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CHEMICAL WARFARE IN VIETNAM: LEGAL OR ILLEGAL?

by *Wil D. Verwey**

Vietnam has been the scene of a massive use of chemical substances, both against human beings and against plants. Both kinds of chemical warfare have their own legal aspects and consequences. This article deals with the legal aspects of the use of chemicals employed directly against man.

1. On March 24, 1965, the American Government recognized for the first time the use of chemical substances in Vietnam.¹ This news provoked a storm of protest throughout the world, leading eventually to a bitter debate in the United Nations in 1966, which resulted in Resolution 2162 B (XXI) adopted on Dec. 5. This Resolution called "for strict observance by all States of the principles and objectives of the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June, 1925, and condemns all actions contrary to those objectives".

As such, this Resolution was in fact directed against the use of chemicals in the Vietnam war, although this was not made explicit—the reason why the United States voted in favour of it. Furthermore, its wording implied that the prohibition of chemical warfare as laid down in the Geneva Protocol constitutes "ius cogens" for all States, meaning that the prohibition as incorporated in this Treaty has developed into a rule of customary international law, binding all nations alike.

This, indeed, has been recognized by the United States, the only major Power which is not a party to the Protocol. In relation to the forementioned Resolution the State Department declared:

"The United States reaffirmed its longstanding support for the principles and objectives of the Protocol...The basic rule set forth in the Protocol has been so widely accepted over a long period of time that it is now considered to form a part of customary international law."²

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1. This first confirmation followed immediately upon the discovery by Ass. P. reporter Horst Faas, on March 22, that DM was used during military operations near Saigon.

White House, Pentagon, and State Dept. took unusually elaborate steps on March 23 and 24 to inform the public, obviously so as to prevent a public scandal. Press meetings were convened at which the harmless character of the agents used and their purpose ("riot control-like situations") were stressed. The White House described even DM as "a rather standard type riot control agent" (which it definitely is not; see section 4 of this article); see Seymour Hersh, "Chemical and Biological Warfare" ('68), pp. 168-170; for the press meetings see N.Y.T. 23-25 March, 1965.

2. Quoted by G. Bunn in an article taken from the *Wisconsin Law Rev.* 2 ('69) in "Chemical and Biological Warfare: US Policies and International Effects", Hearings before the Subcommittee on National Security and Scientific Developments of the Committee on Foreign Affairs, U.S. Cong. 91st Cong., 1st. Sess. (Nov.-Dec. '69) p. 313.

Since its recognition of the use of chemicals in Vietnam, however, the American Government has maintained the position, that this use does not violate the prohibition of the Geneva Protocol and is therefore not contrary to customary international law.

This position was based on two different but interrelated grounds: In the first place, it was explained that the use of chemicals in Vietnam does not constitute a "use in war", but rather a police-type operation; on March 24, 1965, the Secretary of State, Mr. Dean Rusk, declared to the press that the chemicals used were not intended to act as new weapons of war, but rather in "riot control-like situations", a common practice by police forces throughout the world. They were used very selectively in such situations, and it was certainly not expected, as the Foreign Secretary stressed, that they would eventually serve a new tactic of warfare.

The claim as presented then had to be partially dropped on later occasions, it being admitted that chemical substances were in fact used during military operations. It was maintained, however, that such use had much in common with police-type operations, and could not be called "the use in war of a chemical weapon". In particular, the example most frequently given was the so-called "intermingled situation", a situation in which combatants (Viet Cong) intermingled with non-combatants (Vietnamese civilians) so as to use them as a shield. By exposing an entire group of Vietnamese to chemical irritants, military could be separated from civilians without harming anybody.

In the second place, it was stressed that the chemicals used were not aimed at harming people but, on the contrary, at saving lives. It was explained that the substances belonged to the group of so-called "irritants", the use of which would be neither dangerous nor harmful to human beings. The three irritants used—known under the code-names DM, CN, and CS—are intended, according to Mr. Rusk's statement on March 24, "to use minimum force, to avoid death and injury to innocent people". This claim was fully maintained when it became known that they were used in military operations, and it was in fact to become the principal argument used by the United States to maintain that its activities in Vietnam in this respect did not and do not violate international law.³

According to the American position, one should—and the Geneva Protocol would—distinguish between two categories of chemical weapons: those that are "lethal" or "toxic", and those that are not (these two distinctions have been used quite arbitrarily on different occasions, although they do not cover the same things). During the debates in the United Nations in 1966 the American representative, Mr. Foster, stated:

"The Geneva Protocol of 1925... has been intended to prohibit the use in war of *deadly* gases such as mustard and phosgene... It is therefore unreasonable to contend

3. Doc. S/6270 ('65); see also UN. Doc. A/P.V. 1484 ('66) p. 19; and a statement by Rear Admiral Lemos in Dec. '69 (note 46 below).

that any rule of international law prohibits the use, in military combat against an enemy, of non-toxic chemical agents.”⁴

In the meantime this distinction has been given an even more radical character by the Nixon Government. Whereas the Kennedy Administration still spoke of “chemical weapons aimed at gaining military advantage, and chemical weapons aimed at protecting civilians” (the last category pointing to the group of “irritants” which would not harm people), the Nixon Administration presented on February 2, 1970, a new definition of the term “chemical weapon”; this definition excludes the irritants entirely from any explanation of the term chemical weapon, which by now has become reserved for “agents which result in prolonged incapacitation or death in contrast to the temporary nature of riot control agents whose effects are not lasting and dissipate quickly”.

It should be noted at this point that nobody in the U.S. Government seems to have noted that the inherent capacities of certain chemical substances on the one hand, and the purpose of their use in war on the other, have been “intermingled”. These two aspects do not have to coincide, but they have been presented as an entity.

While admitting that the prohibition of chemical warfare as incorporated in the wording of the Geneva Protocol has become customary international law, binding parties and non-parties to the Protocol alike, the position of the United States on the point of the alleged “non-lethal” chemicals has brought the legal discussion to the point of the interpretation of this Protocol.

The question, then, is: does the Geneva Protocol prohibit the use in war of “irritantia” or not? The answer to this question would have to include a decision on the underlying question whether the United States has violated the rules of warfare by introducing “irritants” in Vietnam.

In order to answer the question, three methods of investigation are followed:

- (a) literal analysis of the wording of the Protocol;
- (b) analysis of the meaning of the Protocol in its historical perspective;
- (c) putting the question whether it is indeed possible to make a valuable distinction between lethal or toxic chemicals and other substances which do not have such properties.

2. First, the literally interpretation of the Protocol’s wording. The English and the French texts are authentic.⁵ This is important, since at first sight these texts do not appear to be similar.

The English text reads that it is forbidden to use in war “asphyxiating, poisonous or other gases, and all analogous liquids, materials or devices...”

4. UN. Doc. A/C.1/Off. Rec. 1452 ('66) p. 158.

5. Both texts can be found in League of Nations Doc. A. 13.1925.IX ('25) pp. 76, 78, resp. 77, 79.

A logical conclusion would seem to be that the word *other* be meaningless unless it would mean something different from both "asphyxiating" and "poisonous". To find out what could be left then, it is necessary to know exactly what "asphyxiating" and "poisonous" mean. The problem is that these terms have never been defined in any legal document dealing with chemical warfare. On the contrary, if one reads the *travaux préparatoires* of such texts as the second Hague Declaration of 1899, art. 171 of the Versailles Peace Treaty of 1919, art. V of the Washington Treaty of 1922, or the Geneva Protocol itself, it very soon becomes clear that the delegates used such terms quite arbitrarily, obviously without feeling pressed to know the exact meaning of what they said. Adjectives such as "lethal", "deleterious", "toxic", "harmful", "asphyxiating", "poisonous", were used without comment, although the discussion related—according to the draft text under discussion—to one or two of them only. In this light what remains then is to accept the medical definitions of the terms. The term "asphyxiating" will hardly be found in medical dictionaries, however; the term "toxic", on the other hand, is generally defined. Definitions vary to some extent, but from most of them it becomes clear that this term is not restricted to "fatal" or "deadly" effects of a substance on the human body which are harmful to his health. It is never indicated, however, whether such effects are understood to be of a permanent, a prolonged, or also a relatively short-lived character.

This means, however, that even if one excludes relatively short-lived effects from the term "toxic", the term certainly includes effects of a lethal and of a prolonged harmful character. Thus, for the term "other" little remains but effects of a relatively quickly dissipating character.

Against such interpretation one could put forward the principle of "*eiusdem generis*", indicating that the word "other" should derive its meaning from the preceding phrases "asphyxiating" and "poisonous". This principle once formed the basis upon which an American Court decided that the phrase "or any other vehicle not designed for running on rails" would not include aircraft, since it was preceded in the disputed text by the words "automobile, automobile-truck, motor cycle..."⁶ Taking such deliberations into account, one could argue that "other" should be understood to mean "anything being lethal to or having a prolonged harmful effect on health, but not toxic or asphyxiating"; although it seems rather difficult to imagine what kind of effect that could be, the argument would then exclude substances which only have effects of a quickly dissipating character on the human body.

This interpretation would at first sight be supported by the French text of the Protocol, which forbids "l'emploi à la guerre de gaz asphyxiants, toxiques ou similaires, ainsi que de tous liquides, matières ou procédés analogues..."

6. G. Bunn. note 2 *supra*, p. 325.

The French text uses the word “*similaire*” instead of “*autre*”, which can be used to argue that the principle of “*eiusdem generis*” should be taken into account. Indeed, this is what the American Government did, when—although not entirely basing itself on the French text—it invoked that text to claim that “irritants” cannot be understood to be forbidden by the Protocol. While using this argument, however, it did point out that the French Government, the author of the French text, made it clear in 1930 that the French text should be understood in the same way as the English text, and that its wording includes *all chemical substances* without distinction.⁷

This brings us to the second method of investigating the problem discussed here: the historical interpretation of the protocol.

3.1. It is indeed remarkable that the text of the Geneva Protocol was drafted by the United States. The American proposal which led to the drafting of the Protocol was made at the Geneva “Conference on the Limitation of Trade in Armaments, Munitions, and Implements of War” in 1925. On May 5 the US representative expressed the desire of his Government to prohibit the exportation of chemical weapons, and on May 7 and 8 he read out two drafts, one of which forbade to export “all asphyxiating, toxic or deleterious gases”, the other prohibiting the exportation of “asphyxiating, poisonous or other gases”.⁸

During the discussions it became clear that many Governments were in favour of banning the use of such weapons from warfare, and the possibilities of a Treaty in this sense were reiterated. Then, the United States proposed to draft a Treaty based on art. V of the Washington Treaty of 1922, which in its operational part incorporated the same prohibition as the Geneva Protocol was eventually to incorporate. This proposal was adopted by the Conference’s General Committee.⁹ This background justifies the assumption that the meaning of the Protocol’s wording might first be tried to derive from the Washington Treaty.

Art. V of the Washington Treaty, however, appears to be derived in its turn from art. 171 of the Peace Treaty of Versailles of 1919.

3.2 This Treaty can be dealt with very briefly here, since extensive reading of its *travaux préparatoires* merely reveals that the original wording “asphyxiating, poisonous or similar gases”, as drafted in the military committee of that Conference, was suddenly replaced by the phrase “... or other gases”, without any comment and without any obvious reason; the change just

7. See below, note 17.

8. League of Nations Doc. A.13.1925.IX, Verbatim Reports of the Conference for the Supervision of the International Trade in Arms and Ammunition and in the Implements of War, 2nd. Plenary Meeting: idem, General Commission, 1st. and 2nd. Meeting.

9. Idem, 7th Meeting.

happened at some moment, and nobody seems to have been disturbed by it.

One thing might be pointed out here, however, namely that there is no reason to suppose that in 1919 any distinction between harmful and non-harmful substances might perhaps not have been foreseen, since today's irritants were perhaps unknown: Every delegate at the Versailles Conference must have known that gas warfare during the first World War began with the use of "irritants", and then escalated into that terrible gas massacre which characterized that war in the memory of many for decades.¹⁰ Irritants like tear gases were well-known, and in the year 1918, for instance DM (Adamsite, named after its inventor Adams) was developed. If the delegates who drafted art. 171 would have wanted to exclude tear gas, there is no reason why they should not have done so explicitly, in the light of the experiences of the first World War.

3.3 Art. V of the Treaty of Washington of 1922 resulted from the American desire "to ban the use of chemical weapons from future battlefields".

A Resolution to this effect, drafted by Elihu Root on the basis of the Versailles Treaty, was introduced by the US delegate Hughes, who based this proposal on the advice of three American advisory bodies, the Advisory Sub-Committee on New Agencies of Warfare, the Advisory Sub-Committee on Land-Armament, and the General Board of the Navy respectively. Since Hughes drew so heavily on their advice—actually, he read quotations from them to the Conference—it becomes relevant to know what the line of thought in these documents was.

The Sub-Committee on New Agencies of Warfare stressed that "there can be no actual restraint on the use by combatants of this new agency of warfare"—by which chemical weapons were meant—"if it is permitted in any guise..."; accordingly, in its proposals it said that "chemical warfare, including the use of gases, whether toxic or non-toxic, should be prohibited by international law..."¹¹

The report of the Navy-Board is very important; it states that "certain gases, for example tear gases, could be used without violating the two principles above cited"—i.e. prohibition of unnecessary suffering, and prohibition of destroying innocent civilians—"but there will be great difficulty in a clear and definite demarcation between the lethal gases and those which produce unnecessary suffering as distinguished from those gases which simply disable temporarily". In this light point 7 of the Navy's report becomes important which reads:

10. R. E. Cook, "The Mist that Rolled Into the Trenches: Chemical Escalation in World War I", 35 *Bulletin of the Atomic Scientists* (Jan. '71), pp. 34-38.

11. "Conference on the Limitation of Armaments; Nov. 12, 1921-Febr. 6, 1922", (US Gov. Printing Office '22) p. 732.

“The General Board believes it to be sound policy to prohibit gas warfare *in every form* and against every objective, and so recommends.”¹²

It is important to note that all military manuals of those days included irritants like tear gas within the term “chemicals weapon”. Against this background it seems not without significance that Hughes read the following quotation from the report by the Committee on New Agencies of Warfare:

“Whatever may be the arguments of technical experts, the Committee feels that the American representatives would not be doing their duty in expressing the conscience of the American people were they to fail in insisting upon *the total abolition of chemical warfare.*”

Against this presentation of background one might argue that Hughes’ eventual proposal did not make it explicit by any means that irritants were supposed to be included under the wording of art. V. Indeed, while stating on the one hand that the proposal should be seen “in light of the advice of the American Advisory Committees”, Hughes said on the other hand that “the American delegation felt that the use of asphyxiating or poison gas be absolutely prohibited”. The argument that the phrase last quoted should be explained as excluding non-toxic substances, might seem to be supported by an ill-drafted Resolution of the fifth Conference of American States in 1924, according to which

“Governments *reiterate* the prohibition of the use of asphyxiating or poisonous gases (sic) and all analogous liquids, materials or devices, *such as are indicated in the Treaty of Washington.*”¹³

What underlay the wording of Hughes and the Resolution forementioned; good deliberation or bad drafting?

3.4. Thus, we come finally to the Geneva Protocol itself. If the conclusion would be reached that its history does not extend unambiguous evidence to its exact meaning, this conclusion might be supported by the remark that the words “irritant” or “tear-gas” were not pronounced during the official discussions of the Geneva Conference in 1925. Again, one is confronted with very careless expressions and imprecise wording; while talking about the American proposal to prohibit the use of “asphyxiating, poisonous or other gases, and all analogous liquids, materials or devices”, the Hungarian representative talked of “other similar gases”, a phrase which can also be found in the report of the legal committee (!); the Polish representative spoke of “toxic gases” only, while his Japanese colleague preferred to use the words “asphyxiating or noxious gases, poisonous liquids and similar methods”; on one occasion even the American delegate talked about “asphyxiating, poisonous or deleterious gases”, whereas the

12. *Idem*, p. 236.

13. For the text see a.o. W. V. O’Brien, “B. C. Warfare and the International Law of War”, *LI Georgetown Law J.* 1 (Fall ’62), p. 63.

Swiss spokesman used the word "similar" instead of "other"; another committee's report dealt with "other deleterious gases", and so on. The conclusion seems inevitable that most if not all delegates did not realize the eventual problem, which confronts us today.

Yet, the situation might not be as hopeless as that. Several arguments can be put forward supporting one interpretation or the other. It should be said that some of the arguments supporting the view that the delegates in 1925 intended to draft a total ban, prohibiting the use of any chemical weapon in existence or still to be invented, are very strong. Two of these arguments are presented here.

In the first place, it should be reiterated that the United States was the driving force behind the whole thing; in this light it seems of particular importance to note that *at least as far as the US is concerned, the Protocol at the time of its creation was considered to ban all chemical weapons in war.* This—to many Americans perhaps surprising—allegation is based on the reading of the records of the Congressional discussions in 1926 on the question of ratification of the Protocol. On that occasion one of the leaders of the opposition to ratification, Senator Reed, based his opposition mainly on the argument that

"this Treaty does not undertake to protect the world against (fatal) gases. The language of the Treaty is not "fatal gases" or "deadly gases", it is... or other gases. Let me call attention to the language of this Treaty. As I have said, *it includes tear gases.*"¹⁴

This interpretation of the wording of the Protocol was not contradicted by anybody!

Although one might argue that this might suffice, since the United States today is the only major Power which denies that tear gases are excluded from the prohibition of the Protocol, a second argument might be added. This is based on the declarations of Philips Noël-Baker, who reminded us of the unofficial discussions at the time at the Conference. These unofficial debates should reveal that in fact every delegate had the same extensive interpretation in mind as Senator Reed in 1926:

"In 1925 everyone in the Conference agreed that their purpose was to ban *all C. B. weapons*".¹⁵

Halas, such conviction is not expressly reflected in the official records.

14. US Senate, Cong. Rec. 69th. Cong., 2nd. Sess. no. 4 (Dec. 9, '26) p. 137.

15. Ph. Noël-Baker in a letter addressed to the Editor of the N.Y.T. (published in the N.Y.T. on Dec. 12, '69); this statement would seem to be supported by the fact that at the Geneva Conference a Report prepared by the Temporary Mixed Commission for the Reduction of Armaments served as a basis for the discussions. This report explicitly classified tear gases and other irritants among the "chemical weapons"; see League of Nations, Doc. A.16.1924.IX ('24) part IV. No objection was voiced at the time to the prohibition of chemical warfare in the sense given it by the Temporary Mixed Commission.

3.5. The meaning of the wording of a Treaty is not determined only, however, by original interpretation(s). The meaning of a Treaty can be changed through the years by the consensus of the Parties. For this reason it is important to take later events into consideration also.

3.5.1. The first important event to be noted is the British Memorandum of 1930. During the discussions in the Preparatory Commission for the Disarmament Conference, the question of interpretation of the Geneva Protocol rose for the first time. On this occasion the American representative expressed, also for the first time, the opinion of the American Government to the effect that in its view the Protocol did not cover tear gases. The United Kingdom tried to settle the question by introducing a Memo in which it declared that "the British Government has taken the view that the use in war of "other "gases, including lachrymatory gases, was forbidden by the Protocol, and that all other delegates were invited to express their opinion on this matter".¹⁶

In reply to this Memo, the French Government removed all doubt as to the French text by declaring that this text meant exactly the same as the English one, and that its provisions "apply to all gases employed with a view to toxic action on the human organism, whether the effects of such action are a more or less temporary irritation of certain mucous membranes (i.e. the effects of irritants) or whether they cause serious or even fatal lesions."

All delegates, with the exception only of the United States, spoke up in favour of the wide interpretation as put forward by the United Kingdom and France.¹⁷ Since all decisions in the Preparatory Commission were taken unanimously, the question could not be settled. Later, however, during the discussions in the Disarmament Conference itself (1932-'33), the American delegate, Fraser, announced that his Government "concurred in this view"; several authors on this topic have taken this as evidence that the question was by then settled, but this is by no means certain: If one reads the official records more thoroughly, these suggest that the American delegate probably meant that all chemical weapons should be outlawed by the *new provision* to be incorporated in art. 48 of the Draft Disarmament Treaty,¹⁸ and it is at least uncertain whether this remark related to the Geneva Protocol. In any case, however, at this time already the United States stood alone in its restrictive interpretation; all other nations, in so far as they had expressed themselves on the topic, concurred with the British view.

16. "Memorandum on Chemical Warfare to the Preparatory Commission for the Disarmament Conference by the Delegation of the United Kingdom". Cmd. 3747 (Geneva, No. 18, '30); see also the Parliamentary replies in Hansard (Commons) vol. 235 col. 1170 (Febr. 18, '30), and *idem* vol. 245 col. 878 (Nov. 24, '30).

17. League of Nations Doc. c.4.M., Series X, Minutes of the 6th Sess., pt. 2 ('31) pp. 311 ff.

18. See League of Nations Doc. 157 (1), and Series P.1933.IX.2 ('33).

3.5.2. A second event to be noted concerns the Paris Protocols of 1954 on the occasion of the entry of Western Germany to NATO. Attention is drawn to the new American definition of "chemical weapons" of 1970, according to which irritants like tear gases are no longer considered to belong to any notion about the term "means of chemical warfare". In 1954, however, in Protocol III on the Control of Armaments, a definition of chemical, biological and nuclear weapons was inserted. Chemical weapons were defined as "any equipment or apparatus expressly designed to use, for military purposes, the asphyxiating, toxic, irritant, paralyzant, growth-regulating, anti-lubricating or catalysing properties of any chemical substance".

This definition, co-drafted by the United States, clearly expresses that both irritants and herbicides are considered to be chemical weapons, which fact throws much doubt upon the legality of the arbitrary new definition of the Nixon Administration.¹⁹

3.5.3. The Vietnam war brought the legal dispute to its climax.

Upon the accusations made in the United Nations by several delegates, the US representative on April 2, 1965, addressed a letter to the President of the Security Council, in which he stressed that the materials employed in Vietnam were commonly used by police forces in riot control throughout the world and that they were commonly accepted as appropriate for such purposes (!). They were non-toxic and therefore not prohibited by the Geneva Protocol, nor by any other understandings on the subject.²⁰

The discussions eventually led to the appeal to all States to comply with the provisions of the Protocol and a condemnation of all actions contrary to its objectives, in Resolution 2162 B (XXI) of Dec. 5, 1966. This Resolution, adopted by 91 votes to nil with 4 abstentions, was originally intended to press the United States to stop its chemical warfare in Vietnam, but its wording was drafted so carefully eventually that even the US voted in favour of it.

The so-called "Swedish Resolution" is, on the other hand, very important. On August 26, 1969, the non-aligned members of the Committee on Disarmament at Geneva submitted a working paper, which included the draft declaration, which later was introduced in the UN General Assembly in a slightly modified version and was to become Resolution 2603 A (XXIV), adopted on Dec. 16, 1969. This Resolution embodies the wide interpretation of the Geneva Protocol; it

"declares as contrary to the generally recognized rules of international law, as embodied

19. This new definition does not even have any basis in American practice: *all* military Technical and Field Manuals in the field of CBW include irritants among the term "chemical weapons"; and the US Dictionary of Military Terms ('63) defines at p. 228 the term "war gas" as "any chemical agent (liquid, solid or vapor, used) in war, which produces poisonous or irritant effects on the human body".

20. Doc. S/6270.

in the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925, the use in international armed conflict of: (a) Any chemical agents of warfare—chemical substances, whether gaseous, liquid or solid—which might be employed because of their direct toxic effects on man, animals or plants.”

The term “toxic” shall be understood in this case to cover even effects on the human body of a quickly dissipating character, since it was explained by the sponsors of the draft Resolution that it covers also harassing or irritant agents, such as tear gas.

Here then, we have the most important interpretative expression in connection with the Geneva Protocol. It is of importance, to note that the Resolution was adopted by 80 votes to 3, with 36 abstentions. The three negative votes were those of the United States, Australia, and Portugal, the three states which have recently employed or still use harassing chemicals. The rather large number of abstentions, however, cannot be brought up as evidence that only a small majority voted in favour of this interpretation, since many delegates explained that they merely abstained on procedural grounds; that is on grounds which concern the question whether the General Assembly has the competence to give authoritative interpretations of Treaties. We cannot deal in length here with that question. May it suffice to present as the present author’s opinion that, while the competence of the General Assembly to create new law would seem debatable,²¹ on the other hand its competence to clarify those rules of international law which do already exist would seem to be beyond question²²; and this is what in fact happened.

3.6. At this point the general conclusion might be reached that the history of the Geneva Protocol until the time of its creation does not provide conclusive evidence, although some very strong arguments suggesting the correctness of a wide interpretation are prevailing. Since its coming into existence, however, increasing evidence can be shown to the effect that by now it seems quite difficult for the United States to maintain its restrictive interpretation.

Before reaching any definite conclusion, however, a third method of investigating the problem should be explored. This Concerns the question

21. This is not to say that the General Assembly would not have acquired an enormous possibility for stimulating new legal developments by way of what is today indicated as its creation of “soft law”, as in the fields of de-colonization, racial non-discrimination, and Human Rights; see e.g. Richard A. Falk, “On the Quasi-Legislative Competence of the General Assembly”, 60 *American Journal of International Law* (1966), pp. 782-791.

22. Such has very convincingly been argued among others by Mr. Blix, Legal Advisor to the Swedish Government, in a skillful (but unpublished) treatise on the “Swedish” Resolution.

whether it is at all possible to distinguish between toxic or lethal substances, and substances which lack such properties.

4.1. In most legal writings on the question of interpretation of the Protocol, one is left with a series of legal arguments for and against without any endeavour being made to get to the bottom of the problem and put the question whether such strictly legal argumentation is meaningful. It should be said that only very few lawyers dealing with this problem have noticed this and brought up the question whether the position of the United States has any *material* basis, which alone could make legal constructions relevant at all.

The present author thinks it is not useful to present the strictly legal discussion above without going into the more fundamental question of whether a distinction between harmful and harmless chemical weapons can in fact be made. Therefore, this article will deal with this question in more detail than the reader of a legal article might perhaps expect.

4.2. If we take the military manuals on chemical warfare of the United States, such a distinction can indeed be found. Manual FM 3-5, for instance, distinguishes three categories of chemical weapons, notably "toxic agents", "incapacitating agents", and "irritant (or harassing) agents". This distinction is the most common one and can be found in many official documents.²³

"Toxic agents" are defined in this manual as agents which "produce lethal or injurious effects on personnel when in contact with the skin or when inhaled"; "incapacitating agents" are agents which "produce temporary physical or mental effects, or both, which render individuals incapable of concerted effort... There is complete recovery from these effects";

"irritant agents" are defined as agents which "produce temporary irritating or disabling effects when in contact with the eyes and skin or when inhaled." It is extremely important to know what the exact differences are, now that the American Government takes the view that only the first and second categories are prohibited by the Geneva Protocol, whereas the third is not.

A logical question to start with, then, is: what is meant by "injurious" what period of time is meant by the term "temporary", what is meant "disabling", where does the border lie between "rendering individuals incapable of concerted action" and merely "irritating or disabling them", etc.? To save a lot of space, it may suffice here to say that none of these

23. E.g. FM 3-5 ("Chemical, Biological, and Radiological Operations", '61), pp. 13-15; FM 21-41 ("Soldiers Handbook for Chemical and Biological Operations and Nuclear Warfare", '63), pp. 23-24; TM 3-215 ("Military Chemistry and Chemical Agents", '63), pp. 2-4; FM 101-40 ("Armed Forces Doctrine for Chemical and Biological Weapons Employment and Defense", '64), pp. 3-4.

terms is clearly defined, that the alleged distinctions are by no means made clear whatsoever, and that neither the military manuals nor any other official document gives an answer to such questions.

In the second place, toxicological manuals of the medical profession provide some interesting and important data if one is talking about a distinction between toxic and non-toxic substances. One of the most commonly used toxicological manuals, that by Wirth, Hecht and Gloxhuber, states in this respect that "being toxic is not a property of specific chemical substances...intoxication is not only the direct consequence of the nature of a substance, but also of its quantity and way of entrance into the human body..."²⁴

The toxicological effects of a certain substance on the human body depend in general on the following conditions:

- (1) the nature of the substance;
- (2) the condition, age, and weight of the human object;
- (3) the circumstances under which the victim is exposed to the substance;
- (4) the way the substance comes into contact with the human body;
- (5) the quantity and concentration in which the substance enters the body;
- (6) the form in which the substance enters the body.

ad (2) In regard to the second condition, it may suffice to say that sick and old people, children and babies, are much more sensitive to the toxicological effects of a certain substance than are healthy adults. A few sleeping-pills can kill a baby, and smoke can kill people suffering from a lung-disease.

ad (3) As regard the third condition, it may suffice to say that while a resting man needs about 10 litres of air per minute, a tense or hard-working man needs up to 70 litres; this means that fast breathing people (think of frightened people hiding in caves or tunnels from the approaching enemy!) swallow up to seven times the quantity of air *and chemicals in it* which resting people breath in.

ad (5) The fifth condition is of particular importance. It should be clearly understood that every chemical substance has lethal capacity i.e. above a specific concentration or quantity every substance can intoxicate the human body. If one eats too much sugar, one can be killed by it; if one takes too much salt, one can die from it. Under these circumstances it is not surprising to see that the military manuals mentioned above refer to somewhat contradictory lethal concentrations for all "non-lethal weapons"!

Some figures are quite interesting in that they suggest the extremely problematic character of any valuable distinction. The lethal concentrations are usually given as Lct. 50/mg. min./mr³, which means the concentration in milligrams (1/1000 gram) per cubic metre of air which kills 50% of the victims after one minute of exposure. Taking the three "irri-

24. See W. Wirth, G. Hecht, Chr. Gloxhuber, "Toxicologie Fibel für Artzte, Apotheker, Naturwissenschaftler, Juristen und Studierende" ('67), pp. 1-3.

tants" used in Vietnam, we find that the Lct. 50/min./mr³ for CN is given up as 11.000 mg; for DM this is 15.000 mg.; for CS is it 25.000 mg.²⁵

A first thing to be noted is that such figures do not differ from the figures provided for some of the notorious "poison gases": Chlorine, for instance, has an Lct. 50/min./mr³ of 19.000 mg, which in fact means that *CN is about twice as toxic as the recognized toxic gas Chlorine!* (One may be reminded here of the famous gas attack at Ypres in 1915, when the Germans killed some 6.000 allied soldiers with Chlorine.) Another toxic gas, Chloropicrine, has a Lct. 50 of 20.000 mg., indicating that it is also only half as toxic as C.N. Cyanide Chlorine, one of the feared "blood gases", has an Lct. of 11.000, which takes it only just as toxic as C.N.

The problem of making a distinction between toxic and non-toxic gases according to their inherent properties also becomes clear in the case of mustard gas; on the one hand, mustard gas appears in some American military manuals among the "irritants";²⁶ but on the other hand, the American delegate, Foster, mentioned mustard together with phosgene as two examples of notorious "poison gases", in contrast to non-toxic gases, during the UN discussions in 1966...²⁷ (and anybody should try to convince the innumerable people in Ethiopia who lost relatives killed by mustard gas during the Italian invasion, that this chemical is non-toxic).

Recently, the British Government in a very deplorable step brought the point of distinction to absurdity: obviously in order to support the American Government and perhaps to clear the road for the use of CS in Northern Ireland, it issued a declaration on February 2, 1970, in which it stated that according to its interpretation DM and CN were prohibited by the Protocol, whereas CS—about 90% of all chemicals used in Vietnam against people constitutes CS—were not.²⁸ Some years earlier, only DM was put under the prohibition of the Protocol, but not CN...²⁹

25. TM 3-215 ("Military Chemistry and Chemical Agents", '63), pp. 34, 32, 37 resp.; it should be noted that Edgewood Arsenal Technical Report EATR 4071 ('67) estimates the Lct. for CS at 61.000 mg. min./mr.³. Even this figure, however, calculated for mildly active men, would come down to about 10.000 mg. for violently active men; see the comments of one of the most outstanding experts in this field, J. Perry Robinson (a former staff member at SIPRI), in a report written for the British Pugwash group (April, '70).

26. See TM 3-215, Chapter III. This classification, according to which vesicants like mustard gas is grouped together with "irritants" rather than "toxic substances", is a traditional one; it can be found also much earlier, for instance in the report by the Temporary Mixed Commission of the League of Nations of 1924; see Doc. A.16.1924. IX, part IV.

27. UN Doc. A/C1/Off. Rec. 1452 ('66) p. 158.

28. Hansard (Commons), vol. 795 col. 18 (Febr. 2, '70); idem, vol. 795 col. 444 (Febr. 13, '70).

29. Porton Technical Paper no. 651 (Oct. 6, '58); on p. 3 it is explained: "Because of the severity of its effects and the delayed recovery which follows exposure, DM was seriously considered either alone or in mixture; it was eventually ruled by the Legal Branch of the War Office that in view of its *poisonous nature* (!) the use of DM must be

Taking the obviously arbitrary character of these changes of position for what they are—one may be reminded that it was precisely the United Kingdom which sought to have accepted a total ban on all chemical weapons in 1930—the British Government has introduced a new distinction within the distinction: that between “dangerous irritants” and “non-dangerous irritants”.

Two remarks seem appropriate in this respect. In the first place, it should be noted that the Lct. figures are all extrapolations from animal tests (one cannot test human beings on lethal concentrations), and they are no more than that. Experts have warned often enough that data collected for animals are no more than indications for human beings, and may even have no value at all in some cases. But even if we should forget about that, the reading of the results of such tests on animals with CN and CS reveal a remarkable fact: whereas CN was indeed found to be twice as toxic as CS for guinea-pigs and nine times as toxic for rats, CS on the other hand proved to be twice as toxic as CN for mice and two to three times as toxic for rabbits.³⁰ According to the British Government, as this author understands it, human beings are considered to be more closely related to rats than to mice....

ad (6) In the second place—and this brings us at the same time to the sixth condition of toxicological effects mentioned above—the British Government seems to have overlooked a specific property of CS, in particular if used in the form of CS-1 and CS-2 (as such it is mostly used in Vietnam). This concerns the extremely small particle-size of the chemical. If a chemical substance is inhaled, the particle-size of which is more than 10 microns in diameter, much of it will be caught in the upper-respiratory tracts; if, on the other hand, the particle-size is below 2 microns in diameter, much of it will pour into the deepest parts of the lungs. The particle-size of CS-1 and CS-2 is 0.9 microns, which suggests that it does not so much act as an irritant of the upper tracts, as it reaches and may harm the lower tracts. This point is of particular importance, if the gas is used against people with unhealthy lungs, and for such reasons many experts have expressed the opinion that CS should not be classified as an “irritant”, but rather as a toxic “lung-gas”.³¹

To come back to our point of departure under section 4, some general remarks should be added.

In the first place, it should be clearly understood that all the figures used in military manuals have been derived from animal tests, figures which are by no means certain, and might prove to be quite different, were the necessary data for human beings available.

proscribed in accordance with the provisions of the Geneva Protocol”.

30. These figures are based on several tests using the respiratory method, done in American Laboratories; for sources and comment see J. Perry Robinson in his report mentioned in note 25 *supra*.

31. See e.g. G.R.N. Jones, “A Closer Look at CS-Gas”, *New Scientist* (June 18, '71); see also the Congressional Hearings mentioned in note 2 *supra*, p. 34.

In the second place, these figures give a Lct. 50 for healthy, adult men; they can tell us little about the Lct. 50 for sick and old people, children and babies, or pregnant women.

In the third place, these Lct. 50's have been calculated for mildly active men; they should be different in the case of hard working or tense people. It has been calculated that for very tense people—and think, again, of the fact that in Vietnam a war is going on—the Lct. 50/min./mr.³ might well be as low as 10.000 mg., instead of 61.000.

In the fourth place, one should realize that these figures are estimated for a one-minute exposure only; where is the Lct. 50 if people are exposed for five or ten minutes? In many cases at least at a much lower level of concentration.

In the fifth place, these figures should tell us when 50% of the healthy adults will die; but what the concentration is high enough to kill 40%, 20%, 5%, 1%?

All these arguments can only lead to one conclusion: *it is not feasible to make a valuable distinction between toxic and non-toxic chemicals according to their inherent properties.*

4.3. This conclusion has also in fact been reached by the United States. At least since 1963, every military manual adds to the distinctions made the phrase “when used in fields concentrations.”

Thus, one has added a new argument to support the official position, namely the argument based on the purpose of the agents used. The argument runs as follows:

It is certainly true that irritants can kill people if they are exposed to high concentrations, but this will not happen, since the maximum irritating concentrations people can take are so low, that long before the chemicals could harm them, they have fled from the place of exposure; and that, exactly, is the main purpose of employing harassing agents. Against this background a valuable basis for the distinction between toxic and non-toxic weapons could be maintained.

It is of importance to note that this line of thought has been adopted by the Committees which drafted the Reports on CBW of the UN Secretary General and of the World Health Organization, which fact adds to the necessity of analyzing the relevance of the argumentation.³²

32. The Report of the United Nations Secretary-General (UN Doc. A/7575, July 1, '69) states on p. 7 that “we recognize that both chemical and bacteriological (biological) agents are designed either as lethal agents, that is to say, agents *which are intended to kill*, or as incapacitating agents, that is to say, agents *which are intended to cause disability*.” The Report of the World Health Organization (WHO Doc. EB 45/18 Add. 1, Dec. 5, '69) gives similar definitions on p. 9: “A lethal agent is *intended to cause death* when man is exposed to concentrations well within the capability of delivery for military purposes”; “an incapacitating agent is one *intended to cause temporary disease* or to induce temporary mental or physical disability, the duration of which greatly ex-

The argument as put forward by the American Government is based on the assumption that the effects of harassing agents during police-type operations are largely the same as the effects during military operations in war, and it is based on the further assumption that the purpose of employing them during riot-control is rather similar to the purpose of their use in war. Both assumptions, however, would seem to be very doubtful.

When police forces employ harassing agents during riot-control, they usually do so in the open air, mainly against grown-ups, with medical care being available, and in circumstances which offer the occasion to flee from the places of exposure (dispersion of people being the main goal). And even under such circumstances victims are inevitable. In Chicago, in Ulster, and in Paris during the May-riots in 1968, when irritants were used in the open air, people have suffered severe harm, as investigations have shown.³³ Cases of blindness, permanent eye-damage, severe skin-burns, coma and later chronic apathy (in particular in children) have been reported. Many doctors have warned that even the use of irritants in the open air during riot-control is far from harmless and by far not as harmless as is often pretended in official circles.

The use of such irritants in war operations, in particular in case of anti-guerilla operations for which these means of warfare are specifically advocated, is quite different, however. Let us turn to the scene in Vietnam.

One of the typical aspects of the Vietnam war is the fact that the American troops are confronted with an adversary which intermingles with civilians, and with a largely hostile population which supports and protects the soldiers who are their sons, fathers, or brothers. In these circumstances everybody is considered an enemy, until he can prove he is not—and how can he do this?

To protect themselves against a highly destructive war, the Vietnamese population of the countryside built caves and tunnels underground in which NLF soldiers and civilians could hide. Every village has its caves and bunkers and when the Americans approach they often find a deserted place.

In these circumstances the idea was brought up to use tear gases and other irritants, allegedly so as to drive everybody into the open and enabling the

ceeds the period of exposure"; it is noteworthy that this report is not even consistent in this kind of definition, since it defines harassing (or irritant) agents according to alleged inherent capabilities (which should be called very remarkable in view of the quality of the sponsor, which should be deemed to have expert knowledge in this field in particular); it reads: "A harassing agent is one *capable of* causing a rapid disablement that lasts for little longer than the period of exposure".

33. E.g. Hilary Rose & R. Stetler, "What Gas did in Derry", *Society* (Sept. 25, '69), pp. 465-466; Prof. F. Kahn and Huguenard have provided daring reports about severe neuro-muscular symptoms and difficulties in breathing among French students in Paris in May '68; see also T. S. Bodenheimer & L. Rose, "MACE", *Survival* (Aug. '68); many relevant data in this connection were included in several reports presented at an international scientific meeting on CBW in Paris (Dec. 12. '70) held in the buildings of l'Université d'Orsay.

Americans "to separate friend and foe". In due course the idea was put in practice and expected to be so advantageous that an entire new range of weapons—mainly CS-weapons, of which well over 20 types are known from US-manuals—was developed. In particular two categories are noteworthy, since they have been employed very extensively: CS-grenades, and the so-called "Mity Mite" machine.

Among the CS-grenades the M7/A3 is an important example. Immediately after explosion it develops in its vicinity a concentration up to 5.000 mg. per cubique meter of air.³⁴ Among the CS-dispersers, the M-106 or "Mity Mite" is well known. With a velocity of 300 km. per hour and a quantity of 1 kg. per minute it blows CS into the tunnel on which it is placed. What happens than exactly?

In the first place, it should be noted that the soldier in the field, using such apparatus, is unable to calculate the concentration his weapon is going to produce. The concentration depends on temperature, humidity, etc., data which he cannot always know. More important, however, is the fact that he does not know the size of the cave or tunnel in which he expects people to hide. A logical solution will be to blow in the highest possible concentration so as to be sure of success. The country-side is full, however, of very small caves, just big enough for a small family of three or four persons. The soldier approaching the cave does not know whether he is confronted with such a family-cave or with the opening of a huge hiding place or tunnel. If he throws a grenade into such a small cave usually of some 2.50 m. × 1 m. × 1 m., an immediate concentration of 5.000 mg. per cubic metre of air is created. If the calculation is correct that a tense, healthy adult might be killed by 10.000 mg. after one minute of exposure, this would mean that a healthy adult man would be dead after two minutes. If he uses the "Mity Mite", to which a cannister containing 35 kg. CS is connected usually, this would mean that within a period of only five minutes the fantastic concentration of 2 million mg. is reached, which constitutes innumerable times the lethal dosage.³⁵

To counter such arguments the Pentagon would probably bring up the argument that they are merely academic, since such things do not occur; the intolerable irritating concentrations for CS, CN and DM are so extremely low—1-5 mg., 10 mg., and 5 mg. respectively—that anybody exposed to them will have to leave the place and search for fresh air. But against this argument the reply is that this is exactly what will often not occur.

Above a certain level of concentration, which is not very high, people become unable to flee! Tests with monkeys have revealed that above a concentration of 2.700 mg. CS animals became incapable of reacting normally, they became paralyzed and incapable of searching for a way out. For hu-

34. See D. A. Weigand in 134 Mil. Med. ('69) pp. 437 ff.

35. F. Kahn, "L'emploi des gaz par les Américains au Vietnam", in "Les Massacres, La guerre chimique en Asie du sud-est" (ed. Maspero. '70), pp. 73-80.

man beings this critical level has been calculated at as low a concentration as 1.500 mg.³⁶ Even during use of CS in the open air in Paris, Prof. Francis Kahn found that some students had lost the capability to flee and search rationally for fresh air; the risk is higher in case of using the stuff in an enclosed space.

An additional danger is the creation of the highly toxic carbon-monoxide during the burning of the CS-grenade. This is what caused the death of the Australian Corporal Robert Bowtell in 1966, who went into a tunnel into which gasgrenades were thrown; although he and his companions wore gasmasks, Bowtell died of suffocation and his comrades were taken to hospital severely poisoned.³⁷ This danger is present in an even greater measure in the case of Vietnamese civilians who lack any protection.

The use of CS in such circumstances has nothing at all to do with riot control or police-type operations; it is something quite different. It is not surprising, then, to note that through the years an increasing number of reports have claimed that thousands of Vietnamese have been killed by gas. We should not forget in this respect that many Vietnamese suffer from lung-diseases, and are in bad health condition. It is one thing to use CS against healthy adult soldiers; but it is quite another thing to use it against children, old people, or adults most of whom have—to say the least of it—weak lungs especially, if it is used in such high concentrations in enclosed spaces.

Such reports do not only originate from the NLF or PRG.³⁸ They have been affirmed by Western observers like Prof. Kahn, and by information from American soldiers themselves. To mention one example, David Neufeld wrote a letter to the Saigon Post in which he described a gas-attack by his unit upon a cave. He was astonished to see that nobody came out. After some time they went in and found exactly what has been described above: the high concentration produced had made people incapable of fleeing, and they—20 woman and children—were all dead.³⁹

36. G. E. Striker et al., Edgewood Arsenal Technical Report EATR 4071 ('67); for comment see J. Perry Robinson, note 25 supra.

37. Reuter dispatch from Saigon, January 12, '66.

38. From the beginning of chemical warfare in Vietnam, the NLF and later the PRG have provided regular information on the use and effects of chemicals on the Vietnamese civil population; it seems noteworthy that although most of these reports have been denied as "communist propaganda" by official American circles, through the years many facts and data from such reports have increasingly been affirmed by official spokesmen as being correct (which can be derived from several Hearings on the subject since 1969).

39. Published on Oct. 20, '67. Another US captain has been reported as saying: "What the hell, by pumping gas down there we can knock out groundfire, so that lets us get closer on the ground and from the air to kill all the more of the enemy. If women and children are down there at the time, it will be no better for them than it is now"; A.P. report from Saigon, the Chicago Tribune, March 3, '65.

Prof. Kahn, who visited Vietnam, personally saw the lethal effects of irritants under such circumstances, as reported e.g. by D. Pavett in *The Listener* (May 16, '68) p. 624.

On April 5, 1970, the Sunday Times reported a leaked secret military report, called "the grim evidence of CS gas", which provided many examples of the use of CS with lethal effect.

4.4. But even if people manage to come into the open, it will often not help them. This is because of the second specific way irritants have been used in the Vietnam war. This is the practice of combining use of CS with conventional fire-weaponry. The idea is to use irritants against underground shelters or to drop them over an entire area in thousands of kilograms, preceding conventional attack by artillery fire, infantry assault, or aircraft. People have to flee into the open field then, where they become exposed to high explosive bombs, bullets, napalm, or CBU's (Cluster Bomb Units or bullet-bombs which have been especially developed for use by aircraft against human beings⁴⁰); thus, irritants are not used to save lives, but to the contrary, to kill by improving the effectiveness of conventional weapons.

This practice has for a long time been kept secret or denied—like so many practices in and in connection with the Vietnam war^{40a}—but by now so many official statements have affirmed it, that it can no longer be denied. Three quotations are given here:

In the first place, Mr. Swyter, a Pentagon official, is quoted. Giving evidence before Congress he talked among other things about the "intermingled situation" and the claim that CS is used to save lives; he said:

"This is not true. We are using CS against enemy troops to drive them into the open, so that conventional artillery and bombs can kill them. These are not intermingled situations. CS is used in the hope that it will improve the effectiveness of our conventional weapons, in effect we are using CS to kill enemy troops."⁴¹

In the second place, in the October 1969 issue of the influential American Journal "Army" it is stated that:

"CS has proved particularly effective in Viet-Nam in flushing the enemy out of bunkers preceding high explosive fire or infantry assaults."

40. This weapon consists of cannisters containing sets of small bombs, the mantles of which are filled with bullets or needles. Being dropped by airplanes they are dispersed over an area the size of which depends on the altitude of the plane (usually some hundred square metres). Having reached the ground they explode, thus dispersing hundreds of thousands of projectiles over the area. Being hardly capable of penetrating into wood and being entirely incapable of destroying stone or steel constructions, they have especially been developed as "anti-human bombs". To aggravate their effect, new types containing a delayed-ignition mechanism or containing plastic needles have been developed; the first type explodes a long time after having been dropped so it can kill passers-by who are entirely unconscious of the danger; the second type prevents medical operations, plastic needles being invisible on the X-ray screen.

40a. *E.g.* the "Tonkin Bay" affair which allegedly led to the bombardments on North Vietnam; see W. D. Verwey "Bombing on the North after Tonkin and Pleiku: Reprisals", *Revue belge de droit international* 1969, pp. 460-480.

41. Congressional Hearings, note 2 supra, p. 96.

Finally, Congressman Frazer said during the Congressional Hearings in 1969:

"Tear gas is being used in Viet-Nam to flush out the Viet Cong in order that our bombs and other weaponry can reach them and in a sense is being used to increase their casualties."⁴²

It is obvious that this particular use of irritants has very little in common with "police-type operations commonly practiced throughout the world".

One more remark should be added to this picture. This concerns the massive concentration built up in the field during such employment of chemical agents. In order to attain success and drive everybody into the open field, carpets of chemicals are dropped over an entire area. An illustrative measure which should be mentioned is the development of bombs loaded with 500 and even 1000 pounds of CS! There has been a similar development in the field of helicopters, of which the CH-47 type can be loaded with cylinders containing 250 litres of CS.

Some examples of such use may underline the point made here: At the beginning of May, 1966, aircraft dropped 12 tons of CS along the Cambodian border preceding a large-scale infantry attack; on May 8, 1966 also, 7,200 pounds of DM were dropped in War Zone C on a jungle-area in which an NLF headquarters was expected to be found, followed by carpet-bombing with high explosives and napalm; during "Operation Birmingham" 3,250 kilograms of CS were dropped on human concentrations preceding an attack with fire-weapons. The first time—as far as we know—helicopters were used to drop CS preceding carpet-bombing by B-52's, was mid-February, 1966, in Binh Dinh province; on that occasion this was announced as a new tactic.⁴³ Between 1964 and 1969 over 15 million pounds of CS alone was dropped over Vietnam!⁴⁴

It is not very difficult to imagine what fantastic concentrations are achieved in such circumstances, which leads one to put the question how many Vietnamese become the victims of irritants even before conventional weapons reach the scene. Just how easily lethal concentrations can be built up in the field may be illustrated by a quotation from US Field Manual FM 3-10, according to which "DM alone is not approved for use in riot control dispersers in any operations where deaths are not acceptable"... This warning explains why Admiral Lemos denied in Congress in 1969 that

42. *Idem*, p. 7.

43. N.Y.T. May 8, 12, '66; *idem* March 26, '67; on Operation Birmingham see K. Hartmann, "Chemical Warfare '66-'67", *Wehrkunde* 1 ('67); in the case of the first acknowledged combined attack by helicopters dropping CS-grenades and B-52's, an official has been reported as saying: "The purpose of the gas attack was to force the VC troops to the surface where they would be vulnerable to the fragmentation effects of the bomb bursts"; quoted in S. Hersh, note 1 *supra*, p. 36.

44. Prof. M. Meselson testifying before the US Senate For. Relations Comm. on April 30, '69, quoted in 223 *Nature* ('69), p. 6; similar data have been given by Congressman R. Kastenmeyer, in the Hearings of 1969, note 2 *supra*, p. 138.

DM had ever been used by US troops in Vietnam;⁴⁵ although on earlier occasions it had always been affirmed by official spokesmen.

In view of all this, it might well be that Congressman Richard D. Mc. Carthy and Prof. Meselson were right, when they said in London in 1969: "So far from being non-lethal, CS has been one of the biggest killers in the Viet-Nam war."⁴⁶

4.5. All the evidence presented under heading 4 of this article—and only a small selection of prevailing evidence could be given here—seems to lead to one inevitable conclusion:

The use of irritants in war operations is something intirely different from their use in riot control at home. Irritants used in war operations are not only bound to kill, and it is also a *fiction* to maintain that in a war distinction could be upheld between lethal and non-lethal or toxic and non-toxic chemical weapons, be it according to their inherent toxic capacities or according to the purpose of their use. It should be called regrettable and very short-sighted that the committees of the UN and the WHO which drafted the reports on CBW have accepted such distinction according to the purpose of chemical weapons.⁴⁷ This distinction was based on the premise that the use of irritants at home by police forces and their use by military forces in war is of the same kind and serves a similar purpose. This is nonsense.

4.6. Although it might be considered by some as a somewhat marginal argument, a further remark on this allegedly possible distinction should be added here. This concerns the usually neglected long-term effects of irritants, which provide additional ground for doubting their allegedly harmless character.

Several irritants are known or expected to cause long-term damage to several parts of the human body and long-term mental disturbances.

To begin with the last category of effects, several reports are known on CN, which indicate the particular danger of this irritant in this respect. Workers in American and German factories, where CN was produced, have suffered severe mental disease, which has led in one case to a stop on its production. The same or similar effects have been reported in connection with CS. Both after use in the open air in Londonderry (Northern Ireland) and in Paris, and after use in closed spaces in Vietnam, people exposed to it were found to be in a state of apathy, lethargy, and were incapable of producing any energy, which sometimes proved insurmountable for months or even years.⁴⁸ At this moment, it cannot be predicted what the long-term

45. *Idem* Congr. Hearings, p. 241.

46. For the Government Rear Admiral Lemos repeated the adverse official opinion unconditionally in Dec. '69: "the riot control agent, CS, has become a lifesaving part of military operations in Vietnam"; *idem*, p. 228.

47. See note 32 *supra*.

48. See note 33 *supra*.

effects will prove to be among those Vietnamese who live and have been exposed to high concentrations.

As to physical long-term effects, a distinction can be made between effects on the lungs, on eyes and skin, and on other organs of the human body.

Concerning the lungs, it is known that higher concentrations of DM and CN provoke lung-oedema which often leads to death.⁴⁹ But even extremely low concentrations may cause serious damage to the lungs; the concentration recommended in the field for DM is 5 mg. per cubic metre of air, which can lead to lesions of the lower respiratory tracts after only three minutes of exposure, with symptoms similar to those caused by the notorious "lung gas" lewisite.

The Canadian doctor Alje Vennema, who was the director of Quang Ngai-hospital for years, treated many patients who had been exposed to DM in Vietnam; he has stated that 10% of adults and 90% of children died, while many of those who lived suffered permanent lung damage.⁵⁰

Also, CS has been shown to cause significant lung damage at not very high concentrations in animals.⁵¹ For human beings it is expected that a concentration of 1.500 mg. produces serious lesions after a one minute exposure.

Within this framework it must be assumed that the effects will be most serious if the victim has weak lungs. Every kind of irritation of the bronchial system in people suffering from asthmatic disorders, chronic bronchitis or any other disease harming the lungs can enhance the risk of lung cancer. CS belongs to the chemicals of the so-called "alkylating compounds" which are supposed to provoke cancer of the respiratory organs. The report of the World Health Organization is very careful in its wording when it states that while no definite proof has been delivered that CS is carcinogenic, it can neither be said that it is not.⁵²

49. On DM see W. Wirth et al., *Toxicologie Fibel*, pp. 81, 164; on CN several reports exist concerning lethal effects at high concentrations among criminals fortified in close quarters (Naeve, '60; Stein & Kirwan, '64); the victims died within 24 hours from lung-oedema.

50. Letter by Dr. Alje Vennema to Prof. Egbert W. Pfeiffer (University of Montana), dated Nov. 23, '67; according to Vennema's description of the symptoms, about which the present author talked with him later, there is no doubt that the gas in question was DM.

51. Edgewood Arsenal Technical Report 4071 (Jan. '67) warns in connection to CS that "the present study gives evidence that lesions that might cause casualties in an active human population occur at lower doses than would be expected from the dose-mortality curve."

52. Also CN has been shown to be co-carcinogenic in mice. The same warning is expressed in the WHO-report as to the supposed teratogenic (embryotoxic) property of CS. In view of the shocking reports concerning the taratogenic activity of certain herbicides used in Vietnam (in particular Orange, a mixture from 2,4-D and 2,4,5-T) any further use of CS would seem to constitute an irresponsible risk for this reason alone, until further research into these aspects has been accomplished.

It seems appropriate to recall that many doctors have warned that the average Vietnamese suffers from some kind of lung-disease or at least weak lungs, which makes these remarks the more significant.

As far as damage to the eyes and skin is concerned, scientific literature on CN reports several cases of blindness or other permanent eye-damage in people exposed to this chemical.⁵³

The same holds for DM, which has also been reported to cause damage to the skin. This holds even more for CS; tests have been done on people at low concentrations, in America's Edgewood Arsenal (where several chemical and biological weapons are or were produced). It was found that concentrations as low as 25-50 mg. per cubic metre of air caused severe damage to the skin even after 1 minute; at concentrations of 1.000 mg. or more blisters were formed, and a concentration of 14.000 mg. caused second degree burns.⁵⁴ Tests on animals have proved, furthermore, that CS provokes also blindness; one drop on a monkey's eyes was enough to make the animal blind, and—after some time—to kill it.

Concerning damage to other parts of the body, the first thing to be mentioned is that DM is an arsenical compound. It is known that arsenic cumulates in fat, which means that if people are exposed several times to even low concentrations of it, they can be poisoned when the cumulated quantity reaches a certain level. Moreover, DM can poison water and food supplies, thus poisoning people in an indirect way.

As far as CS is concerned, it is assumed that it caused liver and kidney diseases; experts have warned against this possible effect, and demanded—without success so far—that its employment be stopped until further research has been done.⁵⁵

In this entire connection CS-2 is of particular relevance, since it is water-repellent and very persistent (it can stay on leaves, grass, or earth for several months); how many people have become the victims of CS-2 after passing an area unconscious of the fact that weeks ago CS-2 was dropped there?

4.7. In view of such obviously conclusive evidence, as presented in the entire section 4 of this article, to the effect that it is not possible to make any valuable distinction between toxic and non-toxic weapons, it cannot be maintained that irritants are allowed under the provisions of the Geneva

53. In many countries cases of eye-damage following use of private pistols loaded with CN-cartridges have been reported; in the scientific literature also several reports are known on similar accidents which have occurred during military testing; see also T. S. Bodenheimer & L. Rose "MACE", *Survival* (Aug. '68) p. 253.

54. Edgewood Arsenal Technical Report EATR 4057 ('67), "The Effects of Thermally-Generated CS Aerosols on Human Skin"; Edgewood Arsenal Technical Report EATR 4219 ('69), "Skin Sensitation Potential of the Riot Control Agents CA, DM, CN, and CS in Guinea Pigs"; see also D. A. Weigand in *134 Mil. Med.* ('69), pp. 437 ff.

55. See S. M. Kalman, "Drugs as Weapons" (Seminar, Dept. of Biochemistry, U.C. Berkeley, May 28, '70).

Protocol. The impossibility of making such a distinction, as claimed by the United States, is the strongest argument supporting a wide interpretation of this document, claiming that the ban on the use of chemical weapons in war *is a total one*.

5. One more factor should be taken into account. This is the danger of escalation. May it suffice at this place to point to history and say that in all armed conflicts in which a major use of recognized "poisonous" chemical weapons was made—the first World War, the Abyssinian War, the Japanese conquest of China, and the Yemeni war—such use was preceded, and in fact prepared, by the use of irritants.⁵⁶ This can be explained on the one hand by the fact that the user of irritants gets accustomed to the employment of a chemical weapon, which lowers the barriers to the use of *any* chemical weapon; while on the other hand the victim of irritants as used in war suffers casualties, accuses the user of having employed "poison gas", and in his turn strikes back with more dangerous gases by way of reprisal. Reprisals and counter-reprisals accounted for the escalation in the first World War.

In the case of Vietnam the same has happened—be it on a restrictive scale. On the one hand, the figures on the quantities of chemicals used—367.000 pounds in 1964 versus 6.063.000 pounds in 1969—are self-explanatory. Moreover, some reports state that the American troops would have used CNS, and even BZ, a "psychochemical" (for instance, in March, 1966, in Bong Son⁵⁷); but the results had been disappointing, for which reason its use was not repeated (the military ineffectiveness and unpredictable effects of psychedelic compounds, which belong to the category of the "incapacitants", may be considered as at least one important ground on which the Nixon Administration decided to accept the ban on these weapons). Furthermore, several military experts have pleaded for the use of highly toxic nerve gases like VX.⁵⁸ Even if it has not been actually used, such

56. All relevant data in this connection can be derived from the official historical descriptions on these conflicts. An excellent compilation of such sources can be found in the forthcoming Part I of the CBW study of SIPRI (Swedish International Peace Research Institute), written by Julian Perry Robinson: on the phenomenon of escalation as a particular feature of chemical weapons one is referred further to a forthcoming book (to be published shortly) by the present author on the polemological and legal aspects of chemical warfare.

57. On reports concerning the use of CNS (a mixture of chloroform and chloropicrine) see the Washington Daily News, Jan. 1, '66, and l'Express, March 7-13, '66; on the alleged use of BZ the first report stems from the Canadian reporter Patrick Watson (Canad. Broadcasting, Jan. 1, '66), another report stems from Pierre Darcourt, "Le Temps de Massacres", l'Express, March 14-20, '66; see also N.Y.T. May 10, 11, '66.

58. General J. H. Rothshild has pleaded on several occasions for the use of persistent toxic chemicals in Vietnam; in general, he advocates such use during anti-guerilla operations in his book "Tomorrow's Weapons" ('64) pp. 141-142; the same has been done by Major F. J. Brown, "Chemical Warfare, A Study in Restraints" ('68), p. 310.

advice shows that the use of irritants in Vietnam has created a psychological assimilation of chemical weapons as such, which means a dramatic break with a fifty years old tradition in the American Army.⁵⁹

On the other hand, the Vietnamese have in innumerable reports accused the US of using "poison gas". The Vietnamese did not strike back by using other chemical weapons, both because reprisals in kind against the well-prepared American troops would have had little effect, and because a chemical capacity was lacking. In other circumstances they might well have decided to do so, and as such the Vietnamese conflict has in fact proved the danger of escalation, once a chemical weapon is used.

Article 31 of the multilateral Vienna-Treaty of 1969 on the Law of Treaties—which already dominates the practice of states although it has not yet come into force officially—deals with the question of interpretation in general. Paragraph 1 thereof reads:

"A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."

The usual meaning of the wording of the Protocol in its context has been analyzed above. As far as the object of this treaty—the outlawing of chemical and biological warfare—and its purpose—to prevent the use in war of toxic substances—are concerned, the inherent danger of escalation as a particular feature of the use of chemical weapons in war would seem to underline the conclusion reached in section 4: since the purpose of this treaty is to prevent the use of toxic weapons, and since the use of irritants in war, whatever their alleged harmless character, is very likely to provoke the use of more dangerous weapons, it should therefore be considered to be prohibited by the terms of the treaty.

The grave danger of escalation is indicated in particular by the fact that such decisions are often taken by military commanders in the field, who at the moment of their decision can not always see the importance and eventual consequences of their here-and-now decision. Field Manual 101-40 of 1964 states on p. 3: "Commanders are currently authorized to use certain chemical agents such as flame, incendiaries, smoke, riot control agents, and defoliants".

This is exactly what has happened in Vietnam. White House spokesmen at the time of the initiation of chemical warfare stressed that political leaders were not informed in advance. This was affirmed during the Congressional Hearings in 1969; see e.g. Kastenmeyer on p. 149.

59. The non-use of *any* chemical weapon by the Americans during the second World War due largely to the resistance felt in many echelons of the American Army to their use whatsoever, thus preventing the necessary logistical preparations. Although it has often been contended that the use of chemicals in the Pacific could have saved many lives—which can indeed hardly be denied—this attitude has helped to prevent the second World War from becoming a large-scale chemical war; this in view of the fact that all belligerents had more or less prepared themselves for all eventualities, and in view of the fact that Germany at least had made plans for the use of nerve gases.

6. Finally, the question should be answered whether the use of irritants as practised in the Vietnam war has violated other rules or principles of international law.

Recently, the UN General Assembly, on the initiative of the International Red Cross, adopted an important Resolution in which three principles of the law of warfare were affirmed.⁶⁰ Among these were the principle that the means of injuring the enemy are not unlimited (which means the prohibition of unnecessary suffering), and the principle that a distinction should be made between combatants and non-combatants (indicating that military operations are forbidden if they harm the civilian population disproportionately with regard to the military advantage attained).

It would seem that the use of irritants in Vietnam has violated both of these principles. On the one hand, their use in the local circumstances as they prevail throughout Vietnam, where the United States has fought against a population which to a very large extent supports the NLF and where they were employed as part of the massive destructive tactics of coercive warfare, can be considered as constituting the cause of useless and therefore unnecessary suffering. On the other hand, the way in which the chemicals were used excluded *a priori* any possibility of making a distinction between combatants and non-combatants; they have had harmful effects above all on the sick, the old, children and babies — and these usually do not belong to the category of combatants.

Taking all evidence presented above into account, the conclusion seems inevitable that the use of irritants in Vietnam constitutes a violation of a least two basic principles of warfare and a major treaty thereon, and thus has to be considered a serious war crime according to the laws of Nuremberg and Tokyo, which the United States helped to draft.

7. Two suggestions can be made as far as the future is concerned:

1) President Nixon has announced the intention of his Government to ratify the Geneva Protocol, the object and purpose of which it has already declared to recognize as binding customary law. This ratification, however, will be accompanied either by an official reservation or an interpretative declaration that irritants and herbicides are not considered to be covered by the terms of the Protocol. In view of the arguments given above, such a reservation should be considered as illegal, according to art. 19 para. (c) of the Vienna Treaty on the Law of Treaties, which forbids the formulation of reservations which are “incompatible with the object and the purpose of the treaty”; such reservations can be considered as legally non-existent.

This situation, however, might be avoided by making an interpretative declaration only or even by keeping silent completely. In that case the rati-

60. Res. 2444 (XXIII), Dec. 19, '68; this Resolution was prepared by Res. XXVIII of the XXth Conference of the International Red Cross at Vienna in 1965.

fication by the United States would become a very disadvantageous act, since it would destroy the value of the Protocol to a large extent. It is very doubtful whether a partial ban on chemical weapons is of more use than no ban at all.

2) At present, reports state that it is part of the programme of "Vietnamization" to transfer large quantities of both herbicides and irritants to the Saigon-régime. By doing so, the United States is obviously trying to withdraw the use of chemical weapons from the realm of international law. It should be kept in mind that the Protocol, only speaks of "the use in war".

The "Swedish" Resolution of the UN General Assembly takes into account to a certain extent that this is a rather incomplete formulation, since most important post-war conflicts have not been official wars between states, but rather internal wars internationalized by intervention of foreign Powers. The formulation chosen in the Swedish Resolution, "the use in international armed conflict" is much better, therefore. But even this phrase is not sufficient, since it would allow the employment of chemical weapons in outright civil wars such as in Nigeria or the Sudan, which rather have the characteristics of an armed conflict than of restricted internal violence. This situation would also prevail in Vietnam if the United States goes on to transmit chemical weapons to Saigon. The point made here is, that it is not so important whether the conflict in question is an international or an internal one, but whether the use of chemical irritants is in police-type riot-control operations (which kind of use can indeed sometimes be deemed to be a better alternative than the use of rifles or other fire-weapons), or in military operations of a warlike character. In the latter case the use of such weapons should be forbidden categorically, since their purpose can no longer be claimed "to save lives".

One might object that it seems impossible to make a clear distinction between police-type use and military use; for instance, what kind of situation are we faced with if police troops become engaged in actual military operations? Indeed, we are confronted here with an enormous problem of definition. This should not be considered, however, as an entirely insurmountable one. One valuable distinction, which is suggested here, is that in principle the police-type operations aim at dispersing people who are unarmed or at least do not belong to a regular armed entity; in contrast to military operations which are directed in principle against armed entities to be captured or destroyed.

It will probably be impossible to find an absolutely water-tight definition; in the light of the dangers involved and the relative usefulness of such kind of distinction, it would seem that in this case a useful definition is much better than none at all. Whatever the future legal developments in the field of chemical warfare may be—be it a revision of the Geneva Protocol or the drafting of an entirely new document—it would seem to be of great importance that the phrase "to use in armed conflict", with the word "international" omitted, be accepted.