degrees of suffering imposed by, or experienced from, the different types of weapon injury. This matter is discussed below in some detail from a medical point of view. There seem at first sight to be three main criteria with which levels of suffering might be assessed, namely degree of pain, degree of permanent disability or injury, and probability of death. As will be seen, however, none of these provide much more than the crudest guidance.

(a) *Degree of pain from wounds*

61. Pain may be conceived as the product of two components, one physiological and the other psychological. A man will experience pain only when two processes have occurred: the reception by the brain of a particular type of nerve signal, and the response of the brain to that signal. The signal will originate in the site of injury, and the response of the brain will be a consciousness of pain.

62. It follows at once from this that the degree of pain imposed by a particular weapon-injury will depend, not only on the amount of damage, but also on the psychology of the victim. It is this subjective element that is the principal obstacle to the quantification of pain.

63. Related to this matter is the commonly accepted view that certain types of physical injury are likely to cause particular psychological distress. Such injuries include those that might lead to permanent disability or deformity, especially facial disfigurement, loss of one or more of the senses, and impairment of reproductive capacity. This particular psychological component must obviously be included in any assessment of suffering, but, as it too is largely subjective, it cannot reasonably be quantified.

64. Setting aside these psychological questions, it is possible, and common practice, to speak of "physical pain". This is more accessible to quantification because it is determined in the first instance only by physical damage.

65. Pain arising at the time of injury may be severe, but it is frequently the case in war situations that little initial pain is in fact felt because of the state of excitement of the victim. This phenomenon has been observed many times (e.g. soldiers have walked long distances holding their intestines in their hands, or after having broken a leg have walked on the wounded leg without feeling pain). However, during the hours after wounding there is an increase of pain due to release of pain-producing substances and the onset of infection.

66. The intensity of the pain that ensues during the period after injury may become exceedingly great. It is determined by many factors, such as the situation and severity of the wound; the quality of first aid by dressing, splintage and drugs employed; the type, duration and circumstances of transport; and the time and availability of surgical treatment. Infection associated with complicated wounds necessitating prolonged treatment and many surgical interventions prolongs the duration of pain until healing has occurred. Scars are sensitive, and even painful, for many months. Residual infections and deformities may prolong pain for many years.

67. As a very general rule, the more tissue that is damaged the more painful will be the wound. (The factors described in paragraph 66 are of course also involved, to say nothing of the psychological element referred to in paragraph 62; according to circumstances, these may in fact be dominant.) Thus, extensive fractures combined with crush injuries of the soft tissue will be particularly painful. So will multiple wounds caused by many fragments. The wound caused by a high-velocity missile, being large, will be more painful than the smaller wound caused by the same missile at low velocity.

(b) *Probability of death*

68. As a criterion of the degree of suffering or injury imposed by a particular weapon, the probability of death is no easier to predict or specify than the pain criterion. This is because the probability depends upon several factors that are only in part determined by the weapon itself or the manner in which it is used. They include:

(1) the localization of the wound in the body;

(2) the time lag between injury and treatment; and

(3) the state of physical resistance of the wounded person.

69. Different parts or organs of the body are important for life to varying degrees. Thus it is obvious that if a particular bullet penetrates the head of a person, it is likely to kill him, whereas if it penetrates the foot it will probably only put him out of action for a relatively short time.

70. A hit by a multiplicity of projectiles or fragments is more likely to injure a vital organ than a hit by a single projectile. This is self-evident, but the matter is complicated since two wounds that in themselves are not lethal, may together put such a stress on the body that the probability of death increases. The more organs that are injured the higher is the probability of death. If more than five different organs, for instance, are injured in the abdomen, death is statistically inevitable even if the victim survives the primary injury.

71. The time between wounding and adequate care will influence the prognosis of most war casualties. Good first aid and adequate surgical treatment will reduce the mortality rate among those surviving the primary injury. If the delay between wounding and surgical intervention is more than six hours, the mortality rises sharply.

72. With improvements in military medicine and surgery over the past decades, the mortality rate among the battle casualties of well-equipped armies has declined markedly. Thus, in the case of US battle casualties, the rate has fallen from 17% in World War I to around 2% in the Korean and Vietnam wars. Increasingly rapid transportation of the wounded has also been a prominent factor in this. Similar statistics relating to civilian war victims are not available; their mortality has almost certainly been considerably higher. Civilian victims may be of all ages and both sexes. Children, old people, and pregnant women generally have a reduced resistance towards war injuries compared with the soldier. Resistance is seriously reduced among people exposed to famine, thirst, or cold climates. By way of illustration, it may be noted that mortality from abdominal injury among civilian people in Germany during World War II was 49% as compared with 35% among British soldiers; both groups received the same type of treatment.

(c) *Degree of disability after injury*

73. Generally speaking, the majority of weapon casualties brought in for medical or surgical care within a few hours will be cured, and their disability be only of short duration. It has usually been the case that more than 50 per cent of combatant battle casualties have been able to return to duty within a few weeks. When they occur, however, the disabilities succeeding weapons injuries may be of great variety. They may be due to the injury itself, or to complications developing after the injury.

74. Since so many different factors play an important role in determining the resulting disability, not even this criterion is at all precise for assessing the suffering imposed by a particular weapon. Typical disabilities include loss of one or more of the senses (e.g. sight or hearing); permanent or temporary damage to

other parts of the nervous system; or damage to nonvital organs or to the extremities.

75. Injuries to the central nervous system (the brain and the spinal cord) frequently lead to especially severe disability. Here the disability is usually permanent. It may comprise partial or complete loss of mental capacity or of physical function. There may be loss of one or more of the senses (e.g. sight or hearing). Damage to the peripheral nervous system may lead to paralyses of various types and muscular atrophy. Modern techniques of neurosurgery and rehabilitation may considerably ameliorate these disabilities. Treatments of this type take a much longer time, however, than the treatment of most other weapons injuries; thus, even if the disability proves to be temporary rather than permanent, it will nevertheless be of prolonged duration.

76. During the rehabilitation and resocialization of a patient suffering from wound disabilities, it is necessary to take into account the psychological trauma to which he has been, and continues to be, subjected. The attendant psychological disability is very difficult to gauge. It may, for example, only develop after a substantial lapse of time, and it may well prove to be permanent, even though the original physical injury was relatively small.

## CHAPTER V

## Time-delay weapons

### 1. Technical Characteristics of Time-delay Weapons

152. The time-delay weapons described in this chapter are time-fused or target-activated explosive devices. There is also a discussion of traps of the non-explosive type, for these may be regarded as target-activated time-delay weapons. There are various other categories of time-delay weapon, notably certain chemical and biological weapons, but they lie outside the scope of the present report.

153. *Landmines* are the most familiar example of time-delay weapons. They are primarily designed as counter-mobility devices, usually being implanted below the surface of the ground in patterns that restrict possible enemy movement. Landmines to counter armoured or other vehicles depend on blast, most frequently making use of "shaped" or channelled explosive force to disable targets. Anti-vehicle landmines cannot normally be detonated by dismounted troops because most such mines are activated by higher pressures than a man can exert, or by acoustic or magnetic-induction fuses that discriminate between humans and vehicles.

154. Antipersonnel landmines are also in wide use, and most depend on fragmentation to produce casualties. Usually, they are detonated by pressure--sensitive contact fuses, but may also be activated by vibration sensors, trip-wires or other such devices. As a rule, antivehicle and antipersonnel mines are used together in a minefield. Some antipersonnel mines, when triggered, pop up out of the ground before exploding, thus optimizing horizontal fragmentation effects.

155. Most mines use metal casings and fuse components so that under favourable conditions they can be located by electromagnetic sensors. In World War II and since, large quantities of wooden and plastic-cased antivehicle and antipersonnel mines have been in general use. Still other materials have been used, less commonly, for landmine construction: glass, clay and concrete. In respect to antivehicle mines, non-metallic casings are just as effective as steel ones since the shape and size of the explosive charge is decisive, not fragmentation.

156. Sonic and soil-disturbance sensors and like devices have been proposed for non-metallic mine detection, but the surest method remains the tedious probing of the ground with a sharp object. Even for metallic mines, rapid detection is not possible, and this is the main reason why minefields continue to serve a countermobility function. From a military point of view, however, battlefield use of non-metallic mines may be as troublesome to friendly troops as it is to the enemy, especially under fluid combat conditions. For this reason, mines are often used that explode or render themselves harmless after a predetermined period of time.

157. *Aircraft, artillery and naval gun-delivered mines* are, like the landmine, employed for interfering with free movement in areas distant or close to the zone of combat. They are, however, not easily marked or charted, as is usual practice with extensive landmine fields. As a rule, air-delivered mines are modified aerial bombs, 250–500 kg in weight, that are time-fused or metal-activated. Such mines are generally used in conjunction with numerous antipersonnel bomblets that are target-activated and generally fitted with trip-wire detonators. The bomblets prevent troops from de-activating the anti-vehicle mines, and the anti-vehicle mines prevent tanks or trucks from clearing the bomblets. Air-dropped antipersonnel mines sometimes consist merely of small bags of pressure-sensitive explosive; several thousand may be scattered by a single aircraft.

158. Several nations have in service, or are developing, gun or rocket-propelled mine-laying systems. These can place on the surface strings or strips of mines to counter advancing enemy troops and vehicles.

159. Although *booby traps* sometimes have an anti-vehicle purpose, they are primarily used as antipersonnel devices, designed both to slow movement and to

cause casualties. Activation of explosive-type booby traps may be by pressure, pull, tension-release, pressure-release or electrical means, and the explosive charge can be any size blast or fragmentation device available. For example, hand grenades, aerial bombs, shot-gun cartridges or blocks of explosive can be rigged as mines for ambush or other purposes. Construction of explosive-trap mines does not require specialized military training or equipment, and for this reason the use of booby traps can be expected in any war.

160. Examples have been noted of wiring dead bodies, or even wounded, so that their movement will explode munitions, but this use is uncommon. Innocent-appearing objects, such as valuable items, doors of houses, floor-boards or furniture can be rigged to trip fuses. Further, trails can be randomly mined, or ambush positions planted in remote areas where troops might patrol. Yet other booby traps might serve to alert friendly troops of hostile soldiers in the vicinity.

161. Non-explosive booby traps, also serving to restrict enemy movement and cause casualties, are relatively simple devices. Armed forces have encountered them in all wars, and no recent developments have improved on old methods. Sometimes the trap is a pit in the ground along a trail in which pointed sticks are placed and the hole camouflaged. Also, trip wires can fire arrows or release spring-loaded weights or spiked devices. Infective or toxic substances have occasionally been smeared on the spikes.

162. All of the explosive devices noted above can be equipped with fuses that are set to explode the charge at a pre-set time. Some landmines, for example, are designed to self-activate hours or days after emplacement, allowing temporary safe passage of friendly and even some enemy forces. Landmines have been equipped with counters that permit safe passage of a predetermined number of vehicles before exploding.

163. More often than landmines, air-delivered weapons have time-delay fuses, sometimes short ones to allow escape of the aircraft before explosion occurs, and sometimes to impede the clearance of, for example, a bombed airstrip. Time-delay aerial bombs have also been mixed with incendiaries in raids on built-up areas to prevent fire-fighting crews from containing the flames. Such use can also prevent medical teams from aiding the wounded.

164. Generally, large time-delay aerial bombs used for mining are easily detected and avoided, and, since that is their main purpose, do not generally cause large numbers of casualties. In contrast, however, small bomblets fused to explode immediately may be mixed with others that are equipped with time-delay fuses and then spread over a wide area; casualties produced by the initial attack may,

because of the time-delay bomblets, be isolated for days from medical assistance, being exposed to further hazards during the interval.

165. Most air-delivered time-delay explosives, in particular bomblets, are usually set to self-destruct within a few days. This is an important feature if friendly forces are soon to cross the area, or if the area is a populated one, or if the enemy is to be denied the bombs for his own use. However, self-destruct mechanisms of this type are frequently unreliable.

### 2. Military Applications

166. Time-delay weapons used in land warfare are like sea mines in that their primary purpose is to counter enemy mobility.

167. Before hostilities commence, target-activated weapons can be used along border areas as barriers against the movement of potentially hostile forces. Barrier minefields may serve to channel attacks towards areas that can be better defended. Once hostilities have begun, such barriers perhaps have less usefulness, but they can be employed to isolate sections of the battlefield, to deny terrain, and otherwise to hinder enemy activities.

168. Similar to barrier minefields are other forms of tactical minefield intended to restrict movement of hostile forces in the area of friendly positions, and to protect fixed defensive points in the combat zone. Minefields used in such ways are generally marked or fenced to prevent injury to friendly forces, civilians and livestock.

169. Barrier, denial, tactical and protective minefields containing antivehicle and antipersonnel mines usually produce relatively few casualties among enemy troops. Since the minefields will usually be under friendly surveillance, explosion of one mine will alert the defenders. Attacking forces are likewise alerted to the presence of a minefield, are made more cautious, and may be forced to find alternative approach routes. The military purpose of time-delay weapons is to keep the enemy at tactical arm's length.

170. While most tactical uses of mines in forward combat areas are controlled, other antipersonnel or antivehicle minefields in the same areas might be more haphazardly placed. The use of aircraft, helicopters or artillery to scatter time-delay weapons, or booby-trapping a zone, is militarily beneficial, not to produce large numbers of casualties, but rather for nuisance purposes to slow movement. Uncontrolled combat-zone mining is frequently as much of an annoyance to friendly forces, who might enter areas earlier mined by themselves, as it is to the enemy, to say nothing of the local inhabitants.

171. Nuisance minefields can be employed in areas distant from combat zones along lines of communication such as railways, highways and inland waterways.