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THE DEVELOPMENT OF THE CONVENTION ON CONVENTIONAL WEAPONS 1971-2003

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Article 36 is a specialist non-profit organisation, focused on reducing harm from weapons.

KEY MESSAGES

- This paper presents reflections on the history of the Convention on Conventional Weapons (CCW), charting how it arose out of concerns about the horrific impact of developing weapon technologies in the 1960s, how certain types of weapon were suggested to be particularly problematic, and how proposed responses varied in their ambition.
- Throughout the history of discussion on weapons and their humanitarian impacts and effects, NGOs and the ICRC have played and continue to play an active and influential role in both documenting the effects of weapons, articulating concerns, and being vocal proponents of weapons prohibitions and restrictions. Furthermore, public concerns and opinion has been a backbone and driving force in weapons bans.
- The CCW provided only a partial response to the concerns that animated discussions on weapons in the 1960s and 1970s. Many such concerns, including around cluster munitions, flechettes, fuel-air-explosives and small calibre weapon systems, have not been subject to a legal response through the CCW. In other areas, such as on landmines and incendiary weapons, the rules that were adopted were comparatively limited, falling short of the prohibitions and restrictions that some states had proposed.
- Ultimately, the CCW performs an ambivalent role. On the one hand, it maintains an international conversation within which the acceptability of weapon technologies can be questioned and challenged. On the other, with the arguable exception of blinding laser weapons, the CCW has not clearly demonstrated an ability *to solve* humanitarian problems associated with weapons of actual military relevance.
- We should be wary of the extent to which the CCW serves to sustain militarism, by maintaining a veneer of ethical reflection regarding the technology of killing. Certain states praise the CCW as striking a balance between military and humanitarian needs - but that balance is weighted towards the perceived interests of militarized states.

Eric Prokosch

Eric Prokosch began investigating US antipersonnel weaponry in 1967 and later joined NARMIC, a project of the American Friends Service Committee, where he published the booklet *The Simple Art of Murder: Antipersonnel Weapons and their Developers* (1972). As a representative of the Friends World Committee for Consultation (Quakers) he attended the Lucerne (1974) and Lugano (1976) Conferences, as well as Swiss and Swedish wound ballistics seminars in Gothenburg and Thun and the first Review Conference of the Convention on Conventional Weapons. His book *The Technology of Killing: A Military and Political History of Antipersonnel Weapons* (1995)[1] covers the science of wound ballistics, the proliferation of weapons designs during the 1960s and 70s, and the efforts to curtail antipersonnel weapons through popular protest and international law. He was a staff member of Amnesty International from 1979 to 2005, where he was responsible for organizing worldwide campaigns against the death penalty, torture and extrajudicial executions, and represented the organization during the drafting of the UN Convention against Enforced Disappearance. He holds a Ph.D. in anthropology from Stanford University and taught anthropology from 1969 to 1972 at the University of Wisconsin-Waukesha County Center.

Editor's note

- Eric Prokosch's 1995 book *The Technology of Killing* was inspirational to the creation of Article 36 as an organisation. I had read it when I was working at Mines Advisory Group (MAG), and was given a copy when I left a role there in the late 1990s. I was given another copy by Eric (signed by the author!) in 2008, shortly before the final negotiation of the Convention on Cluster Munitions.
- That book's interwoven histories of weapon technology, civilian harms and efforts to organise a social critique provide a background to our work - part of a story that Article 36, and our partner organisations, have been continuing beyond the period of Eric's book.
- With Article 36 now past ten years old, and the CCW past 40, it was a pleasure in late 2021 to be able to meet up with Eric again, to share perspectives on this history, and to plan to collaborate on this paper. Richard Moyes, Managing Director, Article 36.

PART I

BACKDROP: VIETNAM HORRORS

The impetus was the Vietnam war.[2]

In the mid-1960s, as fighting intensified between the US and a guerrilla force (the "Viet Cong") aligned with the communist North Vietnam, reports emerged of atrocious wounds inflicted by the American weaponry, much of which had been developed since the Korean War. Among the weapons used, there was napalm, particularly a new kind, "napalm-B";[3] white phosphorus;[4] "flechettes" (small metal darts);[5] a small caliber rifle, the M16 (AR-15);[6] and a new cluster weapon consisting of tubes slung under an aircraft which dropped fragmentation bomblets as the plane flew along.[7]

Towards the end of 1966, visitors to North Vietnam brought back reports of extensive bombardments with a radically new cluster bomb, the CBU-24. It consisted of a clam-shell-type dispenser shaped like an ordinary bomb which opened in the air, releasing some 650 spherical bomblets which scattered in a pattern as they fell to the earth. The bomblets were studded with steel balls and exploded on impact. Some were equipped with delay fuzes to go off at random intervals after an attack.

In October 1966 the North Vietnamese Commission for Investigation on the American Imperialists' War Crimes in Vietnam published a booklet in English with a photo of one of the new bomblets. It described them as being "especially meant to kill civilians. Children most frequently fall victims to these fragmentation bombs." The North Vietnamese produced a film on the American weaponry and circulated a photo of a doctor examining the back of a victim with multiple puncture wounds. Visitors were taken to a museum where remnants of a CBU-24 dispenser were displayed.

At the International War Crimes Tribunal in Stockholm in 1967, set up on the initiative of the eminent philosopher Bertrand Russell, two scientists from the French National Institute of Health and Medical Research testified that the bomblets could inflict multiple wounds, that the wound entrances were very small, and that "The paths of the [steel balls] are long, often very irregular due to ricochet, and give rise to deep multiple wounds in internal organs." As a result, "Diagnosis is difficult since entrance apertures may be overlooked; it is often necessary to X-ray the entire body in order to find some of the projectiles and then, beginning with the point of entry, to retrace the possible trajectory and therefore the probable wounds". Long operations were necessary "in order to discover all the organs which may have been injured", and "the extraction of deep-seated multiple projectiles (as many as 10 to 15 throughout the body) is extremely arduous. Furthermore, the soft steel balls corrode, suppurate, and can give rise to later complications." They noted the frequency of wounds to the nervous system, the particular vulnerability of the eyes, the incidence of "multiple intestinal perforations, which are operable only on condition that they are all detected", and "[t]he seriousness of bone damage".[8]

In the United States and around the world, there were hundreds, probably thousands of demonstrations focussing on the new American weapons, particularly napalm. Actions against the weapons and their manufacturers had become part of the antiwar movement.

NAPALM EXCORIATED

Napalm is a jellied fuel, used in bombs and flamethrowers. Clusters of napalm bombs were used to set fire to 69 Japanese cities in World War II; in an attack on Tokyo in March 1945, some 87,793 people were killed and more than a million left homeless. Napalm-B, used in Vietnam, burns longer than the World War II variety and is more adhesive. Striking the bare skin, it clings to the flesh as it burns.

In July 1964, a booklet was published in North Vietnam decrying the use of such weapons as napalm and white phosphorus by the "US aggressors and their agents" in South Vietnam and stating that "It is imperative....to demand that an end be put to these barbarous acts condemned by the entire progressive mankind".[9]

In April 1965, the Soviet Union joined its ally North Vietnam in a communique condemning "the use of barbarous weapons of annihilation, including napalm bombs, against the peaceful population".[10]

In 1967, in a memorandum to all governments, the ICRC asked whether napalm should not be regarded as a weapon causing unnecessary suffering.[11]

In 1968 the International Conference on Human Rights, held in Tehran under UN auspices (the "Tehran Conference"), adopted resolution XXIII citing napalm bombing as an example of "the widespread violence and brutality of our times" and requesting the UN General Assembly to invite the UN Secretary-General to study "[t]he need for additional humanitarian international conventions or for possible revision of existing Conventions to ensure the better protection of civilians, prisoners and combatants in all armed conflicts and *the prohibition and limitation of the use of certain methods and means of warfare*" (emphases added).[12] The events set in train by this resolution would result in the adoption of the two Additional Protocols to the Geneva Conventions in 1977 and the Convention on Conventional Weapons in 1980.

The UN General Assembly endorsed the initiative of the Teheran Conference and invited the Secretary-General to undertake the study requested.[13] In 1969, in the first of a series of reports on "Respect for Human Rights in Armed Conflict", the Secretary-General suggested that "the legality or otherwise of the use of napalm would seem to be a question which would call for study and might be eventually resolved in an international document which would clarify the situation". The General Assembly did not take the hint, and so the next year the Secretary-General followed up on the suggestion, referring to "[t]he contemplated report on the question of napalm which might be prepared by the Secretary-General" and stating that such a report "could facilitate subsequent action by the United Nations with a view to curtailing or abolishing such uses of the weapons in question as might be established as inhumane".[14] Finally in 1971 the General Assembly requested the Secretary-General to prepare, with the help of "qualified governmental experts", a report on "napalm and other incendiary weapons and all aspects of their possible use".[15]

The Secretary-General accordingly convened a group of governmental experts. Czechoslovakia, Romania and the USSR participated, but apart from Sweden, which "reluctantly" sent an expert,[16] no Western country took part. Their report, issued in 1972, covered the chemical makeup of incendiary agents, the types of weapons, the use of incendiaries in warfare, the severity of burn injuries, the effects of spreading fire, and the social and economic consequences. Noting that "[i]ncendiary weapons, in particular napalm, are already the subject of widespread revulsion and anxiety", the report concluded by referring to "the necessity of working out measures for the prohibition of the use, production, development and stockpiling of napalm and other incendiary weapons".[17]

In a resolution adopted in November 1972, the General Assembly "welcom[ed]" the report, "deplor[ed] the use of napalm and other incendiary weapons in all conflicts", and declared that "incendiary weapons have always constituted a category of arms viewed with horror". The resolution was adopted by 99 votes in favor and none against, with 15 countries abstaining, including the United States and eight of its NATO allies.[18] In another resolution, the General Assembly condemned the "ruthless" use of napalm by Portugal in its African colonies seeking independence.[19]

ENTER SWEDEN

In the meantime, despite its reluctance to participate in the UN study, Sweden had decided to take up the prohibition of "certain methods and means of warfare", as

KEY ACRONYMS

CCW – 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 - or the Convention on Conventional Weapons, adopted in 1980 by the CCW Conference (1979-1980). **Protocols I-V** of the CCW, adopted between 1980 and 2003, set out prohibitions and restictions on certain "conventional" weapons – weapons other than nuclear, chemical or biological armaments. A **Preparatory Conference** was held in 1979.

CDDH – Conférence Diplomatique sur la réaffirmation et le développement du droit international humanitaire applicable dans les conflits armés - or the Diplomatic Conference on international humanitarian law (1974-1977). The CDDH adopted the **Additional Protocols of 1977** to the Geneva Conventions of 1949, codifying and strengthening the existing laws of war. A preparatory **Conference of Government Experts** on international humanitarian law was held in 1971-1972.

ICRC – International Committee of the Red Cross

NGO – Non-governmental organization

UN – United Nations

proposed at the Teheran Conference. Sweden was well placed to take the lead, as a non-aligned country with a strong military establishment, a history of promoting disarmament, and a determined and energetic diplomat, Dr Hans Blix, leading the effort.[20]

By then, the push to strengthen international humanitarian law was well under way. "International humanitarian law" ("Geneva law") was then considered to be embodied in the four Geneva Conventions of 1949, setting out obligations for the protection of victims of war – prisoners of war, sick and wounded soldiers, and civilians in occupied territories or otherwise in the hands of enemy forces. The laws regulating the conduct of hostilities (the "laws of war", or "Hague law") were seen as a separate body of law. In the 1970s these two currents of law would be brought together, along with a third concern: wars of national liberation and wars of independence, often involving "non-international" armed conflict, which in the Geneva Conventions was covered in only one article, Common Article 3, stating the obligations in general terms.

In 1971, in response to a resolution adopted at the 21st International Conference of the Red Cross, the ICRC convened a Conference of Government Experts on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts.[21] It was to be followed by a second session in 1972 and then by the Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts (CDDH), which in 1977 adopted the two Additional Protocols to the Geneva Conventions – Protocol I, relating to the victims of international armed conflicts, and the much shorter Protocol II on non-international conflicts.

The existing laws of war included two general principles: the prohibition of use of weapons causing "unnecessary suffering"[22] (as in the 1899 ban on dum-dum bullets) and the prohibition of indiscriminate attacks,[23] which in the draft under consideration in 1974 had evolved to include a prohibition of "the employment of means of combat, and any methods which strike or affect indiscriminately the civilian population and combatants, or civilian objects and military objectives".[24] The idea behind the Swedish initiative, as expressed in a 1974 working paper, was that these two general prohibitions "should now, as in the past, be supplemented with prohibitions of use of specific weapons which are deemed to fall within the general categories prohibited".[25]

In 1971, at the first session of the Conference of Government Experts on international humanitarian law preparatory to the CDDH, Sweden and four other countries[26] introduced an "Outline of an Instrument on the Protection of the Civilian Population against the Dangers of Hostilities". In separate articles, it set out bans on three types of weapons:

- Napalm bombs and other incendiary weapons "for use in circumstances where they may affect the civilian population", as "calculated to cause unnecessary suffering" (Article 27)
- Bombs producing "fragmentation into great numbers of small calibred pieces or the release of great numbers of small calibred pellets", as "calculated to cause unnecessary suffering" (Article 28)[27]
- Delayed action weapons, "the dangerous and perfidious effects of which are likely to be indiscriminate and to cause suffering to the civilian population" (Article 25)[28]

In the discussion, according to the Conference report, one "expert" (Hans Blix no doubt) said that "public opinion would be greatly disappointed" if no international body took up the question of such weapons. Referring to the UN Secretary-General's proposal for a study of incendiary weapons, he "considered that all weapons (not solely incendiary weapons) not at present the subject of discussion should be studied with the closest attention".[29]

In line with this last idea, and in response to a request by Hans Blix at the second session of the Conference of Government Experts in 1972 and a formal proposal by 19 countries, the ICRC convened a group of military, legal and medical experts to study the conventional weapons that might cause unnecessary suffering or have indiscriminate effects.[30] Their report, issued in 1973, contained chapters on small caliber projectiles, blast and fragmentation weapons (including cluster weapons, flechettes and fuel-air explosives), and time-delay weapons, as well as an abstract of the UN report on incendiary weapons and an additional chapter on "potential weapon developments" (including lasers), giving information on the characteristics of the weapons, the military requirements for them and their medical effects. It concluded that "[t]he facts compiled in the report....speak for themselves and call for intergovernmental review and action", particularly with regard to incendiaries, high-velocity small arms ammunition and certain fragmentation weapons; and that there were "good reasons for intergovernmental discussions concerning these weapons with a view to possible restrictions upon their operational use or even prohibition."[31]

Unlike those involved in the UN study, the experts at the ICRC study did not have to be appointed by their governments. Altogether 36 experts from 19 countries participated, including officials from four NATO countries and the USSR but none from the United States.

While these developments were taking place, Sweden had convened its own interministerial group of military, medical and legal experts, who prepared a report on the technical characteristics of various conventional weapons with possible formulations of bans;[32] and the Stockholm International Peace Research Institute (SIPRI) was working on a book-length study of incendiary weapons, published in 1975, with an interim report issued in 1972. Another SIPRI report, *Anti-personnel Weapons*, was published in 1978.[33]

THE SEVEN COUNTRIES' PROPOSAL

In February 1974, at the opening of the first session of the CDDH, Sweden and six other countries[34] submitted a working paper with draft texts of possible bans on five types of weapons: incendiaries, cluster bombs, mines, small caliber ammunition, and flechettes (the "seven countries' proposal", reproduced in Appendix 1). In comparison to the 1971 proposals, there were some significant changes:

- The ban on incendiary weapons was no longer restricted to their use in "circumstances where they may affect the civilian population".[35] The proposed ban now explicitly included flamethrowers but excluded pyrotechnics and anti-aircraft and anti-armor projectiles.
- The ban on antipersonnel fragmentation bombs was now explicitly stated to apply to "cluster warheads".[36]
- The ban on delayed action weapons now referred specifically to antipersonnel landmines and was restricted to those laid by aircraft.
- There were new rules on small caliber projectiles and multi-flechette ammunition.
- The 1971 proposals had been presented as articles within the instrument to be adopted by the Diplomatic Conference. Now they appeared as free-standing rules, "perhaps laid down in a separate protocol".[37]

The reasoning behind the five proposals was explained in the working paper:

- Incendiary weapons were "apt to cause unnecessary suffering [severity of burn wounds] and/or to have indiscriminate effects [risk of fires spreading]".
- Antipersonnel cluster weapons tended "to have both indiscriminate effects [wide area coverage] and to cause unnecessary suffering [risk of multiple injuries]".
- The laying of antipersonnel mines by aircraft, "perhaps in very large numbers", might "easily led to injuries indiscriminately being inflicted upon combatants and civilians alike".
- High-velocity small caliber projectiles were likely to produce "a very severe wound" due to their "strong tendency to tumble and deform at impact in the human body". The effects were "very similar" to those of dum-dum bullets, prohibited under the Hague Declaration of 1899.[38]
- Multi-flechette weapons[39] caused "multiple injuries with the high degree of pain and suffering characteristic of such injuries", with the attendant difficulties of medical treatment and a "substantial" mortality risk. "It is queried whether the military advantage of these weapons is so great as to outweigh the humanitarian concerns which are raised by their use."

Introducing the seven countries' proposal at the Diplomatic Conference, Swedish Foreign Minister Carl Lidbom said: "Some have held that the weapons issue would prove too difficult and controversial. However, this Conference cannot stay away from controversial issues. It must tackle them and patiently search for solutions. If it does not find a solution this year – and that is not expected in the case of weapons – it may continue its search next year... Numerous difficulties will no doubt be adduced in the discussion. None of these difficulties need be unsuperable if governments constantly remind themselves that the humanitarian prohibitions and restraints discussed are for mutual benefit. And if they are as dynamic and constructive in their search for such restraints as they are in their search for new weapons."[40]

Earlier, in the introduction to the 1973 experts' report, the ICRC had stated that, "if the need were felt", it would be prepared to "convene a conference of government experts in order to contribute to the promotion of relevant international humanitarian law". At the International Conference of the Red Cross in November 1973, "after some delicate negotiations" between Hans Blix and the US representative, the Conference passed a resolution requesting the ICRC to convene a Conference of Government Experts to study the question of conventional weapons that might be deemed to cause unnecessary suffering or have indiscriminate effects.[41] The terms of reference were worked out after further negotiations between Blix and the US representative at the CDDH in March 1974. This was to be the Lucerne Conference, where the seven countries' proposal would be discussed in detail.[42]

My own involvement with antipersonnel weapons began in 1966 when I took part in an action in California aimed at blocking the assembly of napalm bombs destined for Vietnam. When I heard about the CBU-24 and the damage it was inflicting in Vietnam, I decided to try to uncover more information on the weapon that could be used in the antiwar effort. One thing led to another, and in October 1974 I found myself at the Lucerne Conference as an NGO observer, sitting at the back of the room alongside the SIPRI expert and representatives of national liberation movements, thrilled that the weapons I and others had tried to expose might now be banned, and fascinated by the spectacle.

THE LUCERNE CONFERENCE: COUNTERATTACK

The Conference of Government Experts on Weapons that may Cause Unnecessary Suffering or have Indiscriminate Effects, opened in October 1974 in a nondescript building on the outskirts of the historic Swiss city of Lucerne. It was closed to the public, but governmental experts from 49 countries attended. The USA had boycotted the UN and ICRC expert studies; now they were there in force, with a delegation comprising a weapons analyst, field officers, two military surgeons, and international affairs specialists from the Defense and State Departments. Other Western countries also had impressive delegations. The USSR was present too, as were the North Vietnamese and many non-aligned countries.

The agenda was arranged according to the main classes of weapons, as in the chapters of the 1973 ICRC experts report. As I recall, when the appropriate point in the agenda arrived, one of the Swedish delegates would present the relevant proposal from the seven countries and the United States and its NATO allies would proceed to demolish it, attacking the relevant information from the UN and ICRC experts' reports and presenting contrary information from their own studies, some of which had been done specially for the conference.

We were told that cluster bombs dropped on antiaircraft sites simply drove crews into their shelters, where they were protected. "So are civilians if they take cover, as they almost always do." The figure of 300 by 900 meters for the area coverage of a 350 kg cluster bomb, given in the ICRC experts' report, was wrong: "The size of the area is classified but it is only a fraction of that stated in the ICRC report", a Dutch major said.[43] A computer simulation had shown that the multiple wounds caused by "typical" fragments from a modern cluster or mortar shell would be less severe than the wounds from the fragments of an old shell, which were much larger and heavier.[44] There was little difference between the wounding capacity of flechettes and that of other fragments, even if the flechettes tumbled.[45] And napalm was not really so bad. A study of 53 US combat personnel accidentally injured in "friendly fire" napalm bomb attacks in Vietnam had found that only four had died, and of the 45 injured in the two main incidents, only four had suffered greater than 10 per cent third degree burns, even though they were right in the fireball.[46]

Conclusions from studies such as these cannot be properly evaluated unless one has access to the full reports and other relevant data. How did the circumstances of the "friendly fire" napalm accidents and the cluster bombs attacks on antiaircraft sites compare with the wider uses of these weapons in Vietnam? How did the allegedly mild effect of multiple wounding by small fragments square with the compelling medical evidence presented at the International War Crimes Tribunal? But the conclusions drawn from the studies would have impressed many of the conference participants, few of whom were experts on munitions design. They would also have made for a conference report of the "One expert said....another expert said..." type, conveying a sense of confusion and uncertainty. The overall thrust was that modern antipersonnel weapons were not particularly harmful; the proposals to ban them were misguided; there was nothing to worry about.

Despite the destructive character of the debates, there was a good deal of interest in three weapons: incendiaries, landmines and booby traps, and small caliber projectiles. A working group set up at the conference produced a classification of incendiary munitions that was ultimately reflected in CCW Protocol III. On landmines, there were suggestions on the marking of minefields and the provision of self-destruct mechanisms, as well as a discussion of the "perfidious" nature of certain booby traps. And there was an extensive discussion of the design factors affecting the wounding capacity of small caliber ammunition and the testing methods needed to determine it; here, on a positive note, "All experts taking part in the debate readily agreed that further study and research were required to arrive at more definite conclusions".[47]

Summarizing the results, the ICRC official presiding at the conference could only state that "The present session has contributed to an increase in knowledge and understanding of the subject." He said that "Another conference of government experts could, under ICRC auspices, and preferably in September 1975, usefully be convened", and announced that "The ICRC would be prepared to convene and organize another conference of government experts on the same conditions as it did for the Lucerne meeting".[48]

THE LUGANO CONFERENCE: REALIGNMENT

The second Conference of Government Experts on conventional weapons opened in Lugano, Switzerland in January 1976 with the attendance of 43 countries. Since the first conference, there had been some changes.

The seven countries' proposal was still on the table, slightly modified, with a new explanatory memorandum and now with 13 cosponsors,[49] along with a modified version of the proposal on incendiary weapons with 21 cosponsors.[50] But to my intense disappointment, Sweden seemed to have lost interest in cluster weapons and flechettes and was now concentrating on small caliber projectiles.[51] The Americans were ready with new studies, pointing to the same conclusions as those presented in Lucerne.[52] Several of the cosponsors spoke in favor of the proposal to ban antipersonnel cluster bombs, but they had no new data, no new arguments and no answers to the counterarguments raised in Lucerne. The proposal to ban flechette weapons attracted "little comment".[53] With the lack of agreement and the lack of progress in promoting them, these two proposals were effectively dead.[54]

As in Lucerne, the subjects that most interested the participants were landmines, small caliber projectiles, and incendiaries. On mines, the UK had arrived at the conference with a tightly worded proposal, cosponsored by France and the Netherlands, on the recording of minefields, the use of remotely delivered mines, and the prohibition of perfidious and especially injurious booby traps.[55] A working group, set up at the conference, produced many ideas and suggestions for improvements in wording. This new proposal was broader than the seven (now 13) countries' proposal of 1974 in that it covered all landmines (not just antipersonnel mines) and all remotely delivered mines (not just those laid by aircraft), but sponsors of the original proposal objected that a complete ban on the delivery of antipersonnel mines by aircraft would give better protection to civilians.[56] The SIPRI expert, Malvern Lumsden, supported by Spain, proposed language requiring the disposal of mines and other unexploded munitions, but "no agreement could be reached as to the insertion of such a provision".[57]

On small caliber projectiles, Sweden had convened an ambitious two-week seminar on wound ballistics in July 1975, complete with a boat excursion, attended by many of the Lucerne Conference participants.[58] The results were presented in Lugano; further information came from other experts, and a working group was set up to discuss the matter in more depth. No consensus could be reached, but the conference produced the important statement that "There was general agreement....that design principles existed which afforded the manufacturers of small-calibre projectiles a wide range of choice in the degree of severity of the wound likely to be inflicted by such a projectile."[59]

Mexico and Switzerland submitted a proposal for a ban on "weapons producing fragments which in the human body escape detection by the usual medical methods".[60] As amended in response to comments from other delegations,[61] the proposal attracted "a very wide support", and the final one-sentence text was ultimately incorporated verbatim in CCW Protocol I.[62] Proposals for prohibitions on fuel-air explosives,[63] weapons with long delay fuzes[64] and weapons producing jagged fragments[65] were not accepted.

On incendiaries, the Americans had come with a new study on the effectiveness of napalm versus high explosives in the close air support role, and the Canadians presented the findings of a study in which napalm had been applied on protected and unprotected humans and dropped on goats covered with army blankets. But the real breakthrough came with a Dutch proposal on "Use of Incendiary Weapons on a Massive Scale and Use of Napalm".[66] Surprisingly, the US did not object.

The Dutch proposal, which had actually been drafted by the United States, would have prohibited aerial attacks "by means of napalm or other flame munitions" against "any specific military objective" within "any city, town, village or other area containing a concentration of civilians" "unless that objective is located within an area in which combat between ground forces is taking place or is imminent".[67] Another, weaker proposal was presented, with the United States as a cosponsor.[68] Most uses of incendiaries would not have been banned under either proposal. Their significance was rather that the US now appeared ready to accept prohibitions of some sort.

One other development in Lugano concerned the form that the proposed regulations might take. In 1971, Sweden and its allies had presented their proposed rules as articles of a possible international instrument on the protection of civilians in armed conflicts. But in Lugano other ideas were floated, such as having separate instruments for each specific weapon-type, possibly grouped under an "umbrella" instrument; possibly creating an instrument or instruments that would be "independent of any other international agreement"; and that different states might want to adhere to different components.[69]

The shape of the CCW was emerging: an international treaty, independent of the Additional Protocols to the Geneva Conventions, consisting of an umbrella instrument with optional protocols on non-detectable fragments, incendiaries, mines and booby traps, and possibly also on small caliber projectiles. An international convention was in the air.

1980: THE CONVENTION ON CONVENTIONAL WEAPONS AND THREE PROTOCOLS

After Lugano, the issue returned to the CDDH and its Ad Hoc Committee on Conventional Weapons, where the discussions continued. On its penultimate day, the Conference passed the issue back to the United Nations with a resolution summing up the progress to date and recommending that "a Conference of Governments should be convened not later than 1979", with a view to reaching agreement on specific weapons bans and a mechanism for review.[70] The UN General Assembly assented,[71] and the **United Nations Conference on Prohibitions or Restrictions of Use of Certain Conventional Weapons which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects** was duly convened in September 1979, with a second session in 1980.

A protocol on non-detectable fragments presented no difficulties; its "desirability" had already been agreed by the CDDH,[72] and the text from Lugano was unanimously agreed at the CCW Conference's Preparatory Conference earlier in 1979.[73] On landmines and booby traps, the discussions continued amicably, with many features added to the text from Lugano. But on incendiaries, there were strong disagreements, resolved only after "informal consultations" in the last days of the conference in which language to protect combatants from incendiaries was dropped in exchange for including all incendiaries (not just napalm, as in the Dutch proposal of 1976) in a ban on aerial attacks against "any military objective located within a concentration of civilians".[74] Frits Kalshoven, a delegate, told the conference that "the fact that agreement had finally been reached should be regarded as a miracle".[75]

Hoping to achieve agreement on a protocol on small caliber projectiles, Sweden had convened more seminars on wound ballistics; I attended the third, in 1978. Discussions continued at the conference, but no agreement could be reached, and on 23 September 1979 the Conference adopted a **Resolution on Small-calibre Weapon Systems**, inviting governments to carry out further research and appealing "to all Governments to exercise the utmost care in the development of small-calibre weapon systems, so as to avoid an unnecessary escalation of the injurious effects of such systems". This important resolution is a "soft law instrument", not a treaty binding under international law, but a strong statement by the international community of measures they believe all governments should take. It was included in the Final Act of the Conference and was reproduced alongside the Convention and its first three Protocols in the 1994 edition of the ICRC publication *International Law concerning the Conduct of Hostilities: Collection of Hague Conventions and Some Other International Instruments*.

As for the other weapons which the seven countries had sought to ban in 1974, the Conference report politely noted "that time had not allowed for the consideration of questions concerning fuel-air explosives, anti-personnel fragmentation weapons and flechettes and that, consequently, no agreement could be reached thereon". It noted that "many delegations felt that those questions could be taken up in due time in the context of the follow-up mechanism provided for in article 8 of the Convention", i.e. a Review Conference or a conference called to consider proposals for new protocols.[76]

On 10 October 1980 the conference adopted the CCW Convention and its first three Protocols.

Protocol I on non-detectable fragments bans a weapon that does not exist and probably never will. The metal fragments produced by the explosion of a standard high explosive munition are tougher and denser than plastic and hence have more range and penetrating capability. The most that can be said for the Protocol is that it may some day deter someone from trying to develop such a munition. As one commentator has written, "Once the proposal was suggested, it received unanimous support because none of the States participating in the [UN] Weapons Conference had such weapons in their inventory nor did they foresee any conceivable use for such weapons in the future."[77] In the words of Kalshoven and Zegveld, the protocol was "the almost imperceptible result of efforts that had aimed much higher".[78] Its adoption might almost seem like an act of cynicism.

Protocol II on mines and booby traps contains rules on the emplacement and recording of landmines, spelled out more precisely and in more detail than in the UK/French/Dutch proposal from Lugano, and providing some measure of protection for civilians. It also bans the use of "perfidious" booby traps, such as those attached to seemingly harmless objects such as children's toys or medical supplies. It can be seen as a sort of code of good practice for armies engaged in mine warfare.[79] But the rule on recording the location of remotely delivered minefields "appears to require the impossible", in the words of one commentator, and the requirement to give advance warning of the delivery of remotely delivered mines "would seem to be one which would be most often honored in the breach, both for technical reasons and because of the escape clause 'unless circumstances do not permit'".[80] In contrast, the seven countries' proposal from 1974 would have banned the aerial delivery of antipersonnel mines outright.

Protocol III on incendiary weapons prohibits, "in all circumstances",[81] attacks by air-delivered incendiary weapons against "any military objective located within a concentration of civilians". This rule is important: it would have banned the incendiary bombing of Japanese and European cities in World War II on the pretext that they were directed against "household industries" or other military targets.[82] The protocol does not protect soldiers from incendiary attacks, a fact regretted by several states at the CCW Conference.[83] It is far narrower than the seven countries' proposal, which would have banned all but antiaircraft and anti-armor incendiaries, or the total ban on incendiaries favored by Mexico and other states.[84]

AFTER 1980: TWO MORE PROTOCOLS, AND AN AMENDMENT

Despite the hopes that the unfinished business from the CCW Conference would be dealt with through the Convention's review mechanism, it would be another 15 years before the first CCW **Review Conference** was convened. In the interim, much had changed. The ICRC itself was now presenting proposals for new weapons bans and restrictions. The Vietnam war was a distant memory, but its legacy was a new concern: the millions of unexploded mines and bomblets left by it and subsequent wars. And in contrast to the 1970s, where I was the sole NGO observer most of the time at the Lucerne and Lugano Conferences, now powerful NGOs were engaged: Human Rights Watch and other organizations were working together as the International Campaign to Ban Landmines.

The ICRC had convened four expert meetings on laser weapons between 1989 and 1994, two meetings on landmines and one on other weapons that might be the subject of bans. In 1993 they published a book on laser weapons,[85] and in 1994, the text of a proposed ban on laser weapons formulated by the ICRC was presented at the Group of Governmental Experts preparing the Review Conference, along with another text prepared by Sweden.[86] At the meeting on 15 August 1994, 12 countries spoke in favor of a ban; only the USA spoke against. Human Rights Watch also took up the cause, publishing two reports, with copies of a letter to the US Secretary of Defense signed by 51 members of the US Congress urging his support for a ban, and a resolution to the same effect from the Blind Veterans Association in the USA.[87]

The Review Conference opened in Vienna on 25 September 1995. Days before it was due to open, the USA announced that it would no longer oppose discussing a ban.[88] Following negotiations over the text, the Conference on 13 October adopted CCW **Protocol IV** on blinding laser weapons, prohibiting the use of "laser weapons specifically designed, as their sole combat function or as one of their combat functions, to cause permanent blindness to unenhanced vision…"; the transfer of such weapons "to any State or non-State entity" was also banned. In a news release, the ICRC said that "The prohibition, in advance, of the use of an abhorrent new weapon the production and proliferation of which appeared imminent is an historic step for humanity. It represents the first time since 1868, when the use of exploding bullets was banned, that a weapon of military interest has been banned before its use on the battlefield and before a stream of victims gave visible proof of its tragic effects."[89]

The second of the ICRC expert meetings on mines (Montreux, 1993) had yielded a set of proposals to redress "serious shortcomings" in CCW Protocol II.[90] On 3 May 1996, after two further sessions, the Review Conference adopted the **Amended Protocol II** on mines, booby traps and other devices, extending its scope to non-international armed conflicts,[91] and enhancing its provisions on self-destruct mechanisms, mine disposal and many other subjects. But the landmines campaign was calling for a complete ban on antipersonnel mines.[92] Near the end of the first session of the Review Conference, with negotiations deadlocked, their newsletter, produced specially for the conference, ran the headline: "CCW Conference Self-Destructs!"

Stymied at the Review Conference, the Campaign to Ban Landmines turned elsewhere. Less than a year after the end of the first session of the conference, a Diplomatic Conference had been convened in Oslo, and on 18 September 1997 a Convention was adopted banning the use, development, production, stockpiling and transfer of antipersonnel mines and providing for their clearance and destruction.[93] In a similar process, a group of states, international organisations and civil society (this time organised as the Cluster Munition Coalition) worked for the development of the Convention on Cluster Munitions, which was adopted on 30 May 2008.[94]

Both of these major achievements must have far exceeded the expectations of the seven countries that had proposed bans on antipersonnel mines and cluster weapons in 1974. Both of them had been made outside the CCW process.[95]

On the issue of rifle ammunition, Sweden had held another three wound ballistics seminars in the 1980s, and in the 1990s Switzerland took the lead. At the Group of Governmental Experts to prepare the first Review Conference, Switzerland introduced the text of a proposed protocol banning the use of especially injurious small caliber weapon

systems.[96] The ban was much better worded than in the seven countries' proposal of 1974, and the text also called for the establishment of "an internationally recognized experimental method by which the effect of small calibre projectiles in the human body can be precisely assessed" – something that would be needed to verify compliance with the ban.[97] But there was only a "general exchange of views" on this and some other proposals, and the proposal was not forwarded to the Review Conference for discussion.[98]

On incendiaries, when the final text of Protocol III was introduced at the CCW Conference in 1980, countries that had pushed for a stronger ban said they hoped the Protocol could be improved in subsequent discussions. Syria, for instance, said that "It was to be hoped that the review mechanism to be established" under the Convention "would make it possible to improve the provisions adopted and to extend the protection sought". Mexico said that "such a [review] mechanism was essential since the prohibitions in the draft Protocol constituted the very minimum that could be accepted"; they hoped that "efforts would be continued within a review mechanism and that the international community would one day achieve a total prohibition on the use of incendiary weapons".[99] But at the Review Conference 15 years later, no new proposals were made.

Other issues raised by the ICRC at the first Review Conference were unexploded submunitions; naval mines, on which a draft protocol had been introduced by Sweden in 1991;[100] and future weapons. No action on these issues was taken at the conference.

The **second CCW Review Conference** opened in Geneva on 11 December 2001. With the Mine Ban Treaty now in force, a proposal from the ICRC to discuss the explosive remnants of war had received the support of 30 states including the USA at the Conference's first Preparatory Committee meeting in December 2000.[101] Following several meetings of Governmental Experts and a second session, the Review Conference on 28 November 2003 adopted **Protocol V** on explosive remnants of war, providing for the clearance of unexploded munitions other than landmines.

Undeterred by the lack of support at the first Review Conference for their proposal on small caliber weapon systems, the Swiss had persevered, with International Workshops on Wound Ballistics in 1997, 1999 and 2001, including test firings of rifle bullets at their military testing range in Thun. At the second Preparatory Committee meeting for the Review Conference, they presented a revised version of their 1994 proposed protocol, with a technical annex on a testing method. Again, there was little support for the proposal.[102]

A proposal by the USA and other countries for a new protocol providing that all anti-vehicle mines be detectable and that remotely deliverable anti-vehicle mines be self-destructing and self-deactivating was discussed but not adopted.[103]

No new Protocols to the Convention on Conventional Weapons have been adopted since then.

PART II

PROPOSING OR OPPOSING: FOR WHAT REASONS?

What were the motivations of states in the positions they took during the CCW process?

For many countries, condemning napalm must have seemed a convenient way of annoying the United States and taking a crack at a colonial power such as Portugal. The non-aligned countries were in the ascendant at the Teheran Conference, and resolution XXIII on "Human Rights in Armed Conflict" sat alongside resolutions on "Treatment of People who Oppose Racist Régimes" and "The Importance of the Universal Realization of the Right of Peoples to Self-Determination and of the Speedy Granting of Independence to Colonial Countries and Peoples for the Effective Guarantee and Observance of Human Rights".[104] But for the drafters of resolution XXIII, the condemnation of napalm and other examples of "the widespread brutality and violence of our times" was a convenient hook on which to hang a far-reaching proposal to strengthen the laws of war and revive the process of banning particularly harmful weapons.

At the UN, the focus remained on napalm until it was broadened in 1971 to include all incendiaries. But when Sweden entered the fray, more weapons were brought into the picture, and a second forum for discussions was added – the CDDH.

Sweden's antics were intensely irritating to other Western countries, and in Lucerne and Lugano there was much grumbling in the corridors. The Swedes were the prize hypocrites, I learned. After abandoning a project to develop a flechette weapon, they wanted the other countries to forego the same. On small caliber projectiles, the suggested threshold of a striking velocity of 800 meters per second, championed by Sweden, would have allowed Sweden (and many other countries) to retain their existing stocks of rifles and not have to switch to the new, more destructive American M16.[105] Hans Blix was "the tool of Swedish military interests".[106]

The seven countries' proposal on incendiaries did not cover anti-armor munitions, something Sweden would have wanted in order to defend itself against an armored attack.[107] One of the Swedes acknowledged to me that in formulating the proposed bans, they had avoided anything that "would cause problems for us". But from my many conversations with the Swedes, I could only conclude that their humanitarian concern was genuine. The Swedish initiative reflected opposition to the Vietnam weaponry among the public and had been singled out for support several times in the Swedish parliament. Their position was one of idealism tempered by the perceived needs of national defense.

For a wealthy superpower like the United States, the inclination was to retain any weapon that could help in maintaining military superiority over other countries. In Lucerne, the US strategy was to undermine each of the seven countries' proposals. After the changes in Lugano, the US delegation was able to report to the State Department that "With regard to specific weapons categories, United States interests were generally well served by the Lugano discussion." There had been "useful" proposals on mines and incendiaries, and "the interest of the Swedes and non-aligned for the prohibition of flechettes and improved-fragmentation munitions seems to have abated considerably... We must, however, continue to expect considerable pressure....to accept far-reaching restrictions on certain politically vulnerable weapons, such as napalm and fuel-air explosives" and "a continuing effort by the Swedish and like-minded governments to secure adoption of restrictions on small-calibre projectiles which may call into question many of the standard small arms upon which the United States and its western allies presently rely or which are under development." There was, therefore, "a clear need for extensive further technical work....and thorough consultation within the western alliance, combined with a continuing willingness to accept reasonable proposals."[108]

In 1965, the Soviet Union had been ready to condemn "the use of barbarous weapons of annihilation, including napalm bombs" against the "peaceful population" in Vietnam. But as more new antipersonnel weapons were introduced in the war, the North Vietnamese would have shown them to their Soviet allies, who were supporting them with massive military aid, and the Russians began copying them for their own use. As the discussions of possible weapons bans took shape, the Soviet enthusiasm cooled off. In 1974, just after the conclusion of the Lucerne Conference, the USSR, along with Soviet bloc countries Byelorussia, Czechoslovakia, the German Democratic Republic, Hungary, Mongolia, Poland and Ukraine, abstained from a UN General Assembly resolution expressing "appreciation" for the willingness of the ICRC to convene a second Government Expert's conference (in Lugano).[109] They abstained from another resolution condemning the use of napalm,[110] and they continued to raise obstacles during the CCW process.[111]

After the USSR invaded Afghanistan in December 1979, Soviet warplanes blanketed the countryside from the air with huge numbers of small plastic antipersonnel mines closely modelled after the US "Dragontooth" mines used in Vietnam. Afghanistan would become one of the most heavily mined countries in the world.[112]

PROHIBITIONS OR RESTRICTIONS ON USE?

In 1971, five states had proposed banning the use of incendiary weapons "in circumstances where they may affect the civilian population". This qualifying language was dropped in the seven states' proposal of 1974. The proposed *restriction on use* had become an outright *prohibition* of the use of incendiaries other than antitank and antiaircraft weapons.

All five of the 1974 proposals were effectively for *prohibitions of use*. Such prohibitions are more clear-cut and potentially more easily verifiable than mere restrictions on use, where there will often be room for argument.

The desire of many countries for a ban on incendiary weapons ran up against the view that in many circumstances incendiaries "had unique military value which could not be duplicated by other weapons".[113] The outcome was an instrument setting out *restrictions* on the use of incendiaries, very much in line with a proposal of 1971 but not the outright *prohibition* set out in the seven countries' proposal and favored by many other states. The final text of Protocol III provided no protection for combatants, to the great regret of several participants in the negotiations.

In the meantime, the NATO countries had discovered that the ongoing discussions could be used to set standards for waging mine warfare in a "civilized" fashion. The outcome was CCW Protocol II – again, providing for *restrictions* on the use of landmines but not the *prohibition* envisaged in the proposal of 1974.

The outcome of the CCW process was a Convention with five Protocols, binding among states that become parties to them. Of these, only the protocols on lasers and non-de-

tectable fragments are outright *prohibitions*, and the latter has little relation to actual warfare, as the weapon banned is unlikely ever to exist. Amended Protocol II contains both prohibitions and restrictions, Protocol III contains only restrictions, while Protocol V can be seen largely as a set of measures to deal with the damage resulting from the failure to ban the weapons that caused it.

As Hans Blix, arguing for the prohibition of incendiaries, said in 1974: "The advantage of a categorical rule is evidently the simplicity of it. If a weapon can be used in *some* circumstances, it will be deployed and there may be controversies as to whether it was not actually used in circumstances other than those permitted." And "If a typical or a normal use of a weapon is one which involves a degree of indiscriminateness, a ban on such use will constantly be subject to strain and likely breaches with consequent retaliation which may tend to erode the ban. A total ban on the type of weapon is safer. Weapons which are not deployed will not be misused."[114]

HOW LONG DID IT TAKE?

Where there was broad agreement, or where there was considerable momentum behind a proposal, agreement could be reached fairly quickly. Where there was little interest or little support, proposals died.

Protocol IV on blinding lasers was adopted 14 months after the original formal proposals, the fruit of strong campaigning by the ICRC and Human Rights Watch and a change of heart by the US. Protocol V on explosive remnants of war was adopted three years after the ICRC proposals of 1993.

The 1976 UK/French/Dutch proposal on land mines was adopted four years later as CCW Protocol II, stronger and more extensive than the original proposal. Protocol III on incendiaries was adopted in 1980 after a last-minute compromise, much better than the Dutch proposal from 1976 but weaker than the seven countries' proposal of 1974.

Of the five proposals presented by Sweden and six other countries in 1974, those on cluster weapons and antipersonnel mines were arguably the most important. No consensus was reached at the Lucerne Conference, and the proposals were effectively abandoned two years later in Lugano. The Mine Ban Treaty was adopted in 1997, outside the CCW process, 23 years after the seven countries' proposal of 1974 and only after a determined effort by certain governments backed up by intense NGO pressure. The Convention on Cluster Munitions was adopted 37 years after the original proposal of 1971. Both Conventions far exceeded the original proposals. But how many lives, how many limbs would have been saved if the original proposals had been adopted at the time and respected!

EVIDENCE-BASED DECISIONS?

The significance of reliable evidence as a basis rule-making was recognized early on. The Teheran Conference, contemplating the enhancement of the "protection of civilians, prisoners and combatants" and the banning of "certain methods and means of warfare", had called for a UN study; and Sweden, proposing specific weapons bans, had pressed the ICRC to hold an expert meeting. But strong evidence was no guarantee of success.

Some legal responses were adopted against a background of extensive information. The states that negotiated Protocol II, and later amended the protocol, could point to years of experience and doctrine on mine warfare. An impressive body of research on blinding lasers lay behind the adoption of CCW Protocol IV.

Yet evidence did not necessarily command an appropriate response. A massive body of information was also available on the long-term damage caused by antipersonnel mines, but it did not sway the first CCW Review Conference to ban them. Compelling evidence on burn injuries did not result in the CCW Conference agreeing to protect combatants against incendiaries, or to adopt wider-ranging prohibitions.

There was sufficient evidence by the time of the Lugano Conference for participants to agree that "design principles existed" to determine the severity of wounds produced by small caliber weapon systems. Two decades later there was still no support for a ban, despite the impressive body of knowledge that Sweden and Switzerland had built up and shared with other states.

A proposal to ban weapons emitting non-detectable fragments attracted great interest at the Lugano Conference with scant evidence of such weapons existing.[115] An acceptable text was worked out almost immediately, and agreement on the future CCW Protocol I was reached at the Preparatory Conference even before the CCW Conference itself had begun. The lightning speed of its drafting and acceptance must be something of a record in disarmament negotiations!

FORMULATIONS OF WEAPONS BANS

The weapons bans adopted through the CCW process to date have consisted of a description of the weapon in question together with a statement of a prohibition or a restriction of use. Sometimes these formulations are qualified by terms such as "to the maximum extent feasible" or "unless circumstances do not permit".

The descriptions have consisted of one or more of:

- A physical description of the weapon (laser weapons, Protocol IV);
- A description of its functioning (detonation by "the presence, proximity or contact of a person or vehicle", amended Protocol II; production of "a chemical reaction of a substance delivered on the target", Protocol III);
- A description its effect (injury by non-detectable fragments, Protocol I; igniting objects or burning persons, Protocol III; causing permanent blindness to unenhanced vision, Protocol IV);

or a combination of the above.

The ban on non-detectable fragments is intended to protect combatants from unnecessary suffering, as is the ban on lasers. Protocols I and IV are formulated as outright prohibitions.

Protocol III attempts to protect civilians from incendiaries by prohibiting aerial attacks against military targets located within a "concentration of civilians". Other attacks are allowed if a military objective is "clearly separated" from a concentration of civilians and if "all feasible precautions" are taken to prevent the spread of fire and to minimizing "incidental loss of civilian life, injury to civilians and damage to civilian objects" – restrictions on use, but not a prohibition.

Amended Protocol II attempts to protect civilians through such measures as the prohibition of non-detectable mines and perfidious booby traps, the provision of self-destruct mechanisms, warning signs or fencing, and the recording of minefields. Many of these measures would also protect combatants.

Both Protocol III and amended Protocol II reiterate provisions of Articles 51 and 52 of Additional Protocol I of 1977 as applied to the weapons covered in them, including incendiary attacks or the direction of mines against "the civilian population as such", "individual civilians", or "civilian objects" (Additional Protocol I, Articles 51(2) and 52(1)) and the placement of mines and booby traps which "may be expected to cause" incidental damage to civilians or civilian objects "which would be excessive in relation to the concrete and direct military advantage anticipated" (Additional Protocol I, Article 51(5)(b)). Amended Protocol II also bans the use of mines and booby traps which are "designed or of a nature to cause superfluous injury or unnecessary suffering". This general prohibition, taken from Article 35(2) of Additional Protocol I, is meant to protect combatants, but in the context of mine warfare, it would also protect civilians.

Alternative approaches to the wording of a ban can be seen in three proposals on fuel-air explosives (Appendix 2). The Swedish proposal of 1976 defined fuel-air explosives solely in terms of their functioning, while the Swiss proposal and the proposal from 1979 (with a tighter technical description) gave both physical details and details of functioning. The Swedish proposal was limited to a ban on the "antipersonnel use" of fuel-air explosives (against troop concentrations, perhaps?), providing no protection against indiscriminate effects, while the total ban proposed by Switzerland would have protected both combatants and civilians. The combined proposal from 1979 gave some precision to the ban on "antipersonnel use" originally proposed by Sweden by stipulating that fuel-air explosives might only be used "when the aim is exclusively to destroy material objects, such as the clearance of mine fields", but this would not protect combatants or civilians within the area of the blast, which could in theory be much larger than the size of the target.[116]

"UNNECESSARY SUFFERING", "INDISCRIMINATE EFFECTS" AND "MILITARY NECESSITY"

The CCW is a treaty on "prohibitions or restrictions on the use of certain conventional weapons which may be deemed to be excessively injurious or to have indiscriminate effects". Its preamble cites the prohibition of use of weapons and methods of warfare "of a nature to cause superfluous injury or unnecessary suffering"[117] and "the general principle of the protection of the civilian population against the effects of hostilities". But as Kalshoven has written, these two principles "are not particularly suited to serve as yardsticks" for determining whether or not the use of a particular weapon is legal.[118] How, then, shall a weapon be "deemed to be excessively injurious or to have indiscriminate effects" and thus eligible for a prohibition or restriction on use in a Protocol to the Convention?[119]

The task of drafting a weapons ban has been described, in the words of the 1868 St. Petersburg Declaration, as one of determining "by common agreement....the technical limits at which the necessities of war ought to yield to the requirements of humanity". Under the St. Petersburg Declaration, that "technical limit" was fixed in numerical terms, at 400 grams, below which projectiles filled with explosive or fulminating substances would be banned. In the 1899 ban on dum-dum bullets, the "technical limit" was stated in descriptive terms: the Hague Declaration banned "bullets which expand or flatten easily in the human body", with examples of bullet constructions having these effects.

Small caliber weapon systems are one of the few weapons where the likely severity of injury can be expressed in numerical terms. According to research findings presented by Switzerland at an ICRC expert meeting in 1994, severe injury results when a bullet tumbles in the body, transferring much or all of its kinetic energy to the tissues, thus causing massive tissue damage. The tendency to tumble depends on a set of design factors: bullets from rifles designed in a certain way will pass straight through the body, causing minimal damage, while others will start tumbling quickly. The point at which tumbling begins and the amount of energy transfer can be observed scientifically through shots into "flesh simulants" such as soap or gelatin. These factors allow for a precise numerical formulation of a ban, which under the Swiss proposal of 1994 was to apply to "arms and ammunition with a calibre of less than 12.7 millimeters which from a shooting distance of at least 25 meters release more than 20 Joules of energy per centimeter during the first 15 centimeters of their trajectory within the human body".[120]

The Swiss proposal provided a sound technical basis for a ban. Massive evidence had been accumulated and presented in Lugano and at the Swiss and Swedish wound ballistics seminars. But at the Preparatory Conference for the first CCW Review Conference, preoccupied by lasers and landmines, there was only a "general discussion" of the proposal, and there was little support at the second Review Conference.

With CCW Protocol I on non-detectable fragments, the "technical limits" for the ban were based on the material used in the fragments produced by a high explosive munition. The delegates at Lugano could readily understand that injuries from plastic fragments would be harder to treat than those from metal fragments, in that the fragments were not detectable by X-rays; the munitions could therefore be "deemed to be excessively injurious". And the "necessities of war" would not outweigh the "requirements of humanity", because there was no necessity at all of developing such a weapon!

With CCW Protocol IV on blinding laser weapons, a great deal of information had been amassed by the ICRC at the time of the first Review Conference, but the severity of becoming permanently blind is something that can readily be grasped even in the absence of detailed medical evidence or knowledge of the laws of war. And here something else comes into play. To blind someone deliberately, to gouge someone's eyes out, is not an accepted form of behavior; it is a crime; it is no longer employed anywhere as a legal form of punishment; it is a horrifying act. Warfare had up to then been conducted without the use of blinding laser weapons, so they could not clearly be numbered among the "necessities of war".[121] The "requirements of humanity" triumphed over the "necessities of war". And the "principles of humanity" and "dictates of public conscience",[122] to use another term, rested not just on technical evidence but on a widespread horror of blinding, articulated at the Review Conference by the ICRC and Human Rights Watch.[123]

Public concern has lain behind weapons bans, and proponents of bans have cited those concerns. Widespread revulsion over the use of napalm led to its condemnation at the Teheran Conference and the eventual adoption of CCW Protocol III. In the 1990s, campaigners for bans on landmines and cluster weapons publicized the terrible problem of unexploded mines and submunitions. The ICRC, campaigning for a ban on blinding lasers, published a brochure evoking the horror of sudden blindness and a presenting a vision of "soldiers, police and even civilians" encountering "a new and haunting force on the battlefield and on city streets" caused by the proliferation of blinding laser weapons were their use not to be prohibited in warfare.[124] A delegate at the 1971 Conference of Government Experts said that "public opinion would be greatly disappointed" if no international body took up the question of weapons bans. And Hans Blix, speaking in 1974, evoked the photo, appearing in newspapers worldwide in 1972, of a naked girl fleeing a South Vietnamese village that had been bombed with napalm, stripped by flame and still burning from napalm. Blix said that apart from chemical, biological and nuclear weapons, "no other category of weapons has evoked a stronger public reaction than the incendiaries. Several speakers have mentioned the picture of the little girl screaming in horror and pain from being hit by incendiary. We have all seen it. We shall certainly coldly and rationally analyze the various factors which argue in favour of a ban on use of incendiaries and the factors, which on the contrary militate against such a ban. But at the same time I confess that I hope and trust we shall be influenced by that picture."[125]

The US military lawyer W. Hays Parks has written of "the balance between the law of war principles of *military necessity* and of *unnecessary suffering*" (emphasis in original).[126] Certainly the term "unnecessary suffering" and the provisions on indiscriminate attacks in Additional Protocol I of 1977 reflect the reality that some combatants and civilians will suffer harm in warfare; certainly the armed forces have needs for some weapons; but do those needs always equate to "necessities"?

A rifle with bullets causing wounds more severe than those produced by previous models may confer a military advantage, but is severe injury a "necessity" for rendering an enemy soldier *hors de combat*? Blinding laser weapons may confer a military advantage against another army which does not possess them, but are they a "necessity"?

Hays Parks has written that a study by "one of the principal delegations" at the CCW Preparatory Conference showed that 50% destruction of petroleum tanks by incendiary bombs, or of ammunition stores and aircraft plants by a combination of high explosive and incendiary bombs, could be achieved with far fewer aircraft sorties than if high explosives alone were used. He concluded that "the fewer sorties to achieve the desired level of destruction illustrates the military necessity for incendiaries against certain targets, since the smaller number of sorties brings a concomitant decrease in risks to aircraft and aircrews".[127] Certainly incendiaries used in such circumstances can be advantageous for countries that enjoy the use of air power, but does that constitute a "military necessary"?

For many countries, a "common agreement" to ban or restrict particular weapons must stem from a recognition that their use would *necessarily* engender "unnecessary suffering" or have "indiscriminate effects". For others, it requires rather a recognition that, whilst specific militaries utilities may persist, use of such weapons would tend to create patterns of suffering that constitute unacceptable harm.[128]

AN UNFINISHED AGENDA

Despite the achievements of the CCW process, much remains to be done. One goal must be to secure the universal ratification of the CCW and its relevant Protocols, along with the Mine Ban Treaty and the Convention on Cluster Munitions. Another crucial goal is to ensure respect for the prohibitions and restrictions in these instruments – by states parties and by all fighting forces, state and non-state. The weapons bans that governments have agreed upon should be seen as universal standards. Governments should press for their implementation; NGOs can help by promoting the rules and exposing violations.

Many of the concerns about particular weapons from the 1960s remain unaddressed, and many of the hopes of those who proposed prohibitions remain unfulfilled.

Incendiaries – The language in CCW Protocol III requiring "all feasible precautions" in incendiary attacks on military objectives "clearly separated" from a concentration of civilians" remains weak. And Protocol III does nothing to protect combatants against severe burn injuries. A version of the total ban proposed by Mexico and other countries in 1974 is still the best option.

White phosphorus – White phosphorus is a material that ignites spontaneously on contact with the air, forming a dense white smoke.[129] White phosphorus weapons are used primarily for purposes such as troop concealment and target marking.[130] As a smoke munition, it is excluded from the incendiary weapons covered in CCW Protocol III.

A UN fact-finding mission into the conflict in Gaza in December 2008 – January 2009 studied several incidents in which civilians were wounded by white phosphorus from Israeli weapons. Several doctors said "they believed they had dealt with a wound successfully only to find unexpected complications developing as a result of the phosphorus having caused deeper damage to tissue and organs than could be detected at the time. Several patients died, according to doctors, as a result of organ failure resulting from the burns." When staff "removed bandages from a wound that still contained fragments of white phosphorus, smoke would come from the wound, even hours after the injury."[131] And because of its toxic properties, medical staff said that "even working in the areas where the phosphorus had been used made them feel sick, their lips would swell and they would become extremely thirsty and nauseous". The mission concluded that "serious consideration should be given to banning the use of white phosphorus as an obscurant".[132]

Flechettes – The UN Fact-Finding Mission found that shells filled with flechettes had been used on several occasions in the Gaza conflict of 2008-2009. All of those hit were civilians, and in one attack, which the Mission regarded as a deliberate attack on civilians, five people died and another 17 were wounded. The Mission stated that flechette-filled shells are "particularly unsuitable for use in urban settings where there is reason to believe civilians may be present" and that "the principles of proportionality and precautions necessary in attack render their use illegal".[133]

Fuel-air explosives (FAEs) – Borrowing language from the 1868 St. Petersburg Declaration, the proposal of 1979 stated: "The effects of use of FAEs against personnel would be far in excess of what is needed to place a soldier *hors de combat* and would

in a large number of cases render death inevitable."[134] And with its wide area coverage, a fuel-air explosive would kill any civilians exposed or sheltering within the target area. Since their introduction by US forces in Vietnam, fuel-air explosives and other thermobaric weapons have been developed in other countries and used in other conflicts. They should be banned on grounds of both unnecessary suffering and indiscriminate effects.

Small caliber weapon systems – The inability of states to agree on the need for a limit on wounding capacity has been one of the great failings of the CCW process. The information is available, and the need is still there. The modern dum-dums should be banned.

In the discussions between 1971 and 2001, worthwhile proposals were also made on **anti-vehicle mines** and **naval mines**. They still deserve attention.

Future weapons – Over the years, various "future weapons" have been named as deserving attention.[135] Today the most urgent questions for the CCW are on **autonomous weapons**. Prohibitions and positive obligations before they become widespread would be a great achievement.

More broadly, determined work is still needed to reduce the devastation caused by the use of **explosive weapons in populated areas**. With tens of thousands of civilian deaths and injuries every year from bombing and shelling in towns and cities, as well as wider effects that erode public heatlh and force people into displacement, we urgently need to build norms to challenge the acceptability of explosive force in urban areas.

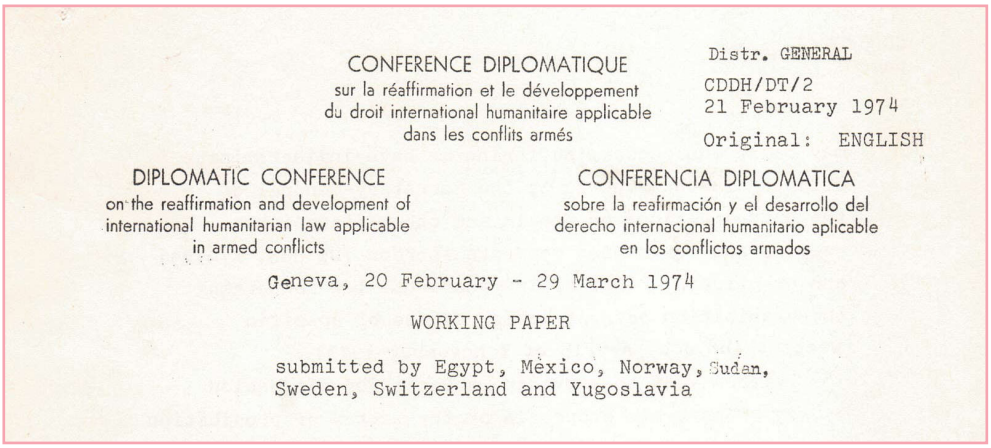
The agenda of reducing the cruelty and suffering of warfare will remain unfinished as long as wars last.

How much better it would be to prevent wars breaking out altogether!

An inert M85 submunition, the remaining outer hemisphere of a BLU 26B (Guava) submunition, and four flechettes (photo R. Moyes).

APPENDIX 1: THE SEVEN COUNTRIES' PROPOSAL (1974)

(Abbreviated from the original, document header and spelling from the original)



CONFERENCE DIPLOMATIQUE
sur la réaffirmation et le développement
du droit international humanitaire applicable
dans les conflits armés

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DIPLOMATIC CONFERENCE
on the reaffirmation and development of
international humanitarian law applicable
in armed conflicts

CONFERENCIA DIPLOMATICA
sobre la reafirmación y el desarrollo del
derecho internacional humanitario aplicable
en los conflictos armados

Geneva, 20 February - 29 March 1974

WORKING PAPER

submitted by Egypt, México, Norway, Sudan,
Sweden, Switzerland and Yugoslavia

...

I. Incendiary weapons

...

"Incendiary weapons shall be prohibited for use.

A. This prohibition shall apply to:

1. The use of weapons, projectiles or substances specifically intended to cause fire.
2. The use of weapons, projectiles or substances designed to attack by fire, such as flame-projectors (including flame-throwers), incendiary shells, rockets, grenades, mines and bombs, and any other means of attacking by fire.

B. This prohibition shall not apply to:

1. Projectiles or devices specially constructed to give light or to be luminous and generally to pyrotechnics not intended to cause fires, or to projectiles of all kinds capable of causing incendiary effects accidentally, which do not contain spontaneously igniting substances.
2. Incendiary projectiles designed specifically for defence against aircraft or armoured vehicles provided that they are used exclusively for that purpose." (x)

(x) The Mexican Government is in favour of eliminating the second exception in order that this prohibition be total.

II. Anti-personnel fragmentation weapons

...

"Cluster warheads with bomblets which act through the ejection of a great number of small calibred fragments or pellets are prohibited for use."

III. Flechettes

...

"Weapons which act through the release of a number of projectiles in the form of flechettes, needles and similar, are prohibited for use."

IV. High velocity effects and dumdum effects

...

"Projectiles of small-calibre weapons may not be so designed or have such velocity that they are apt to deform or tumble on or following entry into a human body or to create shock-waves which damage tissue outside their trajectories or to produce secondary projectiles."

V. Anti-personnel land-mines

"Anti-personnel land-mines must not be laid by aircraft."

[As originally circulated, the working paper listed six co sponsors. Presenting the proposal to the CDDH on 7 March, Swedish Foreign Minister Carl Lidbom announced that a seventh country, Sudan, had joined the list.]

APPENDIX 2: ALTERNATIVE FORMULATIONS FOR A BAN ON FUEL-AIR EXPLOSIVES

(Spelling as in originals)

[1976] - Lugano Conference document COLU/202 (Original: English).

Working paper
submitted by the Experts of Sweden

FUEL-AIR EXPLOSIVES

"The anti-personnel use of weapons which for their effects rely exclusively on shock waves in the air is prohibited."

[1976] - Lugano Conference document COLU/209 (Original: French).

Working paper
submitted by the Experts of Switzerland

FUEL-AIR EXPLOSIVES

It shall be forbidden to detonate for military purposes gas-air and dust-air mixtures which release gas pressure.

[1979] - Preparatory Conference for the CCW Conference, document A/CONF.95/PREP.CONF./L.1/Rev.1 and Rev.1/Add.1 and 2 (Original: English), reproduced in *Report of the Preparatory Conference for the United Nations Conference on Prohibitions or Restrictions of Use of Certain Conventional Weapons which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects*, 25 May 1979, UN document A/CONF.95/3, Annex I, p. 1.

DRAFT PROPOSAL ON FUEL-AIR EXPLOSIVES SUBMITTED BY MEXICO, SWEDEN AND SWITZERLAND

The States Parties to this Protocol,

Aware of the continuous development of new types of blast weapons, in particular of the fuel-air explosives,

Anxious to prevent the use of weapons in a manner which may cause unnecessary suffering to combatants or render their death inevitable,

Have agreed to abstain from the use of munitions which rely for their effects on shock waves caused by the detonation of a cloud created by a substance spread in the air, except when the aim is exclusively to destroy material objects, such as the clearance of mine fields.

ENDNOTES

1 Eric Prokosch, *The Technology of Killing: A Military and Political History of Antipersonnel Weapons*, London, Zed Books, 1995.

2 Properly speaking, the US-Indochina war. It encompassed not only the military actions in South Vietnam and the bombing of the North, but also the secret bombing of Laos in the 1960s and the invasion of Cambodia in 1970.

3 "Most of the wounds [among refugees from a cluster of hamlets] are of the simple type inflicted by shell and bomb fragments, but others are the gruesome variety caused by napalm. One distraught woman appeared at a field medical station holding a child in her arms whose legs had literally been cooked by napalm. The child is not expected to live." (*San Francisco Chronicle*, 15 February 1966)

4 "This stuff is even more vicious than napalm. In the civilian hospital in Can Tho, I saw a man who had a piece of white phosphorus in his flesh. It was still burning". (Frank Harvey, *Air War – Vietnam*, New York, Bantam, 1967, pp. 56-57)

5 "Fighting against being overrun, the 500 Americans lowered their artillery barrels and boomed round after round of 'beehive' shells [packed with flechettes] into the human waves of guerrillas. Each 'beehive' shell exploded into hundreds of half-inch darts that shredded the Vietcong..." (*San Francisco Examiner*, 2 January 1968)

6 "[A]nybody getting hit by this weapon will become a casualty almost immediately because of its terrible tearing ability. The M16's muzzle velocity it was explained causes the bullet to tumble when it hits an object and tears or chews away..." (V. Briggins, "Lightweight Rifle Is Favored", *Newport News Times Herald*, 2 February 1966)

7 "If a pilot used CBUs [cluster bombs] properly he could lawnmower for considerable distances, killing or maiming anybody on a path several hundred feet wide and many yards long." (Harvey, op. cit., p. 57) For descriptions of these and other American weapons used in Vietnam, see Prokosch, op. cit.

8 John Duffet, ed., *Against the Crime of Silence: Proceedings of the Russell International War Crimes Tribunal*, New York, Simon and Schuster, 1968, pp. 266-267. The USA refused to attend – US Secretary of State Dean Rusk said he had no intention of "playing games with a 94-year-old Briton" - and the proceedings were scantily reported in the news media.

US Department of Defense figures obtained by the Stockholm International Peace Research institute (SIPRI) show that in the five years from July 1966 to June 1971, the US military services ordered 423,778 CBU-24 series cluster bombs and 59,192 bomblet-filled units used in B-52 bombers, making a total of approximately 285 million bomblets. It is reasonable to assume that most of the bomblets produced were dropped on Vietnam, Laos and Cambodia, where many still remain unexploded on the ground today, posing a continuing risk to lives and livelihoods. (Stockholm International Peace Research Institute, *Anti-personnel Weapons*, London, Taylor & Francis, 1978, Table 2.3, p. 30)

9 *US "Special War" in South Viet Nam*, Hanoi, Ministry of Foreign Affairs, Press and Information Department, 1974, pp. 31-35.

10 Cited in Robert M. Neer, *Napalm: An American Biography*, Cambridge, Massachusetts, Belknap Press, 2013, p. 174. Robert Neer's book contains a wealth of information on the bombing of Japan and Korea, on the anti-napalm protests in the USA, on the later uses and stigmatization of napalm and many other subjects.

11 Memorandum to All Governments on the Protection of Civilian Populations against the Dangers of Indiscriminate Warfare, cited in Frits Kalshoven, "The Conference of Government Experts on the Use of Certain Conventional Weapons, Lucerne, 24 September – 18 October 1974", *Netherlands Yearbook of International Law*, Vol. 6, December 1975, pp. 77-102, at pp. 78-79.

Earlier, in the wake of the Korean War, where cities, towns and villages had been bombed with incendiaries (Neer, op. cit., pp. 96-104), the ICRC had proposed banning the use of incendiary weapons with uncontrollable effects. Article 14(I) of the ICRC *Draft Rules for the Limitation of the Dangers Incurred by the Civilian Population in Time of War* (1956) read: "Without prejudice to the present or future prohibition of certain specific weapons, the use is prohibited of weapons whose harmful effects – resulting in particular from the dissemination of *incendiary*, chemical, bacteriological, radioactive or other agents – could spread to an unforeseen degree or escape, either in space or in time, from the control of those who employ them, thus endangering the civilian population." (Emphasis added)

12 Resolution XXIII entitled "Human rights in armed conflicts" (*Final Act of the International Conference on Human Rights, Teheran*, 22 April to 13 May 1968, UN document A/CONF.32/41, p. 18). According to the ICRC Commentary on the Additional Protocols of 1977, "The term 'means of combat' or 'means of warfare'....generally refers to the weapons being used, while the expression 'methods of combat' generally refers to the way in which such weapons are used." (ICRC, *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949*, Geneva, ICRC and Nijhoff, 1987)

13 UN General Assembly (UNGA) resolution 2444 (XXIII) of 19 December 1968.

14 Cited in Neer, op. cit., p. 175. Reports by the Secretary-General are prepared by the UN Secretariat. In all likelihood, the suggestion of a report on "the legality or otherwise" of napalm (1969) and the reminder of "the contemplated report" (1970) originated there and not with the Secretary-General himself.

15 UNGA resolution 2852 (XXVI). For summaries of these and other General Assembly resolutions on incendiary weapons and related topics. see Stockhom International Peace Research Institute, *Incendiary Weapons*, Stockholm, Almqvist & Wiksell International, 1975, Appendix 1C, pp. 83-86. For an account of discussions and resolutions on napalm leading to the adoption of the CCW in 1980, see Neer, op. cit., Chapter 12.

16 Kalshoven, op. cit., p. 83. Frits Kalshoven, an expert in international humanitarian law, participated in the ICRC expert study of 1973 and served as Rapporteur of the Lucerne and Lugano Conferences and at the CDDH Ad Hoc Committee on Conventional Weapons.

17 *Napalm and Other Incendiary Weapons and All Aspects of their Possible Use: Report of the Secretary-General*, UN document A/8803 (1972), paras. 190, 193. The report, with corrections and revisions, was reissued in 1973 in the form of a booklet with a black cover adorned with lurid orange flames (UN Publication sales no. E.73.I.3).

Tribute should be paid to the chemist Dr Julian Perry Robinson, the principal author of the magnificent SIPRI study *The Problem of Chemical and Biological Warfare*, who participated in the UN study, where his knowledge must have been invaluable in the analysis of the chemical properties of incendiaries. Although not designated as an "expert", Robinson assisted in the preparation of the reports of the 1973 ICRC study and the Lucerne and Lugano conferences. His involvement must have helped in drafting and ensuring the accuracy of the reports.

18 Resolution 2932 A (XXVII) of 29 November 1972.

19 Resolution 2918 (XXVII) of 14 November 1972.

20 Hans Blix later served as Director General of the International Atomic Energy Agency. He achieved notoriety in the prelude to the US invasion of Iraq in 2003 when, as Executive Chairman of the UN Monitoring, Verification and Inspection Commission, he declined to certify that Iraq possessed weapons of mass destruction, as alleged by the United States.

21 A Conference of Government Experts is a sort of unofficial negotiating session, attended by governmental representatives in the guise of "experts". According to its Rules of Procedure, the "experts" at the 1971 Conference "shall speak in their personal capacity, and their statements shall not bind in any way the government that appointed them"; and "The Conference shall not reach any decisions, adopt any resolutions or make any recommendations." The Conference was to be held in private, and "no observers shall be admitted." (*Conference of Government Experts on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts (Geneva, 24 May – 12 June 1971*): *Report on the Work of the Conference*, Geneva, ICRC, August 1971, p. 15)

22 Article 23 of the Hague Regulations of 1907 states, in part: "it is especially forbidden... (e) To employ arms, projectiles, or material calculated to cause unnecessary suffering..."

23 UNGA resolution 2444 (XXIII) of 19 December 1968 reaffirmed "That it is prohibited to launch attacks against the civilian populations as such", and "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". See Frits Kalshoven and Liesbeth Zegveld, *Constraints on the Waging of War: An Introduction to International Humanitarian Law*, third edition, ICRC, 2001, pp. 44-47.

24 Cited in the working paper accompanying the seven countries' proposal of 1974, described below.

25 Loc. cit. As adopted in 1977, Additional Protocol I, applicable in international armed conflicts, states in Article 35(1): "It is prohibited to employ methods, projectiles and material and methods of warfare of a nature to cause superfluous injury or unnecessary suffering." Article 51(4) prohibits "indiscriminate attacks", including "(b) those which employ a method or means of combat which cannot be directed at a specific military objective; (c) those which employ a method or means of combat the effects of which cannot be limited as required by this Protocol; and consequently, in each such case, are of a nature to strike military objectives and civilians or civilian objects without distinction".

26 Mexico, Switzerland, the United Arab Republic and the Netherlands.

27 It seems clear that this language was meant to encompass antipersonnel cluster bombs, which in earlier accounts had often been referred to simply as "fragmentation bombs" or "pellet bombs". The phrase "small calibred" must have been meant to exclude antimateriel cluster bombs, where the fragments would have been larger, and antitank cluster bombs, which used a different type of bomblet.

28 A fourth article stated that "weapons capable of causing serious damage to the civilian population" should, "as far as possible", be equipped with "a safety device which would render them harmless when they escape from the control of those who employ them" (Working paper submitted by Mexico, Sweden, Switzerland, United Arab Republic and the Netherlands, document CE/Com.III/44, reproduced in the

Conference report, cited above, pp. 97-99). Ultimately, requirements to provide mines with self-destruction and self-deactivation mechanisms would be incorporated in CCW amended Protocol II.

29 Conference report, para. 477.

30 Kalshoven, op. cit., p. 82.

31 ICRC, *Weapons that may Cause Unnecessary Suffering or have Indiscriminate Effects: Work of the Experts*, Geneva, ICRC, 1973, para. 248. According to Frits Kalshoven, who participated in the study, the language of these conclusions "had flown from the pen of Dr Blix", and the ICRC was very reluctant to accept its insertion in the report (Kalshoven, op. cit., p. 83).

32 Sweden, Royal Ministry of Foreign Affairs, *Conventional Weapons, Their Deployment and Effects from a Humanitarian Aspect: Recommendations for the Modernization of International Law; A Swedish Working Group Study*, Stockholm, 1973.

33 SIPRI was founded in 1966 to provide an independent source of reliable information that could be used in the disarmament negotiations at the UN. Incendiaries were brought into its work in the early 1970s in response to the wish of its Chairman, Gunnar Myrdal, to provide information for the discussion then getting under way in Geneva of banning some of the new weapons used in Vietnam (Malvern Lumsden, personal communication).

34 Egypt, Mexico, Norway, Sudan, Switzerland and Yugoslavia. While Sweden took the lead in the early 1970s, other countries also gave strong support. Egyptian Colonel Dr. Esmet Abdel Hamid Ezz participated in the 1973 ICRC study; he played a strong role at the Lucerne Conference, as did the Algerian and Yugoslavian delegates. Mexico and Switzerland also supported the effort and presented proposals of their own in subsequent years.

35 This change caused the Netherlands to withdraw as a cosponsor (Kalshoven, op. cit., p. 82).

36 The proposal was to ban cluster warheads producing "a great number of small calibred fragments or pellets". A Swedish delegate at the Lugano Conference stated that "a great number" could mean 100,000 or more fragments per cluster bomb, while "small calibred" could refer to fragments weighing less than one gram. (Cf. Lugano Conference report, cited below, pp. 73-74, para. 8.) One of the Swedish delegates told me that the proposed ban did "conceivably" include bomblet-filled artillery shells as well as cluster bombs.

37 Swedish Delegation to the Conference on Humanitarian Law, Statement by Minister of State Carl Lidbom, 7 March 1974.

38 The Hague Declaration on dum-dum bullets prohibits "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". According to the working paper, "the reason for this language was that the [Hague] Conference did not wish to pronounce itself about yet unknown types of bullets and foresaw the possibility of additional future prohibitions. This majority view was strongly criticized by some who argued that 'in an effort to catch a single detail of construction' the Conference 'left the door open to everything else which ingenuity may be able to suggest'".

39 These included the "Beehive" projectiles mentioned above and similar artillery canisters packed with thousands of flechettes. The working paper also referred to flechette ammunition for rifles; this would presumably have been covered under the proposed rule on small caliber projectiles.

40 Statement by Minister of State Carl Lidbom, op. cit.

41 At an International Conference of the Red Cross (today called the International Conference of the Red Cross and Red Crescent), all countries that are parties to the Geneva Conventions of 1949 have full voting rights.

42 Kalshoven, op. cit., pp. 83-84.

43 The figure of 300 by 900 meters was incorrect. It was based on an erroneous calculation of the CBU-24 area coverage by the authors of the 1973 Swedish report, who of course did not have access to the classified figure, as Sweden did not belong to NATO. In a statement to the conference, I cited a much larger American weapon, the Hayes dispenser, capable of dropping 25,488 CBU-24 bomblets in one go from the belly of a B-52 bomber. It is hard to envisage many scenarios in which such an attack would not be indiscriminate. Some of my information made it into the conference report (para. 175), but none of the delegates said anything about the weapon.

44 US Department of State, *Report of the United States Delegation to the Conference of Government Experts on Weapons that May Cause Unnecessary Suffering or Have Indiscriminate Effects, Lucerne, Switzerland, September 24 – October 18*, 1974, Washington, 1974, pp. 95-101; cf. *Conference of Government Experts on the Use of Certain Conventional Weapons (Lucerne, 24.9 – 18.10.1974), Report*, Geneva, ICRC, 1974, para. 170.

Despite the "lower level of incapacitation" caused, the new munitions were considered to be more effective because they "wound more targets", the expert said. The steel balls from a CBU-24 bomblet (not mentioned by the expert) were much heavier than those described in his statement and would cause worse wounds.

45 US Department of State, op. cit., pp. 101-103; cf. Lucerne Conference report, para. 211a. The US expert did not mention the WDU-4 rocket warhead, projecting larger flechettes at a speed above the threshold where they would be likely to tumble, nor the recent patents granted for small arms ammunition containing flechettes especially designed to curl or tumble in the body, aggravating the wounding effect.

46 Ibid., pp. 47-49; cf. Lucerne Conference report, para. 96.

47 Lucerne Conference report, para. 154

48 Op. cit, para. 282.

49 Document CDDH/IV/201.

50 Document RO 610/4b. These and the other formal proposals considered at the Lugano Conference were reproduced in the Conference report, cited below.

51 What could account for the Swedish change of heart? They must have realized that, in the face of strong American opposition, there would be no consensus on banning cluster weapons, especially as other countries had become interested and were starting to develop their own. From a military point of view, they may have concluded that it would not make sense for them to forsake such weapons if the most powerful countries did not, even if many non-aligned countries joined the ban. The other cosponsors were keen on banning incendiaries but less enthusiastic about the other parts of the seven countries' proposal. And Sweden may have been reconsidering its own strategic priorities. Years later, Sweden would buy a German cluster bomb for its own use against a possible invasion.

52 Referring to the new munitions, which according to a study presented in Lucerne would "wound more targets" but cause less serious wounds, one US weapons analyst even suggested that "in the case of the improved munitions, in striving for increased efficiency, the weapon designers may, perhaps inadvertently, have achieved some humanitarian gains as well." That would have been news to cluster bomb victims in Indochina! (Wayne S. Copes, "A Comparison of the Effects of Random and Improved Fragmentation Munitions", paper presented at the Lugano Conference, 16 February 1976; cf. Lugano Conference report, cited below, p. 120, para. 71)

53 *Conference of Government Experts on the Use of Certain Conventional Weapons (Second Session – Lugano, 28.1 - 26.2.1976), Report*, Geneva, ICRC, 1976, p. 121, para. 73. The Lugano Conference report was organized in such a way as to be virtually unreadable. The conference met both in plenary and as a General Working Group. In order to find out what was done and said on a particular weapon, one must consult the plenary meeting report (pp. 5-20), the summary records of the plenary meetings (pp. 21-100), the report of the General Working Group (pp. 103-126), the final statement of the Chairman of the General Working Group (pp. 126-132), the final statement of the President of the Conference (pp. 100-102), and the documents produced by the General Working Group (pp. 132-140) and the reports of the Working Sub-Group of Military Experts on Mines and Booby Traps and the Technical Experts Working Sub-Group on Small-Calibre Projectiles (pp. 146-165), if relevant, as well as the texts of the proposals submitted to the Conference (pp. 167-207). According to Kalshoven (op. cit., p. 87), Hans Blix favored this type of report because he felt that the more readable format of the Lucerne Conference report had been disadvantageous to their cause.

54 Mexico resubmitted the proposals on cluster weapons and flechettes at the CCW Preparatory Conference in 1979; "brief discussions" took place, but "Time did not allow for their discussion in more detail, therefore agreement thereon could not be reached." (*Report of the Preparatory Conference for the United Nations Conference on Prohibitions or Restrictions of Use of Certain Conventional Weapons which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects*, 25 May 1979, UN document A/CONF.95/3, para. 37 and Annex I, p. 6)

55 The notion of a ban on perfidious weapons rests on the prohibition of perfidy in Article 37 of Additional Protocol I of 1977.

56 Lugano Conference report, p. 149.

57 Conference report, pp. 58-59, para. 18, pp. 113-114, para. 44, p. 148, para. 2 and document COLU/215. The SIPRI proposal stated: "No mine may be deployed until means exist to ensure that it can be safely located and disposed of at the close of hostilities or when the mine no longer serves the military purpose for which it was emplaced." It would also have required the military authorities of the adversaries to cooperate in the disposal of unexploded munitions. Malvern Lumsden was the author of the SIPRI reports *Incendiary Weapons and Anti-personnel Weapons*.

58 The science of wound ballistics has been described as "a study of the mechanics of wounding and related subjects", including "a determination of the factors involved in injury and the relation between the severity of the wound and such characteristics of the missile as its mass, velocity, shape, momentum, energy, and power. The attempt is made to relate the ability to wound or to kill with some physical property of the projectile." (E. Newton Harvey, J. Howard McMillen, Elmer G. Butler and William O. Puckett, "Mechanism of Wounding", in James C. Beyer, ed., *Medical Department, U.S. Army: Wound Ballistics*, Washington, Department of the Army, 1962, p. 144) (cf. *The Technology of Killing*, Chapter 1.)

Wound ballistic tests involve firing bullets and other projectiles into "flesh simulants" such as soap or gelatin. One day in Lugano, in three glass cases in the lobby of the conference center, alongside cases displaying furs and jewelry, there

appeared, courtesy of the Swedish and Swiss delegations, blocks of soap, some in the shape of a woman's thigh, through which various rifle bullets had been shot. Taking their cups of coffee, the delegates could go over and observe that some bullets had left a straight, narrow path while others had made a track that blossomed where a mass of soap the size of a fist had been violently thrust aside as the bullet passed through. The difference was clear to see.

59 Report, p. 117, para. 60. The Conference report (pp. 116-119) contains a good summary of the state of knowledge of rifle bullet wounding as of the time of the conference.

60 Document COLU/212.

61 There had been reports from Vietnam of people wounded by bits of plastic, probably from the plastic tail fins of "Rockeye" antitank bomblets. Pursuant to an Australian amendment (COLU/216), the word "producing" was changed to "which rely for their injurious effect on", limiting the proposal to weapons *designed* to project non-metallic fragments – something no major arms manufacturer would be likely to develop, given the superior qualities of metal fragments. The phrase "the usual medical methods" was changed to "X-rays", as it was argued that "the usual medical methods" could vary from one country to another. The outcome was an inoffensive proposal to ban a non-existent weapon. (Conference report, pp. 18-19, paras. 49-50, pp. 69-78 and pp. 122-123, paras. 77-82)

62 Report, p. 123, paras. 79-80. Statements of support were made by Australia, Austria, Canada, West Germany, India, Indonesia, Israel, Norway, Pakistan, Spain, USSR, UK, USA, Venezuela and Yugoslavia, according to my notes. France "warmly" thanked the sponsors of the proposal and congratulated them for "this essential contribution to humanitarian law".

63 Proposals by Sweden and Switzerland were criticized and received no support from other countries (Conference report, pp. 121-122, paras. 74-76; see Appendix 2 for texts). Later, the two countries would join forces with Mexico in a combined proposal at the CCW Conference, again without success.

A fuel-air explosive is a cloud of gas or an aerosol cloud of small particles or vapor droplets which spreads over a target and is then detonated, as in an explosion from gasoline fumes or a gas leak. Because of the spreading of the cloud, the blast covers a much wider area than that produced by the same weight of high explosive. Not only will a fuel-air explosive kill anyone within the area of the blast, but the cloud envelops the target area, and the blast will kill soldiers sheltering in foxholes and trenches. Its capacity to get behind defensive barriers makes cover from bombardment virtually impossible for combatants and civilians alike. (*The Technology of Killing*, pp. 187-188)

Two ICRC staff members wrote in 1990 that according to the information available, "the fuel-air explosives used in the 1970s have long since been surpassed in effectiveness by a second generation, a third generation now being in the developmental stage". The physical and physiological shock caused, they wrote, "is so intense that it is similar to that produced by a nuclear weapon of less than a kiloton... People at the fringe of the shock wave would suffer loss of hearing, serious concussion, pneumothorax, ruptured internal organs and blindness. Victims in or nearer the cloud would be annihilated. A person caught by shock waves from the blast would probably be suffocated by his own blood coming from ruptured lungs, and death would either be instantaneous or could be an agonizing process lasting up to half an hour." (Louise Doswald-Beck and Gérald C. Cauderay, "The Development of New Anti-Personnel Weapons", *International Review of the Red Cross*, No. 279 (November-December 1990), pp. 565-577, at pp. 570-571)

64 "Time-Fused Weapons", document COLU/213; Report, p. 113, para. 40 and pp. 153-154, para. 6.

65 Document COLU/218, "Especially Injurious Pre-fragmented Elements". Introducing the proposal, the Norwegian delegate said he did not know how widely such weapons were available in arsenals, but it seemed like something where the Conference "could perhaps reach consensus". Probably such weapons did not exist: prefragmentation is a technique whereby previously manufactured fragments are embedded in the munitions casing, a cumbersome way of causing damage that can be produced more cheaply through non-spherical fragments produced by *controlled fragmentation or natural fragmentation* (see *The Technology of Killing*, Chapter 2). There is no record of any discussion of the Norwegian proposal at the conference. It may have been simply a negotiating ploy.

66 Document COLU/205.

67 An alternative formulation in the Dutch proposal would have forbidden the use of napalm except for a long list of targets against which its use would have been permitted.

The Dutch proposal brought in the notion of protection against the use of weaponry in areas containing a "concentration of civilians", a notion that was inscribed a short time later in Article 31(5)(a) of Additional Protocol I of 1977. A similar formulation appeared In the French/Dutch/UK proposal, cited above, which would have imposed restrictions on the use of mines and booby traps "[i]n *any city, town, village or other area containing a concentration of civilians*". Still another formula appeared in the five states' "Outline of an Instrument on the Protection of the Civilian Population against the Dangers of Hostilities" of 1971, cited above. Article 24 of this text stated: "It is prohibited to attack indiscriminately, *as a single objective, an area including several military objectives at a distance from one another, where elements of the civilian population, or dwellings, are situated among the said military objectives.*" (Emphases added)

In a commentary on the Dutch proposal (document COLU/211), Spain objected that "In all cases napalm causes unnecessary suffering and serious or irreparable consequences. This means that the most important aspect of the problem – the protection of combatants – is not covered by this proposal." Spain and other countries continued to press for measures to protect combatants against incendiaries until their effort was thwarted in a last-minute compromise at the CCW Conference.

68 Document COLU/207. This proposal was a negotiating ploy. A US diplomat acknowledged to me that it did not go beyond existing law. "What we're trying to do is to let other delegations come forward with other proposals", he said. There were now three new proposals – the two formulations in the Dutch proposal and the US-cosponsored "non-proposal". The idea seems to have been to elicit some sort of a favorable response from at least some of the 22 countries that had proposed prohibiting incendiaries, on the basis of which an acceptable text might eventually be found. And the tactic may also have been meant indirectly to put pressure on the US Joint Chiefs of Staff, who were unwilling to relinquish napalm.

69 Report, pp. 141-142, paras. 1-3.

70 CDDH resolution 22 (IV), adopted on 9 June 1977 (*Official Records of the Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts, Geneva (1974-1977*) [cited below as CDDH Official Records], Vol. I, pp. 215-216).

71 UNGA resolution 32/152 of 19 December 1977.

72 CDDH resolution 22 (IV), cited above.

73 Report of the CCW Preparatory Conference, op. cit., Annex I, p. 12 and Annex II, p. 1. By now the proposal had 40 cosponsors, including the USA and the USSR.

74 W. Hays Parks, "The Protocol on Incendiary Weapons", *International Review of the Red Cross*, No. 279 (November-December 1990), pp. 535-550. Hays Parks was a US delegate at the CCW Conference. Speaking when the agreed text was formally presented two days before the end of the Conference, he "stressed his delegation's satisfaction with the results of the negotiations" (*United Nations Conference on Prohibitions or Restrictions of Use of Certain Conventional Weapons which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, Second session, Committee of the Whole, Summary record of the 15th meeting*, 21 October 1980, UN document A/CONF.95/CW/SR.15, para. 25). But when the USA ratified Protocol III some 19 years later, it reserved for itself "the right to use incendiary weapons against military objectives located in concentrations of civilians where it is judged", by any person responsible "on the basis of that person's assessment of the information reasonably available" to that person at that time, "that such use would cause fewer casualties and/or less collateral damage than alternative weapons". This reservation effectively negated the safeguards on the separation between military targets and the civilian population in Articles 2(2) and 2(3) of Protocol III. It means that while the other 114 countries that have joined Protocol III to date have agreed to observe "in all circumstances" the safeguards set out in the Protocol, the USA is free to bomb them and other countries with incendiaries on the basis of a reasonable judgment by its own commanders of the likelihood of indiscriminate effects.

75 CCW Conference, *Committee of the Whole, Summary record of the 15th meeting*, op. cit., paras. 1, 14. "Informal consultations" are unrecorded meetings where delegates try to reach agreement on contentious issues. The agreement may then have to be approved by their respective governments at home before it can be announced to the rest.

76 CCW Conference, *Final Report of the Conference to the General Assembly*, 27 October 1980, UN document A/CONF.95/15, para. 23.

77 W.J. Fenrick, "The Conventional Weapons Convention: A Modest but Useful Treaty", *International Review of the Red Cross*, No. 279 (November-December 1990), pp. 498-509, at p. 503.

78 According to the authors, "It was, in effect, the rather limited significance of the prohibition in Protocol I which led to the requirement in Article 4(3) of the Convention that a state, in order to become a party, must accept to be bound by at least two of the annexed Protocols: acceptance of nothing but the Protocol on Non-Detectable Fragments would have been devoid of any significance." They noted that "one (mini-) state, Monaco, in becoming party to the Convention in 1997, chose to be bound only by Protocol I on non-detectable fragments, and Amended Protocol II on Mines – the least and the most exacting respectively of the five, but including the one that gives it access to the annual review conference". (Op. cit., pp. 158, 167)

79 Kalshoven and Zegveld have written that Protocol II "remains a carefully balanced instrument that provides significant protection to civilian populations on just one condition: that its rules be scrupulously observed by a professional armed force

conducting war with the restraint that is implied in the military principle of economy of force, and in a theatre that lends itself to that type of warfare. Practice, however, has proved very different, with whole countries being literally strewn with all types of land mines and booby-traps of the most perfidious kinds." (Kalshoven and Zegveld, op. cit., p. 162) See also A.P.V. Rogers, "Mines, Booby-traps and Other Devices", *International Review of the Red Cross*, No. 279 (November-December 1990), pp. 521-534.

80 Howard S. Levie, *The Code of International Armed Conflict*, New York, Oceana, 1986, Vol. 1, p. 75.

81 The phrase "in all circumstances" means that a state party to Protocol III cannot commit such an attack against another state party even if that party violates this section of the protocol (Kalshoven and Zegveld, op. cit., p. 167).

82 The prohibition is stronger than in the Dutch proposal from Lugano: it applies to all incendiaries, not just napalm, there is no exception for military objectives "located within an area in which combat between ground forces is taking place or is imminent", and the list of examples of "concentrations of civilians" is expanded to include not only cities, towns and villages but "camps or columns of refugees or evacuees, or groups of nomads". According to the explanatory note that accompanied the Dutch proposal, many participants in the Lucerne Conference "were of the opinion that the large-scale use of incendiary weapons against cities (as in the Second World War) is an obsolete method of warfare", but that cannot be guaranteed, and the Protocol also clearly covers "concentrations of civilians" smaller than cities.

83 Austria, Egypt, Finland, Ghana, Indonesia, Syria and Yugoslavia expressed regret; Austria voiced disappointment that "security considerations had prevailed over considerations of a humanitarian nature", while Indonesia considered that the Protocol also "afforded inadequate protection to civilians against incendiary weapons" (CCW Conference, *Committee of the Whole, Summary Record of the 15th Meeting*, op. cit.). Even the text under consideration on the protection of combatants would not have covered a wide range of combat situations. It would have prohibited the use of incendiary weapons against combatants "except when they: (i) are engaged in a combat situation where close air support is necessary; (ii) are in, or in the vicinity of, a military objective such as armoured vehicles, field fortifications, bunkers, pill-boxes or other similar objectives". (CCW Conference, *Committee of the Whole, Report of the Working Group on Incendiary Weapons*, document A/CONF.95/CW/6, Annex, pp. 1-3)

84 Article 1 of Protocol III defines the terms "incendiary weapons" and "concentration of civilians"; weapons which "may have incidental incendiary effects, such as illuminants, tracers, smoke or signalling systems" are excluded, as are combined-effects munitions "in which the incendiary effect is not specifically designed to cause burn injury to persons". Article 2(1) reiterates the prohibition of attacks against civilians and civilian objects in Articles 51(2) and 52(1) of Additional Protocol I of 1977. Article 2(2) prohibits "in all circumstances" attacks by air-delivered incendiary weapons against "any military objective located within a concentration of civilians". Article 2(3) prohibits attacks against such a military objective by incendiary weapons other than air-delivered weapons unless "such military objective is clearly separated from the concentration of civilians" and "all feasible precautions" are taken in line with the requirements of Article 57(2)(ii) of Additional Protocol I. A provision that the prohibition in Article 2(3) would apply "in any circumstances" was dropped in the final negotiations. Article (4) contains a prohibition of incendiary attacks against "forests or other kinds of plant cover". This article arose from a proposal by the Soviet Union, an extensively forested country, introduced shortly before the end of the Conference. The exceptions set out in Article 4 would appear to negate the prohibition itself. When the agreed text of the Protocol was formally presented two days before the end of the CCW Conference, the Soviet delegate congratulated the Working Group on Incendiary Weapons on "the excellent results it had achieved" in preparing the text and said that "the agreement reached on the draft Protocol was the result of the constructive approach adopted by all delegations." (*Report of the Working Group on Incendiary Weapons*, paras. 3, 11 and Annex, pp. 2, 6; *Committee of the Whole, Summary Record of the 15th Meeting*, paras. 18, 22)

85 *Blinding Weapons: Reports of the Meetings of Experts Convened by the International Committee of the Red Cross on Battlefield Laser Weapons*: 1989-1991, Geneva, ICRC, 1993.

86 The ICRC proposed rule, broader than what was ultimately adopted, read:

1. Blinding as a method of warfare is prohibited.
2. Laser weapons may not be used against the eyesight of persons.

("Draft Protocol on Blinding Weapons", working paper submitted by the ICRC, document CCW/CONF.I/GE/CRP.28, 12 August 1994)

87 *U.S. Blinding Laser Weapons*, Human Rights Watch Arms Project, Vol. 7, No. 5 (May 1995); *Blinding Weapons: The Need to Ban a Cruel and Inhumane Weapon*, ibid., Vol 7, No. 1 (September 1995).

88 Bradley Graham, "Pentagon Shifts, Seeks Laser Weapons Curbs", *Washington Post*, 20 September 1995.

89 ICRC news release, "Vienna Diplomatic Conference Achieves New Prohibition on Blinding Laser Weapons and Deadlock on Landmines", 13 October 1995. The experts at the ICRC symposia had warned that if "blinding as a method of warfare became common practice, serious damage to the eye might account for between 25% and 50% of all casualties", and that "laser weapons could easily be used to cause terror outside armed conflict situations by repressive regimes, terrorists or criminals. Since such weapons are so light and easy to transport, proliferation would be inevitable." (*Report of the ICRC for the Review Conference of the 1980 United Nations 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, International Review of the Red Cross*, No. 299 (March-April 1994), pp. 123-182, at p. 153.)

90 Ibid., pp. 128, 163-166.

91 Protocols I-IV were applicable only to international armed conflicts, in line with Article 1 of the Convention. Under Article 1(3) of the amended Protocol II, each party to a non-international armed conflict "shall be bound to apply the prohibitions and restrictions of this Protocol"; but as Kalshoven and Zegveld have observed, "It will be no mean task to instruct especially the non-state parties (and perhaps not only those) about their obligations under the Protocol." (Op. cit., p. 165)

92 The proposal for a complete ban was endorsed by the ICRC. It had stated that "There is no doubt that from the humanitarian point of view [the prohibition of the use of all antipersonnel mines] would be the best option [for the amendment of CCW Protocol II], as a total ban would have the effect of *stigmatizing* the use of mines and a violation of the rule would be easily provable" (emphasis in original; *Report of the ICRC for the Review Conference...*, op. cit., 1994, p. 136).

93 *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction* ("Land Mines Convention"). See Don Hubert, *The Landmine Ban: A Case Study in Humanitarian Advocacy*, Thomas J. Watson Institute for International Studies, Occasional Paper #42, Providence, RI, USA, 2000.

94 John Borrie, *Unacceptable Harm: A History of How the Treaty to Ban Cluster Munitions Was Won*, United Nations Institute for Disarmament Research, Geneva, 2009.

95 The term "CCW process" is used here to denote the intergovernmental discussions which began in 1971 and have continued since then, with the adoption of the CCW and the subsequent Review Conferences and related discussions.

96 "Draft Protocol on Small Calibre Weapon Systems", submitted by the Swiss delegation, document CCW/CONF.I/GE/16, 11 August 1994), and reprinted in my paper cited below. "Small caliber weapon systems" is a better term than "small caliber projectiles", as the wounding capacity is determined by the combination of the projectile and the weapon firing it.

97 Unlike the criteria in the seven countries' proposal, which were based on the design characteristics of the weapons, those in the Swiss proposal were based on the energy released in the human body when struck by a projectile, something that could be determined in laboratory tests. Broadly speaking, the greater the energy deposited, the worse the wound. See Eric Prokosch, *Small-Calibre Weapon Systems: Bringing the dum-dum ban up to date*, University of Essex, UK, *Papers in the Theory and Practice of Human Rights*, No. 11, 1995 (reprinted in the *International Review of the Red Cross*, No. 307 (July-August 1995), pp. 411-425, without the diagrams).

98 *Report of the third session of the Group of Governmental Experts* (CCW/CONF.I/GE/21), para. 12; *Final report of the Group of Governmental Experts* (CCW/CONF.I/GE/23), paras. 10, 14. The fact that there was only an "exchange of views" indicates that there was not much support for the proposal from other states.

99 CCW Conference, *Committee of the Whole, Summary Record of the 15th Meeting*, op. cit., paras. 5, 9. Altogether 10 countries called for further discussions to improve the text of Protocol III.

100 Draft Protocol on Prohibitions or Restrictions on the Use of Naval Mines, introduced by Sweden at the First Committee of the UNGA in 1991, reprinted in James J. Busuttil, *The Legal Regulation of Naval Mines: Present and Future*, University of Essex, UK, *Papers in the Theory and Practice of Human Rights*, No. 13, 1995. The proposal would have banned the use of drifting mines – mines that are free to move under the influence of wind and tide – unless they were "so constructed as to become harmless one hour at most after their being laid". This would have expanded the prohibition on unanchored automatic contact mines under the Convention Relative to the Laying of Automatic Submarine Contact Mines of 18 October 1907 (Hague Convention VIII). As of 1989, only 27 states were parties to that Convention (Busuttil, op. cit., p. 29).

The University of Essex papers, published in coordination with Medico International, were printed for circulation at the Review Conference. Besides my paper on small caliber weapon systems, I prepared another paper in the series (No. 15), *Cluster Weapons*, in the vain hope that that issue would be taken up at the conference. An earlier version of this paper appeared in the *International Review of the Red Cross*, No. 299 (March-April 1994), pp. 183-193, alongside the ICRC's recommendations for the conference.

101 Peter Herby and Anna R. Nuiten, "Explosive Remnants of War: Protecting Civilians through an Additional Protocol to the 1980 Convention on Certain Conventional

Weapons", *International Review of the Red Cross*, March-April 2001, pp. 195-205.

102 "Protocol on the Use of Small Calibre Arms Systems (Draft) (Switzerland)", document CCW/CONF.II/PC.2/WP.2; Robert J. Mathews, "The Second Review Conference of the 1980 Convention on Certain Conventional Weapons", *Yearbook of International Humanitarian Law*, Vol. 4 (2001), pp. 406-418 (published in 2004), at p. 410.

103 "Draft Protocol on Mines Other than Anti-personnel Mines" submitted by seven countries at the Preparatory Committee for the second Review Conference, document CCW/CONF.II/PC.3/WP.11), cited in Mathews, op. cit., pp. 410, 412. In the interim between the two sessions of the Review Conference, the ICRC submitted a paper with examples of unintended damage caused by anti-vehicle mines ("Anti-vehicle Mines: Effects on Humanitarian Assistance and Civilian Populations", *Group of Governmental Experts of the States Parties to the CCW*, UN document CCW/GGE/II/WP.9).

104 According to one scholar, the proceedings of the Teheran Conference reflected "the altered balance of forces in the UN following decolonization and the decisive role played by the non-Western states... In the wake of the rapid African decolonization of the 1960s, Western control of the [UN] General Assembly had ceased to exist..." (Roland Burke, "From Individual Rights to National Development: The First UN International Conference on Human Rights, Tehran, 1968", *Journal of World History*, Vol. 19, no. 3 (September 2008), pp. 275-296, at pp. 276-277)

105 Cf. Lucerne Conference report, para. 129; Prokosch, *Small-Calibre Weapon Systems*, pp. 3-5.

106 For more on the corridor discussions in Lucerne and Lugano, see *The Technology of Killing*, Chapter 6.

107 Introducing the proposal in 1974, Hans Blix noted that Mexico wanted to eliminate this exception and said that Sweden could also accept a rule without the exception. (Swedish Delegation to the Conference on Humanitarian Law, Statement by Mr Hans Blix in the Ad Hoc Committee, 18 March 1974)

108 US Department of State, *Report of the United States Delegation to the Second Session of the Conference of Government Experts on the Use of Certain Conventional Weapons, Lugano, Switzerland, January 28 - February 26, 1976*, Washington, 1976, p. 15.

109 Resolution 3255 A (XXIX) of 9 December 1974. At the opening of the Lucerne Conference, the Soviet delegate had maintained that all weapons, including nuclear, should be discussed together in the proper forum, such as the UN Conference of the Committee on Disarmament, where the proceedings were controlled by the big powers and an absence of progress could confidently be predicted (cf. Lucerne Conference report, para. 39). In its resolution of 9 December 1974, the General Assembly rejected this approach and endorsed the continuation of discussions at the CDDH and the eventual Lugano Conference.

The resolution was adopted under a standing agenda item entitled "Napalm and other incendiary weapons and all aspects of their possible use", and the resolution bore the same title. In negotiations in 1975 over the resolution to be adopted that year, agreement was reached to drop the word "napalm" in subsequent discussions, to the satisfaction of the USA and the Soviet Union. The 1975 UNGA resolution 3464 (XXX), adopted by consensus, stated that the discussion would continue the next year under the title "Incendiary and other specific conventional weapons which may be the subject of prohibitions or restrictions of use for humanitarian reasons", and the subsequent resolutions under this topic bore the same title. This decision may be seen as marking the moment when napalm officially ceased to be the driving concern behind the CCW process.

110 Resolution 3255 B (XXIX) of 9 December 1974. The USA also abstained from both resolutions.

111 At the opening meeting of the CDDH Ad Hoc Committee on Conventional Weapons on 27 April 1976, when the ICRC representative announced that the full English report of the Lugano Conference would only be available in the week of 10 May, followed by versions in French and Spanish, the other two official ICRC languages, the Soviet representative, strongly supported by his Mongolian colleague, said that "It would be impossible for his delegation to discuss the proposals included in the report unless a Russian translation was available", as "The question of having a Russian translation made was a matter of principle and of political significance." With the CDDH session due to finish on 11 June, his stance could effectively have meant postponing the discussion for a year. Eventually a solution was found, and the discussion commenced on 12 May. (CDDH Official Records, Vol. XVI, pp. 225, 228, 233, documents CDDH/IV/SR.22, paras. 2, 17 and CDDH/IV/SR.23, para. 8)

112 *The Technology of Killing*, p. 179.

113 W. Hays Parks, op. cit., pp. 537-538.

114 Swedish Delegation to the Conference on Humanitarian Law, Statement by Mr Hans Blix in the Ad Hoc Committee, 18 March 1974 (emphasis in original).

115 There is no indication in the Lugano Conference report that any information on the existence of such a weapon was adduced. An Australian scientist, W. Connick, presented data on the difficulty of detecting various plastics by X-ray. He said that the proposed ban, as modified by the Australian amendment (COLU/216), "is needed" and "would be realistic and therefore viable." (Intervention by the Australian expert, Mr W. Connick, 16 February 1976)

W. Connick was the Superintending Scientist at the Australian Department of Defence. Five days earlier he had presented the Australian amendment with the aim of excluding "weapons which because of the necessary inclusion of plastic components in their construction, could produce a few fragments of low density plastic materials", such as weapons containing plastic fuze components which "would be pulverized by the explosion and projected in a manner similar to fragments". His information on the detection of plastics by X-ray may have been meant to give a scientific veneer to the proposal on non-detectable fragments. It was summarized in the Conference report under the heading "New Data" (p. 124, para. 83; a correction to this paragraph, circulated at the CDDH, indicated that his intervention was separate from the information on fuel-air explosives summarized in the first part of the paragraph (document CDDH/IV/Inf. 224, 17 May 1976)).

116 Many alternative formulations of possible weapons bans can be found in the Swedish report Conventional Weapons, *Their Deployment and Effects from a Humanitarian Aspect*, op. cit. See also the study by the Swedish weapons analyst Bo Janzon, *A Concept Formulation of a Rule for the Limitation of the Development of Some Fragmentation Weapons which May Cause Superfluous Injury according to International Law*, proposing a complicated rule aimed apparently at reducing the incidence of multiple injuries among soldiers hit by a given number of fragments exceeding a given limit of kinetic energy (Stockholm, Försvarets Forskningsanstalt Avdelning 2, Rapport A 2577-M2, D4 (D7), September 1973).

117 The prohibition of weapons causing unnecessary suffering was set out in the Hague Conventions of 1899 and 1907. The term in the French text, *maux superflus*, is the same in both Conventions, but English text of the 1899 Convention called it "superfluous injury" while English version of the 1907 fourth Convention used the term "unnecessary suffering". The solution in the English text of Additional Protocol I was to use both terms, prohibiting weapons "of a nature to cause superfluous injury or unnecessary suffering" (Article 35(1)), as "the French expression covers 'simultaneously the sense of moral and physical suffering'" (*Commentary on the Additional Protocols of 8 June 1977*, op. cit., para. 1426). See Henri Meyrowitz, "The Principle of Superfluous Injury or Unnecessary Suffering: From the Declaration of St. Petersburg of 1868 to Additional Protocol I of 1977", International Review of the Red Cross, No. 299 (March-April 1994), pp. 98-122.

118 Frits Kalshoven, "The Conventional Weapons Convention: Underlying Legal Principles", *International Review of the Red Cross*, No. 279 (November-December 1990), pp. 510-520, at p. 517.

119 The working paper accompanying the seven countries' proposal gave rationales linking each of the proposed bans to the principles of unnecessary suffering or indiscriminate effects (see above), but the reasoning was not spelled out in detail.

120 Prokosch, *Small-Calibre Weapon Systems*, op. cit. My paper included a diagram comparing the "energy release profiles in a dense medium" of bullets fired by two rifles: the Soviet AK-74 and the NATO standard SS-109, whose developer, the Belgian *Fabrique Nationale*, had been heavily influenced by the 1979 CCW resolution appealing to governments "to avoid an unnecessary escalation of the injurious effects" of small caliber weapon systems. Test results presented by the Swiss scientist Beat P. Kneubuehl showed that at a comparable shooting distance, the SS-109 bullet would have transferred only about 120 Joules of energy to the "tissues" after penetrating 15 centimeters into the body, while the AK-74 bullet would have transferred 600 Joules. The AK-74 bullet would cause a severe wound much closer to the surface of the body than the SS-109.

121 For a detailed discussion of the grounds for a ban, see Bengt Anderberg, Ove E. Bring and Myron L. Wolbarsht, "Blinding Laser Weapons and International Humanitarian Law", *Journal of Peace Research*, Vol. 29, no. 3 (1992), pp. 287-297.

122 The famous "Martens clause", named after the Russian jurist Friedrich Martens, first appeared in the preamble to the second Hague Convention of 1899. It reappeared in slightly altered form in the fourth Hague Convention of 1905, and again in Article 1(1) of Additional Protocol I of 1977 and in the preambles to the CCW and the Convention on Cluster Munitions. The version in Additional Protocol I states: "In cases not covered by this Protocol or by other international agreements, civilians and combatants remain under the protection and authority of the principles of international law derived from established custom, from the principles of humanity and from the dictates of public conscience". The preambles to both the Land Mines Convention and the Convention on Cluster Munitions stressed "the role of public conscience in furthering the principles of humanity" as evidenced by the calls for global bans on antipersonnel mines and cluster munitions.

123 Prophetically, Hans Blix had said in 1974 that "if laser were developed for use as an antipersonnel weapon and if its effect were to be that of making people blind but never to kill them, it may be presumed that, whether or not this would be seen as 'unnecessary suffering', public reaction would be strong enough to prompt governments to adopt a ban on use of such a weapon." (Swedish Delegation to the Conference on Humanitarian Law, Statement by Mr. Hans Blix in the general debate

of the Ad Hoc Committee, 13 March 1974)

124 *Campaign Brochure, Blinding Weapons*, Geneva, ICRC, 1974.

125 Statement of 13 March 1974, op. cit..

126 W. Hays Parks, 1990, op. cit., p. 540.

127 Ibid. As Chief of the International Law Branch at the International Affairs Division in the Office of the Judge Advocate General of the US Army, Hays Parks was a leading expert on international humanitarian law within the US armed forces and an implacable opponent of various proposed weapons bans. In his article (p. 550) he concluded that through the adoption of CCW Protocol III, "The legality of incendiary weapons was established without qualification." Such "legality" would be overturned were the Protocol to be amended some day in favor of a total ban on incendiaries.

128 The term "unacceptable harm" served to shape the policy conversation on cluster munitions during the development of the Convention on Cluster Munitions. It appears in the preamble to the Convention on Cluster Munitions and was used in the title of John Borrie's book on the history of the Convention (op. cit.).

129 According to the SIPRI report *Incendiary Weapons* (pp. 157-158), "White phosphorus tends to burn its way through the skin and, even days after the original injury, spontaneously igniting particles may be found deep in the wound... The estimation of burn depth by clinical observation following chemical [e.g. white phosphorus] injury is difficult. The severe full thickness chemical burn may appear deceptively superficial with only a greyish-brown discolouration of intact skin during the first few days... In some cases particles of phosphorus may penetrate deep into soft tissue or into the chest or abdominal cavities. There is usually a need for radical debridement [removal of tissue] because of the depth of the penetration and it is extremely difficult to remove all the particles... In addition, the known toxicity of white phosphorus is a hazard which may result in complications such as kidney and liver damage..."

130 While these are the most common uses, its use against soldiers is not excluded. A US Army manual from 1969 stated: "The M34 white phosphorous smoke hand grenade is the most versatile of all hand grenades. The grenade can be used for signaling, screening, incendiary missions, *or for producing casualties*" (emphasis added; US Army Field Manual FM 23-30, *Grenades and Pyrotechnic Signals*, Washington, Department of the Army, 1969, p. 11).

131 A US Army surgeon told the Lugano Conference that "The mortality for patients hospitalized for phosphorous burns, in our experience, is no greater than for other burns", and that "particulate phosphorous completely imbedded in tissue will not continue burning....ignition requires exposure to the air." (US Department of State, *Report of the United States Delegation to the Second Session of the Conference of Government Experts...*, op. cit., p. 38)

132 *Human Rights in Palestine and Other Occupied Arab Territories: Report of the United Nations Fact-Finding Mission on the Gaza Conflict*, UN document A/HRC/12/48, 25 September 2009, paras. 890, 896-901. See also Human Rights Watch, *Rain of Fire: Israel's Unlawful Use of White Phosphorus in Gaza*, New York, 2009.

White phosphorus was included in at least one formal proposal during the CCW process. A revised version of the five countries' proposal, of 1971, introduced by Sweden and 13 other countries at the second session of the Conference of Government Experts in 1972, read in part: "Incendiary weapons, containing napalm or phosphorous, shall be prohibited." (Document CE/COM III/C 33, reproduced in *Conference of Government Experts on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts, Second Session, 3 May – 3 June 1972, Report of the Work of the Conference, Volume II (Annexes)*, p. 57) At the Lugano Conference, the SIPRI expert circulated an informal proposal to ban the use of white phosphorus against combatants, but it was not discussed. The proposal read: "In order to ensure the protection of combatants from superfluous injury and unnecessary suffering, the use of white phosphorus munitions is prohibited except as illuminants, tracers, smoke or signals."

133 Op. cit., paras. 872, 880-885, 902-905. See Eitan Barak, *Deadly Metal Rain: The Legality of Flechette Weapons in International Law; A Reappraisal Following Israel's Use of Flechettes in the Gaza Strip (2001-2009)*, Leiden, Nijhoff, 2011.

134 The St. Petersburg Declaration states that "the employment of arms which uselessly aggravate the sufferings of disabled men, *or render their death inevitable*" would be "contrary to the laws of humanity" (emphasis added). This statement accompanied the ban on exploding bullets under the St. Petersburg Declaration.

135 Among them were microwave, infrasound and light-flash devices, and weaponry for geophysical, environmental and electronic warfare (Lucerne Conference, 1974); chemical fireball and "flameblast" munitions (Lugano Conference, 1976); and directed energy weapons (Doswald-Beck and Cauderay, op. cit., 1990). For a sobering report on trends in weapons development in the 1970s, see the 1973 ICRC experts' report, paras. 224-233.