INTERNATIONAL CONFERENCE ON CHEMICAL AND BIOLOGICAL WARFARE.LONDON,21-23 IX 69.

1) - Programma e partecipanti.

2) - The British Government's point of view on CBW.

3) - F.Direr:The report and Vietnam.

4) -The achievements of biological science and the potential warfare application of pathogenic agents.

5) - S.MacBridge:memorandum.

6) - F.Celletti:riflessioni.

7) - V.Perl:Test ban treaty under review.Some background notes.

8) - Trans national action.Research on CBW issue.

9) - CBW - The ultimate folly.

10) - M.Tims e C.Weiss:A short historical account of Wilpf's opposition to scientific warfare for mass destruction.

11) - The supreme folly:chemical and biological weapons.

(1)

C O N F E R E N C E A G E N D A

1st Session Friday, 21st November, 1969, 2.30 - 5.30 p.m.

Chairman: Rt. Hon. Philip Noel-Baker, M.P.

1. Chairman's Remarks
2. Welcome on behalf of W.I.L.P.F. - Miss Gertrude Baer
3. "The British Government's Attitude on C.B.W." - Mr. Evan Luard, M.P., Parliamentary Under Secretary of State for Foreign & Commonwealth Affairs.
4. "The Facts About C.B.W." - Professor Matthew Meselson, Professor of Biology, Harvard University, U.S.A.
5. "The Achievements of Biological Science and the Potential Warfare Application of Pathologic Agents".
   Academician Oganes Baroyan, Director, Institute of Epidemiology & Microbiology, U.S.S.R.
6. Questions and Discussion.

7.30 p.m. PUBLIC MEETING Caxton Hall

Chairman: Clive Jenkins

Speakers: Congressman Richard McCarthy. Mrs. Renee Short, M.P.
Speaker from the Soviet Delegation. Dr. Steven Rose.

2nd Session Saturday, 22nd November, 1969, 10 a.m. - 1 p.m.

Chairman: Mrs. Joyce Butler, M.P.

1. Chairman's Remarks
2. "A Critical Analysis of U Thant's Report on C.B.W."
   Dr. John Humphrey, (Pugwash C.B.W. Working Group)
3. "Problems of Control and Inspection for B & C Weapons"
   Mr. Theodor Nemec, Stockholm International Peace Research Institute.
4. Questions and Discussion.

3rd Session Saturday, 22nd November, 1969, 2.30 - 5.30 p.m.

Chairman: Dame Joan Vickers, D.B.E., M.P.

1. Chairman's Remarks
2. "The History of Arms Control and the Future Outlook for C.B.W."
   Mr. Jan Prawitz, S.I.P.R.I.
3. "The Ultimate Folly"
   Congressman Richard McCarthy
4. Dr. G.H.M. Waiten, M.A. (Sydney University, Australia), will open the discussion on the "The Moral Aspects"

4th Session Sunday, 23rd November, 1969, 10 a.m. - 1 p.m.

Meeting of the Working Groups

		Leaders
Group No. 1 :	The Dissemination of Information	Mr. David Dickson
No. 2 :	The Responsibility of the Scientist and of Every Individual	Father S. Blake
No. 3 :	Defining Policy for Disarmament, National and International	Dr. F. Barnaby
No. 4 :	U Thant's Report on C.B.W.	Mr. A.C.E. Reed

5th Session Sunday, 23rd November, 1969, 2.30 - 5.30 p.m.

Chairman: George Kiloh

Final Meeting and Summing-Up

Personal Involvement and Future Plans

List of Participants — International C.B.W. Conference, November, 1969.

ADDEY, Mrs. Mary,	Fitzwilliam St., Wath on Dearne, Yorks.	V.O.W.
ADLAM, Miss Edith,	82 St. Thomas St., Wells, Somerset.	W.I.L.P.F.
ALLAN, Mrs.	5 Caerns Road, Birkenhead.	W.I.L.P.F.
AMINI, Mr. Iradj,	16, Princes Gate, London, S.W.7.	Imp. Embassy, Iran.
ANDERSON, Mrs. Ingar,	Aakandeveg 4, 8260 Vobyj, Denmark.	W.I.L.P.F.
APRAHAMIAN, Dr. Francis,	17, Firs Avenue, London, N.10.	Bernal Library.
ARRANDALE, Mrs. H.	11, Carlton Range, Gorton, Manchester 18	Co-Op Women
ABKAYAVARDHANA Mrs Kusala,	75 Emmanual Rd London S.W.12.	
ALLENDER Mrs H.F.	9, Claremont Road, Wirral Cheshire.	W.I.L.P.F.
BAROYAN, Prof. Oganes,	Director of Institute of Epidemiology & Microbiology, % 10, Kropotkinskaya, Moscow, U.S.S.R.	
BEHENNA, Miss Lucy,	Flat 6, Filmer Grove, Godalming, Surrey.	U.N.A., W.I.L.P.F.
BALL, Mr. Peter,	75, Chestnut Rise, Plumstead, S.E.18.	Woolwich Poly., S.S.R.S.
BAER, Miss Gertrude,	Casa Postale 87, Geneva, Switzerland.	W.I.L.P.F. Intl.
BOAS, Dr.	% Australian Scientific Liaison Office, 64, Kingsway, London, W.C.2.	
BOTTERELL, Mrs.	228, Cranmer Court, London, S.W.3.	W.I.L.P.F.
BORCK, Mrs. Ansa,	Sandfgardscat 94 2 TR S12169, Hoannshov, Sweden,	WILPF
BRANDT, Mrs. Helga,	23 Grumstrupsveg 2900 Hel, Denmark.	
BRYANT, Mrs. Peggy	11, Hollowtree Road, Liverpool 25.	V.O.W.
BUZZARD, Rear Admiral	Sir Anthony, Bart., Todd House, W.Clandon, Surrey.	C. of E. Board of Social Responsibility
BOBYSHEVA, Alice,	% 10, Kropotkinshaya, Moscow.	Soviet Peace Committee
BLAKE Father Simon.	St Dominic's Priory. Southampton St London S.W.5.	
BRAITHWAIT Lady.	85, Hampstead Way London N.W.11	WILPF
CAIRNS, Mr. J.D.,	24 The Downs, Leatherhead, Surrey.	
CAIRNS, Mrs.	" " " "	W.I.L.P.F. U.S.A.
CARADOC EVANS, Mr. S.R.	North Morton House, Nr. Didcot, Berks.	Liberal Party, Abingdon Div.
CELLETTI, Mr. Franco,	Vie le Mazzini 88, Rome 00195,	Inst. for Interl. Affairs
COGGLE, Dr. John,	167, Sandringham Rd., Dalstrom E.8.	
COGGLE, Mrs.	" " " " "	
COTTON, Mrs. Moira,	28, Homersham Rd., Kingston upon Thames, Surrey,	NZ WILPF.
CROWLEY, Mrs. Mary,	Fitzwilliam St., Wath on Dearne, Yorks.	V.O.W.
CUMMING, Mr. James,	3, Sunnyside, Liverpool 8.	Research, Liverpool Univ.
CUSDEN, Mrs. Phoebe,	55, Castle St., Readng, Berks.	W.I.L.P.F.
CUTLER Miss Cherry,	31 Marlborough Rd Worthing Sussex.	WILPF
DASHWOOD, Annette,	53, Cromwell Road, London, S.W.7.	Pax Christi.
DAVIS, Mrs. M.I.,	11, Cooper Road, Westbury-on-Trym, Bristol.	Bristol Stdg. Conference on Disarmament and T.W.G.
DAVIS, Mrs. Muriel,	39, East Cosham Rd., Portsmouth, PO6 2BS	S. of Friends, S. Area Peace Group.
DELF, Mrs. Vera,	The Old Rectory, Yoxford, Saxmunden, Suffolk.	E. Anglia, Women for Peace.
DEO, Mr. A.R.,	India House, Aldwych, London, W.C.2.	High Commission, India.
DIRER, Mlle. F.	233/3 Blvd. Jean Jaures 92 Boulogne Billancourt, France,	W.I.L.P.F., France.
DISDALE, Mrs. Sheila,	150, Hook Rise North, Tolworth, Surrey.	W.I.L.P.F.
DRANSFIELD, Mrs. E.,	423, Aigbirth Road, Liverpool, L17 6BJ.	W.I.L.P.F. L'pool.
DREWERY, Mr. J.D.,	27th Vale, Coulsdon, Surrey.	Religious Soc. of Friends.
DUFF, Mrs. Peggy,	6, Endsleigh Streeet, London, W.C.1.	I.C.D.P.
DODDS Mr David	13 Fort Street New Brighton, Wallasey.	
ECROYD, Mrs. E.,	2, Benhurst Gardens, Selsdon, Surrey.	WILPF, Croydon.
EDWARDS, Mrs. H.,	115, Brodie Avenue, Liverpool 18.	WILPF, L'pool.
ELLARD, Dr. Gordon,	12, Queens Walk, Ealing, London, W.5.	Christian Peace Conf.
ENGLISH, Mrs. Mabel,	14, Eastern Drive, Liverpool 4 19 ONB	WILPF, L'pool.
EKHOLM, Mr. Gustav,	23, Portland Place, London, W.1.	Royal Swedish Embassy.
ERCK, Mr. Wolfgang,	23, Belgrave Square, London, S.W.1.	German Embassy.
EVANS, Mrs. Lois B.,	29, Druidsville Rd., Liverpool L18 3EL.	V.O.W.

D 4.

FALKUS, Mrs. Judy,	23, Blackheath Rise, London, S.E.3.	W.I.L.P.F.
FERNAU, Mrs. M.,	1, Corringway, London, N.W.11.	W.I.L.P.F.
FRANCIS, Miss Gladys,	Y.W.C.A., Nat. Offices, 2, Weymouth St., W.1.	Y.W.C.A.
FORMAN, Mrs. D.,	3000, Pine Street, Freeport, N.Y.	W.I.S.P., (Women Strike for Peace)
FOULGER, Mr. W.	14A, Wildown Rd., Bournemouth, Hants.,	Soc. of Friends
FRUNZE, Mrs. Tatyana,	% 23, Pushkin Street, Moscow.	
FURRER, Mr. Paul,	Halde 8, 8713 Uerikon, Switzerland.	Editor, New Wege.
FURRER, Mrs.	" " "	WILPF, Switzerland.
GROOM, Mr. Donald,	N.P.C., 29, Gt. James St., London, W.C.1.	N.P.C.
GRONIN, Dr.	41-49, Edith Road, London, W.14.	Embassy of U.S.S.R.
HARDING, Rev. D.,	9, Coombe Road, New Maldon, Surrey.	Fellowship of Reconciliation.
HARRISON, Miss Betty,	283, Grays Inn Rd., London, W.C.1.	Nat. Assembly of Women.
HEATHCOTE AMORY, Mrs. G.	Hele Manor, Dulverton, Somerset.	Women's Liberal Party.
HILL, Miss Janet,	Flat 3, 12, Seymour St., London, W.1.	Medical Aid for Vietnam.
HEDGER, Miss E.,	16, Redcliffe Road, London, S.W.10.	Nat. Alliance of Women.
HINZE, Mrs. Kathe,	3011 Gehrden/Hannover Waldstrasse 12,	F.D.R. W.O.M.A.N.
HODGE, Dr. C.E.,	12, Oakley Garden s, London, S.W.3.	W.I.L.P.F. Editor, Women Speaking
HODGSON, Miss Noel I.,	1, Chimney Mill West Stow, Bury St. Edmonds, Suffolk.	
HOPE-JONES, Mr.	Foreign & Commonwealth Office,	(Adviser to Mr. E. Luard)
HOLMLUND, Mrs. Ingrid,	Muraregaten 1A Karlstad, Sweden.	WILPF, Sweden.
HUMPHREY, Dr. John,	12, Hampstead Square, London, N.W.3.	
JAGMETTI, Mr. Carlo,	77-81, Gloucester Place, London, N.W.	Swiss Embassy.
JAMES, Mr. Alan G.,	U.S. Embassy, Grosvenor Sq., London, W.1.	US Embassy.
KENT, Monsignor Bruce,	111, Gower St., London, W.C.1.	Representing Cardinal Heenan.
LEE, Mrs. Betty,	Millfield, Vyner Rd., N. Birkenhead.	W.I.L.P.F.
LUARD, Mr. Evan, M.P.,	% Foreign & Commonwealth Office, London, S.W.1.	
MCBRIDE, Mr. Sean,	Int. Commission of Jurists, 2, Quai du Cheval Blanc 1211 Geneva 24, Switzerland.	Int. Commission of Jurists.
MCCARTHY, Congressman R.,	1630, Longworth Hse,	Hse. of Representatives, U.S.A.
MARQUIS, Mlle. M.,	10, Rue Charles Divry, 75, Paris 14.,	France. W.I.L.P.F.
MESELSON, Prof. Matthew,	Biological Laboratories, Harvard University, 16, Divinity Ave., Cambridge, Mass. 02138,	U.S.A.
MILLER, Mrs. R.L.	43, Seymour Walk, London, S.W.10.	
MIZOUNI, Mustapha,	29, Princes Gte, London, S.W.7.	Tunisian Embassy.
MOROZOV, Mr. Y.V.,	10, Earls Terrace, London, W.8.	Soviet Embassy.
MONGAR, Mr. Jack,	22, Marriott Rd. Barnet, Herts.	Friends Peace & Intl. Relations Cttee.
MORTIMER, Mrs. I.	22, Leander Rd., Thornton Heath, Surrey.	W.I.L.P.F.
NEMEC, Mr. Theodor,	S.I.P.R.I., S veavagen 166 Stockholm, Sweden.	S.I.P.R.I.
NUTTALL, Mrs. Mary,	2, Brim Hill, London, N.2.	W.I.L.P.F., Intl.
ORTON, Miss Jennifer,	3, Sanctu y Bldgs, 20, Gt. Smith St., S.W.1.	Brit. Assn.
OSBORN, Mrs. Ruth,	99, Whitchurch Gdns, Edgware, Middx.,	W.I.L.P.F.
PHILLIPS, Mr. Rex,	32, Elm Rd., Orpington, Kent.	Friends P & I.R. Cttee.
POWER, Mrs. Lorna,	23, Warnton Rd., Horsham, Sussex.	

PRAWITZ, Mr Jan, SIPRI, Sveavagen 166, 11346 Stockholm, Sweden.

PROSSER, Mrs M., 6 Southview Drive, Worthing, Sussex. WILPF.
PERL Mrs Verdun, 5, Ledborough Wood, Beaconsfield Bucks S.E. Area U.N.A

REED, Mr A.C.E., UNA Office, 89 Broad Street, Reading. UNA.

RICHARDSON, Mrs N., 37 Madeira Park, Tunbridge Wells, Kent. NPC.

RITCHIE, Mr G.B., 16 Sutherland Place, London W.2. Brit. Assoc. for World Government.

ROMANOFF, Mr L.M., 10 Earls Court Terrace, London W.8. Soviet Embassy.

ROMBERG, Mrs E., 8 Munchen, 80 Soldnerweg, F.R.G. WILPF Germany.

ROSENBERG, Dr Lotte, 16 Back St., Winchester, Hants. Society of Friends.

RUSSELL, Mrs D., Carn Voel, Porthcurno Nr Penzance, Cornwall.

RYBAK, Prof B., Faculty of Sciences, University of Caen, Caen 14, Calvados, France.

SACHAU, Mrs D., 3 Hannover, Gr Buch Kirchweg 35, F.D.R. W.O.M.A.N.

SAUNDERS, Miss, 2 Cromwell Place, London S.W.7. Nat. Union of Townswomen's Guilds.

SCHONFIELD, Mrs H., 35 Hyde Park Square, London W.2. Mondesistan Republic.

SCOTT, Mrs J., 46 Brim Hill, London N.2. Voice of Women.

SEE, Mrs Y., 24 Quai Louis Bleriot, Paris 16, France. WILPF France.
SHAFFER, Mr. Gordon, 51 Wellington Rd., Sadhurst, Camberley, Surrey. London Co-op. Political Committee
SIMMONS, Mrs E., 14 Pinfold Road, Liverpool 23. WILPF.

SHAMMA, Dr Amal, Biochemistry Dept., AUB, Lebanon. WILPF.

SPEED, Mr P., 534A Fulwood Road, Sheffield, S10 3QD. Monash Resistance Rep., Australia.

STAPLEDON, Mrs A., Simonsfield, Caldy, Wirral, Cheshire. WILPF (President, British Section).

STEFFENS, Mrs D., 6 Lynwood Close, Ponteland, Newcastle upon Tyne. WILPF USA.

STEFFENS, Prof J., 6 Lynwood Close, Ponteland, Newcastle upon Tyne. US Soc. for Responsibility in Science.

STEVENS, Mrs A., Fitzwilliam Street, Wath on Dearne, Yorks. Voice of Women.

STUBBS, Mr K., The Hawthorns, Station Rd., Edenbridge, Kent. C.N.D. Conservation Society.

TEELOCK, Mrs V., c/o Mauritius High Commission, 153 Trafalgar Square, London W.C.2. High Commission of Mauritius.

THIBERT, Mrs, 19 Ave General Leclerc, Paris 14e, France. WILPF France.

THOMAS, Miss L. 20 Brook Green W.6. WILPF

TIMS, Miss M., 137 Fowlers Walk, London W.5. WILPF.

TURKIE, Mrs E., 645 The White House, London N.W.1. WILPF.

TYERS, Mrs J., 21 Ashmead Road, Redhal, Worcs. Society of Friends Peace Committee.

WAITES, Prof ., Reading University, Reading, Berks.

WALKER, Mr R., L.V. School, Slough, Berks. UNA Australia.

WARNER, Miss J.A., 37 Store Lane, Worthing, Sussex. UNA.

WEISS, Mrs C., 19 The Avenue, Orpington, Kent. WILPF Internat.

WEISS, Mr P., Law Centre for Constitutional Rights, 588 North Avenue, New York 10036, U.S.A.

WINGATE, Miss M., 93A Salisbury Avenue, St Albans. World Association of World Federalists.

WOMEN FOR PEACE. c/o Bearman, 16 Kerry Close, Birmingham 31.

YASAKOV, Mr V.A., 41-49 Edith Road, London W.14. Soviet Embassy.

COOKSON Mrs Sybil Trelawnys, Sompting Sussex. Chairman Organising Ctte

CURWEN Mrs Margaret 1 2 Woodland Grove Weybridge Surrey. Hon Sec " "

Organisations named are for identification as participants are not necessarily delegates.

LATE ADDITIONS TO LIST OF PARTICIPANTS

DICKSON, Mr. David

EAST ANGLIAN WOMEN'S FEDERATION, Dedhal, Colchester, Essex.

FARRINGTON, Mr. David, Pembroke College, Cambridge. — Cambridge UNA

HAD, Dr. Miloslav, 16 Mapesbury Rad, LONDON — Czech Embassy

HOPE-RUTHERFORD, Mrs. E. & Miss H., 26 Dyke Rd, Brighton — CND

LAMBROS, Mrs. M. Cherry Trees, Cannon Hill, Maidenhead, Berks. — WILPF

LOOSLEY, Mrs. L., 33 Oakbank Green, LONDON S.E24. — Anti-Draft Union

MIRIMANOFF, Mr. Jean G. — International Red Cross

MORRISON, Miss S., 6, Apollo Place, LONDON S.W.10 — P.P.U.

NOBLE, Rev. Francis, The Rectory Hall, Guiseley, Leeds — Anglican Pacifist Fellowship

OSTREY, Mrs. Joan, 2 Peckarmans Wod, LONDON S.E.21. — Voice of Women

Miss N. MacDonald, 22 Golf Close. Stanmore Middlesex — Medical Association for the Prevention of War.

Dr Carlton Fabian Disarmament Committee 11 Dartmouth St London N.W.1

CONNELL Mrs Maud, Le Chalet, Empress Ave Farnborough. Hants. — V.O.W.

Hodder, Miss Jenny. U.N.S.A.

Green Withers Bumble Farm Wyke Nr Alton Hants

TACCHI MORRIS Mrs K Longs House, North Curry, Somerset Devon. — Women for Disarmament

Mrs Frances KATZ 15 Rue Martel Paris 14 France — Union of French Women's

HUTCHINS Mr R Orange Grove Meeting Pasadena . — Scc of Friends

Mrs Hughson, WILPF New Zealand

Dell, Mr Glasgow Peace Council.

ARMSTRONG Mr 1 Bridge St London S.W.1

SEARS Mrs Meg, — V.O.W. Canada.

Barron Mrs — U.S. WILPF

Weisner Mrs Barts Medical School

NOTE

The organisations named have not necessarily sent participants as Delegates

Sources of Further Information

BOOKS AND REPORTS

CBW : Chemical and Biological Warfare, Dr Steven Rose, ed., (Harrap, 1968).

We All Fall Down, Robin Clarke (Allen Lane, 1968).

America's Hidden Arsenal, Seymour Hersh (MacGibbon & Kee, 1968).

Science is God, Prof. Horrobin (Medical & Technical Publishing CO.).

A Survey of Chemical and Biological Warfare, John Cookson & Judith Nottingham (Sheed & Ward).

Science and Society, Hilary & Steven Rose (Allen Lane, Nov. 1969).

Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible Use (United Nations A/7575).

Facts about CBW (UNA)

Report of the Select Committee on Science and Technology, 8 July 1968 (HMSO sbn 10 276968 0) : an account of Britain's CBW policy.

* * *

FILMS (16mm)
(Concord Films Council, Ipswich, Suffolk)

Movement of Nerve Gas. BBC programme on the hazards of road transport of nerve gas from production plant at Nancekuke (Cornwall) to research establishment at Porton Down. (B/W, 17 mins, £2.0.0.)

A Plague on Your Children. Comprehensive BBC survey of research and applications of C & B weapons: making and animal testing of nerve gas; testing and human effects of potential germ weapon. Partly filmed inside the establishments at Porton Down, with further information from Swedish Government research institution, which is open to inspection quite freely. (B/W, 70 mins, £3.10.0.)

Science for Life. Schoolboy in search of career questions two physiologists, both studying nerves and muscles but for very different ends. Increasing concern of scientists that more than half of them in Britain are working on military projects. Specially recommended for schools and youth clubs. (B/W, 20 mins, 16/-)

The Silent War. Impression of effects of germ attack on Manchester. Explanation of weapons being developed with comments by experts. (B/W, 25 mins, £2.0.0.)

WOMEN'S INTERNATIONAL LEAGUE FOR PEACE AND FREEDOM
LIGUE INTERNATIONALE DE FEMMES POUR LA PAIX ET LA LIBERTÉ
INTERNATIONALE FRAUENLIGA FÜR FRIEDEN UND FREIHEIT

Consultative Status B with United Nations, ECOSOC, UNESCO; Special Consultative Relations with FAO, ILO, UNICEF
INTERNATIONAL HEADQUARTERS: 1, RUE DE VAREMBÉ, 1211 GENEVA 20, SWITZERLAND
Union Bank of Switzerland, Account 492-916.30, rue du Commerce, Geneva Tél. 33 61 75 Cable: WILLIF Ch. post 12-1869

WELCOME: Gertrude Baer

INTERNATIONAL CONFERENCE ON CHEMICAL AND BIOLOGICAL WARFARE
London, November 21, 22, 23, 1969

Mr. Chairman, Gentlemen, Friends:

It is an honour and real pleasure to be here to-day to welcome you on behalf of the Women's International League for Peace and Freedom and its INTERNATIONAL COMMISSION ON SCIENTIFIC WARFARE FOR MASS DESTRUCTION.

We are happy to see our International Work in this Special Field of Bacteriological (Biological) and Chemical Warfare - started by us as early as the twenties, when Professor Gertrud Woker of Bern University published her book "The Coming War of Poison and Gas" - strengthened through your readiness of kindly sharing with us your scientific knowledge at this Conference.

Being a private, a n o n-governmental organisation, we were eager n o t to limit this meeting to another Dialogue of Experts, but to throw it open to the public in order to put and explain to laymen and laywomen the scientific facts; and we are happy to see among us friends, who came from a number of countries to listen to you.

Last week, when distributing our Agenda, at FAO in Rome, to delegates of many nationalities, I was amazed to learn from them how much publicity had - obviously thanks to our vital Organising Committee here - been already given to this Conference by important dailies and periodicials, and how much appreciation was expressed of our efforts through the years, to make the TRUTH known to the public at large about the character of these and other new weapons and their horrifying consequences for the C i v i l populations.

Of course, we fully realize that the armaments of our time - whether nuclear, bacteriological and chemical or other - are only part of the Devilish Machinery of Modern Warfare as a WHOLE.

Therefore, the WILPF has ever since 1915 advocated tackling the evil at its roots and helping to a b o l i s h the CAUSES, military, economic, social, psychological etc., rather than spending efforts and time on "humanizing" the M e t h o d s of W a r f a r e, thus contributing to maintaining a system - international as well as internal - of brute force and war which day after day reveals itself anew as criminal.

We want the enormous sums now invested in that machinery released to "humanize" the wretched lives of the two-third majority

.../2

of our brothers and sisters around the globe, whose utter misery is a continuous disgrace for all of us.

At this juncture of international developments we are determined, Mr. Chairman, to concentrate our efforts on spreading - NOT FEAR, as certain people call it - but the fullest possible knowledge about the New Weapons, about this New Prostituion of Science in the Service of War.

Our Campaign Against B and C Weapons must be based on the TRUTH of scientific facts, which we feel in duty bound to spread as widely as possible because TRUTH alone will make us FREE FROM FEAR.

In now following up the significant Report (A7575) compiled by U Thant's 14 CONSULTANT EXPERTS and written with a RARE SENSE OF URGENCY AND AN EXCEPTIONAL MEASURE OF CIVIL COURAGE AND FRANKNESS, we must have questions raised in our Parliaments, in our political parties, in our church groups, in our own communities, have letters published in the press, as we are accustomed to do.

BUT THIS IS NOT ENOUGH. We must now systematically try to reach the vast masses in our countries of all those - young and aged - OUTside the political parties, OUTside the churches and - in particular - those UNorganised YOUNG ONES, who are disgusted with their institutions, but often have NO aim, NO objective, no CONSTRUCTIVE proposals for action to offer.

I would suggest that one of the WORKING GROUPS scheduled to meet here during this week-end, discuss and put forward proposals, how to make these fine young boys and girls realize that MANY people do share their aversion and disgust in many respects justified, and for this reason want youth to play their full part - not only in CONCERTED ACTION for the Total and Universal Abolition of B and C Weapons, but in building a New World. T h i s W o r l d W i l l B e T h e i r s. T h e i r ideas, t h e i r constructive proposals, t h e i r active cooperation will shape the society in which t h e y and t h e i r children will have to live. And in t h e i r interest, for t h e i r sake, we want it to be a world t o t a l l y a n d u n i v e r s a l l y d i s a r m e d, free from the scourge of these ghastly weapons.

We express again our sincere gratitude for your making the effort, Gentlemen, of joining us here. We shall certainly listen to you with closest attention.

Gertrude Baer

(9)

The British Government's Point of View on C. B. W.

Ladies and Gentlemen; I have been asked to put the British Government's point of view on C.B.W. to you at this session. As I have only a short time to do this, and because I am here tonight in place of Lord Chalfont, the Minister for Disarmament, who is now leading our Disarmament Delegation in New York, I want to devote most of my talk to what the British Government has done, and is continuing to do, to bring about further measures of arms control and disarmament in the C.B.W. field. U Thant's Report on C.B.W., which is the subject of this Conference, describes in chilling scientific detail what the effects of the possible use of chemical and biological weapons might be, and Professor Meselson will, I am sure, also deal with the scientific knowledge about C.B.W. in his talk this afternoon.

First, let me deal with one point which, though not directly concerned with the arms control and disarmament aspect of C.B.W. is nevertheless the concern of the British Government. Some time ago, there was a great deal of discussion and argument over what the British Government might be up to at Porton Down. There has not been so much talk of this lately, but let me take this opportunity of making the position entirely clear. The purpose of Porton Down and its associated establishment is defence: to find

ways of protecting the British population and armed forces against chemical or biological attack. We do not manufacture or stockpile chemical or biological weapons ourselves, at Porton or anywhere else. We do not believe in this. And the purpose of the steps we have taken at the Geneva Disarmament Conference is to prevent these weapons being used at all. This work is done at two establishments at Porton Down - the Chemical Defence Establishment and the Microbiological Research Establishment at Nancekuke in Cornwall, an associated establishment which produces small quantities of toxic chemical substances for this defensive research at Porton.

Now to my main subject. As I am sure you all know, the main arms control agreement in the field of C.B.W. is the 1925 Geneva Protocol. This was and still is a milestone in disarmament work; it came into existence because of the deep concern felt, as a result of the experiences of the First World War, over the threat posed by chemical and what were then called "bacteriological" weapons. The continued validity of the Protocol and the respect in which it is generally held show that this concern has persisted until today.

But the Geneva Protocol has its limitations, and is perhaps inadequate in the light of our present knowledge and requirements. Quite apart from the fact that the wording is somewhat outdated and imprecise, it prohibits only the <u>use</u> of the weapons concerned, and even this prohibition is not absolute. The Parties to the Protocol are only "bound as between themselves", and less than half the States now in existence are parties to the Protocol. Furthermore, many states which are parties to the Protocol have specifically

reserved the right to use the prohibited weapons not only against non-parties but against violators of the Protocol and their allies. And there is nothing in the Prococol to prevent states from having the means with which to do this; production and possession of the weapons concerned is not prohibited by the Protocol.

But the Geneva Protocol has one overriding merit. It exists, and the British Government believe that it should be possible to build on the admirable foundation that it provides. We naturally hope that all states that have not already done so will soon become parties to the Protocol, and indeed we are under an obligation (and I quote from the Protocol) to "exert every effort to induce other states to accede" to the Protocol. We therefore supported Resolution No.2162(B) which was adopted by the U.N. General Assembly on 5 December 1966. This called for strict observance of the principles and objectives of the 1925 Geneva Protocol and invited all states to accede to it.

But, in our view, this is still not enough. Although, throughout 1967 and early 1968, the main emphasis in the disarmament negotiations was on the nuclear Non-Proliferation Treaty, and rightly so, the British Government then began to look ahead to what might be done <u>after</u> agreement was reached on the N.P.T. in order to keep up the momentum in the disarmament negotiations. The facts clearly show this. On 1 July, 1968, the N.P.T. was opened for signature. On 16 July, 1968, the British Government presented some carefully

thought out proposals at the Disarmament Conference in Geneva for further measures of arms control and disarmament not only in the nuclear field, where we suggested means by which a comprehensive test ban treaty might be brought about, but also in the non-nuclear field, to be precise, in the field of chemical and biological warfare.

Briefly, we said we thought something should be done to strengthen the 1925 Geneva Protocol, while of course keeping the Protocol itself in being. This proposal in itself was a fairly controversial one. A number of states, including the Soviet Union, argued at this time that all that was needed was observance by all states of the Geneva Protocol. Naturally, we realised that there would be difficult problems in going beyond the Geneva Protocol. The fact that this, the last effective arms control agreement in the C.B.W. field was itself nearly 50 years old showed clearly enough that further progress would be anything but easy. But it is all too easy to be content with the status quo. Why not, we thought, take a fresh look at the problem from a fresh angle?

It seemed to us, when we examined the whole problem from first principles, that the difficulties in going beyond the Geneva Protocol related almost entirely to chemical weapons. These weapons already exist in large numbers; they have been used on a large scale in war in the past; new and deadly chemical weapons were developed during the last war and have been developed since; they are regarded by some states as

weapons they must have and be prepared to use, should it become necessary, in any future war, if only in retaliation to a chemical attack by another state. It is, I think, no secret that they are deployed in the field in Europe, both by the U.S.S.R. and the United States. You can't get rid of these merely by wishing them away. Another problem is that certain chemical agents which can be used in war also have legitimate peaceful uses; for instance in riot control and the apprehension of dangerous armed criminals. Thus any measure calling for the complete prohibition of chemical weapons would probably fail to win the support of many states.

So the problems in going beyond the Geneva Protocol in the chemical field are formidable - I do not say they are insuperable, but they will not easily be resolved. However, when we came to examine the possibility of doing something about <u>biological</u> weapons, it seemed to us that here there was a good chance that something could be done and soon. Biological weapons are at a much earlier stage of development than are chemical weapons. They have never been used in modern warfare and so the effect of their use in war are a matter for speculation. I think U Thant's Report of 1 July on C.B.W. brings out this point better than I can. Paragraph 37 describes in great detail how chemical weapons could be used in the field; it mentions a large number of tactical possibilities. Paragraph 38 deals with the use of biological weapons; it begins:-

"There is no military experience of the use of bacteriological (biological) agents as weapons of war and the feasibility of using them as such has often been questioned."

So, where biological weapons are concerned, the beast is still in its lair. As U Thant's Report shows clearly, the kind of damage it could do if it was ever allowed to leave its lair is potentially terrifying; but it is not out yet, and what the British Government have been trying to do since 1968 is to stop it from ever getting out.

What we proposed in the summer of 1968 was as follows. First, because the problems involved in seeking to go beyond the Geneva Protocol seem greater and international opinion less clear in the field of chemical weapons, we proposed, on 16 July 1968, that the Secretary-General of the United Nations should be asked to prepare a report on the nature and possible effects of chemical weapons and the implications of their use. The idea was that this would provide the Disarmament Conference in Geneva with an internationally-agreed scientific basis for future consideration of measures for the limitation and control of such weapons, as well as focussing public opinion on the issues involved. As you may know, our proposal was then taken up by the Disarmament Conference and the U.N. General Assembly and extended to include biological weapons as well. The study was undertaken and the Report came out on 1 July. That is why we are all here this afternoon.

As far as biological weapons are concerned, we thought that in addition the time was ripe now for a further international instrument in this field; to be precise, for an international Convention which would strengthen the provisions of the 1925 Geneva Protocol by prohibiting all use, production and possession of biological agents for hostile purposes. In other words, to return to my earlier metaphor, we would seek to ensure, as far as was humanly possible, that the beast remained in its lair forever.

We therefore prepared a draft Convention for the Prohibition of Biological Methods of Warfare, together with an associated draft Security Council Resolution, and tabled these at the Disarmament Conference in Geneva on 10 July this year; both drafts were issued as a White Paper, Command 4113. I will not go through the drafts in detail as I have just said what we aim to do in them. But there are two important points which I think are worth mentioning.

First, we had to accept that foolproof verification, in the sense in which that word is normally used in the disarmament negotiations, meaning a comprehensive system of control and inspection machinery, is not likely to be possible in the field of biological warfare. Agents which could used for hostile purposes exist in nature, and are generally indistinguishable from those which are needed for normal medical purposes; for instance, in the preparation of vaccines. Furthermore, the facilities required to produce B.W. agents could be both makeshift and inconspicuous.

In short, no system of verification, however comprehensive, could prevent clandestine production of B.W. agents or even of the weapons themselves. Nevertheless, because development of biological weapons is at such an early stage, we feel that it should be possible, in this particular case, to accept the risk of "cheating", provided there are other strong deterrents against this. We have therefore proposed a complaints procedure which would directly involve the United Nations (hence the need for the associated draft Security Council Resolution). Under this procedure, complaints by any Party that biological methods of warfare had been used against it would be addressed to the U.N. Secretary-General who, it is envisaged, would have standing authority from the Security Council to investigate such complaints immediately and report his findings to the Security Council. Other complaints (for example, about production and possession and about use against another party) would be addressed to the Security Council itself which would then, if it saw fit, authorize the U.N. Secretary-General to carry out an investigation and report back. It is of course desirable that investigation of all complaints should proceed as quickly and automatically as possible, in order to strengthen the deterrent effect of such machinery. Quick and automatic investigation should be possible where a party alleges that biological methods of warfare have been used against it because, in that case, the complainant would provide all the facilities for carrying out

an investigation. In other cases, facilities for carrying out investigations would have to be provided by parties who might well object to doing so. In these circumstances, it would not be possible to have automatic investigation. However, as a further deterrent against infringement, the Convention includes a "security assurances" article, under which parties would undertake to provide or support assistance to a party which was a victim of biological attack.

The second important point that I should like to draw to your attention is that, although we think there are very good reasons for dealing first with biological methods of warfare, because we recognise the importance of chemical weapons we have included an article in our draft B.W. Convention, on the lines of Article VI of the Non-Proliferation Treaty, under which parties would undertake also to pursue negotiations in good faith on effective measures to strengthen the existing constraints on chemical methods of warfare. We included this article to take account of the natural feelings of a number of states that the question of chemical warfare should not appear to be neglected.

Following the tabling of our two drafts in Geneva on 10 July, useful and detailed discussion of them took place in the Conference of the Committee on Disarmament. We revised our drafts slightly in the light of comments made in the Committee, and they have now been sent with the Report of the Committee to the U.N. General Assembly.

I have tried to give you the facts on the problems of C.B.W. arms control and disarmament, as we see them. We are proud of the fact that the British Government have played the leading part in stimulating international concern over the C.B.W. threat, and in seeking measures to deal with this threat. We very much hope that the U.N. General Assembly, which is now discussing disarmament, will call on the Disarmament Conference in Geneva to pursue work on C.B.W. urgently at its next session, and that it will be possible to move towards international agreement on what can be done. There has been progress already. Our draft B.W. Convention has already been discussed in detail in the disarmament negotiations in Geneva and we are hopeful that further, more rapid progress on this will be made at the next session in Geneva. As far as chemical weapons are concerned, we have the U.N. Secretary-General's valuable Report which, we believe, should help to provide a good basis for future consideration of further measures of arms control and disarmament in the field of chemical weapons, something which is also actively envisaged in our draft B.W. Convention.

More generally, it is, I think, true to say that most states have now come to accept the idea which we put as far back as July 1968, - that something should be done to strengthen the 1925 Geneva Protocol. This itself is a very significant step forward. As I mentioned earlier, a number of states appeared to doubt the wisdom of what we proposed in 1968. We therefore welcome the fact that the Soviet Union and her allies have now come to see the force of our argument and have proposed the conclusion of a draft Convention on the prohibition of the development, production

and stockpiling of chemical and biological weapons and on the destruction of such weapons. Unfortunately, the Soviet Union and her allies have so far chosen not to table their draft Convention at the Disarmament Conference in Geneva, so there has been no opportunity to discuss it in the accepted forum for disarmament negotiations.

The content of the draft Convention prepared by the Soviet Union and her allies seems to us to confirm that it would have been better if the normal procedure had been followed. As it stands, the draft does not seem to offer a practical solution to some of the problems raised by chemical and biological methods of warfare. It does not, for example, include a comprehensive ban on the use of the prohibited weapons. As I have already mentioned, a number of parties to the 1925 Geneva Protocol, including the Soviet Union and some of its allies, have reserved the right to use the prohibited weapons against non-parties, violators of the Protocol and their allies. It is a little puzzling, therefore, that the Soviet Union and its allies should have tabled a draft Convention purporting to prohibit the production and possession of chemical and biological weapons but, at the same time, should have been careful to retain the right to use these weapons in certain circumstances.

Another shortcoming of their draft is that it does not include any realistic proposals to deter would-be violators. Consultation and cooperation between states may be all that is required in some arms control measures, for instance, on

the sea-bed, where states are free to observe other states' activities. But more than this is required when it is a question of a state's activities within its own national territories. That is why our draft B.W. Convention includes the proposal for a complaints procedure which I have already discussed. Of course, we would all like to get rid of chemical weapons as well as biological ones if we possibly could. But, as I said earlier, you can't just wish them away; the difficult problems involved have to be tackled resolutely, and it is my belief that the problems involved in eliminating C.B.W. will be so tackled by the Conference of the Committee on Disarmament in its sessions next year. That is the place where the rival merits of our own and the Soviet approach can be discussed in detail.

I hope I may not seem to you to have over-emphasised the difficulties. I do not want to finish on a pessimistic note. I personally am optimistic. Given goodwill, readiness to negotiate and, if I may say so, the willingness to take a fresh look at old problems, the problems we raised in 1968, that is, what further measures of arms control and disarmament are needed in the C.B.W. field; given all these, I am hopeful that real progress can be made, and made soon. I feel sure that we can count on your support in this difficult, challenging but supremely important task.

Thank you.

(3)

THE REPORT AND VIETNAM

by Francoise Direr
French Vietnam Friendship Association

What struck me when I read the report of the United Nations is that very little is said about Vietnam (20 lines in a 100 pages), while this country is known to be the field of experiments for new techniques in both classical and chemical warfare, if not bacteriological (biological) warfare.

And the report only deals with possible effects of defoliants in Vietnam. (About the same wording can be found in Fred Tschirley's, who prepared a report when he served in Vietnam as an advisor to the US Department of State. Mr. Tschirley's report was released in September 1968 by the US Embassy in Saigon. A reprint of it appeared in "Science" on February 21, 1969).

Nothing is said about gases.

Defoliants were first used in Vietnam in 1961 and gases in 1964. Our Association denounced this form of the war as soon as 1963 and in December, 1966, it held a conference on the subject where communications were received from renowned French scientists.

DEFOLIANTS

The use of defoliants in Vietnam has been reported extensively by newsmen and also by scientists in technical publications.

Information released by the National Liberation Front gives an average of 7 or 8000 sq. km. defoliated each year.

Casualties and on some occasions deaths have resulted from these sprayings. The defoliating agents used in Vietnam are said to be common herbicides and therefore not harmful to man or animals. This may be true under conditions of normal use. But unusually high rates of application prevail and the applications are far from being uniform. For instance, Gordon Orians, of the University of Washington, and Egbert Pfeiffer, of the University of Montana, report as follows from their "Mission to Vietnam" in "Scientific Research" (June 9, 1969): p. 28:

> "...before jet pods were installed in the C-123 aircraft, the planes were unable to remain aloft when engine trouble developed. In such a contingency, the crew was permitted to jettison the entire contents of the spray tank (1000 gal.) in slightly less than 30 seconds, whereas normal spray time is about 4 minutes. Although such contingencies are said to occur less frequently now, they do happen. On the spray mission that I (Pfeiffer) accompanied as observer, the spray nozzles of one plane failed to work properly, and the entire tank was unloaded at the end of the target".

Also, under the specific climate of Vietnam - heat and humidity (and body perspiration), such agents as Dinitro-ortho-cresol and Calcium Cyanamide may cause burns and injuries.

The National Liberation Front, for the year 1965 alone, claims a total of nearly 150,000 cases of injury by herbicides.

Short-term effects of defoliation may not be developed here. Most of the areas visited by US scientists like Fred Tschirley, one of the US Dept. of Agriculture, or Gordon Orians and Egbert Pfeiffer, either the mangrove, tropical forest or rubber plantations, have suffered considerable damage and everyone knows that entire regions are completely barren.

Defoliation is of course a natural process. But defoliants cause premature defoliation. According to Professor Heller, Professor of Physiology at the French Sorbonne, caused defoliation occurs before the plant is normally in-active, that is before the toxines are concentrated in the leaves and reserves have accumulated in the trunk and roots, thus producing irreparable damage to the plant.

Long-term effects as anticipated by Professor Heller are based on his African deforestation experience. InSouth Senegal, he says,

a soil voluntarily degraded, a semi-desert, that is what resulted from short-term endeavour. Fred Tschirley fears invasion by bamboo of severely defoliated areas in the forests of Vietnam, thus preventing the forsts to regenerate.

GASES

Noxious gases were first used in Vietnam during the last months of 1964 and in January 1965 at Phu Lac, in the Phu Yen province, 100 km from Saigon. According to the News Agency of the National Liberation Front, 80 civilians were killed during this attack.

Public opinion was alerted thorugh news media and the use of gas was prohibited until September 1965 when it was agreed by the Pentagon that 2Gas is part of the equipment of the US forces2

The gases used in Vietnam are said to be riot-control non-lethal gases. But egen a non-lethal chemical agent can be lethal under certain conditions of intensity, confinement, climate.

This is how "Chemical Week" in its March 26, 1966 issue reports about a gas attack :

"Gas is forced into tunnels by portable blowers...
"Gas grenades are dropped into tunnels...
"After prisoners and useful material have been removed, colored smoke bomba are used to locate all exits. Then the tunnels are closed. Irritating agents in crystalline form are scattered through the tunnels. The crystals sublimate, releasing gas slowly in the sealed tunnels and making them unhinbitable for months".

You will remember that an Australian corporal once died when entering one of these tunnels in serach for prisoners. The corporal wore a gas mask.

And Chemical Week goes on :

"Field troops dislike working with gas ; heat and humidity in Vietnam make the gases irritating to exposed skin and close fitting masks are uncomfortable".

If the well equipped and well protected US army man dislikes working with gases, what then of lightly clad, bare footed, unprotected Vietnamese civilians ? What of infants and people weakened by malnutrition, disease or old age ?

The National Liberation Front claims hundreds of deaths following the use of gas.

Recently, addressing students at Tufts University, Rep. Richard D. McCarthy charged that the American fofces are conducting chemicla warfare in Vietnam. "Tear gases being used in Vietnam are in reality lung gases, he said. They actually attack the lungs but they are intended to be non-lethal".

According to Dr Matthew S. Meselson, Professor of biology at Harvard and a consultant to the US Arms Control Agency, the US Army has bought enough CS gas for South-East Asia since 1964 to cover every square mile of South Vietnam and the army is buying 16 times more CS in 1969 than it did in 1964. The purchases leaped from 367 000 pounds in fiscal 1964 to 6 063 000 pounds in fiscal 1969. Dr Meselson contends the widespread use of CS in Vietnam puts it in the category of a chemical weapon rather than a riot control agent.

To my opinion, emphasis should be placed by this Assembly on the use of chemical agents in the Vietnam war :

(1) the widespread anticrop program to destroy Vietnamese food and the defoliation program with its short-term effects on forests and jungles and possible long-term effects which may result in the simple destruction of plant and even animal life, and

(2) the use of poison gas in combat routine in South Vietnam, as this may open the way in future to wider use of more exotic gases.

NAPALM

Napalm has been excluded from the Report of the Secretary-General of the United Nations and classified as "high explosive".

But, from the definition biven by ENCYCLOPEADIA BRITANNICA, Napalm is an "aluminum soap of naphthenic and palmitic acids which when mixed with gasolines form sticky syrup used in CHEMICAL WARFARE".

The thickening substances used in Napalm were developed in 1944-1945 under contract to the CHEMICAL WARFARE SERVICE. Recently, and for use in Vietnam, a new thickener was discovered - POLYSTERENE - which produces a more adhesive type of Napalm, known as Napalm B. Polystyrene is manufactured by chemicals co;panies.

In Vietnam, Napalm is used in the systematic destruction of hamlets and is part of the campaign to terrify the peasants and it is said to kill "ten civilians for every Vietcong" - according to Special Forces Officers (as reported by Newsweek in its March 14, 1966 issue).

Napalm is also used to burn the forests and the rice fields and in this way, it serves the same purpose as do other chemicals : deprive the Vietnamese of their food and cover.

Napalm casualties are caused by thermal injury and monoxide poisoning. Its adhesiveness, prolonged burning time and high burning temperature cause extensive and deep burns which result in severe scar contractures and deformities.

Casualties in great numbers also results from secondary effects not involving direct burns : environmental temperatures rise to intolerable levels, air-raid shelters become death-traps from the combined effects of heat, anoxia and carbon monoxide.

In Japan, the saturation bombing of Japanese cities with Napalm during the last months of the Second World War caused many more deaths than the atomic attacks on Hiroshima and Nagasaki (1).

Children suffer a high mortality. The statistics are monstrous. Everybody knows the report published by "Ramparts" in 1966 where William Pepper estimates the number of child casualties in Vietnam to be at least one million. Approximately a quarter are burn cases. Over two hundred thousand children... in 1966 already.

Because of its chemical composition, of its development by chemical warfare services and chemical private companies, and because of its actual use in warfare as mass destruction agent, should not Napalm be considred as a CHEMICAL AGENT and be classified with the chemical substances that are dealt with in the report ?

(1) F.J. Sanborn - Fire protection lessons of Japanese attacks- In "Fires and the Air War", H. Bond - Boston, National Fire Protection Association, 1946 - pp. 169-187

November 1969
Association d'Amitie Franco-Vietnamienne
37, rue Ballu, Paris 9

Professor O.V. Baroyan
The Gamaleya Institute of Epidemiology and
Microbiology of the USSR Academy of Medicine,
Director, Member of the USSR Academy of Medicine.

(4)

THE ACHIEVEMENTS OF BIOLOGICAL SCIENCE AND THE POTENTIAL WARFARE APPLICATION OF PATHOGENIC AGENTS

(Paper for the International Conference
on Chemical and Biological Warfare, London)

May I on behalf of the scientific world of the Soviet Union convey greetings to the sponsors of the International Conference on Chemical and Biological Warfare convened by peace-loving organisations of Britain, by the Women's International League for Peace and Freedom, young liberals and influential peace-loving public of Britain. May I also thank the sponsors of this highly humanitarian conference for the opportunity given us to present a paper on the problem related to the achievements of biological science and the attempts of applying these achievements for the needs of warfare.

Dear Friends!

The history of warfare bears out that most grave epidemics of diverse infections were always the unavoidable concomitants of wars. In many cases the losses caused by infections exceeded many-fold the manpower losses from the war proper. More frequent than not the epidemics during wars developed to such tremendous proportions that the belligerents were obliged to discontinue hostilities because there were not enough men capable of going on with the hostilities. Without going deep into remote times of mankind's history which is full of convincing instances of grave and tragic epidemics as a sequence of various wars: for instance the pestilential disease described even by Thucydides, an old Greek scholar of history (400-460 D.C.) or the pestilential ulcer of Antonian which lasted for 15 years and which is described by Galen (131-200) which swept through many countries of the Middle and Near East and later on throughout Europe; finally, the plague of Justinian which lasted from 531 to 580, etc, had taken many millions of human lives, we will have to say that more recent times also have a good many of similar instances.

Thus, during the Persian-Turkish war of the 16th century, the epidemic of cholera brought about a situation when the belligerents had lost completely their fighting ability.

During the Crimean War of 1853-1856 one of the French divisions operating in the Varna area lost within less than one month approximately 2,000 men due to cholera. Practically all men of that division were down with cholera.

In 1859, in Algeria, out of a French force of 15,000 men, something like 10,000 or 12,000 were sick with cholera.

In 1916 during the Balkan operation more than 60,000 men of the Anglo-French troops took sick with malaria. In some units which were

stationed in Salonikas malaria was found in practically 95 per cent of the total force.

Finally, as noted earlier, the spread of the epidemic of plague in Europe in the middle of the 14th century, when the entire continent was swept by sanguinary wars, the Black Death slashed practically by one quarter the population of Europe. The number of residents in such towns as Hamburg, Florence, dropped by two thirds and by one half, respectively. Britain lost practically two million men out of approximately four million. It took Europe practically two centuries to reinstate the population level which preceded the epidemics.

Towards the end of World War I a pandemia of influenza (the Spanish 'flu) struck approximately 500 million people, i.e. practically one third of the population of the world of that time and took a toll of approximately 20 million human lives.

It is well known that diverse social upheavals, including wars, have led also to widespread epizootias among farm animals and epiphytias among different plants. Thus, there was the late blight of potatoes (caused by Phytophthora infestans) in all West European countries from 1845 to 1847. In Ireland, the potato crop failure during two subsequent years brought about a hunger which had taken a toll of approximately one million lives, and another 1.5 million Irishmen emigrated overseas. In the Philippines, the epizootia of plague which commenced towards the end of World War I (1917) and which lasted for approximately 10 years brought about a practically total perish of cattle and left the country in a very grave economic situation.

It may be believed that that the very idea of applying pathogenic microorganisms as instruments of war springs from the historic experience of various epidemics which always were a grave problem in the history of all wars. Empiric observation over the war-and-epidemic relation most likely brought about a situation when the belligerents, long before the microbiological era, were using objects infected by patients to artificially spread epidemics in the enemy camp. Thus, there are data about artificial spread of smallpox by early Spanish conquerors among American aboriginals - Indians. It was precisely they who either gave away as presents or sold to Indians blankets from patients who died due to smallpox. Facts are known when personal effects infected by plague patients were planted or thrown into besieged fortresses or when water wells were infected by patients suffering from intestinal diseases (cholera), etc. Despite the fact that as a result of the progress of biology (the development of vaccines, sera, antibiotics, etc) the control of epidemics became much more effective and nevertheless even without the artificial proliferation of infectious diseases these questions remained extremely acute and present a complex military problem. For objectiveness' sake it should be admitted that thus far there are no direct proof about the application of pathogenic micoroorganisms as a means of warfare in the wars of this century. However, there are more than enough indirect evidence which show that those means of warfare are being stockpiled.

The [illegible] preparation made by Nazi Germany for the application of pathogens for military purposes. Essentially, there is much proof in present-day conditions showing that German revanche-seekers are eager to possess weapons of mass destruction including bacteriological weapons. The fact that in West Germany, working on the assignment of the Ministry of War, bacteriological, nuclear and chemical weapons are being intensively developed at the Aerobiological Institute, is proved by data supplied by microbiologists who have crossed from West Germany to the German Democratic Republic (Neues Deutschland, February 28, 1968 - Suddeutsches Zeitung, February 27, 1968). The development of the biological science in recent decades confirmed once again a real possibility of the application of some microorganisms which are pathogenic for men, animals and plants as a biological weapon of extermination of mankind. The argument used in favour of this weapon is that it possesses a big variety of potential agents with differing incubation periods.

The substance of the matter is that as a result of prolongued and intense research and observation of scientists and physicians throughout the world, mankind already knows more than two thousand pathogens of infectious diseases of man. Among these agents a big group is made up by diverse species and varieties of bacteria and ricketsia. The agents of this group cause more than one thousand infectious diseases. Approximately 500 diseases are caused by fungi; some 200 infectious diseases are caused by helminths and protozoa. Finally, more than 500 species and varieties which cause infectious diseases are viruses.

An important property of infectious agents is that they are live and can multiply. Therefore, a chain of infection springs from one infected person to other persons. This is particularly dangerous in case of respiratity infections when the highest infectivity frequently commences in the incubation period, when the symptoms are very obscure and non-specific. The spread of such infections is difficult to control even at a time of peace. The sad experience of the foot-and-mouth disease of cattle in Britain, the imported epidemics of small pox in some countries of Europe and in the United States of America give clear instances of the complexity of this problem even in countries with organised public health services; these problems are more difficult to solve in countries with insufficently developed health services, and particularly so in conditions aggravated by war.

Many people believe that the military advantage of biological agents is that some of them are extremely resistant to environmental conditions and may be preserved in a latent form but potentially resistant for many years: the anthrax bacillum, for instance, whose spores remain infectious for more than a hundred years which has been proved by cases in Scotland. As regards other disease-producing microorganisms they may be rendered sufficiently resistent for survival in form of aerosols, for a rather considerable period of time.

Due to the small size of microorganisms they are easily dispersed

in the form of big size aerosol clouds and the latter may be conveyed over big distances. Field experiments in the United States with the application of either fluorescent particles or with non-pathogenic bacterial spores of bacilla have shown that such aerosol clouds produced artificially and spread from a ship along 150 miles of the coast, are carried over 25,000 sq. miles of the coastal area with the minimum dose of 15 particles and the maximum dose of 50,000 particles inhaled by the population of the affected area. Despite the exceptionally unfavourable conditions during this experiment the clouds have been traced for approximately 23 miles in the direction of the wind and the concentration of live cells in the cloud gave sufficiently high infectious doses even within close premises. To achive this, as has been proved later, it was sufficient to pulverise approximately 500 litres of suspension of benign bacteria (bacillus subtillis).

Besides, the infectious or toxic dose of some microorganisms or their toxins might be very small and therefore a very small amount of dispersed material can infect big numbers of people. Thus, the aerosol dose of Pasteurella Tularaemis was determined on volunteers as ranging from 25 to 50 cells; in case of Q-fever even one microorganism can cause infection; thus in one gram of dispersed material we may have millions of infectious doses.

There is also the possibility of spreading infection by using live carriers like insects, ticks, or lice causing in this way a focus of infection, given favourable conditions. By now, the ecology of such carriers and their part in the spread of infection has been well studied.

An important potential advantage of biological agents is considered to be the fact that they do not require complex and costly equipment for their application, specifically when compared against the equipment necessary for the manufacture of nuclear weapons.

Finally, another advantage of biological weapons is perceived by some people in the fact that they are directed either against the population or against animals. They do not bring about material destruction and cause big losses only in the manpower of the enemy and are capable of spreading panic. All this taken together makes bacteriological weapons quite acceptable for the potential aggressor.

Such are, generally speaking, the causes which have made some countries not only draw their attention to the possibility of applying bacteriological (biological) weapons in time of war but to begin stockpiling these weapons.

Naturally a question arises why the biological weapons with their definite advantages, have not thus far been used as, let us say, nuclear and chemical weapons, which have been applied in recent wars, or the chemical weapons which are used now by the United States in the war against Vietnam? There can be only one answer to the question. The chemical and nuvlear weapons have been applied by one of the belligerents only when there was absolute certainty that the other belligerent does not possess similar weapons. (The application by the Kaiser's Germany of

mustard gas in World War I, or the use of nuclear bombs by the United States against the Japanese in World War II). When German Nazi troops had intended to apply chemical weapons in World War II, the appeal to Germany which contained a warning about the criminal nature of such action was signed not only by the USSR and Britain, but also by the United States. On July 9th 1943 when it transpired that there was a possibility for the application of war gases, the then President of the United States, Mr Franklin Delano Roosevelt, stated:

> "I am revolted at the idea that some country, even the present foes, could, if they had the intention, apply such horrible and inhuman weapons against mankind."

Further on the President said:

> "I have no doubt that the application of this weapon would be recognised as unlawful by the public opinion of the civilized world."

Bacteriological weapons compared against chemical and nuclear weapons have a weak point. Namely, the effectiveness of this weapon depends not only upon the agents of infection but also upon ecological and meteorological conditions which can not be controlled by the aggressor. Finally, bacteriological (biological) weapons call for an incubation period, which considerable brings down its short-term tactical value. At the same time it has to be mentioned that the modern level of science in biology makes it possible to remove these short-comings and this explains the increased interest shown to this weapon at present by a number of developed powers.

May I now dwell on some scientific aspects related to the biological properties of pathogens as possible agents which might be applied in bacteriological warfare.

The lack of experience in the application of bacteriological (biological) weapons in past wars, precludes us from judging reliably one or another pathogen as a potential agent which might be applied as a biological agent. It may be merely surmised that as a result of an artificially created contact between the population and some pathogenic microorganism diseases may set in, and their spread will occur in keeping with the known general epidemiological regularities peculiar to the given etiological agent. It is possible, however, that this approach would not be absolutely correct since a big number of biological and ecological relationships and changes which belong to the host parasite environment complex, in conditions of artificial spread of microorganisms cannot yet be foreseen. Among them may be diverse genetic changes of the strains applied as biological weapons, the development of new or considerably altered variants of the know strains which may be developed by selection for military use. Finally, in case of an artificial spread of pathogens, it is necessary to bear in mind the possibility of the alteration of the natural mechanisms of transfer of individual infections. It is known that in this case the entire complex of clinical, epidemiological regularities peculiar to a definite disease changes radically. An instance of this may be such infections as plague, tullaremia, anthrax and others, in which differing mechanisms of the transfer of infection lead to a quali-

tatively different clinical pattern and a different outcome of the disease.

The agents of diseases - potential weapons - are conveniently divided into two big groups:

a) lethal agents, i.e. pathogens capable of causing mass diseases among the affected pouplation and which produce high lethality rate, and

b) non-lethal agents, i.e. pathogens also capable of causing mass diseases but with a comparatively mild course of thedisease and putting the effective population out of commission for a brief period of time.

At the same time many experts consider, not without ground, that this division is not altogether valid since the extent of action of pathogenis agents depends not only upon the biological properties of the pathogen but also upon the resistance capacity macroorganism. The relevant argument is that any pathogenic agent which is used to incapacitate people may, under definite conditions, lead to a lethal outcome. Similarly, the attack deliberately taken with the sole purpose of complete destru ction of people may not lead to a lethal outcome. Instances illustrating diseases inevitably leading to death are presented in Table I while the characteristic diseases resulting in incpapacitating people are shown in Table II. The following requirements have been formulated in relation to microorganisms which can be used in biological weapons:

1. Low infectious dose.
2. High environmental stability.
3. Availability and multiplicity of the pathogen.
4. Possible means of spreading and infecting.
5. Availability of means of defence against bioagents.
6. Availability of means of identification.

On the strength of these requirements, it is hypothetically possible to judge the probable agents of infections which may be used as weapons in biological warfare.

Besides the mentioned agents of infection against people in biological warfare not excluded is the application of microorganisms which affect domestic animals. The methods of application of this weapon may not differ materially from those designed against people. Many experts hold that in this case pathogens of viral infection in domestic animals could be used. The artificial spread of diseases among domestic animals may lead to serious economic consequences in a country struck by such an attack. The danger is not only in loss of affected cattle but also in the fact that the attacked country, trying to pevent the spread of artificially created epizootias will carry out compulsory slaughtering even of unaffected cattle. Relavant instance is the epizootia of the foot-and-mouth disease of 1946 in Mexico. To stop the epizootia local authorities were obliged to undertake a mass slaughtering of cattle. Besides, it should not be overlooked that many pathogens of infectious diseases of domestic animals can affect man too.

It is perfectly obvious that a covert bacteriological (biological) attack in time of peace directed against domestic animals, if it affects a big number of cattle, is liable to have serious economic and political consequences to the country attacked. Mention may be made in this con-

nection of the viral disease known as African swine fever. This infection occurs frequently on the African continent as a subclinical disease of warty swine. The disease was for the first time imported accidentally from Angola to Portugal in 1957 and then in 1960-- to Spain. Despite the intensive vetinary control measures the losses caused by the death of swine, in one year alone, comprised more than 9 million dollars.

Table 3 gives a rough characteristic of those infective diseases of domestic animals which can be spread artifically in wartime.

It should also be considered that while the local applications of this weapon against domestic animals can cause local damage only, the mass application through infected aerosols, i.e. a moving cloud, may lead to complete destruction of domestic animals over a vast territory.

The grave consequences of the imported epizootias may be illustrated by many instances form history. The epizootia of mycomatosis (a disease of rabbits) in France, led not only to a wholesale extermination of rabbits in that country, but also created prerequisited for the spread of this disease in neighbouring countries. The outbreak of mycomatosis supplied convincing proof that political frontiers are no serious obstacle to the spread of mass epizootias. The situation is rendered still graver by the circumstance that the problems of protection against diseases, the identification of pathogens, control of pathogens and other aspects of the prevention of the diseases of domestic animals are not studied sufficiently.

A similar danger is presented by the artificial spread of micro-organ-isms which affect plants of economic importance as sources of food, or industrial materials like cotton and rubber. Important food crops include potatoes, sugar beet, vegetables, soya beans, rice, maize, wheat and other grain crops and fruit trees and shrubs. The choice of suitable objects of a bacteriological attack, with the idea of affecting plants, will be determined by the relative value of these plants for the national economy of a particular country. The deliberately induced infection of plants may bring about grave national disasters.

A bacteriological agent which affects plants adversely belong to three groups fo of micro-organisms: Fungi, bacteria and viruses. The relevant instances of presented in table 4.

With rare exceptions, plant viruses may be grown only on live tissues while the agents of disease is detected in tissues of plant and juices. Rival diseases of plants are transmitted mainly by an insect carrier and in some cases mechanically.

The bacteriological agents affection plants may exist in or on the plant for months all of them can be grown in artificial conditions. As a rule, the bacteria which affect plants are not spread by the wind to any great extent; they are mainly spread by insects, animals, (including people) any by water.

The available measures of protection in case of a bacteriological (biological) attack against plants, are impracticable on account of their costliness. Besides, the most dangerous and most stable strains may be used in bacteriological warfare, and this will render the control measures still more difficult.

The epidemiological and socio-economic aspects of the potential applic-

ation of micro-organisms which are pathogenic for man animals and plants as bacteriological (biological) weapons, may be summed up, as follows;

- the possibility of affecting simultaneously big groups of the population the herd of domestic cattle, and crops, by spreading artificially micro-organ -isms of which are pathogenic for them;
- incapacitating the enemies manpower, weakening its economic potential and dooming it to hunger and complete demoralisation;
- the creation of conditions of lasting consequence in the form of epidemic epizootias, epiphytias and various natural foci diseases;
-contamination with micro-organisms, or with their toxins of such vital objects as the water supply system, food depots, etc.

The scope and duration of such consequences, resulting from the application of bacteriological (biological) weapons though not altogether clear, obvious -ly present a tremendous danger to children, who may be in an affected area. In this light it is particularly strange that there are people in the world who can speak about the " humaneness" of this weapon.

The achievements of biological science in this century have opened up the opportunities for the use of these weapons on so big a scale that the consequences could be really catastrophic. Unlike the conventional means of warfare, this weapon is directed primarily against the civilian population, and it is precisely this that makes it extremely dangerous and inhuman.

It is considered that bacteriological weapons of indiscriminate action include the application of all micro-organisms and their toxins to affect people, farm animals and plants. This property - mass and indiscriminate action- makes bacteriological weapons similar to chemical weapons the application of which, though with several specific and technical modifications (the extent of toxicity dosage and length of action, the possibilities of identification, etc.) have the same objectives.

The history of technical development, both of chemical and bacteriological (biological) weapons is distinguished by a regular increase in the potency of the latter and by greater possibilities od delivering them in big volumes to target areas. While the increase in the danger of application of chemical weapons is the result of scientific discoveries and of the manufacture of new more toxic chemical compounds, the bacteriological agents exist in nature and the increase in their destructive power as weapons is rather the result of selection and not of development of absolutely new substances. This process of selection has become possible as a result of scientific achievements in the genetics of microorganisms, experimental aerobiology, etc.

As a result of all this we know now a large number of C and B agents capable of bringing about grave consequences if applied at a time of war.

There are two points of view on the use of weapons of mass destruction in war:

1) Some people consider that the bacteriological weapon, by the strength of its action (mass annihilation of people) may be compared only with nuclear weapons. The argument is that this ty pe of weapon cannot be controlled since the pathogenic microorganisms artificially imported to a definite p opulated area, owing to their biological nature (alive and capable of multiplication) will be creating the conditions of a chain

reaction and the subsequent spread of the disease will continue in keeping with the natural regularities peculiar to each microorganism i.e. from man to man, or will create new natural foci of infection, the controll of which is extremely difficult. Thedanger of this type of weapon is also aggravated by the circumstance that its manufacture is considerably less costly than chemical weapons, not to mention nuclear weapons. While only the well-developed countries can cope with the manufacture of nuclear and chemichal weapons, practically any country with a network of m icrobiological institutes and capable of manufacturing bacteriological preparations, can produce biological weapons.

2) The other point of view is absolutely different. Its proponents hold that the development of bacteriological weapons is far from being a cheap undert-king since the economically developed countries who are building up their military potential are spending huge resouces on research in this field. Though these expenditures naturally cannot be compared with those involved in the develpment of nuclear weapons, they are quite considerable and the expense cannot be borne by every country. Besides, the supporters of this view consider that precisely the poor controllability of bacteriological weapons is liable to create the danger of importing artificial epidemics to the countries which have themselves used the weapon. Finally they believe that the complex means of delivery of these weapons and the adverse influence of the environmental factors (air temperature, humidity, nature of winds, etc.) upon the viability of microorg nisms in an aerosol clouddetract from the advantages of these weapons.

Though both vies have their strong points, it has to be noted from the general humanitarion stand : bacteriological weapons already exist and the mentioned difficulties may well be surmounted, considering the modern standard of knowledge and the collossal research in this field. As for the discussion on these topics, it hardly facilitates the basic objective of progressive mankind, namely to ban all weapons of mass annihilation including bacteriological weapons.

Summing up, it may be said that the world is in danger of a new weapon which might plunge mankind into great suffering. This is the overriding consideration and therefore all who cherish peace should struggle resolutely against these types of weapon of mass extermination.

Indeed for more than three thousand years, in all stages of the development of civilization, dangerous infections have many times brought about tragic situations which have left painful scars on the destiny of mankind. The facts we know from history also show not only the surprisingly consistent progress of medical thought in uncovering and learning the nature of these dangerous diseases, but also the selfless struggle waged by the physicians of all times against infectious disease. As has been mentioned here, medicine has made tremendous progress in this field. As long ago as the first half of this century, "pestilnetial diseases" were liquidated not only in the economically developed countries but well founded attempts have been made to eradicate them completely from the globe. The achievements of modern biology which could lead to global success in the progress of mankind, if they are

wisely applied, fall to the hands of those who seek to use them for the objectives of war and the annihilation of mankind. Naturally this is paradixucal, but the paradox is quite understandable. Indeed, there are always some shameless politicians, unscrupulous dealers who consider that all means are justified if they work for their aggressive aims. The matter under discussion is not a pleasant one. It calls for immediate response, it requires taking a stand - clear and firm - for or against, yes or no. Ambiguities are impermissible here. Everything has to be clear.

The 19th century has done away with metaphysical conceptions in the history of biology anf microbiology.

The task of the 20th century is not only to validate the idea of the world's evolution as a complex entity but also to unravel the scientific mechanism of many biological phenomena observed in nature, which had been uncovered empirically by the great minds of the past. The task is to illuminate by complex experimentation the entire path: from the ideas of great Edward Jenner on the possibility of preventing diseases by vaccination to artificial mutagenesis of pathogens; from the ideas of Louis Pasteur and Ilya Mechnikov on applied immunology to the streamlined theory of immunogenesis and anti-body formation; from Rudolf Virchow's cellular theory to the understanding of the structure of the cell's molecule and the development of molecular biology.

It took tremendous scientific effort and mental work to part with the helpless acknowledgment of devastating epidemics of pestilential diseases and approach the age-old dream of mankind - the global liquidation of many of them.

The achievemnts of recent decades in natural sciences, as a whole, and in biology, in particular, have helped develop new methods and approaches to such important problems of theory and practice as the genetics of microbes, complex virus - cell relationship, the DNA synthesis, the understanding of the part played by the immunocompetent cells in the detection of 'own' and 'foreign' which has brought immunology to the pressing problem of human organ and tissue graftins, and many other problems. It should also be noted that some biological discoveries made in the two or three recent decades were of history-making importance. They include:

- the development of antibiotics;
- the possibility of growing viruses on tissue cultures;
- the identification of new viruses which are pathogenic for humans; etc.

Within the same brief period of time absolutely new trends have been created in biology, like the radiation biology, space biology, bionics, etc. All these achievemnts are materially influencing the productive forces of our world. Thus, while in the days of Hegel, the empiric and often even the abstract concepts of many sciences no more than harboured the elements for the remaking of man's life, at present towards the end of this century, it has been scientifically proved that the rate of development of modern science in such branches as physics, chemistry and biology, in particular, open up real and unlimited opportunities of improving the welfare of people, and therein lies the 'hope of cilisation'. Unfortunately, the same achievements

may in many cases develop into a 'menace to civilisation', that is they may repeat the story of the application of atomic and nuclear power. The same thing is now taking place in chemistry and biology; the magnificent achievements of these sciences which should serve the interests of mankind might be used to develop chemical and bacteriologucal weapons. An example in this case is A. Cornberg's recent synthesis of biologically active DNA, which has enabled him to suggest that a day may come when even the specific modification or the development of new gens by manipulating the DNA synthesis will become possible. Though it is still hard to speak about the practicability of this undoubtedly important achievement in theoretical microbiology, nevertheless there are people who are already pinning certain hopes on this discovery along the lines of creating new types of biological weapons. Would not this be an ironic fate for a scientific discovery, the one and only aim of which was to be of benefit to mankind?

It seems that precisely the pragmatic spirit of Goethe's is in command of the seekings of those men who strive to subordinate to their monstrous desires - the mass extermination of mankind - the finest intentions of a scientist-discoverer... 'with greedy hands he digs for treasure and rejoices when falls upon the dirty worms...'

Even Laplace wrote in his days that "man's mind experiences less difficulties when it advances forward than when it delves into its own depth". Most likely the science of biology has approached the stage when "man's mind is delving into its own depth", but in two opposite directions: to the benefit and to the detriment of mankind.

At the same time the experience of history confimrs that as the developing science brings about discoveries which can be applied not only to the benefit of mankind but also to its detriment, this urges the peoples of the world to take the most vigorous measures to prevent the materialisation of the latter possibility. This was the case with the achievements of physics, i.e. when it became clear that nuclear energy might be used as a weapon of mass destruction the entire progressive mankind demanded the conclusion of relevant international agreements to prevent this catastrophe. Among these are: the agreement banning the testing of nuclear weapons in three spheres, the agreement on non-proliferation of nuclear weapons, the treaty on the principles of operation of States in outer space, including the Moon and other celestial bodies, etc. All this comprised an important step towards the prevention of the nulcear Apocalypse. The agreements helped improve the international climate and create greater international confidence; unfortunately, however, there is still the arms race, and the feeling of anxiety is maintained. Therefore, the development, manufacture and stockpiling of chemical and bacteriological (biological) weapons regardless of the motivations and pretexts are fraught with the menace of their application.

Precisely their application and the grave consequences for mankind had many times in the past created requisites for bilateral and multilateral agreements among different countries with the idea of finding more rational ways of banning chemical and biological weapons. Without going back into remote times when the belligerents came to terms to refrain from polluting

drinking water wells and commonly used water supply sources, and from planting personal effects of contageous patients in besieged fortresses, it is clear that the importance of the problem on the international level, beginning with the second half of the recent century, with the progress of chemistry and microbiology, in particular, has grown still greater and has led to the need for considering the problem at diverse international conferences and meetings. Thus, as far back as 1675 in Strassburg, a bilateral agreement was signed between France and Germany and its Article 57 proclaimed unlawful the use of 'poisoned bullets'; the formulation of the relevant article was: 'The use of poison in any form, whether in the form of poisoned cartridges, food or weapons is completely excluded from modern warfare.'

The Brussles Conference of 1874 convened on the initiative of the Russian government and with the participation of 14 European powers, provided in the Declaration on the Rules of War for the terms prohibiting the use of poisons and other weapons.

In 1899 at the First Conference of The Hague, known as the conference fo the settlement of international disputes (by the way also convened by the Russian government) another attempt was made to ban the use of war gases. The resolution clearly stated that 'The contracting parties agree to refrain from the use of bombs designed to spread suffocating or otherwise harmful gases.'

In 1907, at the Second Conference of The Hague, the question of banning the use of poisons and contaminated weapons was reopened and appropriate amendments were introduced to article 24/a of the agreement adopted at the First Conference of The Hague in 1899.

In 1919 in Austria, and then in 1920 in Hungary, at the meeting of States in keeping with the Treaty of Versailles, Article 171 of the agreement said: 'The use of suffocating, poisonous and other gases, and all similar liquid materials and means is prohibited, their manufacture and import is strictly prohibited in Germany. This covers also the materials designed for the manufacture, storing, and application of the aforementioned materials and means.'

In 1921-22, at the Washington Conference on the Limitation of Naval Armaments, a Treaty was signed, Article 5 of which read: "The war use of suffocating, poisonous and other gases and all similar liquids, materials or means is justly denounced by the universal opinion of the civilised world " and the prohobition of the use of the latter had been stressed in the final part of the Treaty. Besides, it was said in the Treaty that "the Contracting Parties consider that the prohibition will be universally accepted as a part of international law binding on the conscience and practice of nations, and pledge their agreement to this prohibition and urge all other nations to accept it".

A similar resolution was approved in 1922 - 1923 at the Conference of Latin American countries. Finally, in 1925, the Geneva Protocol was signed on the banning of chemical and bacteriological weapons. This agreement represents a definite barrier on the way to a chemical and bacteriological war. Noting that the use of chemical weapons had been "justly

condemned by the civilised public opinion", the Protocol extends the prohibition to the bacteriological means of warfare. It states that with the passage of centuries it has become a custom and thereby a rule of international law since States in their practice have been abiding by the principle of refraining from the use of chemical and bacteriological weapons. This is confirmed by the recognition obtained subsequently by the Geneva Protocol. The validity and the importance of this agreement has been reaffirmed by the unanimous approval by the United Nations of its resolutions 2162B3 XXI/ of May 12, 1966, and 2454/XXIII/ of January 12, 1968, which called for a strict observance by all States of the principles and goals of the Geneva Protocol of June 17, 1925.

This is in brief the background of different international agreements, protocols and 'pledges' of States for the prohibition of chemical and bacteriologucal (biological) weapons as a means of mass destruction of people. The history of warfare, however, shows that these peace-loving documents have been repeatedly trampled upon, qhen the aggressor was after vistory and made use of all means even if they were banned by the law. According to custom in such cases people follow the jungle law which says that you have as many rights as you have strength to afford. It is well known that despite the existing international bans to use chemical weapons, Kaiser's Germany in 1915 was first in the history of mankind to undertake a chemical attack which had taken 5,000 human lives. On the whole, the number of losses from chemical weapons in World War I despite their low toxidity, at the time, the imperfection of methods and the limited scope of applications, comprised 1,300,000 men. It is no longer possible to make an accurate estimate of all the people who had been un-lethaly affected on the bettlefield, whose life was crippled or sharply curtailed as the result of exposure to chemical poisonous substances. Later on, there were also instances of application of chemicals by irresponsible leaders of some states. Thus, Italian,fascists had used the mustard gas in Ethiopia during the aggressive colonial war and it had taken a particularly big toll of lives because the gas which had been used was the dermato-vesicant gas applied against exposed and unshod people who were absolutely unprepared to such attachs. One of the most criminal features of that war was the application of poisonous chemical substances not only against troops but also against civilian population in full understanding that the pouplation was deprived of the most elementary means of medical assistance. The use of gases in the World War I and later in the Italo-Abyssinian conflict was the same thing for the chemical weapons which Hiroshima and Nagasaki was for nuclear weapons. A wave of indignation had swept the world in relation to the barbaric annihilation of human lives with chemical substanced and had spurred countries to adopt new measures for the banning of chemical and bacteriological weapons.

In opposition to the world public opinion, the supporters of bacteriological war had launched a campaign in defence of this type of weapons and used for this purpose all the means available to them. An instance of sophisticated defence of bacteriological and chemical weapons is the work

by Brigadier General Rotschild, one of the former executives of the Chemical Service in the USA . This General ventures to prove that chemical and bacteriological warfare is of a humanitarian nature.

To avoid discussing the 'humanitarian' nature of weapons of mass annihilation, we may rather refer to pronouncements of another US General William Mitchell who writing in his book Scanways states rather openly that the objects of attack should be not the armed forces of the enemy but its vitally important centres - populated towns, food producing areas, transport systems, industrial objects, i,e, all those things against which precisely the bacteriological weapons may be used first of all. In other words the ultra militarists regard the 'humanitarian' mission of this weapon in the extermination of civilian population a considerable part of which are women, children and old people. Naturally, various international agreements, protocols and conventions banning these types of weapons comprise an important deterrent against their use in military conflicts. Important in thia filed is the work of the United Nations and its specialized organisations like the WHO, the Universil Disarmament Committee, etc. In our world however, where the weapons of mass destruction including the biological weapons are being accumulated steadily, it is sometimes difficult to restarin the temptation of individual rulers to report to this argument of force. The more so since the rulers of these countries not only demand sufficient resources of those weapons, but also a powerful propaganda machinery with which they can support any forces and opportunities , for claiming war a " positive historical phenemenon". These belicose leaders, however, are apt to overlook that times have changed, that considerable peaceful forces have appeared in the world and are not interested in wars. A reliable system of peacekeeping includes not only the countries where war propaganda is punishable by law, but also the active work of a number of world known public organisations like the Peace Committee, Women's Committee, W.F.P.U., finally such institutes which have produced the Pugwash movement, the institutes for the application of scientific experiments to develop programmes of peace keeping in society etc.

During the Pugwash meeting, in Denmark, in 1969 the ideas were discussed of establishing a service for the collection of objective information to alert the world public about the possibility of a war conflict. It may be noted in passing that the meeting was held in Elsinore, i.e. the place of the castle of the Prince of Denmark, where this Shekespearean personage has asked himself: "To be or not to be?" There are no dounts that all these organisations are useful and serve the interests of peace on our badly managed planet. However, the "not ot be" to war and primarily, the "not ot be" to the weapons of mass annihilation should be said first of all by scientists , by the scientists of those branches where the ideas were developed, and discoveries were made to enrich science, but which were used to the detriment of mankind. Physicists chemists , biologists , microbiologists epidemiologists, are those who know better than anybody else the abyss into which the world may be hurled if their discoveries are applied for purposes of war. The two recent world wars have cost mankind aproximately 70 million human lives. A Canadian scientist Dr R. Wright presented the following account;

In 1956 the U.S. Senate Armed Forces Commission had listened to a report by Lt Gen James Gavin. Senator Duff asked the General about the possible number of casualties if the U.S. was involved in a nuclear war. General Gavin, who at that time was chief of U.S. Army Research and Development Dept asnwered that the casualties would run into several hundred million killed. If today any qualified epidemiologist, that is any epidemiologist who had seen the devastating force of natural epidemics of pestilential diseases is asked; what would be the number of human lives lost in case of artificial application of microorganisms or their toxins which are pathogenic for man, the honest answer would be that a town with a population of 10 Million would be reduced to a cemetary within a few hours. There will be no exaggeration in it, and no room for " the optimism of a simpleton or for the pessimism of a panic-monger".

Ladies and Gentlemen,

Every nation keeps a record of events connected with violence, brutal and sanguinary outrages, disaster and privation of the masses. Precisely in this connection, the attempts to use bacteriological (biological) weapons at the modern level of our knowledge, hold out for the world an ominous promise of new bestial atrocities.

Such is the logical chain of events- from wars and the concomitants epidemics to the use of scientific achievements for the development of bacteriological(biological) weapons. And yet, I wish to believe that this logical chain will be broken when it is confronted by the logic of the thought and reason of peace-loving mankind. Therefore, I wish to complete our presentation with the words of Louis Pasteur, the founder of Scientific Microbiology

" I am firmly confident that science and peace will triumph over ignorance ahd war, that nations will agree not on annihilation but on construction an d that the future belongs to those who will do more for the wanting mankind".

(5)

MEMORANDUM

submitted by

Sean MacBride

Secretary General of the

International Commission of Jurists

to the

International Conference on Chemical and Biological Warfare

London, November 21st - 23rd 1969

The Humanitarian Laws of Armed Conflict

Recent interest in the field of chemical and biological warfare, in its elimination as a means of waging war and in the control of the production of chemical and biological weapons, renders necessary an examination of the rules already existing relating to war and armed conflict.

There is a tendency today to emphasise the urgent necessity to deal with the subject of chemical and biological warfare as a distinct problem from that of warfare in general. In fact it is a problem which is inherently linked to the problem of the recurring resort to armed conflict as a means for the settlement of international dispute and the necessity to protect humanity and the individual against the barbarity and cruelty of such conflicts.

It cannot be denied that chemical and biological weapons present grave irreparable dangers to society and that an end must be sought to their development, production and stockpiling. Indeed, the whole subject has been comprehensively examined in the excellent Report of the Secretary General of the United Nations, to which the Conference will be giving due consideration.

It is however proposed in this paper to outline briefly the humanitarian law already in existence relating to armed conflict in general and the work being undertaken to modernise this law. Attention is drawn in particular to Resolution XXIII of the U.N. International Conference on Human Rights (1968) and to Resolution 2444

(XXIII) adopted by the General Assembly (1968), copies of which are appended hereto (Appendix). It is hoped that this paper may assist the Conference to examine the problem of chemical and biological warfare in the wider context of the protection of the individual against inhuman treatment in warfare.

1. The 'Laws of War'.

The laws of war are contained in the Hague Conventions of 1899 and their revisions of 1907, the Geneva Protocol of 1925, and the humanitarian Geneva Conventions of 1949 dealing with the protection of the sick and wounded, the civilian populations and prisoners of war.

Relations between belligerents in the conduct of operations, methods of warfare and the use of weapons, are governed by the Hague Conventions and the Geneva Protocol. Article 22 in both the Hague Conventions relating to the laws and customs of war on land (1899 II, 1907 IV) provides that 'the right of belligerents to adopt means of injuring the enemy is not unlimited'. Another common article (Article 23) especially forbids the use of poison or poisoned weapons, the treacherous killing of individuals, the killing or wounding of an enemy who has surrendered or who has no longer any means of defence, and the use of arms or materials calculated to cause unnecessary suffering. Article 25 (1907 IV) prohibits attack or bombardment by whatever means of undefended towns, villages, dwellings or buildings. Naval bombardment of such places or of ports which are undefended is also forbidden by Article 1 of the 1907 Convention (IX) concerning the Naval Forces in time of war. Pillaging is forbidden even of towns taken by assault (Articles 28, 47, 1899 II, 1907 IV, Article 7, 1907 IX). Belligerents are forbidden to force the inhabitants of an occupied territory to furnish information about the army of another belligerent (Article 44, 1907 IV). No general penalty, pecuniary or otherwise, may be inflicted on the population for acts of individuals for which the general population cannot be regarded as jointly and severally responsible (Article 50, 1899 II, 1907 IV).

A Declaration adopted by the 1899 Hague Conference had forbidden the use of projectiles, 'the only object of which is the diffusion of asphyxiating or deleterious gases' and 'the use of bullets which expand or flatten easily in the human body'. The 1925 Geneva Protocol gave partial form to this Declaration

by forbidding the use in war of 'asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices'. The prohibition took cognisance of scientific developments by extending its terms to the use of bacteriological methods of warfare. On 5th December 1966, the General Assembly of the United Nations further recognised the general applicability of the Protocol by inviting (Res. 2162 (XXI)) all states to conform strictly with its principles and objectives and by condemning any violations. The resolution also invited all states to adhere to the Geneva Protocol. This resolution was reaffirmed in Resolution 2454 (XXIII) which dealt with chemical and biological warfare.

It must be recalled that although the provisions relating to the conduct of operations such as those enumerated above cannot be considered as comprehensive in forbidding inhumane methods of waging warfare, the Hague Conferences were convened mainly to deal with the limitation of armaments and the pacific settlement of disputes. Their provisions relating to methods of warfare are declaratory, not amendatory, of Customary International Law. All states, therefore, whether or not they took part in the Conference or ratified the Conventions must be considered bound by the principles which were involved. Failure to ratify can merely be regarded as the rejection of a codified text, and not as a rejection of the principles of International Law. Moreover, both the 1899 and the 1907 Conventions contain a clause which draws attention to the awareness on the part of the participants to the lacunae in the codified texts and to the general applicability of the principles of humane behaviour by stating that:

> Until a more complete code of the laws of war can be drawn up the High Contracting Parties deem it expedient to declare that, in cases not covered by the rules adopted by them the inhabitants and the belligerents remain under the protection and governance of the principles of the law of nations, derived from the usages established among civilised peoples, from the laws of humanity and from the dictates of the public conscience.[1]

The Geneva Protocol recognizes that certain practices, having been condemned 'by the general opinion of the civilised world', are contrary to International Law, and that the prohibitions contained in the Protocol are to be universally accepted as a part of International Law, 'binding alike the conscience and the practice of

1. The words in quotations are teken from the Preamble of the Hague Convention No.IV of 18 October 1907. This is known as the Martens Clause, after its author Professor F.F. de Martens. The same words are also quoted in each of the four Geneva Conventions of 1949 (First Convention Art. 63; Second Convention Art. 62; Third Convention Art. 142); Fourth Convention Art. 158

nations'. By the same token, a declaration of war is not an essential precondition for the obligation to apply the Conventions. The mere existence of an armed conflict brings into operation the applicability of regulations concerning warlike behaviour.

2. Respect for the Individual

Treatment of individuals in time of war or armed conflict has been the subject of several international conventions since 1864. In 1949, mainly at the instigation of the International Committee of the Red Cross, they were revised, and the Geneva Conventions of 1949 now constitute the most thorough codification of the rules for the protection of the human person in armed conflicts. The four Conventions, which deal with treatment of the sick and wounded, prisoners of war and the civilian populations, are based on the principle that persons placed hors de combat and those taking no active part in the hostilities should not be killed and should in all circumstances receive humane treatment.

The Wounded and Sick upon Land

The First Convention declares that all persons, either civil or military, who may be considered as forming part of the armed forces, including organised resistance movements, who are wounded or sick must be respected and protected in all circumstances without discrimination. They must not be tortured, murdered or subjected to experimentation (Articles 12 & 13). Medical units, hospitals and aircraft and medical or auxiliary personnel must be protected (Articles 19-26 & 36). The wounded and sick of a belligerent who fall into enemy hands must be treated as prisoners of war (Article 14).

The Wounded and Sick at Sea

The Second Convention applies the same protection to members of the armed forces and others at sea who are wounded, sick or shipwrecked, and also protects military hospital ships (Articles 12, 13, 16 & 22). It forbids bombardment or attack from the sea of establishments ashore which fall under the protection of the First Convention (Article 23).

Prisoners of War

The Third Convention deals with the treatment of prisoners of war, who must at all times be humanely treated (Article 13). Measures of reprisal are prohibited

(Article 13) and they are entitled in all circumstances to respect for their persons and their honour (Article 14). They may not be tortured or coerced in any way to give information (Article 17). They may not be deprived of their property (Article 18). Proper attention must be paid to their health and safety (Articles 20, 22, 23 & 25-30). Disciplinary sanctions are strictly limited by the Convention (Articles 82 & 88-98). Judicial proceedings may only be brought according to the rule of law as elaborated in the Convention (Articles 82-88 & 99-108). A death sentence may only be carried out if the provisions of the Convention have been observed and the sentence has been pronounced by the same courts and according to the same procedure as in the case of members of the armed forces of the Detaining Power (Articles 100-102).

The Civilian Population

The Fourth Convention aims at protecting the civilian populations of countries in conflict and at alleviating the sufferings caused by war. The wounded and sick, the infirm and pregnant mothers are the object of particular protection (Article 16). Evacuation of civilians and the protection of hospitals and hospital staff are labelled as a principal concern for the parties to the conflict. (Articles 17-20). Collective penalties, pillage and reprisals, the taking of hostages, corporal punishment or torture are prohibited (Articles 32-34). Provisions for the treatment of civilians when under the control of an occupying force are similar to those applicable to prisoners of war.

General Provisions

All four Conventions give special status to the International Committee of the Red Cross, whose personnel must be protected and must be allowed to carry out their humane activities with the cooperation of the parties to the conflict and free from any interference

Although the Conventions strictly apply to wars of an international nature, Article 3 of all four Conventions stipulates that a minimum of humanitarian provisions apply in all 'armed conflicts' even those which are not of an international nature. Moreover the High Contracting Parties have undertaken not only to respect the Conventions themselves, but 'to ensure their respect in all circumstances' (Article 1 in each of the Conventions).

3. Implementation of the Conventions

Regarding Implementation of the Conventions the parties are placed under strict obligations by the Conventions themselves. Under Articles 47(I), 48(II), 127 (III), and 144 (IV) they have undertaken to disseminate the text of the Conventions as widely as possible 'in time of peace as in time of war' so that the principles may become known to the entire population, in particular the armed forces and medical personnel. Under Articles 45(I) and 46(II) each Party to a conflict is bound to ensure the execution of the provisions of the Conventions and to deal with unforeseen cases in conformity with the general principles of the Conventions. The Parties have further bound themselves (Articles 49(I),

50(II), 129(III) & 146(IV)) to enact any legislation necessary to provide effective penal sanctions for persons committing or ordering to be committed any of the grave breaches defined in the Conventions, such as wilful killing, torture or inhuman treatment. Denunciation of the Conventions in no way impairs the obligations which the parties to a conflict remain bound to fulfil 'by virtue of the law of nations, derived from the usages established among civilised peoples, from the laws of humanity and the dictates of the public conscience'.[1] (Articles 63(I), 62(II), 142(III) & 158(IV)).

Unfortunately, the pledge to diffuse the texts of the Conventions has not so far been sufficiently honoured by many states. Although some states do instruct their military forces in their provisions, diffusion to other sections of the population depends mainly on the I.C.R.C. and National Red Cross Societies. The ad hoc legislation which should be adopted in time of peace to implement the specific obligations on each signatory State, such as the sanctioning of infringements of the Conventions, is not often seriously undertaken. Moreover, nowadays most armed conflicts are termed 'non-international', although they are nearly always backed by some outside power. Such a power supplying arms or military advisers could at least ensure a minimum of humanitarian behaviour by stipulating that the Geneva Conventions must be respected.

4. The Need for Revision

Again, it is important to recall that the specific provisions regulating the laws of war or the treatment of individuals in no way detract from the basic humanitarian rules of Customary International Law which apply in all circumstances and between all parties. This factor is exemplified by the constant use in both the Hague and Geneva Conventions of the Martens Caluse, which recalls the principles for humane conduct that exist independently of codified texts, being derived from usage and from universally accepted precepts. The Geneva Protocol also recognises these general principles, Similarly, the 'Nuremberg Principles', formulated by the International Law Commission in 1950 at the request of the General Assembly of the United Nations, which had unanimously recognised 'the principles of international law recognised by the Charter of the Nuremberg Tribunal', affirmed that crimes against peace, war crimes and crimes against humanity are punishable as crimes under international law. War crimes are defined by the Commission as 'violations of the laws or customs of war'.

1. The Martens Clause, See footnote on page 3 (above).

However, it is clear that there is an urgent need for a reappraisal of the specific rules applicable in armed conflicts. The Hague Conventions, signed when aviation bombing was unknown, recognised a distinction between the zone of hostilities and the rear, the latter areas being sheltered from hostile action. Bombardments in the Conventions meant 'bombardments of occupation', not bombardments of destruction such as have been current practice since aviation. The Geneva Protocol was drawn up before the discovery of atomic power, and today the damage which indiscriminate use of such energy could cause is out of all proportion to military requirements. There is of course the view that no use of nuclear weapons can be justified, and that the total prohibition of such weapons in warfare should form a separate convention or part of a non-proliferation treaty.

The Geneva Conventions should also be reconsidered in the light of recent practices in warfare which often make civilians and non-combatants the chief object of attack. The optional provisions in the Conventions to declare certain zones neutralised should be made obligatory. All the provisions should be extended to non-international conflicts. It is time also that the categories of those entitled to prisoner of war treatment be widened to include those who, although not complying with all the conditions of the Third Convention, do constitute organized resistance movements seeking to realise the decisions of the U.N. in regard to racialist colonial regimes.

5. Positive Developments

A very significant development in regard to revision occurred when at the United Nations International Conference on Human Rights at Teheran in 1968, a Resolution entitled 'Human Rights in Armed Conflicts' was adopted by the unanimous vote of 67 states, with two states abstaining. This resolution (See Appendix) made three specific proposals:

1. It called for a study to be made by the Secretary General of the United Nations on the steps that could be taken to secure the better application of existing humanitarian international conventions, and on the need for additional conventions or a revision of those already existing to ensure the better protection of civilians, prisoners and combatants in all

armed conflicts, as well as the prohibition and limitation of the use of certain methods and means of warfare;

2. Requested that the Secretary General, having consulted the International Committee of the Red Cross, should draw the attention of States to the existing rules of international law on armed conflicts and should urge them, pending the adoption of new rules, to ensure that in all armed conflicts the inhabitants and belligerents are protected in accordance with 'the principles of the law of nations derived from the usages established among civilised peoples, from the laws of humanity and from the dictates of the public conscience';

3. Called on those states which are not already parties to the Hague Conventions of 1899 and 1907, the Geneva Protocol of 1925 and the Geneva Conventions of 1949 to become so.

In December 1968 that Resolution was implemented by the unanimous vote of 111 states at the General Assembly in Resolution 2444(XXIII) (See Appendix), and the necessary studies have now been undertaken by the United Nations and the International Committee of the Red Cross.

The implementation of the above resolutions as well as of General Assembly Resolution 2454 (XXIII) relating to chemical and biological warfare will be of profound importance to the protection of human rights in armed conflicts. For until there is an international machinery to pronounce judgment on and to punish crimes against humanity, it is essential to broaden the scope of the existing rules for humanitarian behaviour in warfare and to ensure their application.

APPENDIX

The Protection of Human Rights in Armed Conflicts

RESOLUTION

adopted by

The United Nations International Conference on Human Rights,

(Teheran, 22 April - 13 May 1968)

The International Conference on Human Rights

Considering that peace is the underlying condition for the full observance of human rights and war is their negation,

Believing that the purpose of the United Nations Organization is to prevent all conflicts and to institute an effective system for the peaceful settlement of disputes,

Observing that nevertheless armed conflicts continue to plague humanity,

Considering, also, that the widespread violence and brutality of our times, including massacres, summary executions, tortures, inhuman treatment of prisoners, killing of civilians in armed conflicts and the use of chemical and biological means of warfare, including napalm bombing, erode human rights and engender counter-brutality,

Convinced that even during the periods of armed conflict, humanitarian principles must prevail,

Noting that the provisions of the Hague Conventions of 1899 and 1907 were intended to be only a first step in the provision of a code prohibiting or limiting the use of certain methods of warfare and that they were adopted at a time when the present means and methods of warfare did not exist.

Considering that the provisions of the Geneva Protocol of 1925 prohibiting the use of "asphyxiating, poisonous or other gases and of all analogous liquids, materials, and devices" have not been universally accepted or applied and may need a revision in the light of modern development,

Considering, further that the Red Cross Geneva Conventions of 1949 are not sufficiently broad in scope to cover all armed conflicts,

Noting that States parties to the Red Cross Geneva Conventions sometimes fail to appreciate their responsibility to take steps to ensure the respect of these humanitarian rules in all circumstances by other States, even if they are not themselves directly involved in an armed conflict.

Noting also that minority racist or colonial regimes which refuse to comply with the decisions of the United Nations and the principles of the Universal Declaration of Human Rights frequently resort to executions and inhuman treatment of those who struggle against such regimes and considering that such persons should be protected against inhuman or brutal treatment and also that such persons if detained should be treated as prisoners of war or political prisoners under international law,

1. Requests the General Assembly to invite the Secretary-General to study

(a) Steps which could be taken to secure the better application of existing humanitarian international conventions and rules in all armed conflicts, and

(b) The need for additional humanitarian international conventions or for possible revision of existing Conventions to ensure the better protection of civilians, prisoners and combatants in all armed conflicts and the prohibition and limitation of the use of certain methods and means of warfare.

2. Requests the Secretary-General, after consultation with the International Committee of the Red Cross, to draw the attention of all States Members of the United Nations system to the existing rules of international law on the subject and urge them, pending the adoption of new rules of international law relating to armed conflicts, to ensure that in all armed conflicts the inhabitants and belligerents are protected in accordance with "the principles of the law of nations derived from the usages established among civilized peoples, from the laws of humanity and from the dictates of the public conscience."

3. Calls on all States which have not yet done so to become parties to the Hague Conventions of 1899 and 1907, the Geneva Protocol of 1925, and the Geneva Conventions of 1949.

* * * * * * *

RESOLUTION 2444(XXIII)

adopted by

The General Assembly of the United Nations
on 19th December 1968 at its 23rd regular session

The General Assembly,

Recognising the necessity of applying basic humanitarian principles in all armed conflicts,

Taking note of resolution XXIII on human rights in armed conflicts, adopted on 12 May 1968 by the International Conference on Human Rights, held at Teheran,

Affirming that the provisions of that resolution need to be effectively implemented as soon as possible,

1. Affirms resolution XXVIII of the twentieth International Conference of the Red Cross held at Vienna in 1965, which laid down, inter alia, the following principles of observance by all governmental and other authorities responsible for action in armed conflicts:

(a) That the right of the parties to a conflict to adopt means of injuring the enemy is not unlimited;

(b) That it is prohibited to launch attacks against the civilian population as such;

(c) That distinction must be made at all times between persons taking part in the hostilities and members of the civilian population to the effect that the latter be spared as much as possible;

2. Invites the Secretary-General, in consultation with the International Committee of the Red Cross and other appropriate international organizations, to study:

(a) Steps which could be taken to secure the better application of existing humanitarian international conventions and rules in all armed conflicts;

(b) The need for additional humanitarian international conventions or for other appropriate legal instruments to ensure the better protection of civilians,

prisoners and combatants in all armed conflicts and the prohibition and limitation of the use of certain methods and means of warfare;

3. Requests the Secretary-General to take all other necessary steps to give effect to the provisions of the present resolution and to report to the General Assembly at its twenty-fourth session on the steps taken by him;

4. Further requests Member States to extend all possible assistance to the Secretary-General in the preparation of the study requested in paragraph 2 above;

5. Calls upon all States which have not yet done so to become parties to the Hague Conventions of 1899 and 1907, the Geneva Protocol of 1925 and the Geneva Conventions of 1949.

INTERNATIONAL CONFERENCE ON CHEMICAL AND BIOLOGICAL WARFARE

London. 21-23 November, 1969

SOME REFLECTIONS ON THE CBW REPORT

(by Franco Celletti - Institute for International Affairs)

I intend to consider the possible orthodox use of CBWs. By orthodox use of these weapons I mean employing them in a battle or in a wqr in the way normal weapons are used. Decimate, prevent the advance of, create difficulties for, obtain advantages over, &c. the enemy forces. Terrorize, destroy the food and supplies, lower the morale &c. of the enemy population. And so on.

Naturally the orthodox use of CBWs does not imply that these weapons will have "orthodox effects", like conventional or even nuclear weapons do. And I would like to show that because of this difference between the orthodox use and the non-orthodox effects these weapons are not militarily important in the present strategic concepts.

The distinction between chemical and bacteriological weapons in the United Nations' Report (in the sections on their characteristics and effects) permits us to make another distinction: chemical agents can be used essentially as tactical weapons, whereas bacteriological agents can be used essentially as strategic weapons. In fact, chemical weapons have a greater speed of action than bacteriological ones. Since on the battlefield it is necessary to use (tactical) weapons which have immediate effects and can bechecked immediately, evidently only chemical agents can be employed this way.

Since most bacteriological agents need a long incubation period (days or weeks)before they can make their effects felt, and since they may find a large number of vectors for rapidly transmitting infection, these agents obviously cannot be used in a battle. Since a battle always takes place in a limited area, the infection carried by these agents could easily be carried back to the side that used them. Therefore, since the tactical use of bacteriological weapons does not make any sense, they can only be used strategically.

Using the estimates contained in the UN report, I would now like to demonstrate that:

(a) A very limited and negligible tactical employment of chemical weapons is probable
(b) The use of bacteriological weapons is extremely improbable.

1. Chemical Weapons

We have already said that the use of chemical weapons would be essentially tactical but, when we take into account the real conditiona on a battlefield, this tactical employment would have to be very limited. In fact:
The inability to control the diffusion of chemical agents (this diffusion mostly depends on the atmospheric conditions, which to some extent can be forecast but are uncontrollable) is a basic factor limiting their use. The atmospheric conditions can change abruptly and without warning, and for this reason we must take into account the "boomerang effect" of these weapons. For instance, this boomerang effect could be brought about by a sudden change in the wind direction or by the diffusion of the agents captured by the condensed particles (clouds, fog) which prevail during certain atmospheric cnditions. The effects of these weapons are uncertain because they depend on the atmospheric conditions and because these weapons may produce different effects in different individuals. Obviously the temperature, the relative humidity, the atmospheric pressure and the meteorological conditions in general can work against chemical agents because they need almost ideal atmospheric conditions (something which is very hard to find) in order to make their effedts felt.

Therefore we may say that, besides being limited to tactical employment, the use of chemical agents is further limited by objective difficulties and by the complexity in using them effectively and without risk. In order to be effective a tactical weapon, besides having imiediate effects, must also be rapidly employed, offer assured effects and must not boomerang,

It does not seem that chemical weapons satisfy these essential conditions; I therefore feel that when they are employed tactically chemical agents can only have a very limited function: harassing actions, supplementing conventional weapons, sabotage or scattering enemy forces. But in any case they cannot play a fundamental rose in the outcome of a battle.

2. The Meaning of Bacteriological Weapons

Whereas it is possible that chemical weapons may be employed, it is probable that bacteriological weapons will never be used, both because of the objective difficulties and for strategic reasons.

We have already said that bacteriological weapons could only be used strategically because their effects are delayed and long-lasting, and because there is no way to control the spread of devastation.. Moreover, these weapons are strategic weapons because they cannot be used tactically without risk. I do not feel that there will ever be an occasion when the use of these weapons would bewise, necessary or justified, either in a limited conflict or in a global war. A limited conflict means one that is limited in extension and where there is no use of nuclear weapons.

Bacteriological weapons could be used as counter-city (or as counter-population) weapons. Therefore they are tremendous mass-destruction weapons and there is no effective means of defence against them; any country that used them would necessarily be subject to retaliation. And the fear of retaliation is an important factor that deters nations from using them.

Whereas we have had little direct experience of the terrifying effects of nuclear weapons, the history of mankind is filled with examples of the equally terrifying effects of natural epidemics and plagues. Even if today these dangers are no longer relevant, at least in industrialised areas, man is still repelled and horrified by these events.

In view of these general aspects we can say that the (strategic) employment of bacteriological weapons in limited conflicts is highly improbable. To further confirm this thesis we might add that:

Since a limited conflict means one which directly involves two (or more) nations (especially neighbouring nations which do not possess, or do not intend using, nuclear weapons) whatever is the intention of the relative territories there obviously is a great risk that the effects of the bacteriological agents may spread to the country that first launched them or to the nearby countries which are not involved in the conflict.

Bacteriological agents are not too expensive but the systems needed to spread them are very complex. The systems of defence against retaliatory attacks or against the uncontrolled spread of the effects released by the agents launched against the enemy are even more expensive.

In the case of a general conflict (for example, one which involves the two super-pwers) the problem consists in fitting bacteriological weapons into the present strategic conceptions, in which the use of nuclear weapons is the supreme and final step.

A nuclear war is characterised by the employment of weapons andweapon systems which are rapid, sure, efficient and capable of causing within a very short time an enormous amount of destruction of men and material, and which can be controlled to some extent both by the attacking side and by the side that has been attacked.

Bacteriological weapons do not seem to satisfy these requirements at all.

Some people have suggested that bacteriological weapons could be used after a nuclear engagement because they are particularly effective on populations whose organic defences have been weakened by nuclear radiation, by malnutrition and by the general disorganisation which would prevent them from organising defensive or therapeutic measures. Aside from the horrible cruelty of this possibility there are two reasons why I feel that this use of bacteriological weapons is not very likely:

The destruction of men and material resulting from a nuclear conflict does not create the best conditions for the large-scale use of bacteriological weapons.

If the nuclear radiation present in the country where one intends to launch this final attack can weaken the natural defences of the survivors, it will certainly not create the best conditions for the survival of the bacteriological agents which are going to be spread in a degraded environment like the one which follows a nuclear conflict.

In conclusion, I cannot see any real possibility of using these weapons in a war, at least in the way it is normally conceived.

3. The Political Meaning of CBWs.

War - especially the type of war we may expect in our epoch - is decidedly inhuman. However, I feel that there is a limit since, besides being extremely "immoral", these weapons also have a low reliability from the military point of view.

The present and the past strategic conceptions have always given slight importance to the CBWs, especially the bacteriological ones. They were used during the First World War (although this use was limited) but it seems that they were not used during the Second World War (aside from in the Nazi lagers) because nobody ever cites examples of their use. And the fact that these weapons were not used during the last war was not exclusively due to the fact that the belligerent nations signed the Geneva Convention in 1925; it was also due to the fear of retaliation and to the lack of confidence which the military had in their effectiveness. Even if today new agents have been developed and even if more sophisticated ones will probably be developed in the future, I do not feel that the reasons behind their sporadic and limited use in the past will be substantially modified.

There is also the cost problem. Some bacteriological agents can be produced easily and cheaply in large quantities, but the process for transforming these agents into weapons, the systems for carrying and spreading them, the security measures for all the people involved (in research, production and delivery) and the defensive measures that will have to be prepared because of the fear of retaliation and the boomerang effect will certainly not be so inexpensive.

Chemical agents - especially today's sophisticated ones - require extensive and complex equipment for research and production; this calls for an experienced chemical industry with a large production capacity. Furthermore, these agents will need special launching systems since they must be used in large quantities in order to obtain significant effects. This means employing means and financial resources which only a few nations possess, contrary to what many people say about CBWs being within the reach of the developing nations because of their low cost.

Sometimes there is a confusion between chemical and bacteriological weapons. Even though I agree that the latter are less expensive, I absolutely do not that the decision to build them and to use them is a rational or intelligent act (especially in conflicts between developing countries, most of which are located in areas of the world where the climatic and environmental conditions especially favour the multiplication and the spread of pathogenic agents).

We must also add the problem of stockingthese weapons, which is complicated by the relatively rapid decay of both chemical and bacteriological agents. This problem is practically irrelevant for conventional and nuclear weapons, but in the case of CBWs it creates further complexities and further expenses.

4. Disarmament and CBWs.

This brings out an important fact which probably did not receive enough attention: the possibility of trade or contraband in these weapons (or in the agents that are used in them). In other words, there is the possibility that the large chemical and pharmaceutical industries sell secretly (or even unknowlingly) chemical compounds or equipment that can be used or transformed in order to be used in the production of CBWs; or even the possibility of agreements between governments for the supply of these agents (or weapons). It is easy to imagine that in both cases the supply of these agents could easily be camouflaged as normal trade.

This is the big problem regarding the trade and contraband in weapons which needs to be dealt with by decisive and well co-ordinated action. For example, I know that the SIPRI did research on this problem (my Institute participated for the part concerning Italy) which did not include this type of weapon or agent. Perhaps it would be a good idea to conduct specific research on an international scale (similar to the research which the SIPRI conducted on conventional weapons) in order to bring this fact to light.

Trade in conventional weapons is established by a long tradition which is difficult to eliminate (partially because of its political meaning and importance) but it is not possible to justify the same sort of activity in the case of CBWs. If we cannot control trade in CBWs, nor production facilities or research centres on CBWs, we may control the eventual use of these weapons in a war.

For example, the Geneva Disarmament Committee could consider negotiating an agreement (similar to the NPT) and a special body of the UN would be charged with the control system.

This is about the same as the proposal made in a document containing an interesting revision of the Geneva Protocol which was prepared by the British delegation to the Disarmament Committee (ENDC/255/Rev. 1). However, I think that another paragraph or or article should be added, where all the states who have signed agree to allow the specially trained personnel of the International Committee of the Red Cross (or of the World Health Organisation) to have free access to those countries where a conflict is taking place in order to verify that CBWs are not being used. I feel that the Red Cross is the only organisation which could play a positive role in these cases because it is always present in the areas where human beings are suffering.

In order to do this, the International Committee of the Red Cross would need to be equipped with trained personnel and equipment capable of quickly detecting the eventual use of chemical and/or bacteriological agents. This type of action is extremely necessary because, for example, it would be hard to decide if an epidemic which developed in a conflict area were natural or caused by bacteriological weapons, and it would also be hard to decide if lethal chemical agents had been used in an engagement.

5. Conclusions.

As I said in the beginning, I have only considered the orthodox use of CBWs (obviously to the extent that the use of such weapons can be considered orthodox). In so doing, I wanted to make a precise distinction between the real possibilities and the political-fictional and military-fictional hypotheses on the use of chemical weapons; a lot of these hypotheses have been advanced and all we can do is take note of them.

Furthermore, I did not make a precise distinction between lethal and incapacitating agents, for two reasons:

Because I feel that, even though specifically lethal and specifically incapacitating agents do exist, the large number of factors which influence these agents, and the varying reactions of individuals to them make this distinction less precise than it might seem.

Because I feel that such a distinction might offer a number of easily identifiable dangers. From the scientific point of view, it is useful and possible to distinguish between lethal and non-lethal agents, but from the political and military point of view this dis-

tinction might in a certain sense justify and facilitate the use of CBWs which were supposedly non-lethal (because they would be considered less inhuman).

This goes also for the distinction between agents used against human beings and the ones used against plants (herbicides, defoliants) and animals. The United States offers an example of a very civilised nation, one of the signers of the 1925 Geneva Protocol, who justifies the massive use of herbicides and defoliants in Vietnam by saying that they are not anti-personnel weapons, without giving any indication of the long-term effects that these agents may have on man through the food chain.

In the last analysis I believe that the UN report on CBW is an important contribution to the further understanding of this problem, and I want to underline the Report's role in the demystification of the meaning of CBWs, because it implicitly points out the limited military importance of these weapons in contrast with what some military experts have stated.

The author is not responsible for the English translation of his Italian text.

---

(7)

(D)

TEST BAN TREATY UNDER REVIEW - SOME BACKGROUND NOTES

By VERDUN PERL.

The enlarged Eighteen Nation Disarmament Committee in Geneva (now increased to 26 and known as the Conference on the Committee of Disarmament) has been asked by the United Nations, as a matter of urgency to negotiate a Comprehensive Test Ban Treaty.

A disturbing report that the United States is actively exploring the possibility of getting other nuclear powers to agree to the relaxation of the 1963 Test Ban Treaty opening the way for large scale "peaceful atomic explosions in the atmosphere, and that from initial talks between U.S. and U.S.S.R. technicians held in Vienna in April, there are indications that the U.S.S.R. is just as anxious as the U.S.Atomic Energy Commission to amend the Test Ban Treaty for its own industrial purposes, merits serious assessment of the problems connected with the use of nuclear energy for peaceful purposes. Three of these problems are:

1. The hazards of radio-active fallout
2. The difficulties in safely disposing of the radio-active waste products.
3. The problem of the residues of plutonium and U235 - which can be utilized for weapon making. This last point concerns the fields of both 'politics' and economics.

THE HAZARDS OF RADIO-ACTIVE FALLOUT

The 1963 partial Test Ban Treaty banned atmospheric tests and permitted only those underground tests which did not release radio-activity across national boundaries. Recently, both Canada and Sweden have monitored increases in their levels of radioactivity, due to underground explosions in the U.S.(Canada) and the U.S.S.R. (Sweden). These underground tests have been carried out in the name of economic progress to produce nuclear energy for industry. They have also tested nuclear weapons. Not all underground tests are foolproof, and some radioactive material has vented. Since the 1963 partial Test-Ban Treaty 14 underground tests in the U.S. which should have been completely contained, vented radioactivity. The process of nuclear fission itself can cause cracks in the surface of the earth through which radioactive matter escapes before they close up again.

In a recent report, (Observer, July 6th 1969) Dr.E.J. Sternglass, professor in the Department of Radiology at the University of Pittsburgh said that fallout has a greater effect on unborn generations than scientists had previously calculated. From his own detailed research in areas of the U.S. affected by the atmospheric tests of the 1950's, Dr.Sternglass has drawn the

p.t.o.

conclusion that minute doses of fallout, which used to be considered inconsequential, can, in fact, damage the reproductive cells of adults. As a result, babies born several years after fallout can be seriously affected, either dying within the first few months of life, or being born with incurable affects. He is convinced that any peaceful use of atomic energy - such as projects to create a new Panama Canal - will seriously diminish the survival rate for the next generation in those areas, and in all other parts of the world affected by fallout.

These assumptions of Dr.Sternglass have been repudiated by the U.S.Atomic Energy Commission - (Guardian - July 7 1969). Dr.W.Bibb of the Medical Research Division of the U.S.Atomic Energy Division said - "Dr. Sternglass has misinterpreted his data. His motives I am afraid are not scientific", adding that Dr.Sternglass was strongly opposed to the deployment of anti-ballistic missile systems.

Dr.Richard G.Miller, President of the Nevada Academy of Sciences told the Committee for Environmental Information (May 1968 - Scientist and Citizen) that - "Absolute control against venting into the atmosphere is only an international requirement by treaty, but essential now for protecting those areas of the planet that support life. To lose any portion of our natural life support system is not in keeping with mature scientific judgement, or the tenets of survival. No purposes of any agency or testing contractor justify hasty or secret action."

PROJECT PLOWSHARE is the Atomic Energy Commission program for peaceful application of nuclear explosions. Incorporated in the program are explosions for canal digging which might be used for constructing a trans-isthmian canal in Panama or Columbia, or, on a much larger scale, link navigable rivers within the U.S., The realisation of such a project is subject to much doubt, because even the shortest route yet suggested would require an explosion of about 200 megatons. "Even if only a small fraction of the radioactivity were to vent, this would be a small fraction of a very large total. That means that a substantial amount of radioactivity would be involved. When we remember that the total of ALL above ground weapon tests carried out by the U.S., Great Britain, and the U.S.S.R., amounted to about 500 megatons, the size of this project becomes more apparent." (Scientist and Citizen - March 1968).

PROJECT GASBUGGY - is a scheme in the Plowshare program to produce underground storage facilities into which natural gas could be pumped for local distribution, by using nuclear explosives

contd.....

so deep underground that radioactivity is completely contained and the gas produced would be available for commercial use. Project Gasbuggy was detonated in December 1967, with an explosion equal to about 26,000 tons of TNT at a depth of 4,240 feet. Certain problems have arisen. "Gasbuggy was designed to produce a "chimney" 300-400 feet high, to contain rock cracked by the explosion. Into this would be drilled the wellshaft through which the gas would be extracted and piped to commercial and domestic users. The chimney was produced and the gas was released, but whether the next step can be taken depends upon tests whose results are not yet available. After the shot, traces of radio-activity gas leaked up to the surface through the cables, but these have been capped and no venting in the conventional sense has been detected." (Report by Prof.Friedlander). The big question with Gasbuggy is - How much radioactive contamination will there be in the natural gas which is extracted? Contaminated gas clearly could have no commercial market. There is also the question of ground water supplies and what effect slow dissolving of radioactive debris would have.

DIFFICULTIES OF DISPOSAL OF RADIOACTIVE WASTE

Very little information on this problem is available, which makes it more disquieting. We ha ve been told that it is put into containers and dumped far out into the sea. The recent shock that the U.S.army planned to dump 27,000 tons of lethal gas into the Atlantic has brought to light at least two instances of the dangers of sea-dumping. A B.B.C. Panorama program (July 21 1969) reported that mustard gas dumped 20 years ago in the Pacific was now bubbling round Wake Island; there are still traces of arsenic which was dumped 40 years ago in the North Sea; only 2 kilograms of insecticide escaped into the Rhine killing thousands of fish.

Continued pollution of the sea can cause all life to cease. By exhausting warm water from our power cooling plants into the ocean, we are threatening marine life. Water is the most precious stuff on this planet. Without water there could be no life on earth. In a sense, water is even more precious than oxygen, for without water there would be no green plants, and green plants supply the oxygen in the air we breathe. The sea is the supplier of fresh water to the land and of oxygen to the air. According to Dr.Lamont Cole, Cornell University - more than 70% of our oxygen supply comes from microscopic green plants in the sea, which, like the plants of land, consume carbon dioxide with the help of solar energy and cast off oxygen as a waste product. DDT has been found in marine creatures everywhere. If the plant life of the ocean is jeopardised, so is the oxygen supply on which all life depends.

p.t.o.

PROBLEM OF RESIDUE OF PLUTONIUM AND U235

Dr.F.C.Barnaby warns, in his book - "Preventing The Spread of Nuclear Weapons" - (arising out of a recent Pugwash Conference) - " There could be military implications - unless checked - of the widespread establishment of nuclear reactors for peaceful purposes. This latter instance of the 'technological momentum" can and will create residues of plutonium and U235 which can be utilized by the host country for weapon making purposes. The Conference believes that the best way to handle this danger is for the International Atomic Energy Agency to supply the fuel element for civil reactors and subsequently remove the spent elements, and stockpile the plutonium at a place of its own choosing."

There is obviously a commercial and industrial interest in the use of nuclear energy as the industrially advanced countries are running out of irreplacable fossil fuels. The future of the program hinges on two considerations. One is the safety aspect - not only at the time of the explosion, but more importantly, in the monitoring of the radiation in the products. The second is the Test-Ban Treaty, and the discussions which have been taking place in Geneva to extend it to cover all tests, and not only those underground. Several countries which do not now possess nuclear weapons, but which have technology quite advanced enough to produce them are concerned that the peaceful applications should not be restricted to the present nuclear powers through any new treaty. They are also apprehensive that even if the U.S. for example, were to make available nuclear weapons for peaceful explosive purposes, a monopoly would be created. Already an international company-Nobel-Paso Geonuclear has been formed as a follow-up of Gasbuggy. This company has American, West German and Belgian capital, but must clearly be dependent on some Government for the supply of explosive devices - (Prof. Friedlander).

The pending collaboration between Britain, Holland and West Germany on the production of enriched uranium by the gas-centrifuge process poses a new and dangerous problem in the field of disarmament. It should be remembered that West Germany has not signed the Non-Proliferation Treaty. The gas centrifuge method is a potentially much more economic process than gas diffusion, so it holds out the promise of an alternative for the power industry where demand for enriched fuels is expected to increase tenfold by 1980. The information on gas-centrifuge is classified in the U.S., Therefore, the American nuclear fuel industry in which such companies as Westinghouse, Union Carbide, and Gulf Central Atomic are prominent, is upset about commercial companies in Britain, Holland and West Germany having access to an advanced technology

contd.....

from which they are barred. A compromise solution to prevent American nuclear fuel companies losing out on the enriched fuel market, however, might be reached with companies having "management access" to the gas-centrifuge work there. ("Times" - Business News - June 6th 1969).

The International Atomic Energy Agency Bulletin - Volume 11 - Number 2, 1969 states - " 'Yellow Cake' is the name given to uranium oxide by the mining profession. Ore containing about a million tons of it and capable of processing at reasonable cost has to be found by 1980 if reserves are to be kept in balance. Many areas of the world are favourable for exploration and experts are confident that additional resources exist." The Bulletin goes on to list parts of the world where uranium is most likely to be found. Many of the countries are the underdeveloped ones. This raises the question of funds for mining - and, of course, the price that will be paid to these countries for this valuable raw material. One is tempted to think of the prices these countries now receive for the basic commodities which they export to the richer countries! The Bulletin says - "The probability is that the greater part of the money will be spent by commercial or national organisations from the developed countries. Where it will be spent is another matter. No doubt the highest proportion will be spent in the developed uranium countries, but much favourable ground has already been gone over in these countries, and this, and other factors will tend to send a great deal of money seeking exploration facilities in developing countries."

Many countries already have nuclear reactors. What becomes of the "waste"? The "Times" Business News - 9 June 1969 states - "Japan patents device to get sea-water uranium." The "Telegraph" - 5 June 1969 reported that South Africa found it more profitable to extract the uranium from some of the older gold mines rather than to dig so deep for gold. And what has become of the nuclear powered ice-breaker "Lenin"? In an article in the "Guardian" - June 24 1969, David Fairhall wrote - "The most pedestrian explanation is that the "Lenin's" pioneering reactor system - which is after all 10 years old - is simply being replaced by a more compact, efficient unit, perhaps designed as a test-bed for the bigger vessels now being built. My guess is that if a planned reconstruction of the ship has been going on we should have had some positive information by now. Perhaps the Russians have run up against some UNEXPECTED nuclear engineering problem - metal fatigue or corrosion perhaps - which they do not want to talk about until they are quite sure the "Lenin" can once again take pride of place in their Arctic fleet."

p.t.o.

And finally, I want to quote from a speech made by Mrs.Mary Hays Weik, the secretary of a New York citizens' committee on an Atomic Energy Commissions' hearing at Hudson River Valley. The hearings concerned Con Edisons' application for a third atomic reactor in the same area. An alarming number of cancer deaths in a small area of only a few blocks, just below the big Indian Point nuclear plant had been revealed at the hearing. This small village stands directly downwind and downstream from the big atomic plant, whose original unit cost more than $120 million, and which has a long history of mishaps and sudden shutdowns. The second giant atomic reactor, now under construction, was approved in 1966., Then, NOT a single local citizen appeared to oppose the project, but, this year, while several town officials praised the plants' contribution to village tax budgets, many were against the project.

Mrs.Hays Weik said - "I believe that most of us here realize that we are taking part in no ordinary case, but a case that may be called a moment in history. History is not only made of battles and lunar flights. The basic principle on which our country was founded - that the individual citizen - not the corporations he has helped to form, not the Governments, State or Federal - which he has helped to create and to whom he pays his taxes - but the citizen himself holds the final power to decide his final destiny. The time has come for the citizens to take their part in this dialogue, which has so far been conducted mainly between industry and government. If we believe our Government is meant to be a Government of the people, by the people, and for the people, we must demand a leading part in this decision. THIS IS NOT A SITUATION CONFINED TO AMERICA. It is happening today in nuclear countries all over the world. The fact is, we are witnessing the start of a new and shameful chapter in human history, where financial profits and national prestige are put ahead of human safety and survival. There is nothing today anywhere quite as important to the worlds' people as the increasing speed with which we are bartering away our irreplaceable resources. I am speaking not of gold or silver, or copper or oil, but of the pure air and water which we should, by every right as citizens and parents preserve and protect for our children, but which today are being invisibly, lastingly, polluted by nuclear power.".

Sources-Observer, Times, (London), Times Business News, Guardian, Telegraph, Soviet News, Scientish and Citizen, B.B.C., International Atomic Energy Agency.

------oOo------

(8)

TRANS-NATIONAL ACTION/RESEARCH ON CBW ISSUE

Proposals submitted by Stewart Meacham, Peace Education Secretary of the American Friends Service Committee, to the Council of the International Confederation for Disarmament and Peace, September 27/29/30, 1969

By the early 1960's, U.S. defense strategists recognized that the policy of massive retaliation, previously the keystone of all U.S. strategic planning, had proven worthless as a deterrent to revolutionary warfare. Strategy based on nuclear deterrence is predicated on the assumption that one's enemies are likely to be highly urbanized, industrial societies. The commitment to massive retaliation blinded most strategists to the fact that nuclear weapons do not constitute the ultimate weapon for use in warfare against the oppressed people of the "have not" agricultural societies which depend upon scattered, hamlet-sized social units for production and defense; who cannot be intimidated by the threat of devastated industrial resources: who are not skilled in the arts of brinkmanship, war-gaming, and "graduated escalation", upon which so much of nuclear strategy is based. Consequently the US's massive retaliatory capability has never had power to deter Third World revolution.

Thus the U.S. military command found itself in an impasse when counter-insurgency became the focus of U.S. defense policy in 1961. The "drop the bomb or don't drop it" response provided an all-or-nothing choice; the nuclear weapon permitted no middle-ground response to the middle-ground threats which erupted on the periphery of the U.S. post-war empire - Indo-China, Korea, Laos, etc.

When U.S. military planners finally recognised that WWIII might be fought in the jungles, ricefields and highlands of the underdeveloped nations, and not in industrialized Europe, a frantic effort commenced to develop new strategic and tactical weapons for counter insurgency warfare in remote areas.

This search for a "flexible response" in limited warfare was accelerated when President Kennedy took office in 1961, at which time the Department of Defense enlisted the support of civilian scientists in the universities and the military "think tanks", to explore new concepts in counter-insurgency research.

Not only did academic scientists provide an essential expertise for basic research on CBW agents, but they also constructed the theories and strategies used to justify the use of these weapons in efforts to crush national liberation movements in underdeveloped areas. University professors have been in the vanguard of efforts to convert the U.S. strategic deterrent from an atom-based system to one dependent on CBW munitions. In searching for new strategic deterrents,the defense scientists had to respect the following guidelines in evaluating proposed weapons systems:

- The weapons had to be effective against decentralized agricultural populations.
- The system had to provide military commanders with a graduated response to various insurgency situations ranging from localised, low-intensity conflicts to full-scale "peoples' war" as practiced in Vietnam.
- It had to be possible for the armies of pro-U.S. regimes in underdeveloped areas to use the system with a minimum input of U.S. resources.

A careful analysis reveals the CBW weapons meet all of the required qualifications: CBW agents are spread by natural phenomena and thus are easily dispersed in rural areas; they are most effective against populations which lack a highly developed public health system; they offer a wide variety of applications ranging from riot-control measures to highly fatal epidemics; they can be developed by friendly governments with a minimum initial investment of U.S. resources; and when actually used they can often be disguised as natural phenomena thus protecting the U.S. from direct implication.

After 1961, U.S. spending on CBW research soared from $35 million per year to the present estimated spending of a minimum of $ 1 million per day. (Recent figures are classified, but according to one reliable Senate source $650 million for CBW in 1969 is a conservative figure.) These funds have been used to provide the U.S. with a wide array of CBW agents, and the delivery systems needed to disseminate them at any point on the globe, including Okinawa, West Germany, Phillipines, Taiwan, South Korea, etc.

The more the U.S. develops, stockpiles, and uses these weapons, the easier it becomes for other nations to follow their lead. Because CBWs are relatively inexpensive to produce, they are readily accessible to poor nations who cannot support nuclear weapons systems. The danger of the proliferation of this class of weapons applies as much to the developing as it does to the developed countries and thus presents a new and international threat to world security.

Already, Russia, England, Canada, Communist China, Nationalist China, France, West Germany, Poland, Sweden, Spain, Egypt, Cuba, Israel and South Africa have either publicly revealed that they are doing CBW research, reluctantly acknowledged that they are involved in "defensive" CBW research, have been accused of conduction such research or used gas warfare in combat since World War 11. *

There is extensive international criticism and concern in the steady escalation in the lethality of the gases used in chemical warfare agents. All over the world, but particularly in Vietnam, "riot-control", "incapacitating" agents, defoliants and herbicides are being used indiscriminately without regard to short or long-range effect upon man, animal or plant, despite the existence of scientific documentation as to their potential toxicity dependent upon species and environmental conditions.

* (See Chemical and Biological Warfare - America's Hidden Arsenal - Seymour Hersh.)

Careful research might well reveal the frightening fact that there is hardly a country in the world that is not in some way involved with a particular aspect of research, development, production, stockpiling or delivering of chemical and biological warfare agents, or who could not supply self-convincing justification for their use in civil disorders, ideological, religious, geographical or economic disputes.

Though national and international opinion is nearly unanimous in its opposition to CBW, many governments appear determined to continue building their CBW potential for control of civil disorders, or possibly in preparation for what has come to be known as "tomorrow's war" .. the annihilation of millions of people - with the virtue of leaving property intact.

The international peace and disarmament community has shown deep and worthwhile concern for the CBW issue by:

1. Employing sound research techniques to develop materials to inform about the effects of the possible use of CBW (the most recent being the excellent Report of the Secretary-General of the UN).

2. Proposing cataloguing or approving various international agreements dealing specifically with the use of poison gas or germ warfare.

3. Arranging and attending scientific and disarmament conferences concerned with CBW.

However, it now seems necessary and timely to expand these projects from a basically scientific informational and verbal concern into highly visible, trans-national, direct-action projects, in order to begin to create a new consciousness on the part of people of the world of the lateness of the CBW hour. The international peace community bears a deep responsibility to expose the new and potential "Auschwitzes" in our midst.

It would seem fitting that ICDP at this time undertake the responsibility to develop ideas for trans-national research/action projects directed against those institutions, corporations and civilian and military centers in each affected country who are responsible for the research, development, production, stockpiling and transportation of chemical and biological weapons.

The basic aims of such a trans-national research/action program could be to:

1. Provide a factual and scientific base within each CBW-involved country for identifying and analyzing those individuals and institutions of government, private industry, education and research who make policy for and benefit from CBW. It could further identify the international links between the industries, regional alliances and international carriers who promote the research, development, production, stockpiling or transportation of CBW.

2. Contact and stimulate anti-war, scientific, medical, conservationist and other in-country groups to translate the above data into workable coordinated, national direct-action projects.

This is a very sketchy proposal due to the shortage of time in preparation and conceptualization. The nature of the proposed non-violent demonstrations, the machinery for implementing them and the project costs have not been noted in this paper. Rather, it is important to deal with the concept and feasibility of the project at this point, and if it is one that receives some degree of interest, we could further prepare materials and ideas to put the plan into a workable framework for discussion.

* * * * * * * * *

Representative Richard D. McCarthy
Member of the Congress of the United States

(9)

CBW - The Ultimate Folly

(Paper for the International Conference
on Chemical and Biological Warfare, London)

This year, 1969, is a fortuitious time to turn our attention to chemical and biological warfare. The western world is in flux. Our traditional values, policies, mores are being questioned. Our sons and daughters are asking whether we really believe in the values that we profess and if we do, why don't we do a better job of living up to them. In my country, the United States, this questioning, this reassessment, is also found in our Congress. For the first time in recent memory, individual Members are asking searching questions about our military posture. Do we need a capability to fight two major and one minor wars? Do we need new nuclear aircraft carriers? Do we need stockpiles of nerve gas and germ weapons? Can we reach nuclear arms limitations agreement with Russia? Are we over-committed throughout the world? And of course, most fundamentally, what should we do about Vietnam?

I, for one, welcome this reassessment. I see it in an opportunity to strengthen and renew our society--to cast out the false, to restate the true, to strive for a better society.

One of the main objects of scrutiny in the U.S. Congress this year has been chemical and biological warfare. Even before the release of the report to the Secretary General of the U.N. on chemical and biological warfare in July, the American public was aware of the subject.

One might ask why CBW should be singled out for particular attention. The answer, I believe is twofold. First as one American leader said not too long ago, "the United States can afford anything it needs. What it can't afford is what it doesn't need." I suggest that there is much in our CBW arsenal that we don't need. Second, our CBW policies and practices threaten to break down one of the few areas in which we have limited man's inhumanity to man. The Geneva Protocol of 1925 banning chemical and biological warfare is one of the few arms control measures that has worked. Yet the United States remains one of the two major NATIONS not to ratify that treaty. Our present CBW policies and practices--policies that do not make it clear whether we will use gas or germs as offensive weapons--and practices that include the massive use of tear gas as an aid to killing and the wide-spread use of defoliant chemicals against crops and foliage in Vietnam--threaten the very fabric of the Geneva Protocol. I do not think that my country ought to be the one to erode this restraint on inhumanity.

On November 4, 1969, conferees of the United States Congress adopted a report establishing a measure of public control over the transportation, storage, disposal and testing of chemical and biological weapons. Adoption of this report was a symbolic step toward a return to reason. The vote reaffirmed American common sense concerning the need to exercise the greatest care when working with these deadly weapons. The amendment also dealt in a limited way with the broader aspects of strategy and use; it stopped the purchase of any offensive chemical and biological arms for the coming year; it was a victory for those concerned about CBW.

Earlier in the year, the Army's March 4, 1969, briefing on chemical and biological warfare which I had arranged for members of the House and Senate failed to fully answer the public policy questions that I had raised, wanting to know more about our policies.

The immediate questions on CBW, I felt, should be asked of the appropriate officials of the Administration. So, having failed to get adequate replies from the Army to public policy questions, I addressed them to Defense Secretary Laird, Secretary of State Rogers, UN Ambassador Charles Yost, Arms Control Director Gerard Smith, and Presidential Advisor Henry Kissinger.

By April 21, I had received replies from all of the departments and agencies with the exception of Dr. Kissinger's office. This I noted at the time, "is perhaps as much a comment on the priority placed

on CBW policy in relation to other matters as it is on the pressures of the Executive Office."

My continuing review of CBW during the spring and summer of 1969 convinced me of the urgent need for the President and Congress to exert much tighter control over these activities. They not only imperil our foreign policy but cast us in a very unfavorable light on the world stage and imperil our own citizens right here at home. Commenting on an incident involving nerve gas on Okinawa, James Reston in The New York Times of July 20, 1969, observed that "the trouble is notthat the Pentagon is wicked but that it seems to be clumsy : it is constantly being caught out doing things that embarrass the Government and complicate the conduct of American foreign and even internal policy." He then underscored one of the several basic reasons behind this book and my interest in CBW: "So great was their power that even the Secretary of State and the President - though they will probably deny it - didn't really know what the military was doing with nerve gas in Utah and Okinawa..." This cannot be permitted to happen again.

While I am a Democrat and President Nixon is a Republican, no one would be more relieved than I, or happier, if Mr. Nixon brings our CBW policies and operations under rational control and direction. And he is in a favorable position to do this. He is not a captive of policies of the past and is entirely free to reverse the germ and gas warfare course that the nation has shifted to over the past 15 or so years. He could return the United States to the CBW policies of Presidents Harding, Coolidge, Hoover, Roosevelt, and Truman. Several actions he has taken thus far augur well for a return to a sane and restrained CBW policy. Within a period of a few weeks at mid-1969, the President:

1. Directed the U.S. delegation to the Eighteen Nation Disarmament Committee in Geneva, Switzerland, to work with other nations in seeking effective ways to control chemical and biological weapons.
2. Ordered a full-scale Executive Branch review of U.S. CBW policies and practices---the first in over a decade. As Arms Control Director Smith put it in announcing the President's action in a letter to me: "Present and possible alternative are to be fully examined."
3. Revealed that he was considering the question of re-submission of the Geneva Protocol to the Senate for ratification.

There are other signs that a serious reassessment of CBW was underway both within the Administration and in the Congress. At the time of the Okinawa nerve gas accident, the Defense Department emphasized that the questions of overseas deployment of gas agents would be included in the Administration's "comprehensive study" of chemical and biological warfare matters.

Two committees of the Senate soon began delving into various aspects of American CBW policies and operations. The Senate Foreign Relations Committee held a closed-door informational session on the entire CBW program. Senator Vance Hartke held hearings on the safety questions raised by the Army's shipment of poison gas by rail. Congressmen Reuss and Gallagher held their hearings on testing and the rail-ship disposal plans.

Senator Gaylord Nelson was not satisfied with the answers on our CBW activities that he was getting and asserted: "We need to review the entire scope of chemical and biological warfare."

In the late spring of 1969, the Senate Armed Services Committee voted to cut out of the defense budget "all" funds for researching offensive CBW weapons and systems. The amount was placed by Senator Thomgas J. McIntyre at $16 million. The Armed Services Committee recommendations on money matters, of course, are not final. The Appropriations Committee has the final say on actual spending figures. So it was that all of us who believe this program should be reduced were pleased in July 1969 when a senior member of the Senate Appropriations Committee, Senator Ellender, predicted "that Congress is going to go moredeeply into this entire matter (of CBW) in the coming months. I believe that changes should be made and will be made."

Late in May of this year, I visited Under Secretary of State Elliott Richardson to discuss the forthcoming United Nations report on Chemical and Biological warfare. The report was in its final stages of preparation and I had learned that it contained portions opposed by those seeking effective international controls of these weapons.

The United Nations had responded to the appeal of its Eighteen Nation Disarmament Committee by passing a resolution on December 20, 1968, calling on the secretary general to prepare a report on chemical and biological weapons and the effects of their use. The resolution urged that the report be completed by July 1, 1969, so that it could be considered at subsequent sessions of the Eighteen National Disarmament Committee and at the fall session of the General Assembly. With surprising speed the 14 experts appointed by Secretary General U Thant were going to meet their deadline.

Following passage of the resolution by the General Assembly, U Thant appointed Dr. Ivan L. Bennett, director of the New York University Medical Center; Dr. Jiri Franek, director of the Military Institute of Hygiene, Epidemiology and Microbiology, Czechoslovakia; Academician O.A. Rentov, professor of chemistry at the Moscow State University; Sir Solly Zuckerman, chief scientific advisor to the United Kingdom, and ten others as consultant experts. These men would prepare the report They were drawn from nations having some expertise in either gas or germ warfare or both; however, in this context, they were not regarded as the representatives of their countries but rather as appointees of the secretary general. Nevertheless, they were expected to be free to draw on the resources of their countries in the preparations of the report.

One of the by-products of the secrecy that has surrounded the matter of chemical and biological warfare turned out to be the practical necessity of appointing as members of the panel, seven men from chemical and biological warfare institutions in their respective countries. Considering their involvement in chemical and biological research, it is surprising that the report is as objective as it is. Academician Rentov of Russia, for example, took pains to make it clear to a number of his co-panelists that he was not connected with his country's chemical and biological warfare establishment. But even when the experts themselves were not members of the trade, their advisers often were. On his staff Dr. Bennett employed three members of the Department of Defense and only one member of the State Department's Arms Control and Disarmament Agency.

The panel of experts decided to divide into teams, each of which would prepare one of the five chapters of the report. Dr. Bennett was the leader of the team preparing chapter one, describing the basic characteristics of chemical and biological means of warfare. Sir Solly Zuckerman and Academician Reutov were the other members of this team. Reutov was the team leader for chapter five, which summarized the economic and security implications of chemical and biological warfare arsenals and their dup. The United States Army's CBW experts, ironically, prepared the first draft of Dr. Bennett's chapter, Fortunately, itwas not the final draft.

Some of the non-military members of the panel recognized the heavy influence of the CBW establishment in the preparation of the initial drafts and worked out informal arrangements to eliminate portions of the report that they considered objectionable by the time-honoured strategem of giving in to pre-arranged protests of other members. In this way they avoided alienating their respective staff members and yet were able to achieve their objectives.

By the middle of May, however, when I appeared at the State Department, the influence of CBW proponents was still present in the final draft of the report as it went under discussion. The report still used the phrase "biological incapacitant", a term that CBW advocates use to describe diseases that are supposed to make people so sick they cannot perform their regular duties but not kill them. Tularaemia and Venezuelan equine encephalitis are two diseases that the United States Army wishes to characterize as "biological incapacitants." The trouble with this term is that most medical men do not consider it valid. What is incapacitating to one person may kill another; what is incapacitating to the people of one country may kill the people of another because of differences in living conditions and general health.

Using this term in the UN report would tend to give it a stature that it otherwise does not possess.

A similar objection applied to the word "toxin." The report defined toxin, a deadly by-product of bacteria, as a chemical rather than a biological agent. Although toxins are dead - that is, they don't multi as do bacteria - they are poisons derived from bacteria. If toxins are classified as chemicals, then we may suppose the biological warfare laboratories and production plants would continue to produce toxins even in the event of an international ban on biological warfare.

I met with Under Secretary Richardson to urge him to do what he could to bring about changes to these sections of the final report. Although Dr. Bennett was not an appointee of the U.S. Government, he met regularly with officials of the U.S. government and the views of the State Department would presumably carry some weight in his thinking. Richardson agreed to bring these problems to Dr. Bennett's attention and also assured me that if the U.N. report presented a distorted picture of CBW when published, that the Department of State would probably issue a statement making it clear that the report in no way represented the official views of the United States. Richardson's comments were in keeping with the State Department's long-standing efforts to maintain the international ban on the use of chemical and biological weapons.

Subsequently, although the term "biological incapacitant" was not removed from the report and although toxins contined to be defined as chemicals, assurances were received that whenthese and other problem areas in the report came up at Geneva the reservations about them would be fully taken into account.

On July 1, Secretary General U Thant announced the release of the report and in a strongly-worded foreward urged that members of the U.N.:

- .ratify the Geneva Protocol of 1925 banning first-use of chemical and biological warfare.
- .clearly state that the Geneva Protocol applies to the use in war of all chemical and biological weapons including tear gas and other harassing agents which now exist or may be developed in the future.
- .call on all countries to agree to halt development, production and stockpiling of all chemical and biological weapons.

Even though it condemned the use of tear gas as a violation of the Geneva Protocal and included defoliants and herbicides in its discussion of chemical weapons of warfare, President Nixon commended the U.N. report in his July 3, 1969 message to the Eighteen-Nation Disarmament Committee. In his statement to the Disarament Committee, he said that "the specter of chemical and biological warfare arouses horror and revulsion throughout the world." I read this statement in the newspapers and was particularly pleased that President Nixon had stated, as Presidents Coolidge Hoover and Roosevelt had before him, the abhorrence with which the American people regard chemical and biological warfare. While it was only one sentence it did set a tone and indicate a point of view. This endorsement, following his June 17, 1969 order for a full-scale executive branch review of chemical and biological warfare policies and practices, offered the hope that the United States might abandon the extensive use of tear gas in conjunction with artillery, bombing and infantry attacks and the widespread use of defoliants and anti-food herbicides.

It was painfully clear that there was a major tug-of-war going on in the capitol over the direction CBW should take in the future. Proponents insisted that the United States should use incapacitating gas and germ weapons and must continue to deploy tactical chemical agents packaged in heavy bombs, rockets, artillery shells, and aerosol drums in forward positions to make credible the U.S. ability to retaliate quickly on the field of combat should an enemy use them first. Deadly biological weapons, whether for causing epidemics or for destroying crops, are regarded by Pentagon CBW advocates as strategic weapons not to be deployed abroad but according to William Beecher, New York Times Pentagon correspondent, "are targeted against the enemy's homeland. Relatively small quantities or virulent agents could be delivered by airplane or missile from the United States.

The critics of CBW argue that the U.S. does not need large arsenals of CBW weapons to deter an enemy. The threat of nuclear retaliation should serve to deter. To this Pentagon CBW proponents reply that a massive nuclear attack would not seem a believable response to the use of lethal gas against an Army in the field.

As the debate developed during the summer of 1969 certain key points and objectives became clearer to me. Although all warfare is inhumane, as civilized human beings we mustdo everything in our power to assert our humanity. By agreement, either written or tacit, all nations have generally avoided the use of chemical weapons since World War I. And biological weapons have not been used in the twentieth century. In my opinion, the U.S. should do everything it can to strengthen the ban on use of these forms of warfare. It would run directly contrary to all our principles of honor and humanity to be the nation to encourage a breakdown of this arms limitation.

We have immense arsenals of nuclear and other weapons that should be more than sufficient deterrent against theuse of gas and germ warfare against the U.S.

Where do we go from here? Can man effectively bring these instruments of mass destruction under control? Or will the awesome weapons of biological and chemical warfare be unleashed to eradicate entire populations, including possibly the initiators? No one today can answer these questions. Certainly the erosion of the Geneva Protocol of 1925 by U.S. actions in Vietnam does not offer optimism. But it is today the only international agreement that has effectively curbed the use in war of certain weapons.

We have used tear gas extensively in Vietnam. Yet tear gas is ocvered under the prohibitions of the Geneva Protocol in the opinion of many countries. If the Protocol is resubmitted to the U.S. Senate for ratification by President Richard M. Nixon as a resolution I introduced in the House of Representatives which a hundred congressmen have cosponsored, urges him to do, I believe the U.S. should not attempt to exclude tear gas from the coverage of the Protocol. This would weaken the only reasonably successful arms-control agreement adopted by modern man.

If the U.S. decides to ratify the Geneva Protocol but states an exception for tear gas, we would, I believe, have to spell out the exact chemical formulas and particle sizes and methods of delivery of the exempted tear gases to ensure that they are not changed into entirely different gases. If tear gas is used as an offensive weapon--to help kill--why shouldn't other gases be used?

Thus, it seems to me, is the essential distinction between the use of tear gas in war and its use in domestic riot control. An armed enemy can retaliate with a more toxic gas and, thus, escalate the gas warfare. Domestic riotersand unruly crowds simply do not have this capability.

The confusion with the use of tear gas in civil disturbances and its use in war is one which those familiar with the Geneva Protocol do not share. When the Protocol was drafted, the words "use in war" were specifically included to ensure that the Protocol did not interfere with the use of tear gas to handle domestic riots and other disturbances. The use of tear gas by civil authorities involves many considerations, but these clearly do not involve the ban included in the Geneva Protocol and should not be used as an obstacle to U.S. ratification.

Should the Administration believe that it is necessary to ask for an exclusion of tear gas -- a step I personally think would be wrong--Iwould hope th t the President would first agree to check with the other 84 signatory nations to determine whether they would accept this exclusion. If a majority of the nations objected to the exclusion I would hope that the Administration would abandon its attempt to obtain an exclusion for any gas.

UN Secretary General U Thant and many other who have carefully studied the issues involved also have declared that the use of tear gas as an offensive weapon in Vietnam is a clear violation of the Geneva Protocol banning first-use of gas warfare--a treaty that the U.S. stated it fully supports in principle in the UN in 1966.

The U.S. use of defoliants and herbicides is something else. While I believe their use violates the spirit of the Geneva Protocol, they had not been invented in 1925 when the Protocol was first adopted. But the wide-spread use of these powerful chemicals raises important issues and further weakens the ban against chemical and biological weapons.

The present Administration under President Nixon has not considered these questions in the past and hence is not bound by the policies of its predecessors. I believe that it should reaffirm our traditional policy of no-first-use of gas or germ warfare. And that means gas of any type. "No gas" is simple, easy. Refinements and distinctions can only erode this fragile building block for a saner and more rational world.

A second fundamental objective should be ratification of the draft convention submitted by the United Kingdom on July 10, 1969, to the Geneva Disarmament Conference that would prohibit the development, production or use of biological weapons. The British convention would require that existing capabilities be destroyed or diverted to peaceful purposes within three months after the proposed agreement went into effect

Frederick Mulley, of your nation, points out that the convention would strengthen the Geneva Protocol which, though it bars the first use of germ warfare agents, does not bar their production or possession. Under the British proposal "each of the parties to the convention undertake never in any circumstance--by making use for hostile purposes or microbial or other biological agents causing death or disease by infection or infestation in man, other animals or crops--to engage in bacteriological methods of wafare."

The convention contains a complaint mechanism. If a nation suspected that another nation had used germ warfare against a party to the convention, it could complain to the Secretary-General of the United Nations, who would then investigate and report to the Security Council. Such an action by the Secretary-General could be taken under a standing authorization from the Security Council and would not be subject to a Great Power veto. But a Security Council decision, which would be subject to a veto, would be required to investigate less serious charges of developing or processing bacteriological weapons. Perhaps an automatic complain mechanism that would lead to an inspection without reference to the Security Council could be substituted here.

Initial reaction by U.S. Delegate James Leonard was unenthusiastic. He welcomed all such initiatives but added that "we are not clear in our own minds whether it would be desirable to conclude a separate measure relating only to biological weapons." But in a response to my letter to President Nixon urging that the British convention be supported, the White House replied on August 19, 1969.

> The U.S. delegation at Geneva is giving serious study to the U.K. proposal and has urged other delegations to do so. As you indicate, the proposed methods of verifying compliance deserve the most careful consideration. Serious problems arise from the need to verify a ban on the production and possession of biological agents. On several occasions, the U.S. delegation has recommended that a working group be formed to study this problem. The U.S. is prepared to participate actively in the search for effective complaint and verification procedures and can contribute the products of research in this area
>
> While the U. S. supports the objective of the U.K. draft convention, a decision on whether or not to support the specific U.K. proposal cannot be made prior to completion of the comprehensive Executive Branch review of U.S. policy in this field. Meanwhile, we will continue our careful examination of this and other possible approaches to the effective control of these weapons.

I believe that we must also work to strengthen the present weaknesses as in the proposed British convention outlawing all germ warfare. If this document can be improved with the support of the Eighteen-Nation Disarmament Conference, it can be brought to the U.N. and submitted to the nations of the world for ratification.

The first priority, however, must be for the U.S. to belatedly ratify the Geneva Protocol. If it is further ignored and ultimately destroyed then man will be going backwards rather than forward.

If on the other hand, the Geneva Protocol can be strengthened and buttressed it may well be that rational men can build an enduring structure that will halt not only the CBW arms race but help stop the races in other arms before they destroy mankind. All Americans who long for a more peaceful, saner, and rational world should urge President Nixon to support the ratification of this document and urge their U.S. senators to vote for ratification. A two-thirds vote in the Senate will be necessary for ratification.

If the United States should ratify both documents, this would take us out of the biological warfare field entirely and leave us with a retaliatory capability in chemical warfare weapons. It would be my hope, in time, after the other two documents are ratified, that we could develop effective inspection procedures and move to totally ban chemical warfare, too.

In addition to moving in these directions, the U.S. govenment in the meantime, owes it not only to its own citizens but to the people of the world and future generations to develop a clear policy on the use of chemical weapons. This policy must be stricter controls and a system of accountability. I believe that such a policy must be in harmony with the principles held by all civilized nations and especially a respect for life.

Finally, we should begin an intensive effort to developmeans of inspection for chemical weapons so that we can adopt treaties banning these weapons.

Warfare is a kind of madness, a collective sickness of mankind. Fortunately, our revulsion at over one million gas casualties in World War I led to the adoption of the one successful arms limitation in recent history. We can strengthen this limitation. And we can work to adopt other arms limitations, a ban on nuclear weapons, a means of resolving international conflict without resorting to violence. These are the ultimate objectives. Perhaps on CBW we can set a pattern.

WOMEN'S INTERNATIONAL LEAGUE FOR PEACE AND FREEDOM
LIGUE INTERNATIONALE DE FEMMES POUR LA PAIX ET LA LIBERTÉ
INTERNATIONALE FRAUENLIGA FÜR FRIEDEN UND FREIHEIT

Consultative Status B with United Nations, ECOSOC, UNESCO; Special Consultative Relations with FAO, ILO, UNICEF
INTERNATIONAL HEADQUARTERS: 1, RUE DE VAREMBÉ, 1211 GENEVA 20, SWITZERLAND
Union Bank of Switzerland, Account 492-916.30, rue du Commerce, Geneva Tél. 33 61 75 Cable: WILLIF Ch. post 12-1869

A SHORT HISTORICAL ACCOUNT OF WILPF'S OPPOSITION TO SCIENTIFIC WARFARE FOR MASS DESTRUCTION

compiled by

Margaret Tims and Cornelia Weiss
in connection with the

International Conference on Chemical and Biological Warfare
London 21-23 November, 1969.

Anyone interested enough to read - or even to skim through - the following will realise that the promotion of the present Conference on Chemical and Biological Warfare is in logical sequence with the work of the WILPF over more than four decades. It cannot be said too often that the aim of the WILPF has never been to "humanise" war by urging special rules for its conduct or by the banning of any particular weapon. Ever since 1915 its aim has been to abolish war altogether.

In 1924 the WILPF International Congress, meeting at Washington, USA, especially condemned Chemical Warfare, believing that the peculiar horror of these weapons might arouse public opinion against all war. Two of the League's own scientific experts, Dr. Gertrude Woker, Professor of Chemistry at Berne University, and Dr. Naima Sahlbom, Professor of Minerology at Stockholm, were the nucleus of an international committee to investigate the development and the dangers of chemical warfare. Together they visited the US Gas Armament Centre in Maryland; returning to Europe, Dr. Woker enlisted support from scientists in France and Germany.

In October 1924 the WILPF launched an international campaign through its national sections, appealing to scientists to condemn the misuse of scientific research for war purposes. The Swedish Red Cross supported the campaign and urged governments to prohibit the use of poison gas. The League of Nations Conference on Control of the Traffic in Arms which took place at Geneva in May 1925 provided an opportunity for action. The question of Chemical Warfare was not on the conference agenda, but the WILPF Committee on Chemical Warfare sent a memorandum on "the Dangers of Modern Armaments" to every delegation. Whether this statement had any influence on the leader of the American delegation, who unexpectedly raised the question, it is impossible to know. He announced his government's promise to abstain from the export of chemical munitions or of raw material for their manufacture, although he said nothing about existing stocks of these weapons inside USA. However, the German delegation then proposed an agreement to prohibit the use of poison gas in war and a convention to this effect was adopted by the conference. This is how the Geneva Convention of 1925 was achieved, and by the following year 27 states had ratified it. National sections of WILPF pressed their governments to accede to the Convention and the WILPF International Congress meeting in Dublin in 1926 urged General Ratification of the Geneva Convention and also called on the League of Nations Disarmament Commission to work for "complete and universal disarmament".

At the same time efforts continued to convene an International Conference of Scientists to bring before the general public the facts about chemical warfare. In

./.

January 1929 the WILPF Conference on "Modern Methods of Warfare" assembled at Frankfurt in Germany, sponsored by a distinguished international committee including Lord Cecil, John Galsworthy, Gilbert Murray and Bertrand Russel of Britain; Albert Einstein, Käthe Kollwitz and Otto Meyerhof of Germany; Paul Langevin and Romain Rolland of France; Roger Baldwin and David Starr Jordan of the USA; Senator Lafontaine and Paul Otlet of Belgium; Dr. Axel Højer and Selma Lagerlöf of Sweden; and many others from Austria, Czechoslovakia, Denmark, Hungary, Norway and Switzerland. Three hundred delegates representing 70 organisations from 9 countries attended the conference; the panel of experts included scientists from Germany, France, Sweden and Switzerland. The conference urgently recommended the dissemination of information about the nature of modern warfare on as wide a scale as possible and the mobilising of public opinion in favour of disarmament - this, rather than mere prohibition being the long term purpose of the WILPF campaigns. Whether as a direct result of this conference or not, there certainly was a great uprising of popular pressure over the next 3 years in favour of a World Disarmament Conference, an object for which the preparatory Disarmament Commission of the League of Nations had been set up in 1925. At its VIth session in May 1929 the Commission adopted a proposal to prohibit chemical warfare 'subject to reciprosity' and to prohibit bacteriological warfare 'absolutely'. It also recommended that states which had not yet ratified the 1925 Convention should do so. It did not, however, take any action to prohibit the preparation of these weapons.

The WILPF Commission on Scientific Warfare launched a mass appeal for universal disarmament under the slogan: "War is renounced - let us renounce Armaments". As a result of this and similar campaigns throughout the international peace movement, the long-awaited World Disarmament Conference finally opened at Geneva in February 1932. We all know the sorry story of disappointed hopes and broken pledges since that time, the tragedy of the Second World War and the subsequent development of a new threat of mass destruction from nuclear weapons.

As with chemical warfare the WILPF linked its campaign against the manufacture and testing of nuclear weapons with the necessity for total and universal disarmament. Meanwhile, dangers threatened from the atomic fall-out released by nuclear testing even in peacetime. The WILPF Committee against Scientific Warfare was reconstituted with Dr. Helène Stähelin (Basel), Gertrude Baer (Geneva) and Isabelle Pontheil (Paris) taking an active part. At the WILPF Congress, Copenhagen 1949, Dr. Stähelin spoke about the Atom Bomb and Radioactive Poisons while Prof. Woker again drew attention to the threat of Biological Warfare, inherent in the preparation of a wide variety of agents, pathogenic to men, animals and plants. She stressed the fact that discrimination between offensive and defensive weapons was even more difficult in this than in any other sphere. Therefore a ban on ALL these weapons was imperative.

In 1955 G. Woker, H. Stähelin and I. Pontheil attended the UN Conference on Peaceful Uses of Atomic Energy at Geneva. A memorandum was sent to all delegates welcoming this peaceful co-operation but urging that all experiments for destructive purposes should cease. Gertrude Baer was working hard to get an investigation of the effects of atomic radiation from weapon tests under the aegis of the World Health Organisation which refused to discuss 'political' questions. However, in 1956 WHO did adopt a resolution to study ' public health problems related to somatic and genetic action of radiation'. G. Baer was one of the first to warn against the dangers resulting even from 'peaceful uses of atomic energy'. Her plea, made in 1955, for the exploration of other sources of power, e.g. from sun and wind, especially for use in under-developed countries, is still timely. In 1963 the Partial Test Ban Treaty was welcomed as a first step in the right direction. However, with projects of ever more powerful explosions, planned in the interest of 'economic progress', dangers have greatly increased. At the 3rd UN Conference on the Peaceful Uses of Atomic Energy, Geneva,1964, descriptions and pictures of enterprise "Plowshare" demonstrated enormous destruction. The earth's surface was rent by the underground explosion, rising about 1000 meters

./.

into the air was shown on a photo. Therefore, the WILPF has continued to warn of these dangers and to demand a Comprehensive Test Ban Treaty (i.a. letter to the Chairman of the Disarmament Conference, 12 June 1966, and Resolution sent by the International Executive Committee in July 1969).

On 2 July 1969 U Thant in a foreword to the Report by a 14-member group of consultative experts on Chemical and Bacteriological (Biological) Weapons (A/7575) urged the United Nations to call upon all countries to reach agreement to halt the development, production and stockpiling of such weapons for war purposes and "to achieve their effective elimination from the arsenal of weapons". In response to this appeal the WILPF International Executive Committee, meeting July 28 - August 2, 1969, unanimously passed the following Emergency Resolution:

THE WOMEN'S INTERNATIONAL LEAGUE FOR PEACE AND FREEDOM

Urges Member States at the coming Twenty-fourth Session of the United Nations General Assembly to pledge themselves to "halt the development, production and stockpiling of all chemical and bacteriological (biological) agents intended for purposes of war", and to eliminate without further delay all such weapons from military arsenals.

THE WOMEN'S INTERNATIONAL LEAGUE FOR PEACE AND FREEDOM

Calls upon its Membership everywhere to continue to work for the effective unconditional and earliest possible banning of chemical and bacteriological (biological) weapons, and for their elimination from military arsenals in their countries;

Expresses its sincere appreciation to the Secretary General of the United Nations and to the Group of Consultant Experts for their Report, assuring them of its full and continued action for the OUTLAWING of chemical and bacteriological warfare - as an urgent measure towards the ACHIEVEMENT OF TOTAL AND UNIVERSAL DISARMAMENT.

Chemical and Biological Weapons so much cheaper to manufacture than nuclear weapons, so much easier to keep secret and to release at a moment's notice, constitute a grave danger even in peacetime. As armaments they stand in a class of their own, for they exercise their effects solely on living matter, leaving buildings and other installations intact. All these facts must be squarely faced and made public. This is why an International Conference on Chemical and Biological Warfare has been called.

Dorothy D. Forman
CBW Clearing House
300 Pine Street, Freeport, N.Y.
516 fr8 0398

PROPOSALS FOR ACTION FOR WOMEN STRIKE FOR PEACE - USA

CHEMICAL AND CIOLOGICAL WARFARE poses great threats to the world-wide communities and should be opposed by all groups interested in peace and disarmament. Our basic program should be based on the issue of securing public support for international agreement to outlaw the research, development, manufacture and use of chemical and biological weaponry.

1. Educate the community. Hold meetings. Prepare a leaflet similar to ones on napalm. Work with the academic community.

2. Publicise the widespread use of chemical agents against the people of Vietnam.

3. Ninety nine Representatives and eleven Senators have asked that the Geneva Protocol of 1925 be resubmitted to the Senate for ratification. Write to the President. Demand that that he submit this Protocol immediately.

4. In his report on CBW to the United Nations, Secretary General U Thant urged the acceptance of three main points:

a) to renew the appeal to all States to accede to the Geneva Protocol of 1925;

b) to make clear affirmation that the prohibition contained in the Protocol applies to the use in war of all chemical and bacteriological (biological) agents, including tear gas and other harassing agents which now exist or which may be developed in the future.

c) to call upon all countries to reach agreement to halt the development, production and stockpiling of all chemical and bacteriological (biological) agents, for the purpose of war and to achieve their effective elimination from the arsenals of weapons.

5. Call upon all Americans who have knowledge of and information re CBW to make that information known to WSP or to the national media by means of letters, etc. Nobel Laureate George Wald did this recently.

6. The Nurmmberg Agreements, to which our Government is a party, hold that the obligation to oppose criminal behavior supercedes oaths of loyalty and obedience yo a national leadership. Therefore, we call upon physicians, professors, researchers to examine the role their own institutions may play in CBW research.

7. Re-affirm our support for a broad international agreement re the research and development, stockpiling and use of chemical and biological weaponry. Insist that the strongest possible agreement outlawing these weapons be supported by the US at the Geneva Disarmament Conference, i.e. the Soviet proposal.

8. Approach women of other countries to support our actions regarding chemical and biological warfare.

/Please turn over. . .

CHEMICAL AND BIOLOGICAL WARFARE

UNITED STATES WOMEN STRIKE FOR PEACE POSITION STATEMENT

Chemical and biological weapons present a threat to mankind, perhaps surpassing in potential global effects the destructive capacity of nuclear weapons. Bacteriological weapons are capable of causing world-wide epidemics which could engulf friend and foe alike. The use of chemicals as biological weapons could set in motion irreversible ecological changes which might well destroy the basis for human life forever. These weapons can be produced far more cheaply and easily than can nuclear weapons. Any country, however small, could produce and stockpile these weapons, thereby creating a major threat to mankind.

The use of chemical and biological weapons has long been regarded as abhorrent to civilised opinion and is prohibited by the Geneva Gas Protocol of 1925. This Protocol has been signed by forty eight countries including the United States. We remain the only major power which has failed to ratify it. Nonetheless, the Protocol is considered by our government to form a part of customary international law.

WOMEN STRIKE FOR PEACE, a national organisation of women banded together in the interests of peace, calls upon the United States to ratify the Geneva Protocol. We call upon the United States to stop the research and stockpiling of these weapons. We consider that the Geneva Protocol prohibits the war use of riot control agents and of herbicides and defoliants.

WOMEN STRIKE FOR PEACE urges the US government, as recommended by Secretary General U Thant in the United Nations report on chemical and bacteriological warfare, to make a clear affirmation that the prohibition contained in the Geneva Protocol applies to the use in war of all chemical and biological weapons (including tear gas and other harassing agents) which now exist or which may be developed in the future.

WOMEN STRIKE FOR PEACE urges the US government to conclude an agreement with all other countries to halt the development, production and stockpiling of all chemical and bacteriological (biological) agents for purposes of war and to achieve their elimination from the arsenals of the world.

THE RANGE OF CHEMICAL AND BIOLOGICAL AGENTS

The military scientist has a vast range of chemicals and organisms from which to choose. His choice will depend on the objects of the particular weapon he is trying to develop. In some cases he will be concerned merely with dispersing a riot. In this eventuality he may use CS dispensed in grenades. If he merely wished to discredit an individual, he may administer an hallucinogen like LSD in a victim's food. If he wished to wipe out an entire population he could use a nerve agent delivered in rockets. The CBW armoury embraces all these devices. This is a partial list:

CHEMICAL AGENTS

Vomiting gases: including CS, DM and CN. Now obsolete, except for riot control, because so easily detectable.

Choking gases: used in World War II; chlorine, phosgene, disulphur decafluoride. Now obsolete.

Nettle gases: these are skin irritants, eg dichloroformoxime.

Blood gases: these operate by blocking the supply of oxygen in the blood supply, eg hydrogen cyanide.

Vesicants: these also attack body tissue, and include mustard gases and the arsenicals. These were used in the Yemen a few years ago.

G-agents: the simpler nerve agents which were developed by the Germans just before World War II. These are lethal even in very small quantities.

V-agents: a more sophisticated nerve agent which can be absorbed through the skin. These are the most lethal of all chemical agents. The tiniest drop of Vx will cause death. The effect is rather similar to squirting insecticide on a house fly - nerve agents were discovered as a by-product of research into insecticides.

BIOLOGICAL AGENTS

Almost any known human disease can be used as a biological agent. The main problem facing a military commander is to ensure protection for his own troops.

Bacterial diseases: anthrax, brucellosis, cholera, glanders, melioidosis, plague, tularaemia.

Viral diseases: breakbone fever, mumps, poliomyelitis, psittacosis, small-pox, yellow fever.

Rickettsial diseases: Q-fever, epidemic fever.

Fungal disease: coccididiomycosis.

Toxin: botulism (this can cause 60-70% fatalities and then decompose within twenty-four hours to allow troops to invade.

Defoliants: these act by sterilizing the land. A country can be forced into submission by starvation; incl. 2,4-D, 2,4,5-T.

NB Napalm is not usually considered as an agent of CBW.

THE CBW WEAPONS SYSTEM

CBW agents work directly against life. Unlike 'conventional' and nuclear weapons, they do not rely on blast and force for their effect. This is the factor which distinguishes them from all other forms of weaponry.

Within this definition are encompassed a huge variety of weapons, some of which are only useful in very local, specific situations and others which can only exist as agents of mass destruction.

The aim of any viable system is to create a toxic environment around the enemy whilst ensuring protection for the aggressor. The system will thus have to include the following elements:

(a) a toxic agent;

(b) a suitable delivery device.

Toxic agents can be either chemical (when they have direct toxic effects on life) or biological (when they are themselves living organisms which cause illness or death to human life). On another sheet the principle categories of potential agents are listed.

Delivery systems can consist of aerosols, rockets, grenades, etc. Any device used in conventional warfare can usually be adapted to CBW usage. Sometimes one can use meteorological conditions to aid delivery - for example, a prevailing wind can help create a toxic environment by carrying quantities of toxic agent. Some experts prefer to regard meteorological conditions as an inherent part of the weapons system, as local conditions can radically affect the effectiveness of particular agents. This very factor makes CBW an uncertain thing to use.

There is one further element in CBW technology and that is the provision of protection for the aggressor, e.g. CB suits, gas-masks, prophylactics, etc. One reason why biological warfare is not more advanced is that the agents used are difficult to control and a military commander has only limited means of ensuring protection for his men.

THE CBW WEAPONS SYSTEM

CBW agents work directly against life. Unlike 'conventional' and nuclear weapons, they do not rely on blast and force for their effect. This is the factor which distinguishes them from all other forms of weaponry.

Within this definition are encompassed a huge variety of weapons, some of which are only useful in very local, specific situations and others which can only exist as agents of mass destruction.

The aim of any viable system is to create a toxic environment around the enemy whilst ensuring protection for the aggressor. The system will thus have to include the following elements:

(a) a toxic agent;

(b) a suitable delivery device.

Toxic agents can be either chemical (when they have direct toxic effects on life) or biological (when they are themselves living organisms which cause illness or death to human life). On another sheet the principle categories of potential agents are listed.

Delivery systems can consist of aerosols, rockets, grenades, etc. Any device used in conventional warfare can usually be adapted to CBW usage. Sometimes one can use meteorological conditions to aid delivery - for example, a prevailing wind can help create a toxic environment by carrying quantities of toxic agent. Some experts prefer to regard meteorological conditions as an inherent part of the weapons system, as local conditions can radically affect the effectiveness of particular agents. This very factor makes CBW an uncertain thing to use.

There is one further element in CBW technology and that is the provision of protection for the aggressor, e.g. CB suits, gas-masks, prophylactics, etc. One reason why biological warfare is not more advanced is that the agents used are difficult to control and a military commander has only limited means of ensuring protection for his men.

THE PRESENT EXTENT OF COMMITMENT TO CBW

Most countries still adhere to the Geneva Protocol (q.v.) though only 59 of the 126 member nations of the UN have formally signed it. 91 countries voted for the UN General Assembly resolution of December 5th 1966 which called upon member nations to observe the Protocol. Certain countries, including the UK, reserve the right to use CBW if it has been used against them first.

However, many countries acknowledge publicly that they are maintaining research laboratories into 'defence' against CBW. The difficulty here is that it is not easy to decide where research into defence leaves off and starts to become 'aggressive'.

Countries that can be considered CBW powers in that they maintain labs, conduct tests, or, in some cases, maintain stockpiles, include: USA, USSR, People's Republic of China, Nationalist China, West Germany, UK, Poland, Sweden, Spain, Egypt, Cuba, Israel, South Africa, and Australia. (For amplification see America's Hidden Arsenal, p.281 ff).

INTERNATIONAL LAW

A full note on this is given in CBW : Chemical and Biological Warfare, S. Rose, ed., p.141 ff.

The basis of the law is the Geneva Protocol of June 17, 1925 which says that those who ratify the Convention agree that the use of chemical agents is illegal and extends the prohibition to bacteriological agents. There is some doubt as to whether the Protocol includes non-lethal, incapacitating agents (like CS) or defoliants. In addition it is defective in that it contains no provision for inspection either continuously or in the event of an alleged infringement.

On July 10, 1969, Mr Fred Mulley, then Minister Responsible for Disarmament, submitted a draft British Covention to the Conference of the Committee on Disarmament (the new name for the enlarged Eighteen Nation Disarmament Committee) at Geneva, designed to separate and extend the prohibition of the 1925 Protocol on biological warfare. A key element in the new proposal is the banning of production and the carrying out of research (except for limited defence purposes) into biological warfare.

THE CBW WEAPONS SYSTEM

CBW agents work directly against life. Unlike 'conventional' and nuclear weapons, they do not rely on blast and force for their effect. This is the factor which distinguishes them from all other forms of weaponry.

Within this definition are encompassed a huge variety of weapons, some of which are only useful in very local, specific situations and others which can only exist as agents of mass destruction.

The aim of any viable system is to create a toxic environment around the enemy whilst ensuring protection for the aggressor. The system will thus have to include the following elements:

(a) a toxic agent;

(b) a suitable delivery device.

Toxic agents can be either chemical (when they have direct toxic effects on life) or biological (when they are themselves living organisms which cause illness or death to human life). On another sheet the principle categories of potential agents are listed.

Delivery systems can consist of aerosols, rockets, grenades, etc. Any device used in conventional warfare can usually be adapted to CBW usage. Sometimes one can use meteorological conditions to aid delivery - for example, a prevailing wind can help create a toxic environment by carrying quantities of toxic agent. Some experts prefer to regard meteorological conditions as an inherent part of the weapons system, as local conditions can radically affect the effectiveness of particular agents. This very factor makes CBW an uncertain thing to use.

There is one further element in CBW technology and that is the provision of protection for the aggressor, e.g. CB suits, gas-masks, prophylactics, etc. One reason why biological warfare is not more advanced is that the agents used are difficult to control and a military commander has only limited means of ensuring protection for his men.

3. This last point can be extended. The long term effects of the use of these agents cannot be known. Biological agents, in particular, are very difficult to control and there is a danger of creating an ecological imbalance. (This has already happened in Vietnam as a result of the use of defoliants.)

4) CBW is arguably a greater threat to world peace than nuclear weaponry. The technology is both cheaper and simpler. Any country with a small industrial chemical plant can switch over to producing simple, (and not so simple) chemical agents; a modern brewery could if necessary make biological agents. This factor could lead to a new sort of arms race in which many countries would be runners and which could lead to a new balance of power.

5. There is no real defence against CBW. (see separate sheet)

6. International Law. This is defective in a number of ways. Countries differ in their interpretation of the meaning of the Geneva Protocol and at least one important state, the USA, has never ratified it. (See note on international law). Further, this is the one area where disarmament has been partially effective.

7. The role of Porton. (See separate note). If Porton is concerned solely with defence, a number of people have difficulty in seeing why it cannot be placed under the control of the Ministry of Health. CBW technology is now so sophisticated that it is unlikely that any country that wishes to acquire an ability in CBW would be unable to do so. One could counter this by saying that public fear could persuade governments to undertake never to use these weapons.

8. Sponsored Research. Both in the USA and in the UK universities research in areas that are likely to be of use in CBW are paid for by Defence grants. This places a constraint on acedemic freedom.

9. Dangers of leakage and pollution. The testing of these weapons and even the maintenance of stockpiles can be dangerous. In the USA 6000 sheep several miles away from the testing ground died after accidental exposure to nerve agent Vx. In Okinawa, Japan, there was an accidental leakage of Vx from an arms dump. In this country, Vx is made at Nancekuke and transported by road to Porton. It is known that US Bases in Germany carry CW stockpiles. It is not known if they do in this country as well.

10. The CS controversy. This has been stimulated by the Ulster crisis, but really started in Vietnam. CS is a riot- control agent which is claimed to be non-lethal. Used under certain conditions, however, it may cause long term dangers. The BSSRS (see sources of further information) have made a particular study of this problem.

THE POLITICS OF CBW.

There is no single organised pressure group lobbying about the issues raised. The recent interest in the subject stems from the activities of a collection of individuals, mostly scientists who became, in one way or another, concerned about CBW. Part of the interest was stimulated by Vietnam, for others it was a by- product of the American universities' campus revolt, when it was discovered that secret research was being paid for by the Department of Defense. Yet others were pacifists. Some of the individuals and organisations presently involved are to be found on the sheets marked ' Sources of Further Information'.

The International Conference on Chemical and Biological Warfare is organised by an ad-hoc committee which will cease to exist after the conference is over. The impetus has come from the Women's International League for Peace and Freedom (British Section) who have provided office facilities etc, but members of the ad- hoc committee are not necessarily members of WILPF.

The following is a summary of some of the issues raised by the CBW issue. It does not claim to be comprehensive and does not necessarily represent the views of the committee. It is there to provide guidance only.

1. CBW is different from other forms of warfare. It acts directly against life and does not rely on blast for its effectiveness. Because, in the nature of things, an individual's resistance to CBW agents depends on the victim's state of health, CBW, unlike other forms of weaponry, always strikes the weakest section of the population first, i.e. the old, the young, and the sick. This is a reversal of the usual situation where war is fought by soldiers, (the fittest section of the community) against other soldiers.

2. Further, most CBW agents have never been tested properly (i.e. against human beings). Thus a military commander who authorised their use would have no clear idea of the weapon he was using. Under normal conditions in war, ' responsible' commanders justify the use of a given amount of force by saying that it is the minimum required to gain a given objective. Further, under war conditions, where meteorological and other factors are uncertain, a military commander will constantly be tempted to use an 'overdose' to gain effectiveness.

p.t.o.

Dr. Frank Barnaby is the Executive Secretary of the Pugwash Conferences on Science and World Affairs, Chairman of the Fabian Society's Arms Control Study Group.

Professor Oganes V. Baroyan is the Director of the Gamaleya Institute of Epidemiology and Microbiology of the USSR Academy of Medicine, and a member of the Academy.

Evan Luard is Member of Parliament for Oxford and Parliamentary Under Secretary of State for Foreign and Commonwealth Affairs.

Sean MacBride is the Secretary General of the International Commission of Jurists, Geneva.

Richard D. MacCarthy is a member of the Congress of the United States.

Professor Matthew Meselson is Professor of Biology at Harvard University, Cambridge, Massachusetts.

Jan Prawitz is employed at the Research Institute of National Defence, Sweden, and has recently spent some time at the Stockholm International Peace Research Institute.

This pamphlet is published for The Women's International League for Peace and Freedom, Headquarters, 1 Rue de Varembé, 1211 Geneva, Switzerland; British Section, 29 Great James Street, London, WC1; by the NCLC Publishing Society, 11 Dartmouth Street, London, SW1.
The pamphlet was edited by Mick D. Cornish and Dr. Robert Murray and printed by the Walrus Press Ltd., 769 Harrow Road, Sudbury, Middlesex. The cover design was by Sandra Barnaby. The views expressed in each paper represent only those of the individual who wrote it.

7163 5000 9

the supreme folly:

chemical & biological weapons

Frank Barnaby
Oganes Baroyan
Evan Luard
Sean MacBride
Richard MacCarthy
Matthew Meselson
Jan Prawitz

with a preface by U Thant

8s

the supreme folly:

chemical & biological weapons

1.	Introduction. Sybil Cookson & Margaret Curwen	1
2.	Preface : a message from U Thant.	2
3.	CB weapons : the facts. Matthew Meselson	3
4.	The potential warfare application of pathogenics. Oganes Baroyan	7
5.	CB warfare : the ultimate folly. Richard D. MacCarthy	15
6.	CB weapons and arms control. Frank Barnaby	22
7.	CB warfare : disarmament prospects. Jan Prawitz	27
8.	CB warfare : the British Government's view. Evan Luard	31
9.	CB warfare : the legal aspects. Sean MacBride	35
10.	Appendices.	40

An international conference on chemical and biological warfare was held in London from 21 to 23 November 1969. This pamphlet contains an edited version of some of the papers presented at that conference. 7163 5000 9

Bibliography

CBW: Chemical and Biological Warfare, Edited by Dr. Steven Rose (Harrap, London, 1968).

We All Fall Down, Robin Clarke (Allen Lane, London, 1968 and Penguin Books, 1969).

Silent Weapons, Robin Clarke (Mackay, New York, 1968).

America's Hidden Arsenal, Seymour Hersh (MacGibbon and Kee, 1968).

A Survey of Chemical and Biological Warfare, John Cookson and Judith Nottingham (Sheed and Ward).

Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible Use (United Nations Report A/7575 HM50).

Facts about CBW (United Nations Association Pamphlet).

Report of the Select Committee on Science and Technology, July 1968 (HMSO sbn 10 276968 0).

Contributors at the conference on chemical and biological warfare held in London in November 1969 included Miss Gertrude Baer, Dr. Frank Barnaby, Academician Oganes V. Baroyan, Father S. Blake, David Dickson, Dr. John Humphrey, Evan Luard, MP, Sean MacBride, Congressman Richard D. MacCarthy, Professor Matthew Meselson, Theodor Nemec, Jan Prawitz, A. C. E. Reed and Dr. G. H. M. Waites.

C158

1. Introduction

SYBIL COOKSON, Chairman WILPF (British Section)
MARGARET CURWEN, Secretary WILPF (British Section)

After some 45 years of continuous concern and activity concerning chemical and bacteriological (biological) warfare, it was appropriate that the Women's International League for Peace and Freedom should take the lead and convene an organising committee to arrange the international conference on CBW held in London from 21 to 23 November 1969.

Founded in 1915, to work for the peaceful settlement of disputes and the removal of the causes of war, in 1924 the league formed a scientific committee and launched an international campaign condemning the misuse of science for the purposes of war.

In 1925, the Geneva gas protocol was signed and ratified by a number of countries. Many consider this has been the only effective international agreement to curb the use in war of certain weapons.

So it is of the utmost importance that this agreement should not be eroded in any way, but strengthened so that there shall not be any shadow of doubt that it covers CS and other harassing agents as well as excessive and offensive use of herbicides and defoliants.

The British section took special responsibility for holding this conference in London. For over 18 months we had continually protested to HMG urging that the chemical and biological research establishment at Porton Down in Wiltshire should be placed under the Department of Health and Social Security and not under the Ministry of Defence; and at the same time calling for the de-classification of the research on CBW. In addition CS gas, which was first discovered in 1928 in the US, was, during the 'fifties developed as a weapon by the British. This knowledge was shared with the US under the quadripartite agreement. CS gas has become a household word as a result of its extreme use in Vietnam, as well as its use as a riot control agent in Ulster during the Summer of 1969.

The WILPF constantly urges that the vast sums spent on weapons of destruction, as well as the brains devoted to research for them, should be used to alleviate the suffering and hardships endured by the hungry, the homeless and the illiterate peoples of the world.

We planned this to be a conference with a difference, and from the opening session a sense of urgency and expectancy appeared evident among the 200 participants from 20 countries, and the fine team of speakers responded to this atmosphere. The result was that the final session closed with three positive statements, calling on all governments to adhere to U Thant's proposals, that the prohibition in that protocol should apply to all chemical and bacteriological weapons and that agreement should be reached to halt the development, production and stockpiling of all such weapons. (see Appendix 1, 2 and 3).

After the conference an International Continuing Committee was set up to press for the banning of CBW and for disarmament, and the 20 nations represented at the conference were asked to set up national committees, to help contribute to public awareness in their own countries of the dangers and unpredictability of CBW. The hope was expressed that other countries would join in the scheme.

The conference was opened by Philip Noel-Baker MP (Nobel Peace Prize winner). The participants were welcomed by Miss Gertrude Baer, Chairman of the WILPF International Commission against Scientific Warfare. The chairmen of the sessions that followed were Joyce Butler MP (Labour), Dame Joan Vickers M.P. (Conservative) and George Kiloh (lately president of the Young Liberals). When shown a list of our eminent speakers Dr. Ljunggren said, "I congratulate you. This conference has the best speakers available in the world". And, indeed, all gave valuable and informative papers, easily understood by all participants. We thank the expert speakers who shared their knowledge with us, the people who ably chaired the sessions, the organisations and individuals who supported the organising committee, and the helpful friends who carried out the many necessary duties behind the scenes.

The ultimate success of the conference depends on you, the reader, and we call on you, wherever you are, to contribute in every way possible to the spread of this information, so that an informed public will press their governments to adhere to U Thant's expert committee's recommendations and abide by the gas protocol signed in Geneva on 17 June 1925.

2. Preface : a message from U Thant to the conference

It is with great pleasure that I send my greetings to the International Conference on Chemical and Biological Warfare which is being organised by the Women's International League for Peace and Freedom.

If the purposes and principles of the United Nations are to be realised, the organisation must have the active support and understanding not only of governments and parliaments, but also of the peoples of the world. The Women's International League for Peace and Freedom is one of the non-governmental organisations having consultative status with the United Nations which has publicised the work of the organisation and has played an important role in bringing about an informed body of public opinion amongst the women of the world.

The threat to mankind from the existence of stockpiles of chemical and biological weapons and the attendant possibility of their use has been too little understood in the past. Among the many fears generated by these weapons of mass destruction of a peculiarly horrible nature, there is the danger that they might be regarded by some smaller countries as a sort of cheap alternative to acquiring nuclear weapons. It was with these considerations in mind that I first proposed, just over a year ago, an international study of the problems posed by these weapons. Last December the general assembly requested me to prepare a report on these weapons, with the help of consultant experts. That report has now been published and is the subject of active consideration by the competent international bodies.

The authors of the report have expressed the hope that the report "would contribute to public awareness of the profoundly dangerous results if these weapons were ever used, and that an aroused public will demand and receive assurances that governments are working for the earliest effective elimination of chemical and bacteriological (biological) weapons".

I have accepted the unanimous report of the consultant experts in its entirety and have made suggestions for further action in this field. In my opinion, the time has come for the nations of the world to ensure that no chemical or biological weapon of any kind is ever used in war, that the development, production and stockpiling of these weapons for purposes of war is halted and that they are effectively eliminated from all arsenals.

I am confident that the deliberations of the international conference will help to promote these aims. I extend to the conference and all of its participants my earnest good wishes for success in their endeavours.

3. CB weapons : the facts

MATTHEW MESELSON

In the months just ahead governments will be called upon to make decisions about chemical and biological weapons that will have major consequences far into the future. The United Kingdom will play, and is already playing, a key role. The following discussion will be largely military in nature. It is addressed principally to the problems faced by nuclear powers and nuclear alliances. Britain is included on both counts. The nuclear nations are the only ones known to possess substantial chemical and biological (CB) forces and their CB weapons policies will probably determine the role of CB weapons on the world scene. The main questions I wish to consider are: What are CB weapons? What protective measures can be taken against their effects; and what are the military arguments for and against the use of these weapons and for and against possessing them.

Although CB weapons are linked together in the custom, the psychology, and the international law that restricts their use, military planners often distinguish several categories in order to analyse military requirements. Although the distinctions are not altogether clear cut from a purely scientific standpoint, they are useful for military analysis. I shall discuss four kinds: lethal germs, incapacitating germs, lethal chemicals, and incapacitating chemicals, although the importance of the problems posed by anti-plant chemical and biological weapons (CBW) is almost universally under estimated.

Lethal Germ Weapons

Lethal germ weapons operate by disseminating clouds of lethal disease germs over or up-wind from the target area. The germs would then be inhaled by the target population. The disease anthrax is an example. Anthrax germs are tiny objects a thousandth of a millimeter in diameter. They can be prepared rather easily. Inhalation of several tens of thousands of them, not a very large quantity where germs are concerned, is enough to initiate the disease called pulmonary anthrax. It is thought to be almost invariably lethal. The symptoms would appear a few days after breathing in the germs. Death would occur a few days later. This lag between the time of a biological warfare attack and the outbreak of disease, the incubation period, is a common feature of germ weapons.

Germs may be disseminated by aircraft bombs or spray tanks, by missiles, by spray tanks mounted on ships or submarines offshore, and by land based saboteurs. Very small quantities of germs would be sufficient to cover large areas. It is thought that a light bomber dispensing anthrax under suitable meteorological conditions could deliver enough to cause a high proportion of fatalities over hundreds of square miles.

Since an attacker's choice of germs is wide and he could employ mixtures, specific medical measures such as mass immunisation and antibiotics are not likely to provide an adequate defence. Protection can be afforded by gas masks or air filtered shelters if early warning of attack is given, but satisfactory early warning devices have not yet been developed. It is clear that the military role of lethal germs would be to kill populations over large areas. For the nuclear powers this capability is already provided by their strategic nuclear forces. Lethal germs would be vastly inferior to nuclear weapons as strategic deterrents, but the important point is that nuclear powers have no need for lethal germ weapons, for in so far as strategic deterrence is effective, it is already provided by nuclear weapons. Rather, the overriding interest of nuclear nations and alliances is to keep other nations from acquiring germ weapons. Beyond that, all nations have a common interest in preventing any development of germ weapons, for the proliferation of these weapons would greatly increase the number of nations able to kill entire populations.

Incapacitating Germ Weapons

Some diseases which are not often lethal may be considered as possible incapacitating weapons. An example is Venezuelan equine encephalitis. It causes severe

headaches and prostration, but has a natural case fatality rate of less than one per cent. The methods of disseminating incapacitating germs and the problems of defending against them are essentially the same as those I have described for lethal germs. The possession of incapacitating weapons, whether germs or chemicals, is not to be justified as providing deterrence. In a world oversupplied with lethal weapons, non-lethal ones do not provide significant deterrence. They are not second strike weapons. Their possession is justified only if their use is contemplated for a first strike. Incapacitating germ weapons could be used to weaken an enemy before invasion or to impede his advance. The situation in which they would be the weapons of choice, if any, would be extremely rare and the stakes for the user would be tactical, not strategic. The principal cost of using incapacitating germs would be the stimulation of the proliferation of germ weapons, including lethal ones. The facilities for developing, producing and delivering incapacitating germs are essentially the same as those required for lethal germs. International law and international custom do not distinguish between them. Even the possession of incapacitating germ weapons will act over time to stimulate the proliferation of lethal germ weapons and weaken the restraints against their use.

Germ weapons possess many shortcomings, however, even from a military viewpoint. Their effects are not as predictable as those of other weapons. They might get out of control, spreading disease beyond the intended target or setting up lasting new foci of disease. They are not attractive weapons. I do not think there is currently any serious interest in them in high military circles anywhere. Although they could become a terrible menace, they do not represent the same immediate problem as chemical weapons.

Lethal Chemicals

Modern lethal chemical weapons are the nerve gases first developed, but not used, by Germany in the second world war. They are hundreds of times more poisonous than the poison gases of the first world war and kill when inhaled or when deposited as liquid droplets on the skin. For tactical use they can be supplied in mines, artillery projectiles, rockets, bombs, and spray devices. A medium bomber delivering nerve gas bombs under meteorological conditions favourable to the attacker could kill a high proportion of persons throughout the central region of a large city. A gas mask provides excellent protection against all chemical weapons except those that attack the skin, for which a special suit or shelter affords good protection. Devices able to give early warning of the presence of nerve gas have been developed, nevertheless civil defence would be a massive undertaking, requiring elaborate preparation and rigid discipline.

In a chemical war, soldiers in the field would have to wear protective equipment much or all of the time. This is cumbersome and tiring and fighting efficiency is severely reduced. For tactical use against an enemy equipped with protective gear and able to impose the wearing of such gear on one's own troops by the threat of retaliation in kind, lethal chemical weapons would greatly complicate the battlefield without giving either side a major advantage. This argues for not initiating lethal chemical warfare. It also argues for possessing lethal chemical weapons as a deterrent if the other side is thought to have them.

The argument for having lethal chemicals as a deterrent is rather complicated; it is not a simple assertion that one side must have whatever the other side has, or might have. That approach to military planning "keeping up with the Joneses" is deceptively attractive, but is not adequate. The rationale that I have just outlined for having lethal chemical weapons as a deterrent is subject to serious challenge. Any use of lethal chemical weapons would seriously risk provoking their extensive proliferation to nations that do not now possess them. Moreover, chemicals and germs are often considered together, so that proliferation of the former encourages proliferation of the latter.

An important constraint on the tactical use of lethal chemicals, especially on friendly soil, is that their large scale employment would inevitably cause heavy fatalities among undefended civilians in the combat zone and out to considerable distances down wind. Under not uncommon meteorological conditions the tactical expenditure of moderate quantities of nerve gas could cause fatalities as far as 100 Km downwind. A few days of tactical nerve gas war in Europe could kill tens of millions of civilians.

Incapacitating Chemical Weapons

There are two types of incapacitating chemical weapons, long lasting and short lasting. An example of the long lasting type is the US agent called BZ. It can incapacitate for several days. However, it causes unpredictable and often violent behaviour and can have dangerous side effects. Although much effort has been put into developing a long lasting incapacitant without these undesirable properties, no more satisfactory long lasting incapacitant than BZ has yet been developed. The principal chemical incapacitant now in military use is CS, a short lasting incapacitant. It was discovered in the United States in the 'twenties and developed as a riot control agent in Britain in the 'fifties. It has been repeatedly used for this purpose, most recently and notably in Ulster. It is used very extensively as a military weapon in Vietnam. Exposure to CS causes intense pain in the eyes and upper respiratory tract, progressing to the deep recesses of the lungs, causing a feeling of suffocation and acute anxiety. If exposure it not excessive, these symptoms usually pass within minutes after restoration to fresh air. Heavy dosages as may occur in confined spaces or when massive quantities of CS are dispersed, can cause lung damage. Very intense exposure to unprotected skin can cause second degree chemical burns.

A gas mask and even certain simpler devices can protect the eyes and respiratory tract against CS. Clothing provides considerable protection of the skin.

When used for military purposes, agents like CS are called harassing agents. They can be used to reduce an enemy's fighting efficiency by forcing him to mask, to force an enemy from cover to face capture or hostile fire, to deny him terrain, or to upset his fire. Harassing chemicals were the first chemical warfare agents employed during the first world war.

Over 13,000 tons were used, more than the amount of mustard gas used in that war. During the second world war Germany and the United States prepared large stocks of munitions filled with tear gas and other harassing chemicals, but refrained from using them. The first major use of harassing gas in combat since the 1914-18 war occurred in Vietnam, where over 14 million pounds have been used by the United States forces so far. Some was used to facilitate the attack or capture of enemy soldiers mingled with civilians when the alternative would otherwise have been to risk killing civilians with conventional fire or not to attack the enemy. However, these situations are not common, civilians usually flee from the area of firefights. Moreover, civilians who have taken shelter when fighting starts would often be driven into the open if gas is used, knowing less well how to conduct themselves under fire than soldiers do, they would often be preferentially killed if harassing gas is used. Nevertheless, this is the main military argument in favour of such a gas.

Most of the CS used in Vietnam has been employed to facilitate ordinary military operations, for which a wide variety of CS munitions are employed. They range from grenades and small rockets to 155 mm artillery projectiles, large mortar cartridges and aircraft spray devices and bomb dispensers containing up to 1,000 lbs. of CS. They can, of course, enhance the effectiveness of ordinary military operations. However, once the enemy learns to expect gas to be used against him, he will resort to the use of masks and other protective measures.

This has happened in Vietnam and has greatly reduced the military utility of

harassing agents. A hazard in the employment of incapacitating chemicals in war, particularly when done on a large scale, is that it stimulates other nations to initiate or expand their own programmes for chemical (and perhaps germ) weapons. Even if the first result is the deployment of harassing agents on both sides of a future conflict, the introduction of weapons, defences, and logistic arrangements all suited to chemical warfare would facilitate the progression to more powerful and deadly agents with their destabilising features and special threats for civilians. Once the long observed rule of "no gas" is abandoned there is no unique and equally simple standard for agreement on where to hold the line. When harassing gas is used in order to enhance the lethal effectiveness of conventional weapons, as during the first world war and in Vietnam, the distinction between lethal and incapacitating chemicals loses its essential meaning. A meaningless distinction is not likely to last for very long.

The prevention of chemical and biological warfare is to a large extent a psychological problem. If we can maintain and reinforce the traditional expectation that no gas or germs will be used in war, there will not be much pressure for these weapons to proliferate. Even in nations that possess them, military planners will not expect to rely on them and they will probably not be integrated into standard war plans. This psychological aspect of the problem has been understood since the first world war by almost every nation, including the United States, but recently a dangerous break with tradition has been allowed to occur and escalate in Vietnam. I consider the use of gas there, even though it is not lethal gas, to be the major and most immediate threat to the barriers that prevent CB warfare. In my opinion, the best way for us to remove the threat of chemical and biological warfare is to pay close attention to the three recommendations of United Nations Secretary General U Thant in his preface to the recent UN report on CB weapons and the effects of their possible use (see Appendix 1, p40).

U Thant's Three Points

1. To renew the appeal to all states to accede to the Geneva protocol of 1925.

2. To make a clear affirmation that the prohibition contained in the Geneva protocol applies to the use in war of all chemical, bacteriological and biological agents (including tear gas and other harassing agents) which now exist or which may be developed in the future.

3. To call upon all countries to reach agreement to halt the development, production and stockpiling of all chemical and bacteriological (biological) agents for purposes of war and to achieve their effective elimination from the arsenal of weapons.

4. The potential warfare application of pathogenics

OGANES BAROYAN

The history of warfare shows that many grave and diverse epidemics were the unavoidable concomitants of wars. In many cases the losses caused by infections exceeded many fold the manpower losses from the war proper. More frequently than not these epidemics developed to such tremendous proportions that the belligerents were obliged to discontinue hostilities because there were not enough men capable of carrying them on. History is full of convincing instances of grave and tragic epidemics as a sequel of various wars; such as the pestilential disease described by the Greek scholar Thucydides (455-400 BC); the pestilential ulcer of Antonian, described by Galen (131-201), which lasted for 15 years and swept through many countries of the Middle and Near East, and later on throughout Europe; or the plague of Justinian which lasted from 531 to 580. These took many millions of human lives, and similar instances can be found in more recent times.

Thus, during the Persian-Turkish war of the 16th century an epidemic of cholera brought about a situation where the belligerents completely lost their fighting ability. During the Crimean war of 1853-1856, one of the French divisions operating in the Varna area lost, within less than one month, approximately 2,000 men due to cholera. Practically all the men of that division were down with the disease. In 1859, in Algeria, out of a French force of 15,000 men, something like 10,000 or 12,000 were sick with cholera. In 1916, during the Balkan operation, more than 60,000 of the Anglo-French troops became sick with malaria. In some units, stationed in Salonika, malaria was found in practically 95 per cent of the total force.

Finally there was an epidemic of plague in Europe in the middle of the 14th century, when the entire continent was swept by sanguinary wars. The Black Death slashed by about one quarter the population of Europe. The number of residents of Hamburg and Florence dropped by two thirds and by one half respectively. Britain lost nearly two million out of a population of approximately four million. It took Europe practically two centuries to reinstate the population level which preceded the epidemics. Towards the end of the first world war a pandemic of influenza (the Spanish 'flu) struck approximately 500 million people, that is practically one third of the population of the world at that time, and took a toll of approximately 20 million human lives.

It is well known that diverse social upheavals, including wars, led also to widespread epidemics among farm animals and plants. Thus there was the bright of potatoes (caused by Phytophthora infestans) in all the countries of western Europe from 1845 to 1847. In Ireland the failure of the potato crop during two subsequent years brought about a famine in which approximately one million died and another 1.5 million Irishmen emigrated overseas. In the Philippines a disastrous plague which began in 1917 and which lasted for approximately ten years, killed almost all the cattle and left the country in a very grave economic situation.

It may be believed that the very idea of applying pathogenic micro-organisms as instruments of war springs from the historic experience of various epidemics which have always been a grave problem throughout military history. Empirical observation of the "war and epidemic relationship" most likely caused belligerents long before the microbiological era, to use objects infected by patients to spread epidemics artificially in the enemy camp. Thus, there is evidence of the artificial spread of smallpox by early Spanish conquerors among American aboriginal Indians. They either gave away as presents or sold to Indians blankets from patients who had died of smallpox. It is known that personal effects infected by plague patients were planted or thrown into besieged fortresses, or water wells were infected by patients suffering from intestinal diseases, such as cholera. Despite the fact that as a result of the progress of biology (the development of vaccines, sera and antibiotics) the control of epidemics has become much more effective, these questions remain extreme-

ly acute and present a complex military problem, even without the artificial proliferation of infectious diseases. For the sake of objectivity it should be admitted, however, that so far there is no direct proof of the application of pathogenic micro-organisms as a means of warfare during the wars of this century. Nevertheless there is more than enough indirect evidence to show that these weapons are being stockpiled.

There seems to be a likelihood that West Germany is eager to own weapons of mass destruction including bacteriological weapons. The fact that in West Germany, working on the assignment of the Ministry of War, bacteriological, nuclear and chemical weapons are being intensively developed at the Aerobiological Institute, is proved in evidence supplied by microbiologists who have crossed from West Germany to the German Democratic Republic (*Neues Deutchland,* February 28, 1968 and *Suddeutches Zeitung,* February 27, 1968). The development of biological science in recent decades has confirmed once again that there is a real possibility that some micro-organisms which are pathogenic for men, animals and plants can be applied in biological weapons for the extermination of mankind. The argument used in favour of such weapons is that they possess a large variety of potential agents with differing incubation periods.

The fact of the matter is that, as a result of prolonged and intense research and observation by scientists and physicians throughout the world, more than two thousand pathogens of infectious diseases are already known to man. Among these agents there is a large group made up of diverse species and varieties of bacteria and rickettsia. The agents of this group can cause more than 1,000 infectious diseases. Approximately 500 diseases are caused by fungi; some 200 infectious diseases are caused by helminths and protozoa; and finally there are more than 500 species of infectious diseases caused by viruses.

An important property of infectious agents is that they are live and can multiply. Therefore, a chain of infection springs from one infected person through other persons. This is particularly dangerous in the case of respiratory infections, in which the highest infectivity frequently begins in the incubation period when the symptoms are very obscure and non-specific. The spread of such infections is difficult to control, even in peacetime. The sad experiences of foot and mouth disease in cattle in Britain and of the imported epidemics of small pox in some European countries and in the United States of America, give clear instances of the complexity of this problem even in those countries with organised public health services. These problems are more difficult to solve in countries with insufficiently developed health services, and particularly so in conditions aggravated by war.

Many people believe that the military advantage of biological agents is that some of them are extremely resistant to environmental conditions and may be preserved in a latent form, but potentially resistant, for many years; for instance, it has been proved by cases in Scotland that the spores of the anthrax bacillus remain infectious for more than a hundred years. Other disease producing micro-organisms may be rendered sufficiently resistant to survive for a considerable period of time in the form of aerosols.

Due to the small size of micro-organisms they are easily dispersed in the form of large aerosol clouds and the latter may be conveyed over long distances. Field experiments in the United States using either fluorescent particles or non-pathogenic bacterial spores have definitely shown that such aerosol clouds, produced artificially and spread from a ship along 150 miles of the coast, are carried over 25,000 square miles of the coastal area and a minimum dose of 15 particles and a maximum dose of 50,000 particles is inhaled by the population of the affected area. Despite the exceptionally unfavourable conditions which existed during this experiment, the clouds were tracked for approximately 23 miles in the direction of the wind and the concentration of

live cells in the cloud gave sufficiently high infectious doses even inside closed premises. To achieve this it was sufficient to pulverise approximately 500 litres of a suspension of benign bacteria (bacillus subtillis). Moreover, the infectious or toxic dose of some micro-organisms or their toxins might be very small and therefore a very small amount of dispersed material can infect large numbers of people. Thus, the aerosol dose of *Pasteurella Tularaemis* was determined, using volunteers, ranging from 25 to 50 cells; in the case of Q-fever even one micro-organism can cause infection; thus in one gram of dispersed material there may be millions of infectious doses.

There is also the possibility, under favourable conditions of spreading infection by using live carriers like insects, ticks, or lice, to act as a focus of infection. By now, the ecology of such carriers and their part in the spread of infection has been well established. An important potential advantage of biological agents is that, compared with that necessary for the manufacture of nuclear weapons, they do not require complex and costly equipment specifically designed for their application. Another possible advantage of biological weapons is that they can be directed either against the population or against animals. They do not bring about material destruction and they cause considerable losses only to the manpower of the enemy but they are also capable of spreading panic. All these factors, taken together, make bacteriological weapons quite acceptable for a potential aggressor.

Such are, generally speaking, the reasons why some countries have considered the possibility of using bacteriological (biological) weapons in time of war and have also begun to stockpile these weapons.

Naturally the question arises as to why biological weapons with their definite advantages, have not thus far been used whereas nuclear and chemical weapons have been used in recent wars, and chemical weapons are being used now by the United States in the war against Vietnam? There can be only one answer to the question. Chemical and nuclear weapons have been used by one of the belligerents only when there was absolute certainty that the other belligerent did not possess similar weapons. This applied to the use of mustard gas during the first world war by Germans and to the use of nuclear bombs by the United States against the Japanese during the second world war. When Nazi troops considered the use of chemical weapons during the last world war an appeal to Germany, which contained a warning about the criminal nature of such action, was signed by the USSR, Britain and the United States. On 9 July 1943, when it transpired that there was a possibility of the use of war gases, the President of the United States, Franklin Delano Roosevelt, stated: "I am revolted at the idea that some country, even the present foes, could, if they had the intention, apply such horrible and inhuman weapons against mankind." Further on, the President said: "I have no doubt that the application of this weapon would be recognised as unlawful by the public opinion of the civilised world."

Bacteriological weapons, compared with chemical and nuclear weapons, have a weak point. Namely, the effectiveness of this weapon depends not only upon the agents of infection but also upon ecological and meteorological conditions which cannot be controlled by the aggressor. Moreover bacteriological (biological) weapons have an incubation period which considerably decreases their short term tactical value. At the same time modern biological science makes it possible to remove these shortcomings and this explains the increased interest at present shown in these weapons by a number of developed powers.

The lack of experience in the use of bacteriological (biological) weapons in past wars precludes us from reliably choosing one or another pathogen as a potential agent for use as a biological agent. It may be merely surmised that, as a result of an artificially created contact between the population and some pathogenic micro-organism, diseases may develop, and their spread will occur ac-

cording to known general epidemiological characteristics peculiar to the given etiological agent. It is possible, however, that this approach would not be absolutely correct since a large number of biological and ecological relationships and changes which belong to the host parasite environment complex in conditions of the artificial spread of micro-organisms, cannot yet be foreseen. Among these may be the diverse genetic changes of the strains applied as biological weapons, the development of new or considerably altered variants of the known strains which may be developed by selection for military use. Finally, in the case of an artificial dissemination of pathogens, the possibility of the alteration of the natural mechanisms of transfer of individual infections must be borne in mind. It is known that, in this case, the entire complex of clinical, epidemiological characteristics peculiar to a definite disease changes radically. Instances of this may be such infections as plague, tularaemia, anthrax and others, in which differing mechanisms of the transfer of infection lead to a qualitatively clinical pattern and a different outcome of the disease.

The agents of diseases—potential weapons—are conveniently divided into two groups. First, lethal agents, that is pathogens capable of causing mass diseases among the affected population and which produce high lethality rate; and, second, non-lethal agents, that is pathogens also capable of causing mass diseases, but with a comparatively mild course of the disease which put the effective population out of commission for a brief period of time. At the same time many experts consider, not without reason, that this division is not altogether valid since the extent of the action of pathogenic agents depends not only upon the biological properties of the pathogen but also upon the resistance capacity of the micro-organism. The relevant argument is that any pathogenic agent which is used to incapacitate people may, under certain conditions, lead to a lethal outcome.

Similarly, an attack deliberately taken with the sole purpose of the complete destruction of people may not lead to a lethal result. The characteristic diseases resulting in death are shown in Table 1 below and those resulting in human incapacity are shown in Table 2 opposite.

TABLE 1

EXAMPLES OF AGENTS THAT MIGHT BE USED TO CAUSE DEATH.

Agents	Diseases	Incubation period (days)	Effect of specific therapy	Likelihood of spread from man to man
Viruses	Eastern equine encephalitis	5-15	Nil	Nil*
	Tick-borne encephalitis	7-14	Nil	Nil*
	Yellow fever	3- 6	Nil	Nil*
Rickettsiae	Rocky Mountain spotted fever	3-10	Good	Nil*
	Epidemic typhus	6-15.	Good	Nil*
Bacteria	Anthrax	1- 5	Moderate	Low
	Cholera	1- 5	Good	High
	Plague, pneumonic	2- 5	Moderate	High
	Tularaemia	1-10	Good	Low
	Typhoid	7-21	Good	High

* Unless Vector present.

The following requirements have been formulated in relation to micro-organisms which can be used in biological weapons: 1, low infectious dose; 2, high environmental stability; 3, availability and multiplicability of the pathogen; 4, possible means of spreading and infecting; 5, availability of means of defence against bio-agents; 6, availability of means of identification. On the strength of these requirements, it is hypothetically possible to forecast the probable infections which may be used as weapons in biological warfare.

In addition to the agents of infection against people in biological warfare, there is the possibility of the use of micro-organisms which affect domestic animals. The methods of use of such weapons may not differ materially from those designed for use against people. Many experts hold that in the former case pathogens of viral infection in domestic animals may lead to serious economic consequences in a country subjected to such an attack. The danger is not only the loss of the affected cattle but also the fact that the attacked country, trying to prevent the spread of artificially created epizootics, will carry out compulsory slaughtering even of unaffected cattle. A relevant instance was the occurence of the epizootic of foot and mouth disease in Mexico in 1946. To stop the epizootic, local authorities were obliged to undertake the mass slaughter of cattle. Besides it should not be overlooked that many pathogens of infectious diseases in domestic animals can also affect man.

It is perfectly obvious that a covert bacteriological (biological) attack in peacetime, directed against domestic animals is liable, if it affects a large number of cattle, to have serious economic and political consequences for the country attacked. Mention may be made in this context of the viral disease known as African swine fever. This infection occurs frequently on the African continent as a subclinical disease of warthogs.

The disease was first imported accidentally from Angola to Portugal in 1957 and then into Spain in 1969 Despite the intensive veterinary control measures taken the losses caused by the death of swine, in one year alone amounted to more than 9 million dollars.

Table 3 gives the main characteristics of those infective diseases of domestic animals which could be spread artificially in wartime. It should also be considered that, while the local applications of these weapons against domestic animals can cause local damage only, the mass application through infected aerosols, may lead to the complete destruction of domestic animals over a vast area. The grave consequences arising from the

TABLE 2

EXAMPLES OF AGENTS THAT MIGHT BE USED TO CAUSE INCAPACITY.

Agents	Diseases	Incubation period (days)	Effect of specific therapy	Likelihood of spread from man to man
Viruses	Chikungunya fever	2- 6	Nil	Nil*
	Dengue fever	5- 8	Nil	Nil*
	Venezuelan equine encephalitis	2- 5	Nil	Nil*
Rickettsiae	Q-fever	10-21	Good	Low
Bacteria	Brucellosis	7-21	Moderate	Nil
Fungi	Coccidiodomycosis	7-21	Poor	Nil

* Unless mosquito vector present.

spread of imported infectious diseases amongst animals may be illustrated by many instances from history. The outbreak of myxomatosis in France led not only to the wholesale extermination of rabbits in that country, but also created the prerequisite for the spread of the disease to neighbouring countries. This outbreak supplied convincing proof that political frontiers are no serious obstacle to the spread of epidemics among animals.

The situation is rendered still graver by the fact that the problems of protection against diseases, the identification of pathogens, the control of pathogens and other aspects of the prevention of the diseases of domestic animals have not been studied sufficiently.

A similar danger is presented by the artificial spread of micro-organisms which affect plants of economic importance as sources of food or industrial materials, like cotton and rubber. Important food crops include potatoes, sugar beet, vegetables, soya beans, rice, maize, wheat and other grain crops, and fruit trees and shrubs. The choice of a suitable object for bacteriological attack, with the idea of affecting plants, will be determined by the relative value of these plants for the national economy of a particular country. The deliberately induced infection of plants may bring about grave national disasters.

Bacteriological agents which adversely affect plants belong to three groups of micro-organism: fungi, bacteria and viruses. The relevant agents are presented in Table 4. (Table 4 together with Table 3 appear on p14.)

With rare exceptions, plant viruses may be grown only on live tissues, while the agents of disease are detected in tissues of plants and juices. Rival diseases of plants are transmitted mainly by an insect carrier and, in some cases, mechanically. The bacteriological agents affecting plants may exist in or on the plant for months; all of them can be grown in artificial conditions. As a rule, the bacteria which affect plants are not spread by the wind to any great extent; they are mainly spread by insects, animals (including people), and by water. The available measures for protection against a bacteriological (biological) attack aimed at plants, are impracticable because of their costliness. Besides, the most dangerous and most stable strains may be used in bacteriological warfare, and this will render the control measures still more difficult.

The epidemiological and socio-economic aspects of the potential application of micro-organisms which are pathogenic for man, animals and plants as bacteriological (biological) weapons, may be summed up as follows: 1, the possibility of simultaneously affecting big sectors of the population, herds of domestic cattle, and crops by artificially spreading micro-organisms which are pathogenic for them; 2, incapacitating the manpower of the enemy, weakening his economic potential and dooming him to hunger and complete demoralisation; 3, creation of long lasting effects in the form of epidemics among animals or plants and the possibility of creating reservoirs of infection; 4, the contamination with micro-organisms, or with their toxins, of such vital facilities as the water supply system, and food depots.

The scope and duration of such effects, resulting from the use of bacteriological (biological) weapons although not altogether clear, obviously present a tremendous danger to children who may be in the affected area. In this light it is particularly strange that there are people in the world who can speak about the "humaneness" of this weapon. The achievements of biological science in this century have opened up the opportunities for the use of these weapons on so large a scale that the consequences could be really catastrophic. Unlike conventional means of warfare, these weapons are directed primarily against the civilian population, and it is precisely this that makes them extremely dangerous and inhuman. It is considered that bacteriological weapons of indiscriminate action include the application of all micro-organisms and their toxins that affect

people, farm animals and plants. This property—mass and indiscriminate action—makes bacteriological weapons similar to chemical weapons, the application of which (though with several specific and technical modifications such as the extent of toxicity, dosage and length of action and the possibilities of identification) has the same objectives.

The history of the technical development of chemical and bacteriological (biological) weapons is distinguished by a steady increase in the potency of the latter and by greater possibilities of delivering them in large volumes to target areas. The increase in the danger of the use of chemical weapons is the result of scientific discoveries and of the manufacture of new and more toxic chemical compounds, whereas bacteriological agents exist in nature and the increase in their destructive power as weapons is rather the result of selection and not of the development of absolutely new substances. This process of selection has become possible as a result of scientific achievements in the genetics of micro-organisms and experimental aerobiology. As a result of all this, we now know of a large number of CB agents capable of bringing about grave consequences if used in war.

There are two points of view concerning the use of weapons of mass destruction in war:

1. Some people consider that the bacteriological weapon, by the strength of its action (mass annihilation of people) may be compared only with nuclear weapons. The argument is that this type of weapon cannot be controlled since the pathogenic micro-organisms artificially imported to a definite populated area, will, because of their biological nature (alive and capable of multiplication), create the conditions for a chain reaction and the subsequent spread of the disease will continue in keeping with the natural characteristics peculiar to each micro-organism, i.e. man to man, or will create new natural foci of infection, the control of which is extremely difficult. The danger of this type of weapon is accentuated because its manufacture is considerably less costly than that of chemical weapons, not to mention nuclear weapons. While only the well developed countries can cope with the manufacture of nuclear and chemical weapons, practically any country with a network of microbiological institutes and capable of manufacturing bacteriological preparations, can produce biological weapons.

2. The other point of view is absolutely different. Its proponents hold that the development of bacteriological weapons is far from being a cheap undertaking since the economically developed countries who are building up their military potential are spending huge resources on research in this field. Though these expenditures naturally cannot be compared with those involved in the development of nuclear weapons, they are quite considerable and the expense cannot be borne by every country. Besides, the supporters of this view consider that the poor controllability of bacteriological weapons is liable to create the danger of importing artificial epidemics to the countries which have themselves used the weapon. Finally, they believe that the complex means of delivery of these weapons and the adverse influence of the environmental factors (air temperature, humidity, nature of winds, etc.) upon the viability of micro-organisms in an aerosol cloud, detract from the advantages of these weapons.

Though both views have their strong points, it has to be noted that from the general humanitarian standpoint, bacteriological weapons already exist and the above mentioned difficulties may well be surmounted, considering modern knowledge and the colossal amount of research undertaken in this field.

Summing up, it can be said that the world is in danger from a new weapon which might plunge mankind into great suffering. This is the over-riding consideration and therefore all who cherish peace should struggle resolutely against these types of weapon of mass extermination.

TABLE 3

EXAMPLES OF DISEASES THAT MIGHT BE USED TO ATTACK DOMESTIC ANIMALS.

Agents	Diseases	Animals attacked
Viruses	African swine fever	Hogs
	Equine encephalitis	Horses
	Foot and mouth disease	Cattle, sheep, hogs
	Fowl pest	Chickens, turkeys
	Hog cholera	Hogs
	Newcastle disease	Chickens, turkeys
	Rift Valley fever	Cattle, goats, sheep
	Rinderpest	Cattle, sheep, oxen, goats, water buffaloes
	Vesicular stomatitis	Cattle, horses, mules, hogs
Rickettsiae	Veldt disease	Cattle, sheep, goats
	Q-fever	Cattle, sheep, goats
Bacteria	Anthrax	Cattle, sheep, horses, mules
	Brucellosis	Cattle, sheep, goats, hogs, horses
	Glanders	Horses, mules
Fungi	Lumpy jaw	Cattle, horses, hogs
	Aspergillosis	Poultry, cattle

TABLE 4

TABLE OF DISEASES THAT MIGHT BE USED TO ATTACK PLANTS.

Agents	Diseases	Likelihood of spread
Viruses	Corn stunt	High
	Hoja blanca (rice)	High
	Fiji disease (sugar cane)	High
	Sugar beet curly top	High
	Potato yellow dwarf	High
Bacteria	Leaf bright (rice)	High
	Blight of corn	High
	Cummosis of sugar cane	Low
Fungi	Late blight (potato)	Very high
	Cereal rusts	Very high
	Rice blast	Very high
	Corn rust	High
	Coffee rust	Very high

5. CB warfare: the ultimate folly

RICHARD D. MacCARTHY

This is a fortuitous time to discuss chemical and biological warfare. The western world is in flux. Our traditional values, policies, mores are being questioned. Our sons and daughters are asking whether we really believe in the values that we profess and if we do, why don't we do a better job of living up to them. In the United States this questioning, this reassessment, is also found in our Congress. For the first time in recent memory, individual members are asking searching questions about our military posture. Do we need a capability to fight one minor and two major wars. Do we need new nuclear aircraft carriers? Do we need stockpiles of nerve gas and germ weapons? Can we reach nuclear arms limitations agreement with Russia? Next, are we over committed throughout the world? And of course, most fundamentally, what should we do about Vietnam? I, for one, welcome this reassessment. I see in it an opportunity to strengthen and renew our society, to cast out the false, to restate the true, to strive for a better society.

One of the principal objects of scrutiny in the US Congress this year has been chemical and biological warfare. Even before the release in July of the report to the Secretary General of the UN on chemical and biological warfare, the American public was aware of the subject. It might be asked why CBW should be singled out for particular attention. The answer, I believe, is twofold. First as one American leader said not too long ago, "the United States can afford anything it needs. What it can't afford is what is doesn't need". I suggest that there is much in our CBW arsenal that we don't need. Second, our CBW policies and practices threaten to break down one of the few areas in which we have limited man's inhumanity to man. The Geneva protocol of 1925 banning chemical and biological warfare is one of the few arms control measures that has worked. Yet the United States remains one of the two major nations not to have ratified that treaty. Our present CBW policies and practices—policies that do not make it clear whether we will use gas or germs as offensive weapons—and practices that include the massive use of tear gas as an aid to killing and the widespread use of defoliant chemicals against crops and foliage in Vietnam—threaten the very fabric of the Geneva protocol. I do not think that my country ought to be the one to erode this restraint on inhumanity. (*Representative MacCarthy was speaking before President Nixon's statement on CBW.*)

On 4 November 1969, conferees of the United States Congress adopted a report establishing a measure of public control over the transportation, storage, disposal and testing of chemical and biological weapons. Adoption of this report was a symbolic step toward a return to reason. The vote reaffirmed American common sense concerning the need to exercise the greatest care when working with these deadly weapons. The amendment also dealt in a limited way with the broader aspects of strategy and use; it stopped the purchase of any offensive chemical and biological arms for the coming year; it was a victory for those concerned about CBW.

Earlier, on 4 March that year, the army's briefing on chemical and biological warfare which I had arranged for members of the House and Senate failed to answer fully the public policy questions that I had raised, wanting to know more about our policies. The immediate questions on CBW I felt should be asked of the appropriate officials of the administration. So, having failed to get adequate replies from the army to public policy questions, I addressed them to Defence Secretary Laird, Secretary of State Rogers, UN Ambassador Charles Yost, Arms Control Director Gerard Smith, and Presidential Advisor Henry Kissinger. By 21 April I had received replies from all the departments and agencies with the exception of Dr. Kissinger's office. This I noted at the time, "is perhaps as much a comment on the priority placed on CBW policy in relation to other matters as it is on the pressures of the executive office".

My continuing review of CBW during the Spring and Summer of 1969 con-

vinced me of the urgent need for the President and Congress to exert much tighter control over these activities. They not only imperil our foreign policy but cast us in a very unfavourable light on the world stage and imperil our own citizens right here at home. Commenting on an incident involving nerve gas on Okinawa, James Reston in the *New York Times* of 20 July, 1969, observed that "the trouble is not that the Pentagon is wicked but that it seems to be clumsy. It is constantly being caught out doing things that embarrass the government and complicate the conduct of American foreign and even internal policy". He then underscored one of the several basic reasons behind my interest in CBW. "So great was their power that even the Secretary of State and the President, though they will probably deny it, didn't really know what the military was doing with nerve gas in Utah and Okinawa." This cannot be permitted to happen again.

While I am a Democrat and President Nixon is a Republican, no one would be more relieved than I, or happier, if Mr Nixon brings our CBW policies and operations under rational control and direction. And he is in a favourable position to do this. He is not a captive of policies of the past and is entirely free to reverse the germ and gas warfare course that the nation has shifted to over the past 15 years or so. He could return the United States to the CBW policies of Presidents Harding, Coolidge, Hoover, Roosevelt, and Truman. Several actions he has taken thus far augur well for a return to a sane and restrained CBW policy. Within a period of a few weeks in mid-1969, the President directed the US delegation to the Eighteen Nation Disarmament Committee in Geneva, to work with other nations in seeking effective ways to control chemical and biological weapons; ordered the first full scale executive branch review of US CBW policies and practices in over a decade (as Arms Control Director Smith put it, in announcing the President's action, "Present and possible alternatives are to be fully examined"); revealed that he was considering the resubmission of the Geneva protocol to the Senate for ratification.

There are other signs that a serious reassessment of CBW was under way, both within the administration and in the Congress. At the time of the Okinawa nerve gas accident the defence department emphasised that the questions of overseas deployment of gas agents would be included in the administration's "comprehensive study" of chemical and biological warfare matters. Two committees of the Senate soon began delving into various aspects of American CBW policies and operations. The Senate Foreign Relations Committee held a closed door informational session on the entire CBW programme. Senator Vance Hartke held hearings on the safety questions raised by the army's shipment of poison gas by rail. Congressmen Reuss and Gallagher held their hearings on testing and the rail-ship disposal plans. Senator Gaylord Nelson was not satisfied with the answers on our CBW activities that he was getting and asserted: "We need to review the entire scope of chemical and biological warfare".

In the late Spring of 1969 the Senate Armed Services Committee voted to cut out of the defence budget all funds for researching into offensive CBW weapons and systems. The amount was placed by Senator Thomas J. McIntyre at $16 million. The Armed Services Committee's recommendations on money matters are, of course, not final. The Appropriations Committee has the final say on actual spending figures. So it was that all of us who believe this programme should be reduced were pleased in July 1969 when a senior member of the Senate Appropriations Committee, Senator Ellender, predicted "that Congress is going to go more deeply into this entire matter (of CBW) in the coming months. I believe that changes should be made and will be made". Late in May 1969 I went to see Under Secretary of State Elliott Richardson to discuss the forthcoming United Nations report on chemical and biological warfare. The report was in its final stages of preparation and I had learned that it contained portions opposed by those seeking effective international controls of these weapons. The United Nations had responded to the

appeal of its Eighteen Nation Disarmament Committee by passing a resolution on 20 December 1968 calling on the Secretary General to prepare a report on chemical and biological weapons and the effects of their use. The resolution urged that the report be completed by 1 July 1969, so that it could be considered at subsequent sessions of the Eighteen National Disarmament Committee and at the Autumn session of the general assembly. With surprising speed the 14 experts appointed by Secretary General U Thant were going to meet their deadline.

Following passage of the resolution by the general assembly, U Thant appointed Dr Ivan L. Bennett, Director of the New York University Medical Centre; Dr Jiri Franek, Director of the Military Institute of Hygiene, Epidemiology and Microbiology, Czechoslovakia; Academician O. A. Rentov, Professor of Chemistry at the Moscow State University; Sir Solly Zuckerman, chief scientific advisor to the United Kingdom, and ten others as consultant experts. These men would prepare the report. They were drawn from nations having some expertise in either gas or germ warfare or both; however, in this context, they were not regarded as the representatives of their countries but rather as appointees of the Secretary General. Nevertheless, they were expected to be free to draw on the resources of their countries in the preparations of the report.

One of the by-products of the secrecy that has surrounded the matter of chemical and biological warfare turned out to be the practical necessity of appointing as members of the panel, seven men from chemical and biological warfare institutions in their respective countries. Considering their involvement in chemical and biological research, it is surprising that the report is as objective as it is. Academician Rentov of Russia, for example, took pains to make it clear to a number of his co-panelists that he was not connected with his country's chemical and biological warfare establishment. But even when the experts themselves were not members of the trade, their advisers often were. On his staff Dr Bennett employed three members of the Department of Defence and only one member of the State Department's Arms Control and Disarmament Agency.

The panel of experts decided to divide into teams, each of which would prepare one of the five chapters of the report. Dr Bennett was the leader of the team preparing chapter one, describing the basic characteristics of chemical and biological means of warfare. Sir Solly Zuckerman and Academician Rentov were the other members of this team. Rentov was the team leader for chapter five, which summarised the economic and security implications of chemical and biological warfare arsenals. The United States Army's CBW experts, ironically, prepared the first draft of Dr Bennett's chapter. Fortunately it was not the final draft. Some of the non-military members of the panel recognised the heavy influence of the CBW establishment in the preparation of the initial drafts and worked out informal arrangements to eliminate portions of the report that they considered objectionable by the time honoured strategem of giving in to the pre-arranged protests of other members. In this way they avoided alienating their respective staff members and yet were able to achieve their objectives.

By the middle of May, however, when I appeared at the state department, the influence of CBW proponents was still present in the final draft of the report as it went under discussion. The report still used the phrase "biological incapacitant", a term that CBW advocates use to describe diseases that are supposed to make people so sick that they cannot perform their regular duties, but not kill them. Tularaemia and Venezuelan equine encephalitis are two diseases that the United States Army wishes to characterise as "biological incapacitants". The trouble with this term is that most medical men do not consider it valid. What is incapacitating to one person may kill another, what is incapacitating to the people of one country may kill the people of another because of differences in living conditions and general health. Using this term in the UN report would tend to

give it a stature that it otherwise does not possess. A similar objection applied to the word "toxin". The report defined toxin, a deadly by product of bacteria, as a chemical rather than a biological agent. Although toxins are dead—that is, they don't multiply as do bacteria—they are poisons derived from bacteria. If toxins are classified as chemicals, then we may suppose that the biological warfare laboratories and production plants would continue to produce toxins even in the event of an international ban on biological warfare.

I met with Under Secretary Richardson to urge him to do what he could to bring about changes to these sections of the final report. Although Dr Bennett was not an appointee of the US government, he met regularly with officials of the US government and the views of the state department would presumably carry some weight in his thinking. Richardson agreed to bring these problems to Dr. Bennett's attention and also assured me that if the UN report presented a distorted picture of CBW when published, that the department of state would probably issue a statement making it clear that the report in no way represented the official views of the United States. Richardson's comments were in keeping with the state department's long standing efforts to maintain the international ban on the use of chemical and biological weapons. Subsequently, although the term "biological incapacitant" was not removed from the report and although toxins continued to be defined as chemicals, assurances were received that when these and other problem areas in the report came up at Geneva the reservations about them would be fully taken into account.

On 1 July, 1969 Secretary General U Thant announced the release of the report and in a strongly worded foreword urged that UN members should: ratify the Geneva protocol of 1925 banning first use of chemical and biological warfare; clearly state that the Geneva protocol applies to the use in war of all chemical and biological weapons, including tear gas and other harassing agents which now exist or may be developed in the future; call on all countries to agree to halt development, production and stockpiling of all chemical and biological weapons.

Even though it condemned the use of tear gas as a violation of the Geneva protocol and included defoliants and herbicides in its discussion of chemical weapons of warfare, President Nixon commended the UN report in his message to the Eighteen National Disarmament Committee on 3 July 1969. In this statement he said that "the spectre of chemical and biological warfare arouses horror and revulsion throughout the world". I read this statement in the newspapers and was particularly pleased that President Nixon had stated, as Presidents Coolidge, Hoover and Roosevelt had before him, the abhorrence with which the American people regard chemical and biological warfare. While it was only one sentence, it did set a tone and indicate a point of view. This endorsement, following his order, on 17 June 1969, for a full scale executive branch review of chemical and biological warfare policies and practices, offered the hope that the United States might abandon the extensive use of tear gas in conjunction with artillery, bombing and infantry attacks and the widespread use of defoliants and anti-food herbicides.

It was painfully clear that there was a major tug of war going on in the Capitol over the direction CBW should take in the future. Proponents insisted that the United States should use incapacitating gas and germ weapons and must continue to deploy tactical chemical agents packaged in heavy bombs, rockets, artillery shells, and aerosol drums in forward positions to make credible the US ability to retaliate quickly on the field of combat should an enemy use them first.

Deadly biological weapons, whether for causing epidemics or for destroying crops, are regarded by advocates of CBW in the Pentagon as strategic weapons not to be deployed abroad, but according to William Beecher, *New York Times* Pentagon correspondent, "are targeted against

the enemy's homeland. Relatively small quantities of virulent agents could be delivered by aeroplane or missile from the United States".

The critics of CBW argue that the US does not need large arsenals of CBW weapons to deter an enemy. The threat of nuclear retaliation should serve to deter. To this the proponents of CBW in the Pentagon reply that a massive nuclear attack would not seem a believable response to the use of lethal gas against an army in the field. As the debate developed during the Summer of 1969 certain key points and objectives became clearer to me. Although all warfare is inhumane, as civilised human beings we must do everything in our power to assert our humanity. By agreement, either written or tacit, all nations have generally avoided the use of chemical weapons since the first world war, and biological weapons have not been used in the twentieth century. The US should do everything it can to strengthen the ban on the use of these forms of warfare. It would run directly contrary to all our principles of honour and humanity to be the nation to encourage a breakdown of this arms limitation. In any case we have immense arsenals of nuclear and other weapons that should be more than sufficient to deter the use of gas or germ warfare against the US.

Where do we go from here? Can man effectively bring these instruments of mass destruction under control? Or will these awesome weapons of biological and chemical warfare be unleashed to eradicate entire populations, including possibly the initiators? No one today can answer these questions. Certainly the erosion of the Geneva protocol of 1925 by US actions in Vietnam does not encourage optimism, But it is today the only international agreement that has effectively curbed the use in war of certain weapons.

We have used tear gas extensively in Vietnam. Yet tear gas, in the opinion of many countries, is covered under the prohibitions of the Geneva protocol. If the protocol is resubmitted to the US Senate for ratification by President Nixon (as a resolution I introduced in the House of Representatives which a hundred congressmen have co-sponsored, urges him to do). I believe the US should not attempt to exclude tear gas from the coverage of the protocol. This would weaken the only reasonably successful arms control agreement adopted by modern man.

If the US decides to ratify the Geneva protocol but states an exception for tear gas, we would have to spell out the exact chemical formulae and particle sizes and methods of delivery of the exempted tear gases to ensure that they are not changed into entirely different gases. If tear gas is used as an offensive weapon—to help kill —why shouldn't other gases be used? The essential distinction is between the use of tear gas in war and its use in domestic riot control. An armed enemy can retaliate with a more toxic gas and, thus, escalate the gas warfare. Domestic rioters and unruly crowds simply do not have this capacity. The confusion over the use of tear gas in civil disturbances and its use in war is one which those familiar with the Geneva protocol do not share. When the protocol was drafted the words "use in war" were specifically included to ensure that the protocol did not interfere with the use of tear gas to handle domestic riots and other disturbances.

Its use by the civil authorities involves many considerations, but these clearly do not involve the ban included in the Geneva protocol and should not be used as an obstacle to US ratification. However, if the administration believes that it is necessary to ask for an exclusion of tear gas (a step I personally think would be wrong) the President should first agree to check with the other 84 signatory nations to determine whether they would accept this exclusion. If a majority of the nations objected to the exclusion the administration should abandon its attempt to obtain an exclusion for any gas.

UN Secretary General U Thant and many others who have carefully studied the issues involved have declared that the

use of tear gas as an offensive weapon in Vietnam is a clear violation of the Geneva protocol banning first use of gas warfare (a treaty the US stated at the UN in 1966, that in principle it fully supports). The US use of defoliants and herbicides is something else. While I believe their use violates the *spirit* of the Geneva protocol, in fact they had not been invented in 1925 when it was first adopted, but the widespread use of these powerful chemicals raises important issues and further weakens the ban against chemical and biological weapons. The Nixon administration has not considered these questions in the past and hence it not bound by the policies of its predecessors. It should reaffirm America's traditional policy of no first use of gas or germ warfare. And that means gas of any type. "No gas" is simple, easy. Refinements and distinctions can only erode this fragile building block for a saner and more rational world. A second fundamental objective should be ratification of the draft convention submitted by the United Kingdom on 10 July 1969 to the Geneva Disarmament Conference that would prohibit the development, production or use of biological weapons. The British convention would require that existing capabilities be destroyed or diverted to peaceful purposes within three months after the proposed agreement went into effect.

Fred Mulley, the then British Minister of Disarmament, pointed out that the convention would strengthen the Geneva protocol which, though it bars the first use of germ warfare agents, does not bar their production or possession. Under the British proposal "each of the parties to the convention undertake never in any circumstances—by making use for hostile purposes of microbiological or other biological agents causing death or disease by infection or infestation in man, other animals or crops—to engage in bacteriological methods of warfare". This convention contains a complaint mechanism. If a nation suspected that another nation had used germ warfare against a party to the convention, it could complain to the Secretary General of the United Nations, who would then investigate and report to the security council. Such an action by the Secretary General could be taken under a standing authorisation from the security council and would not be subject to a great power veto. But a security council decision, which would be subject to a veto, would be required to investigate less serious charges of developing or processing bacteriological weapons. Perhaps an automatic complaints mechanism that would lead to an inspection without reference to the security council could be substituted here.

Initial reaction by US Delegate James Leonard was unenthusiastic. He welcomed all such initiatives but added that "we are not clear in our own minds whether it would be desirable to conclude a separate measure relating only to biological weapons". But in a response to my letter to President Nixon urging that the British convention be supported, he replied on 19 August 1969: "The US delegation at Geneva is giving serious study to the United Kingdom proposal and has urged other delegations to do so. As you indicate, the proposed methods of verifying compliance deserve the most careful consideration. Serious problems arise from the need to verify a ban on the production and possession of biological agents. On several occasions the US delegation has recommended that a working group be formed to study this programme. The US is prepared to participate actively in the search for effective complaint and verification procedures and can contribute the products of research in this area. While the US supports the objective of the United Kingdom draft convention, a decision on whether or not to support the specific United Kingdom proposal cannot be made prior to completion of the comprehensive executive branch review of US policy in this field. Meanwhile, we will continue our careful examination of this and other possible approaches to the effective control of these weapons."

We must also work to strenthen the present weaknesses as in the proposed British convention outlawing all germ warfare. If this document can be improved with the support of the Eighteen Nation

Disarmament Conference, it can be brought to the UN and submitted to the nations of the world for ratification. The first priority, however, must be for the US, however belatedly, to ratify the Geneva protocol. If it is further ignored and ultimately destroyed then man will be going backwards rather than forward. If on the other hand the Geneva protocol can be strengthened and buttressed it may well be that rational men can build an enduring structure that will halt not only the CBW arms race but help stop the races in other arms before they destroy mankind. All Americans who long for a saner, more peaceful and rational world should urge President Nixon to support the ratification of this document and urge their US senators to vote for ratification for which a two-thirds majority vote is necessary.

If the United States should ratify both documents, this would take us out of the biological warfare field entirely and leave us with a retaliatory capability in chemical warfare weapons. In time, after the other two documents are ratified we should develop effective inspection procedures and move on to ban completely chemical warfare as well. In addition the US government owes it not only to its own citizens but to the people of the world and future generations to develop a clear policy on the use of chemical weapons. Such a policy must consist of stricter controls, a system of accountability, and must be in harmony with civilised principles and especially with a respect for life. We should begin an intensive effort to develop means of inspection for chemical weapons so that we can adopt treaties banning these weapons. Warfare is a kind of madness, a collective sickness of mankind. Fortunately, our revulsion at over one million gas casualties in the first world war led to the adoption of the one successful arms limitation in recent history. We can strengthen this limitation and work to adopt other arms limitations, a ban on nuclear weapons, a means of resolving international conflict without resorting to violence. These are the ultimate objectives. Perhaps on CBW we can set a pattern.

6. CB weapons and arms control

FRANK BARNABY

Like nuclear weapons, chemical and biological (CB) weapons are weapons of mass destruction. However, because of their nature, important differences exist between them and nuclear weapons. CB weapons are of relatively small strategic interest to the nuclear weapon powers since they have little, if anything, to offer them either of military or strategic value. For many years now, the strategy of these powers has been based on perceptions of deterrence. The forces for this purpose are provided by arsenals of nuclear weapons and no other type of weapon of mass destruction is required. Moreover, for psychological reasons, which are difficult to explain, lethal CB weapons have been taken less seriously and have received less public debate than have nuclear weapons and, therefore, their deterrent value is not so great, at least in the perceptions of the larger powers.

CB weapons may, however, be of potential interest to some smaller powers as a future means of acquiring a credible strategic force. The restraints on the acquisition of these weapons, particularly the economic restraint, are much less than those which apply to the acquisition of nuclear weapons. The further development of chemical and, in particular, biological weapons is, therefore, a major cause for concern. The fact that the problem is mainly associated with the smaller powers is an added reason for vigilance since there is a danger that it might be neglected if attention becomes predominantly directed to the issues raised by the nuclear arms race.

There are great difficulties associated with the control of CB weapons and the knowledge of these has led many authorities to the view that the best means of control is by an international agreement to ban their use, development and production. Their control is directly related to other arms control issues. It is therefore relevant to consider, in general, the problems of, and prospects for, arms control and disarmament, both in the short term and in the long term, and the international political background against which negotiations for arms control and reduction will take place. It should, however, be emphasised here that the major threat to the survival of mankind is still the existence of absurdly high levels of nuclear and thermonuclear weapons and that this state of affairs is likely to continue for the foreseeable future.

There is general agreement that the nuclear arms race between the superpowers reached the point of stalemate several years ago. The weapons developed and deployed since this time have not added any further protection or opportunity in international politics for these powers and, therefore, represent a complete waste of resources; the scale of this waste has been very large. The realisation of this fact by the leaders of the superpowers, together with pressures by populations to divert resources to assist in the solution of urgent internal problems have led the leaders of both superpowers to state their intention to attempt to negotiate, through Strategic Arms Limitation Talks (SALT), the control, and hopefully the reduction of the development and deployment of offensive and defensive nuclear weapons systems. The superpowers are likely to be occupied with SALT for some time and it will, therefore, be up to the other powers to consider, at the Committee of Disarmament in Geneva, the question of the control of CB weapons. This task will be assisted by the recent decision by President Nixon to renounce the use of biological weapons and to destroy existing stockpiles, and by the Soviet convention, proposed to the United Nations, to prohibit the manufacture of CB weapons. President Nixon also renounced any first use of those chemical weapons which incapacitate as well as those that kill. However, he unfortunately excluded other chemical agents, like CS gas, and defoliants; both the Soviet Union and United States have large quantities of chemical weapons with their armies in Europe.

Future Problems of Arms Control

It is probable that the main destabilising factor, and indeed the basic problem, in the field of arms control is weapons tech-

nology itself. In fact, many of the major problems facing advanced societies can be related to the momentum of certain technological developments. Problems associated with the pollution of the environment, urbanisation, and transportation have arisen because decisions have been taken to proceed, at an uncontrolled rate, with certain technological developments in the face of very strong arguments against them. The most convincing explanation of this general phenomenon is that the momentum which the developments had acquired by the time they had become political issues made the decision inevitable in the absence of a controlling force. The momentum of technological developments probably arises because, as time passes, each development involves an increasing number of industries, institutions and interests. The forces they can bring into action produces a pressure which seems politically irresistible.

An illustrative example is the automobile. Such a complex of industries is now involved in the production of automobiles that the pressures which would be brought to bear if this production was seriously interfered with would be immense, even if such interference was demonstrably for the good of society as a whole. In the field of arms control there are many examples of the operation of this process. One of these is the development of an anti-ballistic missile (ABM) system in the United States. In spite of the overwhelming arguments against ABMs and in spite of the fact that a great effort was made to put these arguments to the public by the very powerful anti-ABM lobby, the decision was taken to deploy the weapons. Another example is the development of gas centrifuges for the separation of uranium isotopes. It has been decided by the Netherlands, West Germany and the United Kingdom to proceed with this development in spite of the fact that there are no convincing economic or political arguments for it and in spite of the dangers inherent in the development or the proliferation of nuclear weapons. Each of these three countries has stated its strong support for the principle of the non-proliferation of nuclear weapons.

The difficulty of the control of technology is easiest to demonstrate in the field of weapons technology, probably because the rate of advance is exceptionally rapid and because the defence industry is very widely based. As a consequence, many weapons systems have been developed and acquired in large numbers in the complete absence of any sound strategic or political reason for doing so. Moreover, internal arms races are occurring, at least within the superpowers, in which various groups push ahead with the development of a particular system, independent of any overall national strategic plan or objective. Thus, weapons are developed and deployed in an uncontrolled way and afterwards political leaders attempt to rationalise the resultant levels of arms by arguments based on "mutual deterrence" and "the necessity to close gaps".

The adverse consequences arising from the momentum of technology and the problem of control become serious when the scale of technology becomes so great that political institutions are threatened. This has now happened in the more advanced societies. The result is that populations become estranged from their leaders and disruptive forces like racialism and nationalism become exaggerated. The present social unrest in the advanced societies shows the presence of these effects and it is indicative that the only characteristic common to these societies is that their technologies are all advanced. A major complicating factor is that, because of the rate at which technological revolutions now occur, society alters so rapidly that the individual is unable to adapt himself to the changes which occur during his lifetime and young people become alienated from other generations. Technological time, so to speak, already moves faster than biological time and is speeding up continuously. Because technology advances on a broad front and interactions occur between technological developments it is probably misleading to consider one development, such as CB weapons, in isolation. Instead, the development of CB weapons should be considered as part of the much wider problem.

On first sight, the most obvious way in which the momentum of technology could be controlled would be for political leaders to intervene and stop, or slow down, those developments which are, on balance, likely to have adverse effects until the necessary measures have been taken to reduce the consequences of these effects or until society has adjusted itself to accept them. However, political leaders probably cannot be expected to take this action because the nature of politics makes it exceedingly difficult for them to do so. The measures would be perceived to be against the short term interest of a large segment of the electorate and powerful lobbies would be involved. Moreover, the issue does not come before the political leaders until the development has passed the stage when control could be easily applied. Also, the advisers to the political leaders are often themselves directly involved in the technology and do not, therefore, give objective advice.

It is, of course, true that examples can be found of developments which have been stopped, but closer examination usually shows either that these were replaced by alternative developments which satisfied the industries concerned or that the alternatives were supported by interests with stronger political influence.

Only a minority of technological developments, if uncontrolled, have the adverse effects referred to above, but these could produce such a hostile public reaction to science and technology in general (and, in fact, to all rational thought) that, in the future, the beneficial results to be obtained from technology could be jeopardised. In addition to this, further developments in weapons technology could make arms control negotiations very much more difficult even than they are at present.

If it is accepted that technological advance is, in practice, very difficult to control, both vertically within countries and horizontally between countries, in the framework of the present type of social and political institutions then, on first sight, the outlook for disarmament is sombre since the evolution of society is demonstrably slow. Until comparatively recently, the shortage of natural resources forced societies to defend the wealth within a defined territory. By biological evolution man has acquired the ability to develop technology to a stage where, on the one hand, enough wealth could be produced for all and, on the other hand, war could be totally destructive.

The social structures which must be evolved to cope with this situation for the good of all will clearly be of quite a different nature to the social structures with which we are, at present familiar, and which are based on the perceived necessity to defend narrow national interests. For example, the finance required for anti-pollution measures is not made available because it would increase the cost of the products of the national industries which cause the pollution. In an international system in which sovereign states compete economically, one state will obviously not risk putting itself at a disadvantage, and the avoidance of polluting a neighbouring state's environment becomes a very secondary consideration. Similarly, it may not be realistic to expect really significant arms control and disarmament to occur until societies have evolved to a point where the relations between them are such that weapons become irrelevant. However, there are signs that states are becoming willing, or are being forced by experience, to take into account the interests and the desire for change of other states and that reciprocity of interest is slowly becoming a stronger determinant of international relations than power. This means that communication, discussion and collaboration between states are increasingly used to provide for peaceful change within the present system of sovereign and independent states.

The present period could, therefore, be regarded as an evolutionary stage between a period where power predominates and a period where reciprocity will predominate. During the transitional period it is clearly necessary to achieve whatever arms control and reduction

measures are possible within the existing political framework. A continuation of the arms race should not only be attacked on moral and economic grounds, but because it will erode the strategic balance between the superpowers and make arms control measures extremely difficult to negotiate. This will inevitably increase the likelihood of a general nuclear war.

Two factors relevant to CB weapons can be drawn from the above argument. Firstly, the fact that there is no sound strategic or political reason for the development and acquisition of these weapons does not mean that the weapons will not be acquired. History indicates that states tend first to acquire weapons and then to rationalise this action *after* the event. Secondly, the present may be the right time to control the development of biological weapons because this development has probably not yet reached the stage after which control becomes virtually impossible and, therefore, further development becomes inevitable.

In summary, consideration of the prospects for disarmament leads to the following conclusions. (a) In the short term it is unlikely that *very significant* measures of general disarmament will be achieved. (b) In the long term, general disarmament will probably come about, in effect, because social and political institutions will become modified in such a way that arms will have little, or no, relevance. Pressures for this modification, provided by technological, economic and social factors, are already in evidence. (c) In the short term, it is essential that progress is made in arms control, and CB weapons represent a field in which there is some prospect of an early agreement because conditions may be right for the establishment of control on the development of, at least, biological weapons. (d) It is essential that a concentration on the larger problem of arms control in the field of nuclear weapons does not weaken efforts for the control of CB weapons. Because of the interaction between all fields of arms control, success in one direction can assist success in others by, for example, weakening the power of the military.

Factors of Change in International Politics

The rapid introduction of technological innovation will change the relative economic power relationships among nations. If the fraction of the gross national products of the states devoted to military expenditure remains constant, the absolute amount of money spent on weapons will quickly increase. This will, in turn, increase the influence of the military and of the military interest groups in many states and might produce pressures for the acquisition of a wider spectrum of weapons, including CB weapons. Demand for the acquisition of new weapons will probably not be based on sound strategic reasons but will be made purely because the weapons exist. The relative power of states to influence events will change and this may create new sources of conflict. Some states may perceive a need to increase their military power which would, also, lead to a greater influence of the military in the decision making process.

Another important factor of change in international politics will be a widening of the gap between the developing and the developed nations. This would produce a number of areas of conflict throughout the developing regions and is likely to cause North-South tension which will cut across the existing East-West tension. In some cases, the former will exacerbate the latter, but other cases will involve common interests. So far as CB weapons are concerned, the potential tensions in developing areas are of particular significance. Some states in these areas might, in the future, regard CB weapons to be of particular use to them and be impressed with the relative cheapness of these weapons, both in terms of money and skilled manpower. In addition to these destabilising consequences of technological advance, there are likely to be stabilising consequences. Many of the problems raised by large scale technology will only be solved if the nation states within certain regions co-operate in their solution; it will not be within the competence of the governments of

the states themselves to solve these problems. Because of this, regional and international co-operation will increase, even if some groups are against such co-operation and in spite of the increasing importance attached to nationalism.

It follows, therefore, that increased technology will create pressures in two directions. On the one hand, there will be a tendency for states to increase their levels of armaments due to an increase in gross national products and, therefore, in defence expenditures. This tendency will be reinforced by changes in the relative power structure of states and tensions created by the coming problems of the developing countries. On the other hand, technological advance will make it imperative that states co-operate. At this point of time, it cannot be foreseen whether the disruptive or the cohesive forces will predominate.

It can be predicted that considerable changes will occur in the international power system. The capability of the two superpowers to influence events will probably decrease due to the limitations of strategic power and the continuing force of nationalism. The emergence of China as a third power centre will cause readjustments in the world power structure which may cause states, particularly in Asia, to perceive new security problems. This could cause some of these states to consider the acquisition of new weapons systems, including CB weapons.

In summary it can be concluded that trends in international politics over the next few years will be towards the rise of political forces which will decrease bipolarity but which will create new tensions. The influence of smaller powers will increase and these powers will become less content to accept the will of the superpowers. Changes in the structure of the international power system and the emergence of the North-South problem will create new security problems for some states. These factors may produce pressures in many states for new weapons, including CB weapons. Moreover, the accelerating rate of technology and the difficulty of controlling technological advances will increase the difficulty of obtaining far reaching arms control measures. However, it can be foreseen that technological progress will make necessary an increasing degree of co-operation between states.

Conclusions

Because the further development of CB weapons would decrease world security, which would have serious consequences for all states, all reasonable men must believe that it is important to work for an international agreement to renounce these weapons. This task will not be easy in the conditions which are likely to exist over the next few years. Moreover, it will be mainly left to the smaller powers to negotiate the control of CB weapons.

Some factors will assist the task of controlling CB weapons whereas others will make it more difficult, and it is impossible to predict which set of factors will predominate. The outcome may, in fact, be determined by the internal forces within the industrialised nations, and these domestic forces, probably as a consequence of large scale technology, will become a principal source of internal change in industrialised societies and are likely to have an increasing effect on international politics. Traditional values are being rejected by the younger generation, new values are being evolved, and modified political and social institutions adapted to the changing requirements of technology are being sought. A consequence of this is that industrialised countries are becoming more preoccupied with domestic problems, and domestic factors are playing a greater role in formulating foreign policies. It is a hopeful sign that this movement seems to include a move away from militarism and a revulsion for weapons of mass destruction. It is important that these feelings are mobilised and used to exert pressures on political leaders for increased efforts to obtain arms control and disarmament agreements. For this purpose it is important that the public is kept aware of the catastrophic consequences of the use of nuclear and chemical and biological weapons.

7. CB warfare: disarmament prospects

JAN PRAWITZ

In recent years there has been a growing concern about chemical and biological weapons. But this concern is not a new one. It is an amplification of a concern that has a long tradition. Already back in 1907 a ban on the use of poisonous substances was included in the conventions adopted in the Hague, but of course, this ban was not observed during the first world war. On the contrary, poisonous gasses were extensively used on both sides. More than 100,000 tons was deployed and about 100,000 men were killed by use of gas. This experience caused grave concern and provided the necessary political background for the important "Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare" signed in Geneva on 17 June 1925 by 38 states, an appreciable number at that time.

The Geneva protocol says that "whereas the use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices, has been justly condemned by the general opinion of the civilised world (and) whereas the prohibition of such use has been declared in treaties to which the majority of powers of the world are parties, and to the end that this prohibition shall be universally accepted as part of international law, binding alike the conscience and the practice of nations", the parties declare that "so far as they are not already parties to treaties prohibiting such use (they will) accept this prohibition, agree to extend this prohibition to the use of bacteriological methods of warfare and agree to be bound as between themselves according to the terms of this declaration". The parties also agree to "exert every effort to induce other states to accede to the protocol".

History has proved the Geneva protocol to be a very important document indeed. The first country to ratify was France, others have followed all the time, for instance, in 1969 Argentine, Nepal, Lebanon and Israel adhered to the protocol. However, there are a few important limitations in the picture. Several signatories never ratified, including Brazil, Japan, USA and Uruguay. Several parties acceded under the condition of reciprocity and mutual observance of the forms of the protocol. Thus, the questions, who is forbidden to do what in a certain situation and what will result from actual use of gas in war are not simple ones.

While the protocol did not prevent the use of gas in some cases such as the war in Ethiopia in 1936-37, it was respected throughout the second world war. It is true that both sides did prepare for chemical warfare, including much more effective chemicals than had been used in the first world war, but the order to launch a chemical attack was never given. This is a remarkable fact, that has greatly increased the prestige of the protocol, today still regarded as a cornerstone among arms control agreements.

Since the second world war disarmament negotiations inside or outside the United Nations, have been completely dominated by questions concerning nuclear weapons, turning biological and chemical means of warfare away from the attention of statesmen and public opinion; this in spite of the fact that such weapons are potentially much more disastrous today than they were during the first world war. On the other hand, the preference given to nuclear weapons is understandable since nuclear weapons are after all superior today to CB weapons in terms of destructive capability. In addition, there is no prestigious protocol to suppress the temptation to use nuclear weapons. However, CB weapons are frequently included in proposals on limitations of nuclear weapons within the concept of "nuclear weapons and other weapons of mass destruction".

In 1962 biological and chemical weapons were explicitly mentioned in the "Draft Treaty on General and Complete Disarmament Under Strict International Control", submitted by the Soviet Union to the Eighteen Nation Conference on Disarmament in Geneva on 15 March, and in the "outline of basic provisions of a treaty on general and complete disarmament in a peaceful world" submitted by the USA on 18 April.

According to the Soviet proposal CB weapons would be eliminated between fifteen months and two and a half years after the initiation of the general disarmament process. All types of CB weapons would, according to the Soviet proposal, be eliminated from the arsenals of states and destroyed. All instruments and facilities for the combat use of such weapons, all special facilities for their transportation, storage and conservation would simultaneously be destroyed. The production of all types of CB weapons and all means and devices for their combat use, transporation and storage would be completely discontinued. All plants, installations and laboratories, wholly or partly engaged in the production of CB weapons would be destroyed or converted to peaceful purposes. The proposed measures would be implemented under the control of international inspectors.

According to the American proposal the parties would during the first three years of the general disarament process "examine" unresolved questions relating to the means for a later reduction and eventual elimination of production and stockpiles of CB weapons of mass destruction. In the light of this examination the parties would agree to arrangements for the implementation during the following years of a cessation of all production and field testing of CB weapons, and the dismantling or conversion to the peaceful uses of all such facilities. The measures would be carried out in an agreed sequence and verified by international inspection. After six years the final elimination of the remaining CB weapons would be undertaken. The merit of these proposals is that they outline what is needed to remove the danger of a war with biological and chemical weapons. The great disadvantage is that there is at present very little interest in the whole question of general and complete disarmament (GCD). However, several issues have been taken out of the GCD context and treated separately as collateral measures. This is true of non-proliferation, strategic arms limitation (SALT) and in the last three years it is also true for the issue of CB weapons.

One result was achieved when on 10 October 1967 the "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies" came into force. States parties to that treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or *any other kinds of weapons of mass destruction,* install such weapons on celestial bodies or station such weapons in outer space in any other manner; in other words, the treaty also bans CB weapons in outer space.

In the "Draft Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Seabed and the Ocean Floor or in the Subsoil thereof" tabled jointly by USA and USSR at the Geneva Disarmament Conference on 30 October last year, states parties to the treaty undertake not to emplant or emplace on the seabed, the ocean floor, or in the subsoil thereof beyond twelve miles from the coast any objects with nuclear weapons or *any other types of weapons of mass destruction,* as well as structures, launching installations or any other facilities specifically designed for storing, testing, or using such weapons. This is another example of including CB weapons in a measure primarily dealing with nuclear weapons.

In the future CB weapons might be and should be included in additional measures within the framework of nuclear arms control. This is particularly appropriate in relation to the question of nuclear delivery vehicles, which was recently the subject of preliminary discussions between the superpowers in Helsinki (SALT). In recent years world public opinion has begun to take an interest in CB weapons. In part this is due to the use of so called riot control agents in Vietnam. CB weapons have, accordingly, been brought up in the disarmament negotiations as a separate issue. In all these talks the 1925 Geneva protocol has been the basis of the discussion. On 5 December 1966 UN General Assembly adopted a resolution calling for strict

observance by all states of the principles and objectives of the Geneva protocol, condemning all actions contrary to those objectives, and inviting all states to accede to the protocol. The USA, which never ratified the protocol, voted in favour of the resolution. Since that date 16 more states have acceded to the protocol.

In the Summer of 1968, after the work on the treaty for the non-proliferation of nuclear weapons was successfully completed, CB weapons were brought up again. The Soviet Union tabled a proposal urging the observance by all states of the Geneva protocol. Having achieved this one could, according to the Soviet proposal, pass on to the next measure—cessation of the manufacture of CB weapons and their destruction. A few weeks later, on 6 August, the United Kingdom tabled a draft convention according to which, in addition to renouncing the use of biological weapons, governments would accept a total ban on the possession and production of biological weapons and on research into them. On 20 December 1968 UN General Assembly adopted a resolution which again reiterated its call for the strict observance of the Geneva protocol and urged all states to accede to it. The resolution also requested the Secretary General to prepare a report on the subject and recommended governments to give the report wide publicity in each of their respective languages, through the various media of mass communication in order to acquaint public opinion with its contents.

In 1969 the negotiations for a prohibition of CB weapons were even more lively. The Geneva protocol was positively referred to all the time, USA signed a commitment to respect it, which is important as USA has not yet ratified it. The United Kingdom tabled a revised draft convention for the prohibition of biological methods of warfare and an accompanying draft security council resolution dealing with collective assistance in case of violation of the convention. Japan proposed a study of the question of control and the non-aligned members of the Geneva disarmament conference tabled a joint draft UN declaration prohibiting the use of CB weapons, while Canada tabled a draft UN resolution on CB weapons. But the most important event was the publication on 2 July of the UN expert report, which has already been widely appreciated and quoted in debate.

At the time of writing, matters of disarmament, including those relating to CB weapons are being discussed in the UN General Assembly. In the last three years CB disarmament has become a priority issue on the agenda of the disarmament negotiations. What are the prospects for the future? Will the trend I have just described lead to the eventual elimination of CB weapons? I believe it will, but the difficulties should not be overlooked.

These weapons have no essential function within the overall balance of power. A renunciation of all CB weapons would not upset that balance, but the fact that certain gases have been used and are being used in war, will make CB disarmament less easy to negotiate than the treaties for nuclear free zones in Antarctica, Latin America, outer space, and the ocean floor; areas never connected with atom bombs.

Generally, questions of control have been the limiting factor in the negotiation of most disarmament measures and, in this case, control is no easy matter; however, very promising progress is being made. Even if a foolproof control system cannot be designed, one should not be discouraged. If adequate methods of rapid detection can be developed, they will greatly complement efforts of control because, if a silent attack can be detected and if counter measures can be mobilised to make the attack unsuccessful, the clandestine deployment of CB weapons will be meaningless. Of course, the implementation of early warning methods will have to be internationally organised and linked to some machinery for counter attack, possibly the World Health Organisation, already established in the relevant medical field. If a country can be sure of adequate protection against CB weapons through an interna-

tional machinery for control, early warning and active counter measures, it will be much easier for that country to abstain from second strike and deterrence forces of their own.

In this early stage of negotiations, the role of public opinion is very important, so the UN expert report is very important too. However its importance is heavily dependent on the way it is communicated to the public, and governments have a great responsibility for this. The UN General Assembly will probably adopt a resolution urging governments to make the report available to the public. It is available from the UN information office in the five official languages of the UN, English, French, Russian, Spanish and Chinese, and that covers most of the world population, but for the rest of the world translation will be necessary. It is important to emphasise this as the experience from the communication of an earlier report on nuclear weapons is not encouraging. I am proud to say, however, that as far as my own country is concerned, a Swedish edition has recently been published and is now available at a subsidised price to the Swedish public and the Swedish speaking minority of Finland.

An expression of support for CB disarmament should include the following points: a recognition of the fundamental value of the prestige and tradition linked to the Geneva protocol; an invitation to states, which have not yet done so, to accede to the protocol; effective measures of abstention from CB weapons beyond the commitments of the protocol. (In this connection governments should be urged not to concentrate on semantic questions about the difference between weapons and riot control agents, and technical problems on the precision of control, but rather invite international expertise to study special problems which arise); the continuation of the hopeful research into control and early warning and preparation for organising their international implementation, possibly through WHO; the extension, as appropriate, of disarmament proposals on nuclear weapons to include also other weapons of mass destruction; and finally, of course, a plan for effective distribution of the UN expert report on CB weapons, translated where necessary.

8. CB warfare : the British Government's view

EVAN LUARD

U Thant's report on CBW describes in chilling scientific detail what the effects of the possible use of chemical and biological weapons might be. Most of this paper will describe what the British Government has done, and is continuing to do, to bring about further measures of arms control and disarmament in the CBW field, but first, let me deal with one point which, though not directly concerned with the arms control and disarmament aspect of CBW is, nevertheless, the concern of the British Government. Some time ago there was a great deal of discussion and argument over what the British Government might be up to at Porton Down. There has not been so much talk of this lately, but let me take this opportunity of making the position entirely clear. The purpose of Porton Down and its associated establishment is defence: to find ways of protecting the British public and armed forces against chemical or biological attack. We do not manufacture or stockpile chemical or biological weapons ourselves at Porton or anywhere else. We do not believe in this, and the purpose of the steps we have taken at the Geneva disarmament conference is to prevent these weapons being used at all. This work is done at two establishments, the chemical defence establishment at Porton Down and the microbiological research establishment at Nancekuke in Cornwall, an associated establishment which produces small quantities of toxic chemical substances for the defensive research at Porton.

The main arms control agreement in the field of CBW is the 1925 Geneva protocol. This was and still is a milestone in disarmament work; it came into existence because of the deep concern felt, as a result of the experiences of the first world war, over the threat posed by chemical and what were then called "bacteriological" weapons. The continued validity of the protocol and the respect in which it is generally held show that this concern has persisted until today. But it has its limitations, and is perhaps inadequate in the light of our present knowledge and requirements. Quite apart from the fact that the wording is somewhat outdated and imprecise, it prohibits only the *use* of the weapons concerned, and even this prohibition is not absolute. Less than half the states now in existence are parties to the protocol and they are only "bound as between themselves". Furthermore, many have specifically reserved the right to use the prohibited weapons not only against non-parties, but against violators of the protocol and their allies, for there is nothing to prevent states from having the means with which to do this production; and possession of the weapons concerned is not prohibited. But the Geneva protocol has one overriding merit. It exists, and the British Government believes that it should be possible to build on the admirable foundation that it provides. We naturally hope that all states that have not already done so will soon become parties to the protocol, and indeed we are under an obligation (and I quote from the protocol) to "exert every effort to induce other states to accede". We therefore supported resolution 2162 (B) which was adopted by the UN General Assembly on 5 December 1966. This called for strict observance of the principles and objectives of the 1925 Geneva protocol and invited all states to accede to it.

This is still not enough. Although, throughout 1967 and early 1968, the main emphasis in the disarmament negotiations was on the nuclear non-proliferation treaty, and rightly so, the British Government then began to look ahead to what might be done *after* agreement was reached on the NPT in order to keep up the momentum in the disarmament negotiations. On 1 July 1968 the NPT was opened for signature. On 16 July 1968 the British Government presented some carefully thought out proposals at the disarmament conference in Geneva for further measures of arms control and disarmament not only in the nuclear field, where we suggested means by which a comprehensive test ban treaty might be brought about, but also in the non-nuclear field of chemical and biological warfare. The Government thought something should be done to strengthen the 1925 Geneva protocol while, of course, keeping the protocol itself in being. This

proposal in itself was a fairly controversial one. A number of states, including the Soviet Union, argued at this time that all that was needed was universal observance. But naturally, difficult problems were expected in going beyond the Geneva protocol. The fact that this, the last effective arms control agreement in the CBW field was itself nearly 50 years old showed clearly enough that further progress would be anything but easy. But it is all too easy to be content with the *status quo,* so why not take a look at the problem from a fresh angle?

The difficulties in going beyond the Geneva protocol seem to relate almost entirely to chemical weapons. These weapons already exist in large numbers; they have been used on a large scale in war in the past; new and deadly chemical weapons were developed during the last war and have been developed since; they are regarded by some states as weapons they must have and be prepared to use, should it become necessary, in any future war, if only in retaliation against a chemical attack by another state. It is no secret that they are deployed in the field in Europe, both by the Soviet Union and the United States. You can't get rid of them merely by wishing them away. Another problem is that certain chemical agents which can be used in war also have legitimate peaceful uses; for instance in riot control and the apprehension of dangerous armed criminals. Thus any measure calling for the complete prohibition of chemical weapons would probably fail to win the support of many states. So the problems in going beyond the Geneva protocol in the chemical field are formidable, though not insuperable. However, it seemed there was a good chance that something could be done and soon in the field of *biological* weapons for they are at a much earlier stage of development. They have never been used in modern warfare and so the effect of their use in war are a matter for speculation. U Thant's report of 1 July on CBW brings out this point extremely well. Paragraph 37 describes in great detail how chemical weapons could be used in the field; it mentions a large number of tactical possibilities. Paragraph 38 deals with the use of biological weapons, it begins: "There is no military experience of the use of bacteriological (biological) agents as weapons of war and the feasibility of using them as such has often been questioned".

So, where biological weapons are concerned, the beast is still in its lair. As U Thant's report shows clearly, the kind of damage it could do if it was ever allowed to leave its lair is potentially terrifying; but it is not out yet, and what the British Government has been trying to do since 1968 is to stop it from ever getting out. Because the problems involved in seeking to go beyond the Geneva protocol seem greater and international opinion less clear in the field of chemical weapons the Government proposed on 16 July 1968 that the Secretary-General of the United Nations should be asked to prepare a report on the nature and possible effects of chemical weapons and the implications of their use. The idea was that this would provide the disarmament conference in Geneva with an internationally agreed scientific basis for future consideration of measures for the limitation and control of such weapons, as well as focussing public opinion on the issues involved. This proposal was then taken up by the disarmament conference and the UN general assembly and extended to include biological weapons as well. The study was undertaken and the report came out on 1 July 1969.

As far as biological weapons are concerned, the Government thought that in addition the time was ripe *now* for an international convention which would strengthen the provisions of the 1925 Geneva protocol by prohibiting *all* use, production and possession of biological agents for hostile purposes, to ensure, as far as was humanly possible, that the beast remained in its lair forever. A draft convention was prepared for the prohibition of biological methods of warfare, together with an associated draft security council resolution, and these were tabled at the disarmament conference in Geneva on 10 July 1969. (Both drafts were issued as a white paper, Cmd 4113.)

Foolproof verification, in the sense in which that word is normally used in the disarmament negotiations, meaning a comprehensive system of control and inspection machinery, is not likely to be possible in the field of biological warfare. Agents which could be used for hostile purposes exist in nature, and are generally indistinguishable from those which are needed for normal medical purposes; for instance, in the preparation of vaccines. Furthermore, the facilities required to produce biological weapon agents could be both makeshift and inconspicuous. No system of verification, however comprehensive, could prevent clandestine production of BW agents or even of the weapons themselves. Nevertheless, because development of biological weapons is at such an early stage, it should be possible, in this particular case, to accept the risk of "cheating" provided there are other strong deterrents against this.

The Government have therefore proposed a complaints procedure which would directly involve the United Nation (hence the need for the associated draft security council resolution). Under this procedure, complaints by any party that biological methods of warfare had been used against it would be addressed to the UN Secretary-General who, it is envisaged, would have standing authority from the security council to investigate such complaints immediately and report his findings to them. Other complaints, for example, about production and possession and about use against another party) would be addressed to the security council itself, which would then, if it saw fit, authorise the UN Secretary-General to carry out an investigation and report back. It is of course desirable that investigation of all complaints should proceed as quickly and automatically as possible, in order to strengthen the deterrent effect of such machinery. Quick and automatic investigation should be possible where a party alleges that biological methods of warfare have been used against it because, in that case, the complainant would provide all the facilities for carrying out an investigation. In other cases, facilities for carrying out investigations would have to be provided by parties who might well object to doing so. In these circumstances it would not be possible to have automatic investigation. However, as a further deterrent against infringement, the convention includes a "security assurances" article, under which parties would undertake to provide or support assistance to a party which was a victim of biological attack.

Although there are very good reasons for dealing first with biological methods of warfare, because of the importance of chemical weapons the Government have included an article in their draft BW convention, on the lines of Article VI of the Non-Proliferation Treaty, under which parties would undertake also to pursue negotiations in good faith on effective measures to strengthen the existing constraints on *chemical* methods of warfare. This article was included to take account of the natural feelings of a number of states that the question of chemical warfare should not appear to be neglected. Following the tabling of these two drafts in Geneva on 10 July, useful and detailed discussion of them took place in the conference of the committee on disarmament. They were revised slightly in the light of comments made in the committee, and they have now been sent with the report of the committee to the UN general assembly.

The British Government has played the leading part in stimulating international concern over the CBW threat, and in seeking measures to deal with this threat. It is to be hoped that the UN general assembly, which is now discussing disarmament, will call on the disarmament conference in Geneva to pursue work on CBW urgently at its next session, and that it will be possible to move towards international agreement on what can be done. There has been progress already. The British draft BW convention has already been discussed in detail in the disarmament negotiations in Geneva and we are hopeful that further, more rapid progress on this will be made at the next session in Geneva. The UN Secretary-General's valuable report should help to provide a good basis for future consid-

eration of further measures of arms control and disarmament in the field of chemical weapons as is envisaged in the British draft BW convention.

Most states have now come to accept the idea that something should be done to strengthen the 1925 Geneva protocol. This itself is a very significant step forward. The Soviet Union and her allies have now come to see the force of our argument and have proposed the conclusion of a draft convention on the prohibition of the development, production and stockpiling of chemical and biological weapons and on the destruction of such weapons. Unfortunately, the Soviet Union and her allies have so far chosen *not* to table their draft convention at the disarmament conference in Geneva, so there has been no opportunity to discuss it in the accepted forum for disarmament negotiations. The content of their draft convention seems to confirm that it would have been better if the normal procedure had been followed.

As it stands, the draft does not seem to offer a practical solution to some of the problems raised by chemical and biological methods of warfare. It does not, for example, include a comprehensive ban on the *use* of the prohibited weapons. A number of parties to the 1925 Geneva protocol, including the Soviet Union and some of its allies, have reserved the right to use the prohibited weapons against non-parties, violators of the protocol and their allies. It is a little puzzling, therefore, that the Soviet Union and its allies should have tabled a draft convention purporting to prohibit the production and possession of chemical and biological weapons but, at the same time, should have been careful to retain the right to use these weapons in certain circumstances.

Another shortcoming of their draft is that it does not include any realistic proposals to deter would be violators. Consultation and co-operation between states may be all that is required in some arms control measures, for instance, on the sea bed, where states are free to observe other states' activities. But more than this is required when it is a question of a state's activities within its own national territories. That is why the British draft BW convention includes the proposal for a complaints procedure.

Of course, we would all like to get rid of chemical weapons as well as biological ones if we possibly could, but you can't just wish them away; the difficult problems involved have to be tackled resolutely, and it is my belief that the problems involved in eliminating CBW *will* be so tackled by the conference of the committee on disarmament in its sessions next year. That is the place where the rival merits of our own and the Soviet approach can be discussed in detail.

I hope I may not seem to have over emphasised the difficulties. I personally am optimistic. Given goodwill, readiness to negotiate and the willingness to take a fresh look at old problems, I am hopeful that real progress can be made, and made soon.

9. CB warfare: the legal aspects

SEAN MacBRIDE

Recent interest in the field of chemical and biological warfare, in its elimination as a means of waging war and in the control of the production of chemical and biological weapons, renders necessary an examination of the existing rules and of the humanitarian laws already in existence relating to armed conflict in general and the work being undertaken to modernise this law. Attention is drawn in particular to Resolution XXIII of the UN International Conference on Human Rights (see Appendix 8) and to Resolution 2444 (XXIII) adopted by the general assembly (see appendix 7).

There is a tendency today to emphasise the urgent need to deal with the subject of CB warfare as a distinct problem from that of warfare in general. In fact it is inherently linked to the problem of recurring resort to armed conflict as a means of settling international disputes and the necessity to protect humanity and the individual against the barbarity and cruelty of such conflicts. CB weapons present grave irreparable dangers to society and an end must be sought to their development, production and stockpiling. Indeed, the whole subject has been comprehensively examined in the excellent report of the Secretary General of the United Nations.

The 'Laws of War'

The laws of war are contained in the Hague conventions of 1899 and their revisions of 1907, the Geneva protocol of 1925, and the humanitarian Geneva conventions of 1949 dealing with the protection of the sick and wounded, the civilian populations and prisoners of war.

Relations between belligerents in the conduct of operations, methods of warfare and the use of weapons, are governed by the Hague conventions and the Geneva protocol. Article 22 in both the Hague conventions relating to the laws and customs of war on land (1899 II, 1907 IV) provides that "the right of belligerents to adopt means of injuring the enemy is not unlimited". Another common article (Article 23) especially forbids the use of poison or poisoned weapons, the treacherous killing of individuals, the killing or wounding of an enemy who has surrendered *or* who has no longer any means of defence, and the use of arms or materials calculated to cause unnecessary suffering. Article 25 (1907 IV) prohibits attack or bombardment *by whatever means* of undefended towns, villages, dwellings or buildings. Naval bombardment of such places or of ports which are undefended is also forbidden by Article 1 of the 1907 convention (IX) concerning naval forces in time of war.

Pillaging is forbidden even of towns taken by assault (Articles 28, 47, 1899 II, 1907 IV Article 7, 1907 IX). Belligerents are forbidden to force the inhabitants of an occupied territory to furnish information about the army of another belligerent (Article 44, 1907 IV). No general penalty, pecuniary or othewise, may be inflicted on the population for acts of individuals for which the general population cannot be regarded as jointly and severally responsible (Article 50, 1899 II, 1907 IV).

A declaration adopted by the Hague conference of 1899 had forbidden the use of projectiles, "the only object of which is the diffusion of asphyxiating or deleterious gases" and "the use of bullets which expand or flatten easily in the human body". The 1925 Geneva protocol gave partial form to this declaration by forbidding the use in war of "asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices".

The prohibition took cognisance of scientific developments by extending its terms to the use of bacteriological methods of warfare. On 5 December 1966 the general assembly of the United Nations further recognised the general applicability of the protocol by inviting all states to conform strictly with its principles and objectives and by condemning any violations. The resolution also invited all states to adhere to the Geneva protocol. This resolution was reaffirmed in Resolution 2454 (XXIII) which dealt with chemical and biological warfare.

It must be recalled that although the provisions relating to the conduct of operations such as those enumerated above cannot be considered as comprehensive in forbidding inhumane methods of waging warfare, the Hague conferences were convened mainly to deal with the limitation of armaments and the pacific settlement of disputes. Their provisions relating to methods of warfare are declaratory, not amendatory, of customary international law. All states, therefore, whether or not they took part in the conference or ratified the conventions, must be considered bound by the principles which were involved. Failure to ratify can merely be regarded as the rejection of a codified text, and not as a rejection of the principles of international law. Moreover, both the 1899 and the 1907 conventions contain a clause which draws attention to the awareness on the part of the participants to the lacunae in the codified texts and to the general applicability of the principles of humane behaviour by stating that "until a more complete code of the laws of war can be drawn up the high contracting parties deem it expedient to declare that, in cases not covered by the rules adopted by them the inhabitants and the belligerents remain under the protection and governance of the principles of the law of nations, derived from the usages established among civilised peoples, from the laws of humanity and from the dictates of the public conscience." (The preable of the Hague convention No. VI of 18 October 1907. This is known as the *Martens Clause,* after its author, Professor F. F. de Martens. The same words are also quoted in each of the four Geneva conventions of 1949—First Convention Art. 63 ; Second Convention Art. 62 ; Third Convention Art. 142 ; Fourth Convention Art. 158).

The Geneva protocol recognises that certain practices, having been condemned "by the general opinion of the civilised world", are contrary to international law, and that the prohibitions contained in the protocol are to be universally accepted as a part of international law, "binding alike the conscience and the practice of nations". By the same token, a declaration of war is not an essential precondition for the obligation to apply the conventions. The mere existence of an armed conflict brings into operation the applicability of regulations concerning warlike behaviour.

Respect for the Individual

Treatment of individuals in time of war or armed conflict has been the subject of several international conventions since 1864. In 1949, mainly at the instigation of the International Committee of the Red Cross, they were revised, and the Geneva conventions of 1949 now constitute the most thorough codification of the rules for the protection of the human person in armed conflicts. The four conventions, which deal with treatment of the sick and wounded, prisoners of war and the civilian populations, are based on the principle that persons placed *hors de combat* and those taking no active part in the hostilities should not be killed and should in all circumstances receive humane treatment.

The first convention declares that all persons, either civil or military, who may be considered as forming part of the armed forces, including organised resistance movements, who are wounded or sick, must be respected and protected in all circumstances without discrimination. They must not be tortured, murdered or subjected to experimentation (Articles 12 and 13). Medical units, hospitals and aircraft and medical or auxiliary personnel must be protected (Articles 19-26 and 36). The wounded and sick of a belligerent who fall into enemy hands must be treated as prisoners of war (Article 14).

The second convention applies the same protection to members of the armed forces and others at sea who are wounded, sick or shipwrecked, and also protects military hospital ships (Articles 12, 13, 16 and 22). It forbids bombardment or attack from the sea of establishments ashore which fall under the protection of the first convention (Article 23).

The third convention deals with the treatment of prisoners of war, who must at all times be humanely treated (Article 13). Measures of reprisal are prohibited (Article 13) and they are entitled in all circumstances to respect for their persons and their honour (Article 14). They may not be tortured or coerced in any way to give information (Article 17). They may not be deprived of their property (Article 18). Proper attention must be paid to their health and safety (Articles 20, 22, 23 and 25-30). Disciplinary sanctions are strictly limited by the convention (Articles 82 and 88-98). Judicial proceedings may only be brought according to the rule of law as elaborated in the convention (Articles 82-88 and 99-108). A death sentence may only be carried out if the provisions of the convention have been observed and the sentence has been pronounced by the same courts and according to the same procedure as in the case of members of the armed forces of the detaining power (Articles 100-102).

The fourth convention aims at protecting the civilian populations of countries in conflict and at alleviating the sufferings caused by war. The wounded and sick, the infirm and pregnant mothers are the object of particular protection (Article 16). Evacuation of civilians and the protection of hospitals and hospital staff are labelled as a principal concern for the parties to the conflict. (Articles 17-20). Collective penalties, pillage and reprisals, the taking of hostages, corporal punishment or torture are prohibited (Articles 32-34). Provisions for the treatment of civilians when under the control of an occupying force are similar to those applicable to prisoners of war.

All four conventions give special status to the International Committee of the Red Cross, whose personnel must be protected and must be allowed to carry out their humane activities with the co-operation of the parties to the conflict and free from any interference. Although the conventions strictly apply to wars of an international nature, Article 3 of all four conventions stipulates that a minimum of humanitarian provisions apply in all "armed conflicts" even those which are not of an international nature. Moreover the high contracting parties have undertaken not only to respect the conventions themselves, but "*to ensure their respect in all circumstances*".

Implementation of the Conventions

Regarding implementation of the conventions the parties are placed under strict obligations by the conventions themselves. Under Articles 47(I), 48(II), 127(III), and 144 (IV) they have undertaken to disseminate the text of the conventions as widely as possible "in time of peace as in time of war" so that the principles may become known to the entire population, in particular the armed forces and medical personnel. Under Articles 45(I) and 46(II) each party to a conflict is bound to ensure the execution of the provisions of the conventions and to deal with unforeseen cases in conformity with the general principles of the conventions. The parties have further bound themselves (Articles 49(I), 50(II), 129(III) and 146(IV)) to enact any legislation necessary to provide effective penal sanctions for persons committing or ordering to be committed any of the grave breaches defined in the conventions, such as wilful killing, torture or inhuman treatment. Denunciation of the conventions in no way impairs the obligations which the parties to a conflict remain bound to fulfil "by virtue of the law of nations, derived from the usages established among civilised peoples, from the laws of humanity and the dictates of the public conscience" (Articles 63(I), 62(II), 142 (III), and 158(IV).)

Unfortunately the pledge to diffuse the texts of the conventions has not so far been sufficiently honoured by many states. Although some states do instruct their military forces in their provisions, diffusion to other sections of the population depends mainly on the ICRC and national red cross societies. The *ad hoc* legislation which should be adopted in time of peace to implement the specific obligations on each signatory state, such

as the sanctioning of infringements of the conventions, is not often seriously undertaken. Moreover, nowadays most armed conflicts are termed "non-international", although they are nearly always backed by some outside power. Such a power supplying arms or military advisers could at least ensure a minimum of humanitarian behaviour by stipulating that the Geneva conventions must be respected.

The Need for Revision

Again, it is important to recall that the specific provisions regulating the laws of war or the treatment of individuals in no way detract from the basic humanitarian rules of customary international law which apply in all circumstances and between all parties. This factor is exemplified by the constant use in both the Hague and Geneva conventions of the Martens clause, which recalls the principles for humane conduct that exist independently of codified texts, being derived from usage and from universally accepted precepts. The Geneva protocol also recognises these general principles. Similarly the "Nuremberg principles", formulated by the international law commission in 1950 at the request of the general assembly of the United Nations, which had unanimously recognised "the principles of international law recognised by the charter of the Nuremberg tribunal", affirmed that crimes against peace, war crimes and crimes against humanity are punishable as crimes under international law. War crimes are defined by the commission as "violations of the laws *or* customs of war".

However, it is clear that there is an urgent need for a reappraisal of the specific rules applicable in armed conflicts. The Hague conventions, signed when aviation bombing was unknown, recognised a distinction between the zone of hostilities and the rear, the latter areas being sheltered from hostile action. Bombardments in the conventions meant "bombardments of occupation", not bombardments of destruction, such as have been current practice since aviation. The Geneva protocol was drawn up before the discovery of atomic power, and today the damage which indiscrimnate use of such energy could cause is out of all proportion to military requirements. There is, of course, the view that no use of nuclear weapons can be justified, and that the total prohibition of such weapons in warfare should form a separate convention or part of a non-proliferation treaty.

The Geneva conventions should also be reconsidered in the light of recent practices in warfare which often make civilians and non-combatants the chief object of attack. The optional provisions in the conventions to declare certain zones neutralised should be made obligatory. All the provisions should be extended to non-international conflicts. It is time also that the categories of those entitled to "prisoner of war treatment" be widened to include those who, although not complying with all the conditions of the third convention, do constitute organised resistance movements seeking to realise the decisions of the UN concerning racialist colonial regimes.

Positive Developments

A very significant development towards a revision occurred when, at the United Nations International Conference on Human Rights at Teheran in 1968, a resolution entitled "Human Rights in Armed Conflicts" was adopted by the unanimous vote of 67 states, with two states abstaining. This resolution (see Appendix 8) made three specific proposals. 1. It called for a study to be made by the Secretary General of the United Nations on the steps that could be taken to secure the better application of existing humanitarian international conventions, and on the need for additional conventions or a revision of those already existing to ensure the better protection of civilians, prisoners and combatants in all armed conflicts, as well as the prohibition and limitation of the use of certain methods and means of warfare. 2. Requested that the Secretary General, having consulted the International Commit-

tee of the Red Cross, should draw the attention of states to the existing rules of international law on armed conflicts and should urge them, pending the adoption of new rules, to ensure that in all armed conflicts the inhabitants and belligerents were protected in accordance with "the principles of the law of nations derived from the usages established among civilised peoples, from the laws of humanity and from the dictates of the public conscience". 3. Called on those states which are not already parties to the Hague conventions of 1899 and 1907, the Geneva protocol of 1925 and the Geneva conventions of 1949 to become so.

In December 1968 that resolution was implemented by the unanimous vote of 111 states at the general assembly in Resolution 2444(XXIII) (see Appendix 7), and the necessary studies have now been undertaken by the United Nations and the International Committee of the Red Cross. The implementation of these resolutions and of number 2425(XXIII) (Appendix 6) relating to chemical and biological warfare will be of profound importance to the protection of human rights in armed conflicts. For until there is an international machinery to pronounce judgment on and to punish crimes against humanity, it is essential to broaden the scope of the existing rules for humanitarian behaviour in warfare and to ensure their application.

10. appendices

APPENDIX 1

Statement issued by the Continuing Committee of the International Conference on Chemical and Biological Warfare.

Recalling that the use of asphyxiating and deleterious gases was first outlawed in 1899 by the Hague conference; *recalling* that the United Nations International Governmental Conference on Human Rights, held at Teheran 22 April to 13 May 1968, declared, in Resolution XXIII, that ". . . the use of chemical and biological means of warfare, including napalm bombing, erode human rights and engender counter brutality"; and *recalling* that the above resolutions were reaffirmed by the general assembly of the United Nations on 19 December 1968 in its Resolution 2444,
all governments are urged to adhere to these resolutions and to the three conclusions of U Thant, the Secretary General of the United Nations, contained in his foreword to the United Nations report entitled *Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible Use*, namely: 1. To renew the appeal to all states to accede to the Geneva protocol of 1925. 2. To make a clear affirmation that the prohibition contained in the Geneva protocol applies to the use in war of all chemical, bacteriological and biological agents (including tear gas and other harassing agents) which now exist or which may be developed in the future. 3. To call upon all countries to reach agreement to halt the development, production and stockpiling of all chemical and bacteriological (biological) agents for purposes of war and to achieve their effective elimination from the arsenal of weapons.

APPENDIX 2

Statement issued by Continuing Committee of the International Conference on Chemical and Biological Warfare.

The offensive or excessive use of defoliant chemicals and herbicides, whether against crop plants or natural vegetation, may lead to deaths in the civilian population due to toxic effects or starvation. Moreover, there is a potential danger of long term, or even permanent, harmful changes in the ecology of the area.

Therefore, the use of any chemical or biological weapon, aimed at damaging livestock, or agricultural or natural vegetation cannot be too strongly condemned and all the governments of the world are urged to give an undertaking to refrain from the use of any such weapon for these purposes.

APPENDIX 3

Statement issued by Continuing Committee of the International Conference on Chemical and Biological Warfare.

While commending Her Majesty's Government for its draft convention for the prohibition of biological methods of warfare, tabled at the Eighteen Nation Disarmament Committee (ENDC) on 10 July 1969, it is nevertheless felt that the immediate problem is to prevent *any* erosion of the 1925 Geneva protocol itself; indeed, the Geneva protocol already stands in jeopardy unless Her Majesty's Government reaffirms its leading position taken in Geneva on 18 November 1930 and stated in its memorandum on chemical warfare presented to the preparatory commission for the disarmament conference by the delegation of the United Kingdom (Cmd. 3747) that: "basing itself on this English text, His Majesty's Government in the United Kingdom have taken the view that the use in war of 'other' gases, including lachrymatory gases, was prohibited" and "from every point of view it is highly desirable that a uniform construction should prevail as to whether or not the use of lachrymatory gases in war is considered to be contrary to the Geneva protocol of 1925 . . ."

The attention of Her Majesty's Government is also drawn to the following facts: (a) That it is very difficult to distinguish between lethal and non-lethal gases, especially when the latter are used in conjunction with other (non-chemical) weapons to enhance the lethal effects of these weapons. (b) The gases *first* used

during the first world war were non-lethal irritant gases, as is well known, this was followed by the use of lethal gas. (c) Subsequently, it has been reported that tear gases, as well as other gases, were used in Abyssinia and the Yemen. (d) In Vietnam CS was used first for riot control type purposes. This use escalated to the employment of major gas weapons, such as 105 and 155 mm Howitzer gas projectiles, large aircraft gas bombs, rockets with gas warheads and other gas weapons. More than 14 million lbs of this gas have, so far, been used in that conflict.

In view of these facts, it is imperative that Her Majesty's Government reaffirms its original position, as stated above, particularly because the non-aligned nations of the ENDC have strongly supported this position and because U Thant, the Secretary General of the United Nations has urged all members of the United Nations to undertake to adhere to his three conclusions (see Appendix 1).

The statements in Appendices 1, 2 *and* 3 *were based upon resolutions passed by the conference.*

APPENDIX 4

Protocol of Geneva of 1925 *for the Prohibition of the use in war of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva,* 17 *June* 1925.

The undersigned plenipotentiaries, in the name of their respective governments:

Whereas the use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices, has been justly condemned by the general opinion of the civilised world; and whereas the prohibition of such use has been declared in treaties to which the majority of powers of the world are parties; and to the end that this prohibition shall be universally accepted as part of international law, binding alike the conscience and the practice of nations,

Declare that the high contracting parties, so far as they are not already parties to treaties prohibiting such use, accept this prohibition, agree to extend this prohibition to the use of bacteriological methods of warfare and agree to be bound as between themselves according to the terms of this declaration.

The high contracting parties will exert every effort to induce other states to accede to the present protocol. Such accession will be notified to the government of the French Republic, and by the latter to all signatory and acceding powers, and will take effect on the date of the notification by the government of the French Republic. The present protocol, of which the French and English texts are both authentic, shall be ratified as soon as possible. It shall bear today's date.

The ratification of the present protocol shall be addressed to the government of the French Republic, which will at once notify the deposit of such ratification to each of the signatory acceding powers.

The instruments of ratification of and accession to the present protocol will remain deposited in the archives of the government of the French Republic. The present protocol will come into force for each signatory power as from the date of deposit of its ratification, and, from that moment, each power will be bound as regards other powers which have already deposited their ratifications. In witness whereof the plenipotentiaries have signed the present protocol.

Done at Geneva in a single copy, the seventeenth day of June, One Thousand Nine Hundred and Twenty-Five.

APPENDIX 5

*Resolution adopted by the general assembly on the report of the first committee, A/*6529 2162*B (XXI),* 5 *December* 1966. *Question of the Geneva Protocol.*

The general assembly, guided by the principles of the charter of the United Nations and of international law, *con-*

sidering that weapons of mass destruction constitute a danger to all mankind and are incompatible with the accepted norms of civilisation, *affirming* that the strict observance of the rules of international law on the conduct of warfare is in the interest of maintaining these standards of civilisation, *recalling* that the Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases and of Bacteriological Methods of Warfare of 17 June 1925 (League of Nations, *Treaty Series*, vol XCIV, 1929, no 2138. See Appendix 4), has been signed and adopted and is recognised by many states, *noting* that the Conference of the Eighteen Nation Committee on Disarmament has the task of seeking an agreement on the cessation of the development and production of chemical and bacterioligical weapons and other weapons of mass destruction, and on the elimination of all such weapons from national arsenals, as called for in the draft proposals on general and complete disarmament now before the conference.

1. *Calls* 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.

2. *Invites* all states to accede to the Geneva protocol of 17 June 1925.

(This resolution was submitted by Hungary and adopted by 91 votes in favour, none against and 4 abstentions.)

APPENDIX 6

Resolutions adopted by the general assembly on the report of the first committee A/7441 2454 (XXIII), 10 January 1969. Question of general and complete disarmament.

The general assembly reaffirming the recommendations contained in its resolution 2162 B (XXI) of 5 December 1966 calling for strict observance by all states of the principles and objectives of the "Geneva protocol" condemning all actions contrary to those objectives and inviting all states to accede to that protocol, *considering* that the possibility of the use of chemical and bacteriological weapons constitutes a serious threat to mankind, *believing* that the people of the world should be made aware of the consequences of the use of chemical and bacteriological weapons, *having considered* the report of the conference of the Eighteen Nation Committee on Disarmament which recommended that the Secretary General should appoint a group of experts to study the effects of the possible use of such weapons, *noting* the interest in a report on various aspects of the problem of chemical, bacteriological and other biological weapons which has been expressed by many governments and the welcome given to the recommendation of the conference of the Eighteen Nation Committee on Disarmament by the Secretary General in the introduction to his annual report on the work of the organisation submitted to the general assembly at its twenty third session (see *Official Records of the General Assembly, Twenty third Session, Supplement no 1A* (A/7201/Add 1), para 32), *believing* that such a study would provide a valuable contribution to the consideration by the conference of the Eighteen Nation Committee on Disarmament of the problems connected with chemical and bacteriological weapons, *recalling* the value of weapons (United Nations publication, sales no E.68.IX.1).

1. *Requests* the Secretary General to prepare a concise report in accordance with the proposal contained in paragraph 32 of the introduction to his annual report on the work of the organisation submitted to the general assembly at its twenty third session and in accordance with the recommendation of the conference of the Eighteen Nation Committee on Disarmament contained in paragraph 26 of its report.

2. *Recommends* that the report should be based on accessible material and prepared with the assistance of qualified consultant experts appointed by the

Secretary General, taking into account the views expressed and the suggestions made during the discussion of this item at the twenty third session of the general assembly.

3. *Calls upon* governments, national and international scientific institutions and organisations to co-operate with the Secretary General in the preparation of the report.

4. Requests that the report be transmitted to the conference of the Eighteen Nation Committee on Disarmament, the security council and the general assembly at an early date, if possible by 1 July 1969, and to the governments of member states in time to permit its consideration at the twenty fourth session of the general assembly.

5. *Recommends* that governments should give the report wide distribution in their respective languages, through various media of communication, so as to acquaint public opinion with its contents.

6. *Reiterates* its call for strict observance by all states of the principles and objectives of the "Geneva protocol" and invites all states to accede to that protocol.

APPENDIX 7

Resolution 2444 (*XXIII*) *adopted by the General Assembly of the United Nations on* 19 *December* 1968.

The General Assembly, recognising the necessity of applying basic humanitarian principles in all armed conflicts, *taking note* of resolution XXIII on human rights in armed conflicts, adopted on 12 May 1968 by the International Conference on Human Rights, held at Teheran, *affirming* that the provisions of that resolution need to be effectively implemented as soon as possible (Appendix 8).

1. *Affirms* resolution XXVIII of the twentieth International Conference of the Red Cross held at Vienna in 1965, which laid down, *inter alia*, the following principles of observance by all governmental and other authorities responsible for action in armed conflicts: (a) that the right of the parties to a conflict to adopt means of injuring the enemy is not unlimited; (b) that it is prohibited to launch attacks against the civilian population as such; (c) that distinction must be made at all times between persons taking part in the hostilities and members of the civilian population to the effect that the latter be spared as much as possible.

2. *Invites* the Secretary General, in consultation with the International Committee of the Red Cross and other appropriate international organisations, to study: (a) steps which could be taken to secure the better application of existing humanitarian international conventions and rules in all armed conflicts; (b) the need for additional humanitarian international conventions or for other appropriate legal instruments to ensure the better protection of civilians, prisoners and combatants in all armed conflicts and the prohibition and limitation of the use of certain methods and means of warfare.

3. *Requests* the Secretary General to take all other necessary steps to give effect to the provisions of the present resolution and to report to the general assembly at its twenty fourth session on the steps taken by him.

4. *Further requests* member states to extend all possible assistance to the Secretary General in the preparation of the study requested in paragraph 2 above.

5. *Calls upon* all states which have not yet done so to become parties to the Hague conventions of 1899 and 1907, the Geneva protocol of 1925 and the Geneva conventions of 1949.

APPENDIX 8

The Protection of Human Rights in Armed Conflicts. Resolution adopted by the United Nations International Conference on Human Rights (*Teheran*, 22 *April*-13 *May* 1968).

The International Conference on Human

Rights, considering that peace is the underlying condition for the full observance of human rights and war is their negation, *believing* that the purpose of the United Nations Organisation is to prevent all conflicts and to institute an effective system for the peaceful settlement of disputes, *observing* that nevertheless armed conflicts continue to plague humanity, *considering*, also, that the widespread violence and brutality of our times, including massacres, summary executions, tortures, inhuman treatment of prisoners, killing of civilians in armed conflicts and the use of chemical and biological means of warfare, including napalm bombing, erode human rights and engender counter brutality, *convinced* that even during the periods of armed conflict, humanitarian principles must prevail, *noting* that the provisions of the Hague conventions of 1899 and 1907 were intended to be only a first step in the provision of a code prohibiting or limiting the use of certain methods of warfare and that they were adopted at a time when the present means and methods of warfare did not exist.

Considering that the provisions of the Geneva protocol of 1925 prohibiting the use of "asphyxiating, poisonous or other gases and of all analogous liquids, materials, and devices" have not been universally accepted or applied and may need a revision in the light of modern development, *considering*, further, that the Red Cross Geneva conventions of 1949 are not sufficiently broad in scope to cover all armed conflicts, *noting* that states parties to the Red Cross Geneva conventions sometimes fail to appreciate their responsibility to take steps to ensure the respect of these humanitarian rules in all circumstances by other states, even if they are not themselves directly involved in an armed conflict.

Noting also that minority racist or colonial regimes which refuse to comply with the decisions of the United Nations and the principles of the Universal Declaration of Human Rights frequently resort to executions and inhuman treatment of those who struggle against such regimes *and considering* that such persons should be protected against inhuman or brutal treatment and also that such persons if detained should be treated as prisoners of war or political prisoners under international law.

1. *Requests* the general assembly to invite the Secretary General to study: (a) steps which could be taken to secure the better application of existing humanitarian international conventions and rules in all armed conflicts, and (b) the need for additional humanitarian international conventions or for possible revision of existing conventions to ensure the better protection of civilians, prisoners and combatants in all armed conflicts and the prohibition and limitation of the use of certain methods and means of warfare.

2. *Requests* the Secretary General, after consultation with the International Committee of the Red Cross, to draw the attention of all states members of the United Nations system to the existing rules of international law on the subject and urge them, pending the adoption of new rules of international law relating to armed conflicts, to ensure that in all armed conflicts the inhabitants and belligerents are protected in accordance with "the principles of the law of nations derived from the usages established among civilised peoples, from the laws of humanity and from the dictates of the public conscience".

3. *Calls on* all states which have not yet done so to become parties to the Hague conventions of 1899 and 1907, the Geneva protocol of 1925, and the Geneva conventions of 1949.