

published results, it seems to be solved. However, even if the victim should receive it with-  
access.

effectiveness of therapy is to add drugs that might in some way be effective. Recently published veratrine-like compounds resulting from intoxication are valuable in that it would be possible to transport them to a medical facility where such a treatment is developed. In humans, one of the major problems is the lack of information and its treatment, without using artificial respiration. When one examines these and if such drugs could find a realistic use, it can be said that they would provide more time to move

maintained with antidotes which are not available before inhibition of the enzyme. The search for effective preventive measures is important, taking into consideration that a considerable number of available oximes are needed to neutralize a high concentration of them in the case of prolonged oxime administration.

It would be to protect the environment by including it with certain compounds. This would be very attractive since it would provide "total protection". This will not be possible until the knowledge of the real nature and the mechanism is considerably advanced.

Prophylaxis against nerve agents should be both active and passive. Work is being done on vaccines based on OP compounds. It is not realistic, at least at the moment, to expect immunization against nerve agents in the near future; the problem is to be solved at the first look.

MARKS

There is a difference between the efficiency of active and passive defensive counter-measures (e.g. specific and non-specific antidotes). However, it is to be noted that if the research cur-

rently under way is continued, reasonably effective medical protection may become feasible in the not too distant future.

It is our opinion that the present unsatisfactory situation could be relieved by international co-ordination of scientific research on prophylaxis and therapy in nerve gases poisoning.

Scientists working on these problems should be able to communicate their results to each other, and for this communication to be optimally effective, an agreed set of standardized procedures for measuring, calculating and quoting results would be extremely useful.

The other area in which international co-operation would be useful is the dissemination of information through a central data bank that could collect and distribute information relating to the problem of organophosphorus poisoning and therapy.

We also believe that increased knowledge of medical countermeasures against nerve gases poisoning would promote the endeavours to bring about an international ban on the use of CW.

**Yugoslav Working Paper Submitted to the Conference of the Committee on Disarmament: A Method of Categorization of Chemical Compounds Regarding Binary Technology, July 5, 1976<sup>1</sup>**

Binary chemical weapons (BCW) constitute a reality today which should be taken account of in all aspects of the prohibition of the production, development, stockpiling and destruction of chemical weapons.

One of the important problems in the context of the prohibition of chemical weapons, particularly when dealing with "step-by-step" approach of this problem is the categorization.

All chemical compounds in relation to their possible use as chemical weapons can, as shown in the Swedish working paper CCD/427, be divided into the following groups:

- (a) CWA (chemical warfare agents)
- (b) DPWA (dual purpose warfare agents)
- (c) PCC (chemical compounds for peaceful use)

This Swedish paper also points to the need for categorization of binary components in CW not mentioned in the previous proposals.<sup>2</sup>

In our view the basic feature of binary chemical weapons (BCW) are not the chemical and toxic properties of individual binary components but of the final product of their reaction. Therefore the categorization of individual binary components in BCW should be exclusively viewed from the point of view of the final product.

<sup>1</sup> CCD/504, July 5, 1976.

<sup>2</sup> *Documents on Disarmament, 1974*, pp. 222-225.

According to the working definition of CWA in the Secretary General's Report entitled "Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible Use", United Nations, New York 1969,<sup>3</sup> applied in the Swedish working paper CCD/420 [427?], "CWA are taken to be chemical substances, whether gaseous, liquid or solid, which might be employed because of their direct toxic effect on man, animals and plants".

Without looking on this occasion into the essence of the definition of CWA (see the Yugoslav working paper CCD/375 of 5 July 1972,<sup>4</sup> and CCD/505<sup>5</sup>) when considering the binary components in BCW, account should be taken of the following possibilities of their categorization:

(A) Binary components of which none have peaceful application (2CWBC) (chemical warfare binary components);

(B) Binary components, one of which may have also peaceful application (CWBC+DPBC) (chemical warfare binary component plus dual purpose binary component);

(C) Both binary components may have also peaceful application (2DPBC) (dual purpose binary components).

In this context, CWA and DPWA, in the sense of the Swedish categorization, should include also all CC (chemical compounds) in liquid, solid and gaseous state, which shortly before reaching the target through a chemical reaction with other compounds produce chemical warfare agents (CWA).

This supplement is indispensable since it is unlikely that binary components would contain substances which by themselves would be characterized as CWA.

This analysis leaves intact the essence of the Swedish proposal of the categorization of CWA, CCD/427, but it extends it also to binary chemical warfare agents (BCWA). In this manner the considerations related to either step-by-step or comprehensive prohibition of CW would be clearer and more precise.

As binary technology offers the possibility of widening the assortment of CW, it is obvious that a larger number of chemical compounds from the group of peaceful chemical compounds must be brought under control. This could reflect on the list of chemical compounds mentioned in the Japanese working paper CCD/483 of 8 April 1976.<sup>6</sup> It would appear acceptable to us to embody a larger number of chemical compounds so as to reduce to the minimum the chance of their being misused. This does not preclude the possibility of rectifications in the positive but also in the negative sense.

<sup>3</sup> Extracts of the report have been reprinted *ibid.*, 1969, pp. 264-298.

<sup>4</sup> *Documents on Disarmament, 1972*, pp. 438-449.

<sup>5</sup> *Infra.*

<sup>6</sup> *Ante*, pp. 177-181.

n of CWA in the Secretary General Bacteriological (Biological) "Visible Use", United Nations, New Working paper CCD/420 [427?], instances, whether gaseous, liquid because of their direct toxic effect

to the essence of the definition of Working paper CCD/375 of 5 July 1972,<sup>4</sup> and primary components in BCW, account for the possibilities of their categorization:

1. none have peaceful application (components);

2. which may have also peaceful application (chemical warfare binary component);

3. which have also peaceful application (chemical warfare binary component).

4. which have also peaceful application (chemical warfare binary component).

5. which have also peaceful application (chemical warfare binary component).

6. which have also peaceful application (chemical warfare binary component).

7. which have also peaceful application (chemical warfare binary component).

<sup>1</sup> *Ibid.*, 1969, pp. 264-298.

<sup>2</sup> 449.

### Yugoslav Working Paper Submitted to the Conference of the Committee on Disarmament: Definition of Chemical Warfare Agents, July 5, 1976<sup>1</sup>

In view of the development of new chemical weapons such as binary chemical weapons (BCW) and Multi-Purpose Chemical Weapons (MPCW), it is our desire to provide in this working paper a definition which would include the existing chemical warfare agents (CWA) and compounds in BCW and MPCW.

We consider the MPCW to be such weapons which, in addition to their mechanical and thermal effects, act in the manner characteristic of CW effects.

The Geneva Protocol of 17 July 1925, forbids *inter alia*, also "the use in war of asphyxiating, poisonous or other gases and of all analogous liquids, materials or devices",<sup>2</sup> and according to United Nations General Assembly resolution 2603 A of 16 December 1969, "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" is contrary to the generally recognized rules of international law.<sup>3</sup>

There exists also a working definition of CWA given in the Report of a WHO Group of Consultants in "Health Aspects of Chemical and Biological Weapons", WHO, Geneva 1970:

Chemical agents of warfare include all substances employed for their toxic effects on man, animals and plants.

This definition was intended to exclude chemicals employed in warfare such as high explosives, smokes and incendiary substances (e.g. napalm, magnesium and white phosphorus) that exert their primary effects through physical force, fire, air-deprivation or reduced visibility.

The above mentioned definitions of CWA proceeded from the point of view of *application* and covered chemical compounds only which have direct but not also indirect toxic effects on man, animals and plants.

Binary technology, for its part, also points to the deficiencies of such an approach. Through binary technology it is possible under certain conditions to generate the existing CWA from relatively low toxic components which are not covered by the mentioned definitions. In addition, binary technology also makes possible the use of so [some?] highly toxic substances which due to their tactical properties (such as stability) could not be used as CWA.

In this connexion, it seems to us that it would be necessary to re-evaluate the criteria from the very interesting working paper of the Federal Republic of Germany (CCD/458).<sup>4</sup>

<sup>1</sup> CCD/505, July 5, 1976.

<sup>2</sup> For text see *Documents on Disarmament*, 1969, pp. 764-765.

<sup>3</sup> *Ibid.*, p. 271.

<sup>4</sup> *Ibid.*, 1975, pp. 269-274.