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DISARMAMENT COMMISSION

Supplement for 1969

DISARMAMENT COMMISSION DOCUMENTS

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Report of the Conference of the Committee on Disarmament (10 March-30 October 1969)

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CONTENTS

INTRODUCTION

1. The Conference of the Committee on Disarmament submits to the United Nations General Assembly and to the Disarmament Commission a progress report on the Committee's deliberations on all questions before it for the period 18 March to 30 October 1969.

* Originally distributed as A/7741-DC/232.

I. ORGANIZATION OF THE CONFERENCE

A. *Procedural arrangements*

2. The Conference reconvened on 18 March 1969.

3. Two sessions were held, the first from 18 March to 23 May 1969 and the second from 3 July to 30 October 1969.

4. During this period, the Committee held fifty-four formal plenary meetings at which members set forth their Governments' views and recommendations for progress on the questions before the Committee.

5. The Committee also considered ways in which its available time might be used to maximum advantage in order to give all members a full opportunity for detailed examination of the questions before the Committee. In addition to formal meetings and brief discussions of procedural matters, the Committee held a number of informal meetings devoted to discussions without records of the following disarmament topics: the question of the prevention of an arms race on the sea-bed; the question of chemical and bacteriological (biological) warfare; the question of a comprehensive ban on the testing of nuclear weapons; and the Committee's report to the twenty-fourth session of the United Nations General Assembly (see section III below).

6. In addition to the plenary meetings described above, members of the Committee met frequently for informal multilateral consultations on disarmament questions of common interest.

7. The representatives of the Union of Soviet Socialist Republics and the United States of America, in their capacity as Co-Chairmen of the Committee, also held meetings to discuss procedural and substantive questions before the Committee.

B. *Participants in the Conference*

8. Representatives of the following States continued their participation in the work of the Committee: Brazil, Bulgaria, Burma, Canada, Czechoslovakia, Ethiopia, India, Italy, Mexico, Nigeria, Poland, Romania, Sweden, Union of Soviet Socialist Republics, United Arab Republic, United Kingdom of Great Britain and Northern Ireland and United States of America.

9. In view of the desire of other countries that could make an important contribution to disarmament to participate in the work of the Committee, the Co-Chairmen engaged in extended discussions regarding the possibility of a limited enlargement of the membership of the Committee.

10. The objective of the Co-Chairmen was to reach agreement on a group of countries that would give the enlargement geographic and political balance and at the same time preserve the Committee as a small and effective negotiating body. The question of the enlargement was discussed at informal plenary meetings of the Committee on 23 May 1969 and 31 July 1969; in addition, members of the Committee expressed their views concerning the enlargement and the procedure adopted for its implementation at the 424th plenary meeting on 31 July 1969.

11. Representatives of the following States joined the Committee: on 3 July 1969, Japan and Mongolia; and on 7 August 1969, Argentina, Hungary, Morocco, the Netherlands, Pakistan and Yugoslavia.

12. On 26 August 1969, it was decided that the new name of the Committee would be "Committee on Disarmament" and that the new name of the Conference would be "Conference of the Committee on Disarmament".[1]

II. Bases and guidelines for the Committee's work

13. The work of the Committee is based, *inter alia*, on: the provisional agenda of work that the Committee adopted on 15 August 1968; resolutions regarding disarmament matters adopted by the General Assembly of the United Nations; the joint statement of agreed principles for disarmament negotiations submitted to the United Nations General Assembly in September 1961 by the Governments of the United States of America and the Union of Soviet Socialist Republics;[2] and past agreements in the field of disarmament and arms limitation.

14. The provisional agenda adopted by the Committee on 15 August 1968 read as follows:

"1. Further effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament.

Under this heading members may wish to discuss measures dealing with the cessation of testing, the non-use of nuclear weapons, the cessation of production of fissionable materials for weapons use, the cessation of manufacture of weapons, and reduction and subsequent elimination of nuclear stockpiles, nuclear free zones, etc.

"2. Non-nuclear measures.

Under this heading, members may wish to discuss chemical and bacteriological warfare, regional arms limitations, etc.

"3. Other collateral measures.

Under this heading, members may wish to discuss prevention of an arms race on the sea-bed, etc.

"4. General and complete disarmament under strict and effective international control."

15. The Committee also noted the recognized right of any delegation to raise and discuss any disarmament subject at any time.

16. The following resolutions of the General Assembly adopted at its twenty-third session were transmitted to the Committee by the Secretary-General of the United Nations in a letter dated 15 February 1969: resolution 2454 (XXIII) on the question of general and complete disarmament, resolution 2455 (XXIII) on the urgent need for suspension of nuclear and thermo-nuclear tests and resolution 2456 (XXIII) on the Conference of Non-Nuclear Weapon States.

17. In pursuing its objectives, the Committee benefited from the examples and experience provided by measures like the Antarctic Treaty[3] that were achieved before the Committee came into existence and also by the results of more recent disarmament negotiations, which include the 1963 Treaty Banning Nuclear

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[1] Documents of the Committee issued before 26 August 1969 bore the symbols ENDC/1-ENDC/266. Subsequent documents were issued under the symbol CCD/... The verbatim records of the meetings bear the symbol CCD/PV... instead of ENDC/PV...

[2] *Official Records of the General Assembly, Sixteenth Session, Annexes*, agenda item 19, document A/4879.

[3] United Nations, *Treaty Series*, vol. 402, 1961, No. 5778.

Weapon Tests in the Atmosphere, in Outer Space and under Water,[4] the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies,[5] and the 1968 Treaty on the Non-Proliferation of Nuclear Weapons.[6]

18. Many members of the Committee affirmed that the latter Treaty, because of the provisions in its article VI, gave strong support and added further urgency to the recognized need for negotiations "on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control".

III. Work of the Committee during 1969

19. During its 1969 sessions, the Committee was assisted in its examination and analysis of possible disarmament measures and their provisions by numerous messages, working papers and other documents that were submitted for its consideration (see annexes B and C) and by the plenary statements of Committee members.

20. The Committee considered, in accordance with its provisional agenda, the following disarmament measures:

A. *Further effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament*

21. The Committee continued its work on further effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament.

22. In accordance with the recommendations of the General Assembly in resolution 2455 (XXIII), the Committee devoted considerable attention to the question of a treaty banning underground nuclear weapon tests.

23. On 1 April 1969 the representative of Sweden submitted a working paper which suggested possible provisions of a treaty banning underground nuclear weapon tests (ENDC/242). This paper was discussed by the Committee. Members also considered the recommendation concerning verification of a comprehensive test ban treaty submitted by the representative of Nigeria on 15 May 1969 (ENDC/246), and the suggestions on underground nuclear explosions submitted by the representative of Italy on 22 May 1969 (ENDC/250).

24. In order to encourage a full examination of this question, an informal meeting regarding a comprehensive ban on the testing of nuclear weapons was held on 21 May 1969 at the request of the Swedish delegation.

25. On 31 July 1969, the representative of Japan submitted a proposal to prohibit underground nuclear weapon tests above magnitude 4.75 as a provisional measure, and then to prohibit all tests when the verification system to monitor underground explosions above magnitude 4.0 was devised and completed (ENDC/PV.424).

26. The Committee also considered suggestions for establishing through international co-operation a voluntary exchange of seismological data in order to create a better scientific basis for evaluation of seismological events. In this connexion, a working paper on requests to Governments for the provision of certain information in the context of setting up a world-wide exchange of seismological data was submitted by the representative of Canada on 24 May 1969 (ENDC/251). Working papers on seismological research were also submitted by the representatives of Canada (ENDC/248), Sweden (ENDC/257) and the United Kingdom (ENDC/258), and a working paper on a seismic investigation proposal was submitted by the representative of the United States (ENDC/252).

27. The question of an exchange of seismological data was discussed at an informal meeting on a comprehensive test ban that was held on 13 August 1969 at the request of the Canadian delegation; representatives of the following countries submitted their remarks as working papers: Canada (ENDC/259), India (ENDC/261), Japan (ENDC/260) and the United States (ENDC/262). Subsequently, on 18 August 1969, the representative of Canada submitted a revised working paper on requests to Governments for information about exchange of seismological data (ENDC/251/Rev.1).

28. Several representatives set forth specific suggestions for progress in this field during their interventions in formal plenary meetings. On 10 April 1969, the representative of the USSR stated the willingness of the Soviet Union to exchange seismic data within the so-called "detection club", if this would facilitate the conclusion of a comprehensive test ban treaty on the basis of national means of control (ENDC/PV.402). On the same day, the representative of Ethiopia suggested that the Secretary-General of the United Nations should be asked to investigate the possibility of creating an international seismic research agency (*ibid.*).

29. In their plenary statements, members of the Committee also commented on the questions of the cessation of manufacture of weapons, and reduction and subsequent elimination of nuclear stockpiles.

30. On 10 April 1969, the representative of the USSR called for agreement on a draft convention on the prohibition of the use of nuclear weapons (*ibid*).

31. On 8 April 1969, the representative of the United States recommended that its proposal for a cessation in the production of fissionable material for use in weapons should be verified by means of IAEA safeguards (ENDC/PV.401).

32. Members of the Committee expressed their views on the subject of nuclear-free zones.

33. On 24 March 1969, the representative of Mexico submitted a working paper on the establishment of a nuclear-free zone in Latin America (ENDC/241). On 9 September 1969, the representative of Mexico informed the Committee that on 2 September 1969 the General Conference of the new Agency for the Prohibition of Nuclear Weapons in Latin America was inaugurated at Mexico City (CCD/PV.435). On

[4] *Ibid.*, vol. 480, 1963, No. 6964.
[5] General Assembly resolution 2222 (XXI), annex.
[6] General Assembly resolution 2373 (XXII), annex.

15 September 1969 the representative of Mexico submitted a report on the first session of the General Conference of the Agency for the Prohibition of Nuclear Weapons in Latin America (CCD/268).

34. On 1 April 1969, the representative of Poland, recalling earlier proposals of his Government, suggested that renewed efforts should be made towards the creation of a nuclear-free zone in Central Europe (ENDC/PC.399). A statement on this question was also made by the representative of Czechoslovakia (*ibid.*). On 8 May 1969 the representative of Romania expressed the views of his Government on the creation of a nuclear-free zone in the Balkans (ENDC/PV.409).

35. Many members of the Committee affirmed that early entry into force of the Treaty on the Non-Proliferation of Nuclear Weapons would, in view of its article VI, stimulate progress in the negotiation of effective measures relating to cessation of the nuclear arms race and to nuclear disarmament. Many members also expressed the hope that additional countries would sign and ratify the Treaty as soon as possible.

36. Recalling General Assembly resolution 2456 D (XXIII), many members of the Committee expressed the hope that the Governments of the Union of Soviet Socialist Republics and the United States of America would enter at an early date into bilateral discussions on the limitation of offensive strategic nuclear weapons delivery systems and systems of defense against ballistic missiles. Members of the Committee welcomed the announcement in Moscow and Washington on 25 October 1969 that preliminary discussions between representatives of the two Governments would begin on 17 November 1969.

37. The Committee is convinced of the continued need to give highest priority in its work to further effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament, with due consideration to maintaining a balance among various measures to prevent armament, to limit armament and of disarmament.

B. *Non-nuclear measures*

38. In its 1968 report to the United Nations General Assembly the Committee recommended that the Secretary-General should appoint a group of experts to study the effects of the possible use of chemical and bacteriological means of warfare.[7] This recommendation was incorporated in General Assembly resolution 2454 A (XXIII), pursuant to which the Secretary-General transmitted to the Committee on 7 July 1969 a report entitled *Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible Use*.[8] Members of the Committee welcomed the experts' report and agreed that it provided a useful and needed basis for further consideration of the question of chemical and bacteriological (biological) warfare.

39. Specific proposals for possible action in this field were placed before the Committee in the form of a draft convention for the prohibition of biological methods of warfare and accompanying draft Security Council resolution submitted by the representative of the United Kingdom on 10 July 1969 (ENDC/255), and a working paper concerning the report of the Secretary-General submitted by the representative of Poland on 22 July 1969 (ENDC/256).

40. The question of the prohibition of chemical and bacteriological (biological) warfare was discussed on 14 May 1969 at an informal meeting called at the request of the United Kingdom delegation. A second informal meeting on this question was held on 30 July 1969 at the request of the United Kingdom delegation, which subsequently submitted a revision of its draft convention for the prohibition of biological methods of warfare and accompanying draft Security Council resolution (ENDC/255/Rev.1).

41. On 14 August 1969, the representative of Japan proposed that the Committee should study, with the assistance of a group of scientists and technologists, the technical problems relating to the verification of the production and stockpiling of chemical and biological weapons, so that an agreement could be reached by the Committee as soon as possible on appropriate means of such verification (ENDC/PV.428).

42. On 26 August 1969, the representatives of Argentina, Brazil, Burma, Ethiopia, India, Mexico, Morocco, Nigeria, Pakistan, Sweden, the United Arab Republic and Yugoslavia submitted a working paper on a proposed declaration by the United Nations General Assembly regarding the prohibition of the use of chemical and biological methods of warfare (ENDC/265).

43. On 26 August 1969, the representative of Canada submitted a working paper on a draft General Assembly resolution on chemical and bacteriological (biological) warfare (ENDC/266).

44. Members of the Committee underlined the necessity of supporting the purposes and principles of the Geneva Protocol[9] and the hope was expressed that additional countries would adhere to it in the near future. On 31 July 1969 the representative of Mongolia suggested that the General Assembly should appeal to all Governments which have not yet done so to accede to or to ratify the Protocol in the course of 1970, the forty-fifth anniversary of the signing of that document (ENDC/PV.424).

45. The Committee intends to continue intensive work on the problem of chemical and bacteriological (biological) warfare.

C. *Other collateral measures*

46. In the light of recent progress towards the development of the sea-bed and the ocean floor, and the growing interest of the international community in the sea-bed, many members of the Committee called attention, from the outset of the 1969 sessions, to the need for timely steps to prevent an extension of the arms race to this new area of man's environment.

47. The following documents on this subject were submitted to the Committee: a draft treaty prohibit-

[7] See *Official Records of the Disarmament Commission, Supplement for 1968 and 1969*, document DC/231, para. 26.

[8] United Nations publication, Sales No.: E.69.I.24.

[9] Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed on 17 June 1925 (League of Nations, *Treaty Series*, vol. XCIV (1929), No. 2138).

ing the use for military purposes of the sea-bed and the ocean floor and the subsoil thereof, submitted by the representative of the USSR on 18 March 1969 (ENDC/240); an amendment thereto proposed by the representative of Nigeria on 15 May 1969 (ENDC/247); a draft treaty prohibiting the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and ocean floor, submitted by the representative of the United States on 22 May 1969 (ENDC/249); a working paper on the control provisions for a treaty on the non-armament of the sea-bed and ocean floor, submitted by the representative of Brazil on 21 August 1969 (ENDC/264); and a working paper on the settlement of disputes arising from the implementation of a treaty for the non-armament of the sea-bed and ocean floor, submitted by the representative of Brazil on 1 September 1969 (ENDC/267).

48. Members of the Committee made statements at plenary meetings in which they set forth the position of their Government on the sea-bed question, and specific recommendations and suggestions for progress on this subject. In these statements members of the Committee concentrated on the following principal issues: first, the scope of the prohibition, that is, which weapons and facilities should be prohibited; secondly, the area of the sea-bed to which the prohibition should apply; and thirdly, the methods and procedures for verifying compliance with the prohibition.

49. On 7 October 1969, the representatives of the Soviet Union and the United States, having considered the discussions in the Committee, submitted a joint draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the subsoil thereof (CCD/269).

50. During the subsequent discussion of this draft treaty, several members made specific proposals and suggestions for amendments and for changes in the text. On 8 October 1969, the representative of Canada submitted a working paper on article III of the draft treaty (CCD/270). On 16 October 1969, the representative of Sweden submitted a suggestion for an article to be added to the draft treaty on continued negotiations relating to a more comprehensive prohibition of the use of the sea-bed for military purposes (CCD/271). Further recommendations and the positions of members of the Committee regarding the draft treaty of 7 October 1969 were set forth in statements made by Committee members at plenary meetings.

51. The principal statements of members of the Committee on the sea-bed question are contained in the following verbatim records: Argentina (CCD/PV.432, 445), Brazil (ENDC/PV.405, 413, 423, 430, CCD/PV.433, 444), Bulgaria (ENDC/PV.410, CCD/PV.443), Burma (ENDC/PV.408, CCD/PV.445), Canada (ENDC/PV.410, 424, CCD/PV.441), Czechoslovakia (ENDC/PV.423, CCD/PV.443), Ethiopia (ENDC/PV.430, CCD/PV.444), Hungary (ENDC/PV.430, CCD/PV.444), India (ENDC/PV.404, 428, CCD/PV.444), Italy (ENDC/PV.410, 423, CCD/PV.441), Japan (ENDC/PV.420, CCD/PV.442), Mexico (ENDC/PV.426, CCD/PV.445), Mongolia (CCD/PV.445), Morocco (CCD/PV.445), Netherlands (CCD/PV.442), Nigeria (ENDC/PV.411, 430, CCD/PV.445), Pakistan (CCD/PV.445), Poland (ENDC/PV.406, CCD/PV.444), Romania (CCD/PV.434), Sweden (ENDC/PV.405, 422, CCD/PV.443), USSR (ENDC/PV.395, 400, 409, 415, 423, CCD/PV.440), United Arab Republic (ENDC/PV.403, 421, CCD/PV.445), United Kingdom (ENDC/PV.404, CCD/PV.444), United States (ENDC/PV.397, 411, 414, 415, 421, CCD/PV.440, 443), Yugoslavia (CCD/PV.434, 445).

52. Having in mind the views expressed by many members, and on the basis of further negotiation and consultations, the representatives of the Soviet Union and the United States submitted to the Committee on 30 October 1969 a revised draft treaty which included those amendments on which the Co-Chairmen had reached agreement. Statements by members of the Committee with regard to this draft treaty are contained in CCD/PV.447 and 448.

53. This draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction in the sea-bed and the ocean floor and in the subsoil thereof is attached as annex A.

54. Having in mind General Assembly resolutions, a number of delegations expressed views on the question of the elimination of foreign military bases.

55. The representatives of Bulgaria, Czechoslovakia, Hungary, Poland, Romania and the Union of Soviet Socialist Republics made statements concerning the problem of European security.

D. *General and complete disarmament*

56. In the light of the recommendation contained in General Assembly resolution 2454 B (XXIII), members of the Committee kept in mind the relationship of the various measures already achieved and those currently being considered towards the ultimate goal of general and complete disarmament under effective international control. Members of the Committee were also mindful of the fact that the joint statement of agreed principles for disarmament negotiations of 1961 provides guidelines which will ensure that disarmament is general and complete.

57. Specific recommendations for further work on the question of general and complete disarmament were made by the representatives of Sweden (ENDC/PV.397), India (ENDC/PV.404), and Poland (ENDC/PV.406). The representative of Romania suggested on 3 April 1969 that consideration should be given to the proclamation of a United Nations Disarmament Decade, 1970 to 1980 (ENDC/PV.400). On 21 April 1969 the representative of Italy submitted to the Committee a working paper on the adoption of an organic disarmament programme (ENDC/245). The concept of an organic disarmament programme was further explained by the representative of Italy in a document submitted on 20 August 1969 (ENDC/263).

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58. On 20 August 1969 the Committee held an informal meeting, at the request of the delegation of Italy, for a preliminary discussion regarding the Committee's report to the twenty-fourth session of the United Nations General Assembly. On 28 and 30

October 1969, the Committee met to consider a revised version of the report, which incorporated the suggestions of Committee members (CCD/PV.446 and CCD/PV.448).

59. The Committee agreed to reconvene on a date to be established by the Co-Chairmen in consultation with all members of the Committee.

60. This report is transmitted by the Co-Chairmen on behalf of the Conference of the Committee on Disarmament.

(*Signed*) James F. LEONARD
(*United States of America*)
(*Signed*) A. A. ROSHCHIN
(*Union of Soviet Socialist Republics*)

ANNEX A

Draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the subsoil thereof

[CCD/269/Rev.1, of 30 October 1969]
[Original text: English and Russian]

The States Parties to this Treaty,

Recognizing the common interest of mankind in the progress of the exploration and use of the sea-bed and the ocean floor for peaceful purposes,

Considering that the prevention of a nuclear arms race on the sea-bed and the ocean floor serves the interests of maintaining world peace, reduces international tensions, and strengthens friendly relations among States,

Convinced that this Treaty constitutes a step towards the exclusion of the sea-bed, the ocean floor and the subsoil thereof from the arms race, and determined to continue negotiations concerning further measures leading to this end,

Convinced that this Treaty constitutes a step towards a treaty on general and complete disarmament under strict and effective international control, and determined to continue negotiations to this end,

Convinced that this Treaty will further the purposes and principles of the Charter of the United Nations, in a manner consistent with the principles of international law and without infringing the freedoms of the high seas,

Have agreed as follows:

Article I

1. The States Parties to this Treaty undertake not to emplant or emplace on the sea-bed and the ocean floor and in the subsoil thereof beyond the maximum contiguous zone provided for in the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone[10] 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.

2. The undertakings of paragraph 1 of this article shall also apply within the contiguous zone referred to in paragraph 1 of this article, except that within that zone they shall not apply to the coastal State.

3. The States Parties to this Treaty undertake not to assist, encourage or induce any State to commit actions prohibited by this Treaty and not to participate in any other way in such actions.

Article II

1. For the purpose of this Treaty the outer limit of the contiguous zone referred to in article I shall be measured in accordance with the provisions of part I, section II of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone and in accordance with international law.

2. Nothing in this Treaty shall be interpreted as supporting or prejudicing the position of any State Party with respect to rights or claims which such State Party may assert, or with respect to recognition or non-recognition of rights or claims asserted by any other State, related to waters off its coasts, or to the sea-bed and the ocean floor.

[10] United Nations, *Treaty Series*, vol. 516, 1964, No. 7477.

Article III

1. In order to promote the objectives and ensure the observance of the provisions of this Treaty, the States Parties to the Treaty shall have the right to verify the activities of other States Parties to the Treaty on the sea-bed and the ocean floor and in the subsoil thereof beyond the maximum contiguous zone, referred to in article I, if these activities raise doubts concerning the fulfilment of the obligations assumed under this Treaty, without interfering with such activities or otherwise infringing rights recognized under international law, including the freedoms of the high seas.

2. The right of verification recognized by the States Parties in paragraph 1 of this article may be exercised by any State Party using its own means or with the assistance of any other State Party.

3. The States Parties to the Treaty undertake to consult and co-operate with a view to removing doubts concerning the fulfilment of the obligations assumed under this Treaty. In the event that consultation and co-operation have not removed the doubts and there is serious question concerning the fulfilment of the obligations assumed under this Treaty, States Parties to this Treaty may, in accordance with the provisions of the Charter of the United Nations, refer the matter to the Security Council.

Article IV

Any State Party to the Treaty may propose amendments to this Treaty. Amendments shall enter into force for each State Party to the Treaty accepting the amendments upon their acceptance by a majority of the States Parties to the Treaty and thereafter for each remaining State Party on the date of acceptance by it.

Article V

Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held at Geneva, Switzerland, in order to review the operation of this Treaty with a view to assuring that the purposes of the Preamble and the provisions of the Treaty are being realized. Such review shall take into account any relevant technological developments. The review conference shall determine in accordance with the views of a majority of those Parties attending whether and when an additional review conference shall be convened.

Article VI

Each Party to this Treaty shall in exercising its national sovereignty have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it considers to have jeopardized its supreme interests.

Article VII

1. This Treaty shall be open for signature to all States. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and of accession shall be deposited with the Governments of . . . which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force after the deposit of instruments of ratification by twenty-two Governments, including the Governments designated as Depositary Governments of this Treaty.

4. For States whose instruments of ratification or accession are deposited after the entry into force of this Treaty it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall forthwith notify the Governments of all States signatory and acceding to this Treaty of the date of each signature, of the date of deposit of each instrument of ratification or of accession, of the date of the entry into force of this Treaty, and of the receipt of other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

Article VIII

This Treaty, the English, Russian, French, Spanish and Chinese texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the States signatory and acceding thereto.

In witness whereof the undersigned, being duly authorized thereto, have signed this Treaty.

DONE in at this day of

ANNEX B

List of documents issued by the Conference of the Committee on Disarmament

On 15 February 1969, the Secretary General of the United Nations transmitted to the Co-Chairmen letters containing General Assembly resolutions 2454 (XXIII), 2455 (XXIII) and 2456 (XXIII) (ENDC/237).[11]

On 18 March 1969, the representative of the Union of Soviet Socialist Republics submitted to the Committee a message from the Chairman of the Council of Ministers of the USSR, Mr. A. N. Kosygin (ENDC/238).[11]

On 18 March 1969, the representative of the United States of America submitted a letter from President of the United States, Mr. Richard M. Nixon to Mr. Gerard C. Smith (ENDC/239).[11]

On 18 March 1969, the representative of the Union of Soviet Socialist Republics submitted a draft treaty on prohibition of the use for military purposes of the sea-bed and the ocean floor and the subsoil thereof (ENDC/240).[11]

On 24 March 1969, the representative of Mexico submitted a working paper concerning the establishment of nuclear-free zones (ENDC/241).[11]

On 1 April 1969, the representative of Sweden submitted a working paper suggesting possible provisions of a treaty banning underground nuclear weapon tests (ENDC/242).[11]

On 2 April 1969, the representatives of the People's Republic of Bulgaria, the Czechoslovak Socialist Republic, the Polish People's Republic, the Socialist Republic of Romania and the Union of Soviet Socialist Republics transmitted a letter containing the appeal adopted by the Warsaw Treaty Conference at Budapest on 17 March 1969 (ENDC/243).[12]

On 17 April 1969, the representative of Canada submitted a working paper listing recent Canadian scientific papers concerning the detection and identification of underground nuclear explosions by seismological means (ENDC/244).[11]

On 21 April 1969, the representative of Italy submitted a working paper setting forth suggestions for the adoption of an organic disarmament program (ENDC/245).[11]

On 15 May 1969, the representative of Nigeria submitted a working paper on a comprehensive test ban treaty (ENDC/246).[11]

On 15 May 1969, the representative of Nigeria submitted a working paper on a proposed amendment to article I of the USSR draft treaty on prohibition of the use for military purposes of the sea-bed and the ocean floor and the subsoil thereof (ENDC/247).[11]

On 21 May 1969, the representative of Canada submitted a working paper listing recent Canadian scientific papers on seismological research with abstracts now available (ENDC/248).[11]

On 22 May 1969, the representative of the United States of America submitted a draft treaty prohibiting the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor (ENDC/249).[11]

On 22 May 1969, the representative of Italy submitted additional suggestions on underground nuclear explosions, following the Italian working paper (ENDC/234) of 23 August 1968 (ENDC/250).[11]

On 23 May 1969, the representative of Canada submitted a working paper on a comprehensive test ban and requests to governments for information about exchange of seismological data (ENDC/251).[11]

On 23 May 1969, the representative of the United States of America submitted a working paper on a seismic investigation proposal (ENDC/252).[11]

On 3 July 1969, the representative of the United States of America submitted a Message to the Conference from the President of the United States, Mr. Richard M. Nixon (ENDC/253).[11]

On 1 July 1969, the Secretary-General of the United Nations transmitted to the Co-Chairmen the report on chemical and bateriological (biological) weapons and the effects of their possible use (ENDC/254).[11]

On 10 July 1969, the representative of the United Kingdom submitted a draft convention for the prohibition of biological methods of warfare and accompanying draft Security Council resolution (ENDC/255).[11]

On 22 July 1969, the representative of Poland submitted a working paper concerning the report dated 1 July 1969 on chemical and bacteriological (biological) weapons and the effects of their possible use (ENDC/256).[11]

On 14 August 1969, the representative of Sweden submitted a working paper describing the Hagfors Seismological Observatory in Sweden (ENDC/257).[11]

On 14 August 1969, the representative of the United Kingdom submitted a working paper on United Kingdom research on techniques for distinguishing between earthquakes and underground explosions (ENDC/258).[11]

On 14 August 1969, the representative of Canada submitted a document containing the remarks made by Mr. G. Ignatieff and Mr. K. Whitman at the informal meeting on a comprehensive test ban held on 13 August 1969 (ENDC/259).[11]

On 14 August 1969, the representative of Japan submitted a document containing the statement made by Mr. K. Asakai at the informal meeting on a comprehensive test ban held on 13 August 1969 (ENDC/260).[11]

On 14 August 1969, the representative of India submitted a document containing the statement made by Mr. M. A. Husain at the informal meeting on a comprehensive test ban held on 13 August 1969 (ENDC/261).[11]

On 14 August 1969, the representative of the United States of America submitted a document containing the remarks made by Mr. James F. Leonard on seismic data exchange at the informal meeting on a comprehensive test ban held on 13 August 1969 (ENDC/262).[11]

On 18 August 1969, the representative of Canada submitted a revised working paper on a comprehensive test ban and requests to Governments for information on the exchange of seismological data (ENDC/251/Rev.1).[11]

On 20 August 1969, the representative of Italy submitted a document containing the statement made by Mr. R. Caracciolo at the informal meeting held on 20 August 1969 concerning a preliminary discussion regarding the Committee's report to the twenty-fourth session of the General Assembly (ENDC/263).[11]

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[11] Documents published in annex C of this report.
[12] See document A/7536 (mimeographed).

On 21 August 1969, the representative of Brazil submitted a working paper on the control provisions for a treaty on the non-armament of the sea-bed and ocean floor (ENDC/264).[11]

On 26 August 1969, the representative of the United Kingdom submitted a revised draft convention for the prohibition of biological methods of warfare and accompanying revised draft Security Council resolution (ENDC/255/Rev.1).[11]

On 26 August 1969, the representatives of Argentina, Brazil, Burma, Ethiopia, India, Mexico, Morocco, Nigeria, Pakistan, Sweden, the United Arab Republic and Yugoslavia submitted a working paper on a proposed declaration by the United Nations General Assembly regarding prohibition of the use of chemical and biological methods of warfare (ENDC/265).[11]

On 26 August 1969, the representative of Canada submitted a working paper on a draft United Nations General Assembly resolution on chemical and bacteriological (biological) methods of warfare (ENDC/266).[11]

On 1 September 1969, the representative of Brazil submitted a working paper on the settlement of disputes arising from the implementation of a treaty for the non-armament of the sea-bed and ocean floor (CCD/267).[11]

On 15 September 1969, the representative of Mexico submitted a report on the first session of the General Conference of the Agency for the Prohibition of Nuclear Weapons in Latin America (CCD/268).[11]

On 7 October 1969, the representatives of the Soviet Union and the United States submitted a joint draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the subsoil thereof (CCD/269).[11]

On 8 October 1969, the representative of Canada submitted a working paper on article III of the draft sea-bed treaty (CCD/270).[11]

On 16 October 1969, the representative of Sweden submitted a suggestion for an article to be added to the draft sea-bed treaty on continued negotiations relating to a more comprehensive prohibition of the use of the seabed for military purposes. (CCD/271).[11]

On 30 October 1969, the representatives of the Soviet Union and the United States submitted a revised draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the subsoil thereof (CCD/269/Rev.1).[13]

On 30 October 1969, the representative of Mexico submitted a document containing statements made by the representative of Mexico at the 416th, 424th and 431st sessions of the Conference on 3 and 31 July and 27 August 1969 concerning the enlargement of the Eighteen-Nation Committee on Disarmament and the change of its name (CCD/272).[11]

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[13] Document printed in annex A of this report.

ANNEX C

Documents of the Conference of the Committee on Disarmament annexed to the report

Section		*Document No.*
1.	Letter dated 15 February 1969 from the Secretary-General of the United Nations to the Co-Chairmen of the Conference of the Eighteen-Nation Committee on Disarmament, transmitting General Assembly resolutions 2454 (XXIII), 2455 (XXIII) and 2456 (XXIII)	ENDC/237
2.	Union of Soviet Socialist Republics: message dated 18 March 1969 from the Chairman of the Council of Ministers of the Soviet Union, Mr. A. N. Kosygin, to the Conference of the Eighteen-Nation Committee on Disarmament	ENDC/238
3.	United States of America: letter from the President of the United States, Mr. Richard M. Nixon, to Mr. Gerard C. Smith	ENDC/239
4.	Union of Soviet Socialist Republics: draft treaty on prohibition of the use for military purposes of the sea-bed and the ocean floor and the subsoil thereof	ENDC/240
5.	Mexico: working paper concerning the establishment of nuclear-free zones	ENDC/241
6.	Sweden: working paper suggesting possible provisions of a treaty banning underground nuclear weapon tests	ENDC/242
7.	Canada: working paper listing recent Canadian scientific papers concerning the detection and identification of underground nuclear explosions by seismological means	ENDC/244
8.	Italy: working paper setting forth suggestions for the adoption of an organic disarmament programme	ENDC/245
9.	Nigeria: working paper on a comprehensive test ban treaty	ENDC/246
10.	Nigeria: working paper on a proposed amendment to article I of the USSR draft treaty on prohibition of the use for military purposes of the sea-bed and the ocean floor and the sub-soil thereof (ENDC/240)	ENDC/247
11.	Canada: working paper listing recent Canadian scientific papers on seismological research with abstracts now available	ENDC/248
12.	United States of America: draft treaty prohibiting the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and ocean floor	ENDC/249
13.	Italy: additional suggestions on underground nuclear explosions, following the Italian working paper of 23 August 1968 (ENDC/234)	ENDC/250
14.	Canada: working paper on a comprehensive test ban and requests to Governments for information on the exchange of seismological data	ENDC/251
15.	Canada: revised working paper on a comprehensive test ban and requests to Governments for information on the exchange of seismological data	ENDC/251/Rev.1
16.	United States of America: working paper on a seismic investigation proposal	ENDC/252
17.	United States of America: message from the President of the United States, Mr. Richard M. Nixon, to the Conference of the Eighteen-Nation Committee on Disarmament	ENDC/253
18.	Letter dated 1 July 1969 from the Secretary-General of the United Nations to the Co-Chairmen of the Conference of the Eighteen-Nation Committee on Disarmament, transmitting the report on chemical and bacteriological (biological) weapons and the effects of their possible use	ENDC/254
19.	United Kingdom of Great Britain and Northern Ireland: draft convention for the prohibition of biological methods of warfare and accompanying draft Security Council resolution	ENDC/255
20.	United Kingdom of Great Britain and Northern Ireland: revised draft convention for the prohibition of biological methods of warfare and accompanying draft Security Council resolution	ENDC/255/Rev.1
21.	Poland: working paper concerning the report dated 1 July 1969 on chemical and bacteriological (biological) weapons and the effects of their possible use	ENDC/256
22.	Sweden: working paper describing the Hagfors Seismological Observatory in Sweden	ENDC/257
23.	United Kingdom of Great Britain and Northern Ireland: further notes on United Kingdom research on techniques for distinguishing between Earthquakes and underground explosions	ENDC/258
24.	Canada: remarks made by Mr. G. Ignatieff and Mr. K. Whitham at the informal meeting on the comprehensive test ban, held on 13 August 1969	ENDC/259
25.	Japan: statement by Mr. K. Asakai at the informal meeting on the comprehensive test ban, held on 13 August 1969	ENDC/260
26.	India: statement by Mr. M. A. Husain at the informal meeting on the comprehensive test ban, held on 13 August 1969	ENDC/261

Section		Document No.
27.	United States of America: remarks made by Mr. James F. Leonard on seismic data exchange and the Canadian working paper (ENDC/251) at the informal meeting on the comprehensive test ban, held on 13 August 1969	ENDC/262
28.	Italy: statement by Mr. R. Caracciolo at the informal meeting of the Conference of the Eighteen-Nation Committee on Disarmament, held on 20 August 1969	ENDC/263
29.	Brazil: working paper on the control provisions for a treaty on the non-armament of the sea-bed and ocean floor	ENDC/264
30.	Argentina, Brazil, Burma, Ethiopia, India, Mexico, Morocco, Nigeria, Pakistan, Sweden, United Arab Republic and Yugoslavia: working paper on a proposed declaration by the United Nations General Assembly regarding prohibition of the use of chemical and biological methods of warfare	ENDC/265
31.	Canada: draft United Nations General Assembly resolution on chemical and bacteriological (biological) methods of warfare	ENDC/266
32.	Brazil: working paper on the settlement of disputes arising from the implementation of a treaty for the non-armament of the sea-bed and ocean floor	CCD/267
33.	Mexico: report on the first session of the General Conference of the Agency for the Prohibition of Nuclear Weapons in Latin America	CCD/268
34.	Union of Soviet Socialist Republics and United States of America: draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the sub-soil thereof	CCD/269
35.	Canada: working paper on article III of the draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the subsoil thereof, submitted by the Union of Soviet Socialist Republics and the United States of America (CCD/269)	CCD/270
36.	Sweden: suggestion for an article to be added to the draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the subsoil thereof, submitted by the Union of Soviet Socialist Republics and the United States of America (CCD/269)	CCD/271
37.	Mexico: statements made by the representative of Mexico at the 416th, 424th and 431st meetings of the Conference on 3 and 31 July and 27 August 1969, concerning the enlargement of the Eighteen-Nation Committee on Disarmament and the change of its name	CCD/272

I.

Letter dated 15 February 1969 from the Secretary-General of the United Nations to the Co-Chairmen of the Conference of the Eighteen-Nation Committee on Disarmament, transmitting General Assembly resolutions 2454 (XXIII), 2455 (XXIII) and 2456 (XXIII)

[ENDC/237 of 17 March 1969]
[Original text: English]

I have the honour to transmit the following resolutions adopted by the General Assembly at its twenty-third session, which entrust specific responsibilities to the Conference of the Eighteen-Nation Committee on Disarmament: resolution 2454 (XXIII) entitled "Question of general and complete disarmament" and resolution 2455 (XXIII) entitled "Urgent need for suspension of nuclear and thermonuclear tests".

I would draw attention particularly to the following direct references to the Conference of the Eighteen-Nation Committee on Disarmament contained in the above-mentioned resolutions:

Paragraphs 1 and 4 of resolution 2454A (XXIII) in which the Secretary-General is requested to prepare a report on chemical and bacteriological (biological) weapons, and is requested to transmit the report 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

Paragraph 1 of resolution 2454B, in which the Conference is requested to pursue renewed efforts towards achieving substantial progress in reaching agreement on the question of general and complete disarmament under effective international control, and urgently to analyse the plans already under consideration and others that might be put forward to see how in particular rapid progress could be made in the field of nuclear disarmament.

Paragraph 2 of resolution 2454B (XXIII), in which the Conference is further requested to continue its urgent efforts to negotiate collateral measures of disarmament.

Paragraph 3 of resolution 2454B (XXIII), in which it is decided to refer to the Conference all documents and records of the meetings of the First Committee concerning all matters related to the disarmament question.

Paragraph 4 of resolution 2454B (XXIII), in which the Conference is requested to resume its work as early as possible and to report to the General Assembly, as appropriate, on the progress achieved.

Paragraph 4 of resolution 2455 (XXIII), in which the Conference is requested to take up as a matter of urgency the elaboration of a treaty banning underground nuclear-weapon tests and to report to the General Assembly on this matter at its twenty-fourth session.

In connexion with paragraph 3 of resolution 2445 B (XXIII), the relevant documents and records are the following:

A/7134;[14] A/7223;[14] A/7224/Add.1;[14] A/7277 and Corr.1 and 2;[15] A/7327;[14] A/7364;[14] A/7441;[14] A/7442;[14] A/7444;[14] A/7445;[14] A/C.1/974;[16] A/C.1/976;[16] A/C.1/980;[16] the draft resolutions contained in documents A/7441, A/7442, A/7443, A/7444 and A/7445; the verbatim records of the 1606th to 1617th, 1623rd to 1635th, 1640th, 1642nd and 1643rd meetings of the First Committee (A/C.1/PV.1606 to 1617; 1623 to 1635; 1640; 1642 and 1643).

[14] See *Official Records of the General Assembly, Twenty-third Session, Annexes*, agenda items 27, 28, 29, 94 and 96.
[15] *Ibid., Twenty-third Session*, agenda item 96, document A/7277 and Corr.1 and 2.
[16] Mimeographed.

All these documents and records were distributed during the twenty-third session of the General Assembly to all Members of the United Nations, including all the members of the Conference of the Eighteen-Nation Committee on Disarmament.

I also have the honour to transmit herewith, for the information of the members of the Conference of the Eighteen-Nation Committee on Disarmament, the following resolution adopted by the General Assembly at its twenty-third session, which deals with disarmament matters: resolution 2456 (XXIII) entitled "Conference of Non-Nuclear-Weapon States".

[*For the text of resolutions 2454 (XXIII), 2455 (XXIII) and 2456 (XXIII)*, see Official Records of the General Assembly, Twenty-third Session, Supplement No. 18.]

2.

Union of Soviet Socialist Republics: message dated 18 March 1969 from the Chairman of the Council of Ministers of the Soviet Union, Mr. A. N. Kosygin, to the Conference of the Eighteen-Nation Committee on Disarmament

[*ENDC/238 of 18 March 1969*]
[*Original text: Russian*]

On behalf of the Soviet Government I greet the Conference of the Eighteen-Nation Committee on Disarmament and wish it success in its work.

To reduce the danger of armed conflict and avert the threat of a world thermonuclear war, the Soviet Government is making persistent efforts to stop the arms race and to achieve disarmament. Since the emergence of nuclear weapons the Soviet Union has firmly and consistently proclaimed that mankind must be delivered from the nuclear menace.

The drafting and signing of the Treaty on the Non-Proliferation of Nuclear Weapons[17] was a signal success in the struggle by States to bring about disarmament. The Eighteen-Nation Committee on Disarmament has greatly contributed to the solution of this problem.

We note with satisfaction that over eighty countries have signed this Treaty. Now the task is to ensure that the Treaty enters into force as soon as possible.

The conclusion of this Treaty opens prospects for the achievement of international agreements on other matters, including the vitally important matter of nuclear disarmament.

The Soviet Government is well known to attach great significance to the provisions of the Treaty on the Non-Proliferation of Nuclear Weapons, under which the parties undertake to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race and to nuclear disarmament. It sent to all Governments and placed on the agenda of the twenty-third session of the United Nations General Assembly a memorandum on some urgent measures for stopping the arms race and for achieving disarmament.[18]

The peoples of the world are concerned at the continuance of the nuclear arms race. We deem it important to find without delay ways of reaching agreement on the non-use of nuclear weapons and on other measures of nuclear disarmament. The solution of these problems would undoubtedly contribute much to the efforts to end the arms race and would help to remove the threat of nuclear war.

It is also of the greatest importance to agree that the sea-bed and the ocean floor shall not be used for military purposes but shall remain a sphere for man's peaceful activities. For this purpose the Soviet Union is submitting for the consideration of the Committee a draft treaty prohibiting the use for military purposes of the sea-bed and the ocean floor and the subsoil thereof (see below, section 4).

Solutions must also be found to the vitally important problems of cessation of the manufacture of nuclear weapons, the reduction and destruction of their stockpiles, the limitation and subsequent reduction of means of delivery of strategic weapons, the prohibition of chemical and bacteriological warfare, and others. We believe that consideration by the Committee of the relevant proposals contained in the memorandum of the Soviet Government would facilitate the solution of these major problems.

Permit me to express the hope that the Committee's work will yield practical results in ending the arms race and moving forward towards disarmament.

May the activities of the Committee be guided at all times by the desire of the peoples of the world that any international tensions should be relaxed and world peace ensured.

3.

United States of America: letter from the President of the United States, Mr. Richard M. Nixon, to Mr. Gerard C. Smith

[*ENDC/239 of 25 March 1969**]
[*Original text: English*]

In view of the great importance which I attach to the work of the Conference of the Eighteen-Nation Committee on Disarmament at Geneva, I wish to address directly to you, as the new Director of the Arms Control and Disarmament Agency and the head of our delegation, my instructions regarding the participation of the United States in this Conference.

The fundamental objective of the United States is a world of enduring peace and justice, in which the differences that separate nations can be resolved without resort to war.

Our immediate objective is to leave behind the period of confrontation and to enter an era of negotiation.

The task of the delegation of the United States to the Conference is to serve these objectives by pursuing negotiations to achieve concrete measures which will enhance the security of our own country and all countries.

The new administration has now considered the policies which will help us to make progress in this endeavour.

I have decided that the delegation of the United States should take these positions at the Conference.

First, in order to assure that the sea-bed, man's latest frontier, remains free from the nuclear arms race, the United States delegation should indicate that the United States is interested in working out an international agreement that would prohibit the emplacement or fixing of nuclear weapons or other weapons of mass destruction on the sea-bed. To this end, the United States delegation should seek discussion of the factors necessary for such an international agreement. Such an agreement would, like the Antarctic Treaty[19] and the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies,[20] which are already in effect, prevent an arms race before it has a chance to start. It would ensure that this potentially useful area of the world remained available for peaceful purposes.

Secondly, the United States supports the conclusion of a comprehensive test ban adequately verified. In view of the

[17] General Assembly resolution 2373 (XXII), annex.

[18] See *Official Records of the General Assembly, Twenty-third Session, Annexes*, agenda items 27, 28, 29, 94 and 96, document A/7134.

* This document was reissued for technical reasons and replaces the text dated 18 March 1969.

[19] United Nations, *Treaty Series*, vol. 402 (1961), No. 5778.

[20] General Assembly resolution 2222 (XXI), annex.

fact that differences regarding verification have not permitted achievement of this key arms control measure, efforts must be made towards greater understanding of the verification issue.

Thirdly, the United States delegation will continue to press for an agreement to cut off the production of fissionable materials for weapons purposes and to transfer such materials to peaceful purposes.

Fourthly, while awaiting the United Nations Secretary-General's study on the effects of chemical and biological warfare, the United States delegation should join with other delegations in exploring any proposals or ideas that could contribute to sound and effective arms control relating to these weapons.

Fifthly, regarding more extensive measures of disarmament, both nuclear and conventional, the United States delegation should be guided by the understanding that actual reduction of armaments, and not merely limiting their growth or spread, remains our goal.

Sixthly, regarding the question of talks between the United States and the Soviet Union on the limitation of strategic arms, the United States hopes that the international political situation will evolve in a way which will permit such talks to begin in the near future.

In carrying out these instructions, the United States delegation should keep in mind my view that efforts toward peace by all nations must be comprehensive. We cannot have realistic hopes for significant progress in the control of arms if the policies of confrontation prevail throughout the world as the rule of international conduct. On the other hand, we must attempt to exploit every opportunity to build a world of peace—to find areas of accord—to bind countries together in co-operative endeavours.

A major part of the work of peace is done by the Eighteen-Nation Disarmament Committee. I expect that all members of the United States delegation will exert that extra measure of determination, skill and judgement which this high task merits.

I shall follow closely the progress that is made and give my personal consideration to any problems that arise whenever it would be helpful for me to do so.

Please convey to all your colleagues my sincere wishes for success in our common endeavour. Over the years their achievements at the Conference of the Eighteen-Nation Committee on Disarmament have been outstanding. I am confident that in the future our efforts, in co-operation with theirs, will be equal to any challenge and will result in progress for the benefit of all.

4.

Union of Soviet Socialist Republics: draft treaty on prohibition of the use for military purposes of the sea-bed and the ocean floor and the subsoil thereof

[*ENDC/240 of 18 March 1969*]
[*Original text: Russian*]

The States Parties to this Treaty,

Noting that developing technology makes the sea-bed and the ocean floor and the subsoil thereof accessible and suitable for use for military purposes,

Considering that the prohibition of the use of the sea-bed and the ocean floor for military purposes serves the interests of maintaining world peace and reducing the arms race, promotes relaxation of international tension and strengthens confidence among States,

Being convinced that this Treaty will contribute to the fulfilment of the purposes and principles of the United Nations,

Have agreed as follows:

Article 1

The use for military purposes of the sea-bed and the ocean floor and the subsoil thereof beyond the twelve-mile maritime zone of coastal States is prohibited.

It is prohibited to place on the sea-bed and the ocean floor and the subsoil thereof objects with nuclear weapons or any other types of weapons of mass destruction, and to set up military bases, structures, installations, fortifications and other objects of a military nature.

Article 2

All installations and structures on the sea-bed and the ocean floor and the subsoil thereof shall be open on the basis of reciprocity to representatives of other States Parties to this Treaty for verification of the fulfilment by States which have placed such objects thereon of the obligations assumed under this Treaty.

Article 3

The outer limit of the twelve-mile maritime zone established for the purposes of this Treaty shall be measured from the same base-lines as are used in defining the limits of the territorial waters of coastal States.

Article 4

1. This Treaty shall be open for signature to all States. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and of accession shall be deposited with the Governments of . . . , which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force after the deposit of instruments of ratification by five Governments, including the Governments designated as Depositary Governments.

4. For States whose instruments of ratification or accession are deposited after the entry into force of this Treaty it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. Each Party shall in exercising its national sovereignty have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it considers to have jeopardized its supreme interests.

6. The Depositary Governments shall forthwith notify the Governments of all States signatory and acceding to this Treaty of the date of each signature, of the date of deposit of each instrument of ratification or of accession, of the date of the entry into force of this Treaty, and of the receipt of other notices.

7. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

Article 5

This Treaty, the Chinese English, French, Russian, and Spanish texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the States signatory and acceding thereto.

IN WITNESS WHEREOF the undersigned, being duly authorized thereto, have signed this Treaty.

DONE in . . . at . . . , this . . . day of . . . , . . .

5.

Mexico: working paper concerning the establishment of nuclear-free zones

[ENDC/241 of 24 March 1969]
[Original text: Spanish]

The establishment of nuclear-free zones—a question which the Conference of the Eighteen-Nation Committee on Disarmament decided to include in its programme of work on 15 August 1968—is an effective measure of nuclear disarmament. Indeed, it necessarily implies the absolute prohibition of nuclear weapons in the territories of all the States that are Parties to the treaty establishing the zone. The aim of the treaty in question, unlike that of a treaty such as the Treaty on the Non-Proliferation of Nuclear Weapons, should be to guarantee the total absence of nuclear weapons in the zone to which it applies, regardless of which State owns or controls such weapons. Consequently, if it were feasible, for example, to bring into force a universal treaty similar to the Treaty for the Prohibition of Nuclear Weapons in Latin America[21] or Treaty of Tlatelolco, the problem of nuclear disarmament would be automatically solved, for this would imply the elimination of the gigantic nuclear arsenals existing in the world today.

As can be seen from the book on disarmament published not long ago by the Secretariat of the United Nations[22] and likewise from the study prepared by Dr. Peter Gacii for the Conference of Non-Nuclear Weapon States,[23] the first proposals for the establishment of nuclear-free zones were put forward over ten years ago. Since then, suggestions for such zones have been made with regard to many geographical areas, including Central Europe, the Scandinavian countries, the Mediterranean, the Balkans, the Middle East, Asia and the Pacific, Africa, and Latin America, to list only projects relating to lands inhabited by man.

Among all these proposals, those referring to the only two zones—Africa and Latin America—concerning which the General Assembly of the United Nations has actually adopted resolutions, have been chosen for the purpose of giving a brief description of their development in part I of this working document. To supplement this retrospective review, part II of the document gives a summary analysis of the Treaty of Tlatelolco, the only multilateral treaty it has been possible to conclude for the establishment of a nuclear-free zone comprising territories inhabited by man, the scope of the analysis being restricted to the two parallel questions of the obligations contracted by the States Parties to the Treaty and those to be contracted by the nuclear Powers under Additional Protocol II. The last part of this document—part III—contains the main conclusions to be drawn from parts I and II.

I. Development of the proposals relating to Africa and Latin America

A. *Africa*

The first resolution to be approved by the General Assembly on the establishment of nuclear-free zones was resolution 1652 (XVI), entitled "Consideration of Africa as a denuclearized zone", adopted by the Assembly on 24 November 1961. Among the provisions of this resolution was one calling upon Member States "to refrain from using the territory, territorial waters or air space of Africa for testing, storing or transporting nuclear weapons", and "to consider and respect the continent of Africa as a denuclearized zone".

Nearly three years later, in July 1964, the Assembly of Heads of State and Government of the Organization of African Unity adopted a declaration[24] in which, after confirming the above-mentioned resolution, the participating Heads of State and Government solemnly declared that they were ready to undertake, "through an international agreement to be concluded under United Nations auspices, not to manufacture or control atomic weapons", and requested the General Assembly of the United Nations to take "the necessary measures to convene an international conference for the purpose of concluding an agreement to that effect".

The Assembly took note of this declaration and of a draft resolution submitted by a large group of African States at its twentieth session, when it adopted, on 3 December 1965, resolution 2033 (XX) entitled "Declaration on the denuclearization of Africa". The provisions of paragraphs 7 and 9 of that resolution are particularly relevant here.

In paragraph 7—the wording of which must certainly have been suggested by that of paragraph 2 of resolution 1911 (XVIII) adopted at the eighteenth session on the denuclearization of Latin America—the Assembly expressed the hope "that the African States will initiate studies, as they deem appropriate, with a view to implementing the denuclearization of Africa, and take the necessary measures through the Organization of African Unity to achieve this end".

In paragraph 9, the Secretary-General was requested "to extend to the Organization of African Unity such facilities and assistance as may be requested in order to achieve the aims of the present resolution".

The resolution was adopted without a single dissenting vote but no great progress seems yet to have been made towards the attainment of its aims.

B. *Latin America*

On 29 April 1963, five Latin American Presidents drafted a joint declaration[25] in which, in the name of their peoples and Governments, they announced that the latter were prepared to sign a multilateral Latin American agreement whereby they would undertake "not to manufacture, receive, store or test nuclear weapons or nuclear launching devices".

Seven months later, the General Assembly approved, on 27 November 1963, resolution 1911 (XVIII), entitled "Denuclearization of Latin America", in which the Assembly invoked in forthright terms the support and encouragement of the world community for the initiative embodied in the declaration, noting that initiative "with satisfaction" and expressing the hope that the States of Latin America would initiate studies "concerning the measures that should be agreed upon with a view to achieving the aims of the said declaration". The Assembly furthermore requested the Secretary-General to extend "to the States of Latin America, at their request, such technical facilities as they may require in order to achieve the aims set forth" in the declaration.

After the closing of the eighteenth session of the Assembly, the Mexican Ministry of Foreign Affairs initiated active consultations with the Ministries of Foreign Affairs of the other Latin American republics on the measures likely to be most effective for carrying out the recommendations of resolution 1911 (XVIII).

The outcome of these consultations was the Preliminary Meeting on the Denuclearization of Latin America, which took place at Mexico from 23 to 27 November 1964. At this meeting two basic resolutions were adopted: the first defined the term "denuclearization", specifying that it should mean solely "the absence of nuclear weapons" and not the prohibition of the peaceful uses of the atom, which should, on the contrary, be encouraged, especially for the benefit of the developing countries; the second established the Preparatory Commission for the Denuclearization of Latin America and

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[21] See *Official Records of the General Assembly, Twenty-second Session, Annexes*, agenda item 91, document A/C.1/946.

[22] *The United Nations and Disarmament, 1945 to 1965* (United Nations publication, Sales No: 67.I.9), pp. 209 to 211.

[23] A/CONF.35/DOC.9.

[24] *Official Records of the General Assembly, Twentieth Session, Annexes*, agenda item 105, document A/5975.

[25] *Ibid., Eighteenth Session, Annexes*, agenda item 74, document A/5145/Rev.1.

instructed the Commission to prepare a draft treaty on the subject. The Final Act of the Meeting was reproduced and issued as a United Nations document.[26]

Four months later, the Preparatory Commission held its first session, at which observers from other continents, namely, from the Netherlands and Yugoslavia, were present for the first time. During this session, the Commission adopted its rules of procedure, based on those of the General Assembly of the United Nations, and set up a co-ordinating committee and three working groups, designated by the first three letters of the alphabet, each with clearly defined and urgent tasks to carry out. The corresponding Final Act was reproduced and distributed as a United Nations document.[27]

The three working groups worked hard in the interval between the first and second sessions, and when the latter was opened on 23 August 1965 the Commission had before it their respective reports. One of these, that of Working Group B, included a preliminary draft of articles on verification, inspection and control, prepared with the aid of a very full digest of all the available material on the subject supplied by the Secretary-General of the United Nations, and with the technical advice of Mr. William Epstein, Director of the Disarmament Affairs Division of the same Organization, who from then on was fortunately able to attend all the meetings of the Commission.

Besides considering and communicating this preliminary draft to the Governments and approving a general declaration of principles, later to become, with slight modifications, the Preamble to the Treaty, the Commission at its second session established a Negotiating Committee with the main task of obtaining from the nuclear Powers a commitment to respect the legal statute of the military denuclearization of Latin America, as it would be embodied in the said international treaty. The Final Act of this session was reproduced and distributed as a United Nations document.[28]

The second and third sessions of the Preparatory Commission were separated by a longer interval than any other successive meetings of the Commission. But the seven-and-a-half months that passed before the Commission sat again were far from being wasted. For a considerable part of that time, either the Negotiating Committee or the Co-ordinating Committee was hard at work. The former submitted to the Commission a full report on the results of the negotiations it had held with the representatives of the nuclear States while the twentieth session of the General Assembly of the United Nations was in progress. The efforts of the latter produced a substantial working document in the form of a preliminary draft treaty which gave the Commission for the first time a text presenting a general picture of the problems with which it would be faced in preparing the denuclearization treaty.

This working document—elaborated on the basis of three documents: the preliminary draft of the articles on verification, inspection and control, prepared the year before by Working Group B; a preliminary draft treaty submitted by the Government of Mexico; and some observations communicated by the Government of Chile—together with the draft treaty submitted jointly shortly after the session began by the delegations of Brazil and Colombia, served as background material for the unanimous adoption of the "Proposals for the Preparation of the Treaty on the Denuclearization of Latin America", of which it was rightly said at the time that they would have, as an immediate antecedent to the treaty, a title to fame even more outstanding than that of the Dumbarton Oaks proposals in relation to the San Francisco Charter. The Final Act of the third session of the Preparatory Commission was reproduced and distributed as a United Nations document.[29]

[26] Document A/5824 (mimeographed).
[27] Document A/5912 (mimeographed).
[28] Document A/5985 (mimeographed).
[29] Document A/6328 and Corr.1 (mimeographed).

At the fourth session, the number of observers from States belonging to four different continents was greater than that of the twenty-one members of the Commission (the session was attended by observers from Austria, Belgium, Canada, China, Denmark, the Federal Republic of Germany, Finland, France, Ghana, India, Israel, Italy, Japan, the Netherlands, Norway, Poland, Romania, Sweden, the United Arab Republic, the United Kingdom of Great Britain and Northern Ireland, the United States of America and Yugoslavia). The session was divided in two parts, the first considering only the motion submitted by various delegations for the postponement of the discussions. At the only meeting of this first part, which took place on 30 August 1966, the Commission received the second report of the Negotiating Committee, giving an account of the result of the informal inquiries that the Committee had been requested to make with a view to entering into contact with the Government of the People's Republic of China. The most important paragraphs of this report were read by the representative of Mexico at the 1447th meeting of the First Committee of the General Assembly held on 9 November 1966. The second part of the session, from 31 January to 14 February 1967, culminated in the adoption and opening for signature of the Treaty for the Prohibition of Nuclear Weapons in Latin America.

At the end of 1966, the Co-ordinating Committee of the Commission, on the basis of the results of informal conversations entered into while the twenty-first session of the General Assembly of the United Nations was in progress, drew up in New York a series of practical suggestions, embodied in its report of 28 December 1966, for the solution of the problems that had remained outstanding after the third session, most important among which was the question of the entry into force of the future treaty, dealt with in article 23 of the proposals mentioned above.

The Committee, moreover, showing a clear appreciation of the situation, stressed in its report that the second part of the fourth session, to be opened on 31 January 1967, appeared to offer Latin America its last chance of being the first to give the world the example of the conclusion of a treaty of the type that had been in preparation during the previous three years, and recommended that the Commission, rather than lose this last chance, should sit until it could complete and open for signature the Treaty for the Denuclearization of Latin America.

The Preparatory Commission took the recommendations of its Co-ordinating Committee very seriously. At the opening meeting of the second part of its fourth session, it decided to omit the general debate and set up two working groups whose intensive and uninterrupted labours enabled it to complete the text of the Treaty, which was adopted unanimously on 12 February and opened for signature two days later at the Commission's closing meeting. The Final Act of this fourth and last session of the Preparatory Commission was reproduced and distributed as a United Nations document.[30]

During the first part of its twenty-second session the General Assembly of the United Nations adopted, without a single dissenting vote, resolution 2286 (XXII), in which, besides welcoming with special satisfaction the Treaty for the Prohibition of Nuclear Weapons in Latin America—which title was also given to the resolution—and stating that the Treaty "constitutes an event of historic significance in the

[30] Document A/6663 (mimeographed); for the authentic text of the Treaty in the five official languages of the United Nations, see *Official Records of the General Assembly, Twenty-second Session, Annexes*, agenda item 91, document A/C.1/946.

For a fuller account of the preparatory work for the Treaty, see Alfonso García Robles, *The Denuclearization of Latin America* (New York, Carnegie Endowment for International Peace, 1967); *El Tratado de Tlatelolco; Génesis, alcance y propósitos de la proscripción de las armas nucleares en la América Latina* (Mexico, El Colegio de México, 1967).

efforts to prevent the proliferation of nuclear weapons and to promote international peace and security", it made a series of urgent appeals addressed respectively to all States, to States which are or may become signatories of the Treaty or of its Additional Protocol I, and to Powers possessing nuclear weapons. It called upon the first "to give their full co-operation to ensure that the régime laid down in the Treaty enjoys the universal observance to which its lofty principles and noble aims entitle it". It recommended the second "to strive to take all the measures within their power to ensure that the Treaty speedily obtains the widest possible application". It invited the Powers possessing nuclear weapons "to sign and ratify Additional Protocol II of the Treaty as soon as possible".

The Conference of Non-Nuclear-Weapon States, held at Geneva from 29 August to 28 September 1968 adopted, also without a single dissenting vote, resolution B,[31] the operative part of which contains general provisions as well as provisions relating specifically to the Treaty of Tlatelolco.

In the general provisions of that resolution, the Conference recommended that all non-nuclear-weapon States not comprised in the zone established by the Treaty of Tlatelolco should "initiate or continue such studies as they may deem opportune concerning the possibility and desirability of establishing by treaty the military denuclearization of their respective zones, provided that political and security conditions permit".

In those paragraphs of the resolution referring to the Treaty, the Conference, after regretting the fact that not all the nuclear-weapon States had yet signed Additional Protocol II of the Treaty of Tlatelolco, urged the nuclear-weapon Powers "to comply fully with paragraph 4 of resolution 2286 (XXII), adopted by the United Nations General Assembly on 5 December 1967", namely, the paragraph in which, as already indicated, the General Assembly had invited those Powers "to sign and ratify Additional Protocol II of the Treaty as soon as possible".

The General Assembly reverted to this question at its twenty-third session and, in its resolution 2456 B (XXIII), which was approved, as in the two previous cases, without a single dissenting vote, on 20 December 1968, reiterated the recommendation contained in resolution B of the Conference of Non-Nuclear-Weapon States "and especially the urgent appeal for full compliance by the nuclear-weapon Powers with paragraph 4 of General Assembly resolution 2286 (XXII) of 5 December 1967, in which the Assembly invited Powers possessing nuclear weapons to sign and ratify as soon as possible Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America".

By 20 March 1969, the Treaty of Tlatelolco had been signed by the twenty-one States members of the Preparatory Commission for the Denuclearization of Latin America and by Barbados. Ten of these States—in chronological order, Mexico, El Salvador, the Dominican Republic, Uruguay, Honduras, Nicaragua, Ecuador, Bolivia, Peru and Paraguay—had deposited their instruments of ratification together with declarations by which, by virtue of the provisions of article 28, paragraph 2, of the Treaty, they wholly waived the requirements laid down in article 28, paragraph 1, so that the Treaty is already in force for these ten States. Brazil has also deposited its instrument of ratification but has not made the declaration in question.

Ratification procedure is well advanced in most of the other signatory States, so that there is reason to hope that in the near future the required eleven instruments of ratification accompanied by declarations waiving all requirements will have been deposited so that immediate steps can be taken to enable the Agency for the Prohibition of Nuclear Weapons in Latin America to begin work in accordance with article 28, paragraph 3, of the Treaty.

With regard to the additional protocols to the Treaty, the one bearing the number I was signed by the United Kingdom on 20 December 1967 and by the Netherlands on 15 March 1968. Additional Protocol II was signed by the United Kingdom on the same date as Protocol I and by the United States on 1 April 1968.

II. Obligations under the Treaty of Tlatelolco of the States Parties thereto and of States possessing nuclear weapons

As was said at the beginning, the intention here is not to examine in detail the contents of the Treaty for the Prohibition of Nuclear Weapons in Latin America and its two additional protocols, but only briefly to analyse those provisions of the Treaty and of its Additional Protocol II which relate to the obligations assumed, first, by the non-nuclear weapon States which become parties to the Treaty, and, secondly, by the States possessing nuclear weapons which sign and ratify Additional Protocol II.

As regards the obligations of the States Parties to the Treaty, the Latin American States have drawn up a definition which is undoubtedly one of the most comprehensive ever produced on the world or regional level, and one which certainly seems to leave no loop-hole.

Under article 1 of the Treaty, the Contracting Parties undertake to "use exclusively for peaceful purposes the nuclear material and facilities which are under their jurisdiction and to prohibit and prevent in their respective territories" both "the testing, use, manufacture, production or acquisition by any means whatsoever of any nuclear weapons" and "the receipt, storage, installation, deployment and any form of possession of any nuclear weapons", by the Parties themselves, directly or indirectly, on behalf of anyone else, by anyone on their behalf or in any other way.

The Parties also undertake "to refrain from engaging in, encouraging or authorizing, directly or indirectly, or in any way participating in the testing, use, manufacture, production, possession or control of any nuclear weapon".

With the aim of facilitating, ensuring and verifying compliance with the obligations contracted by the Parties, the Treaty contains in article 5 an objective definition of what, for the purposes of the Treaty, is to be understood by "nuclear weapon"; it sets up an Agency for the Prohibition of Nuclear Weapons in Latin America the principal organs of which will be a General Conference, a Council and a Secretariat; it also sets up a control system, which is described in articles 12 to 16 and 18, paragraphs 2 and 3.

The provisions of the last-mentioned articles, as the Secretary-General of the United Nations strongly emphasized in the message which he sent to the Preparatory Commission when the Treaty was approved on 12 February 1967, provide the first example of the inclusion in any international treaty dealing with disarmament measures of an effective control system with permanent organs of supervision. The system includes the full application of the safeguards of the International Atomic Energy Agency, but its scope is much greater. On the one hand, it is to be used not only to verify "that devices, services and facilities intended for peaceful uses of nuclear energy are not used in the testing or manufacture of nuclear weapons", but also to prevent any of the activities prohibited in article 1 of the Treaty from being carried out in the territory of the Contracting Parties with nuclear materials or weapons introduced from abroad, and to make sure that any explosions for peaceful purposes that might be carried out are compatible with article 18 of the Treaty. On the other hand, the Treaty assigns important functions of control to the three main organs—established by the Treaty itself—of the Agency for the Prohibition of Nuclear Weapons in Latin America: they are the General Conference, the Council and the Secretariat. There is also provision for

[31] See *Official Records of the General Assembly, Twenty-third Session*, agenda item 96, document A/7277 and Corr.1 and 2, para. 17.

the submission by the Parties of periodic and special reports, for special inspections in certain circumstances and for the transmission of the reports on those inspections to the Security Council and the General Assembly of the United Nations.

As regards the obligations of States possessing nuclear weapons, these are set out in Additional Protocol II to the Treaty, which is open to signature only by those States, in which it is stipulated that the nuclear Powers which become Parties to the Treaty shall enter into the following undertakings:

(*a*) That of respecting, "in all its express aims and provisions", the "statute of denuclearization of Latin America in respect of warlike purposes, as defined, delimited and set forth" in the provisions of the Treaty of Tlatelolco;

(*b*) That of not contributing "in any way to the performance of acts involving a violation of the obligations of article 1 of the Treaty in the territories to which the Treaty applies", and

(*c*) That of not using or threatening to use "nuclear weapons against the Contracting Parties of the Treaty".

The above undertakings, which signature and ratification of Additional Protocol II to the Treaty of Tlatelolco will make binding on the nuclear Powers, are in strict accordance with both the letter and the spirit of the exhortations of the United Nations General Assembly, repeated in many resolutions: especially worth recalling here are the provisions of resolution 1911 (XVIII), in which the Assembly expressed its trust that the nuclear Powers would "lend their full co-operation" for the effective realization of the military denuclearization of Latin America; and also of resolution 2153 A (XXI), in which it called upon "all nuclear-weapon Powers to refrain from the use, or the threat of use, of nuclear weapons against States which may conclude treaties", such as the Treaty of Tlatelolco in order to ensure the total absence of nuclear weapons in their respective territories.

This was certainly the reason why the Assembly, as has already been said, expressly invited the Powers in question, in its resolution 2286 (XXII), to "sign and ratify Additional Protocol II of the Treaty [of Tlatelolco] as soon as possible"; this was why the Conference of Non-Nuclear-Weapon States placed special emphasis on the need for the nuclear Powers to "comply fully" with that invitation and why the Assembly itself reaffirmed the recommendation of the Conference in its resolution 2456 B (XXIII).

III. Conclusions

The brief account in part I of this document of the efforts to secure the conversion into nuclear-free zones of the African continent and the Latin American subcontinent, and the analytical description in part II of some aspects of the Treaty of Tlatelolco suggest certain conclusions, of which those set forth below may be of particular use to the Eighteen-Nation Disarmament Committee:

The two initiatives, which originated at almost the same time, followed a parallel development until 1965. From then on the Latin American project gained a considerable lead, reaching a happy culmination in the opening for signature of the Treaty of Tlatelolco at the beginning of 1967; this was probably due to the felicitous decision taken by the Latin American States in November 1964 to set up an *ad hoc* agency—the Preparatory Commission for the Denuclearization of Latin America—with the exclusive task of drawing up the required draft treaty. The Commission started its work on 5 March 1965 and, after overcoming numerous obstacles and resolving the complex problems with which it was faced, managed to finish its work in rather less than two years of persistent effort.

The background supplied by United Nations General Assembly resolutions 1652 (XVI), 1911 (XVIII), 2033 (XX) and 2286 (XXII), two of which refer to the banning of nuclear weapons in Africa and Latin America respectively, clearly shows that in both cases there was a conviction that in order to establish a nuclear-free zone, a multilateral declaration, or even a United Nations declaration, would not be sufficient, but that a properly signed and ratified treaty or convention was required. Such was the feeling of the Latin American States when in November 1963 they put before the Assembly the draft which was to become resolution 1911 (XVIII); and such also was the feeling of the Heads of State and Government of the Organization of African Unity when they adopted their declaration of July 1964.

The provisions of the Treaty of Tlatelolco are very instructive regarding the many and various considerations which will have to be taken into account when any future nuclear-free zones are established. Of these, the following are worth singling out:

(*a*) the need for the obligations to be assumed by States Parties to the treaty in question to be drawn up in such a way as to leave no loop-hole for evasion of the total nuclear-weapons ban in their respective territories;

(*b*) the desirability of including in the treaty an objective definition of what, for the purposes of the treaty, is meant by "nuclear weapons";

(*c*) the need for providing for the application of an effective system of international verification and control for the purposes of watching over and ensuring fulfilment of the treaty obligations; and

(*d*) the desirability of setting up, for that same purpose, an agency—with organs adequate for the fulfilment of its tasks—in which all Parties to the treaty are represented.

Additional Protocol II to the Treaty of Tlatelolco is a clear indication that, like the obligations upon non-nuclear States, the undertakings which the nuclear Powers should assume in respect of militarily denuclearized zones must be incorporated in a solemn international instrument which has the full force of law, like a treaty, convention, or protocol. It was this conviction which, during the debates in the Preparatory Commission for the Denuclearization of Latin America, prompted the member States of the Commission, after a long and exhaustive discussion of the subject, to reject recourse to any of the various procedures which, in addition to the one which was later to be embodied in the Protocol, were considered at the time, such as the drawing up of unilateral declarations, or the adoption by the General Assembly of a resolution *sui generis*. Furthermore, the conclusion reached seems to be the only one which accords with the basic principle of the sovereign equality of States, since it would be in conflict with this principle if procedures which are rightly held to be inadequate in the case of non-nuclear States were accepted as satisfactory where nuclear Powers are concerned. This is certainly why the Conference of Non-Nuclear-Weapon States clearly expressed its conviction in its resolution B that "for the maximum effectiveness of any treaty establishing a nuclear-weapon-free zone, the co-operation of the nuclear-weapon States is necessary and that such co-operation should take the form of commitments likewise undertaken in a formal international instrument which is legally binding, such as a treaty, convention or protocol".

ANNEXES

I

General Assembly resolution 1652 (XVI) entitled "Consideration of Africa as a denuclearized zone"

[*For the text, see* Official Records of the General Assembly, Sixteenth Session, Supplement No. 17.]

II

General Assembly resolution 2033 (XX) entitled "Declaration on the denuclearization of Africa"

[*For the text, see* Official Records of the General Assembly, Twentieth Session, Supplement No. 14.]

III

GENERAL ASSEMBLY RESOLUTION 1911 (XVIII) ENTITLED "DENUCLEARIZATION OF LATIN AMERICA"

[*For the text, see* Official Records of the General Assembly, Eighteenth Session, Supplement No. 15.]

IV

GENERAL ASSEMBLY RESOLUTION 2286 (XXII) ENTITLED "TREATY FOR THE PROHIBITION OF NUCLEAR WEAPONS IN LATIN AMERICA"

[*For the text, see* Official Records of the General Assembly, Twenty-second Session, Supplement No. 16.]

V

RESOLUTION B RELATING TO THE ESTABLISHMENT OF NUCLEAR-WEAPON-FREE ZONES ADOPTED BY THE CONFERENCE OF NON-NUCLEAR-WEAPON STATES

[*For the text, see* Official Records of the General Assembly, Twenty-third Session, *agenda item 96, document A/7277 and Corr.1 and 2, para. 17.*]

VI

GENERAL ASSEMBLY RESOLUTION 2456 B (XXIII) RELATING TO THE CONFERENCE OF NON-NUCLEAR-WEAPON STATES

[*For the text, see* Official Records of the General Assembly, Twenty-third Session, Supplement No. 18.]

VII

ARTICLES 1, 5, 7, 8, 12 TO 16 AND 18 OF THE TREATY FOR THE PROHIBITION OF NUCLEAR WEAPONS IN LATIN AMERICA CONCERNING OBLIGATIONS, DEFINITION OF NUCLEAR WEAPONS, ORGANIZATION AND CONTROL SYSTEM

[*For the text, see* Official Records of the General Assembly, Twenty-second Session, Annexes, *agenda item 91, document A/C.1/946.*]

VIII

ADDITIONAL PROTOCOL II TO THE TREATY FOR THE PROHIBITION OF NUCLEAR WEAPONS IN LATIN AMERICA

[*For the text,* see Official Records of the General Assembly, Twenty-second Session, Annexes, *agenda item 91, document A/C.1/946.*]

IX

STATUS OF THE TREATY FOR THE PROHIBITION OF NUCLEAR WEAPONS IN LATIN AMERICA AND ITS TWO ADDITIONAL PROTOCOLS, AS AT 20 MARCH 1969

A. TREATY

1. *Signatures*

Bolivia	14 February 1967
Colombia	14 February 1967
Costa Rica	14 February 1967
Chile	14 February 1967
Ecuador	14 February 1967
El Salvador	14 February 1967
Guatemala	14 February 1967
Haiti	14 February 1967
Honduras	14 February 1967
Mexico	14 February 1967
Panama	14 February 1967
Peru	14 February 1967
Uruguay	14 February 1967
Venezuela	14 February 1967
Nicaragua	15 February 1967
Paraguay	26 April 1967
Brazil	9 May 1967
Trinidad and Tobago	27 June 1967
Dominican Republic	28 July 1967
Argentina	27 September 1967
Jamaica	26 October 1967
Barbados	18 October 1968

2. *Ratifications*

* Mexico	20 September 1967
Brazil	29 January 1968
* El Salvador	22 April 1968
* Dominican Republic	14 June 1968
* Uruguay	20 August 1968
* Honduras	23 September 1968
* Nicaragua	24 October 1968
* Ecuador	11 February 1969
* Bolivia	18 February 1969
* Peru	4 March 1969
* Paraguay	19 March 1969

B. ADDITIONAL PROTOCOL I

States to which the Protocol is open for signature	*Signatures*	*Ratifications*
United Kingdom of Great Britain and Northern Ireland	20 December 1967	
Netherlands	15 March 1968	
United States of America		
France		

C. ADDITIONAL PROTOCOL II

States to which the Protocol is open for signature	*Signatures*	*Ratifications*
United Kingdom of Great Britain and Northern Ireland	20 December 1967	
United States of America	1 April 1968	
France		
People's Republic of China		
Union of Soviet Socialist Republics		

6.

Sweden: working paper suggesting possible provisions of a treaty banning underground nuclear weapon tests

[*ENDC/242 of 1 April 1969*]
[*Original text: English*]

The States concluding this Treaty, hereinafter referred to as the "Parties to the Treaty",

Declaring their intention to achieve at the earliest possible date the cessation of the nuclear arms race and to undertake, effective measures in the direction of nuclear disarmament,

Urging the co-operation of all States in the attainment of this objective,

Recalling the determination expressed by the Parties to the 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water[32] in its Preamble to seek to achieve the discontinuance of all test explosions of

* States which deposited, together with their respective instruments of ratification, declarations by which, in exercise of the right accorded by article 28, paragraph 2 of the Treaty, they waived all the requirements laid down in paragraph 1 of that article, so that the Treaty is already in force for all of them.

[32] United Nations, *Treaty Series*, vol. 480, 1963, No. 6964.

nuclear weapons for all time and to continue negotiations to this end,

Convinced that a continued testing of nuclear weapons brings about unforeseeable consequences in regard to imbalance and mistrust between States and causes immense diversion of human and material resources for purposes of war,

Heeding the appeals of the General Assembly of the United Nations for the suspension of nuclear weapon tests in all environments,

Affirming the principle that the benefits of peaceful applications of nuclear technology, including any technological by-products which may be derived by nuclear-weapon States from the development of nuclear explosive devices, should be available for peaceful purposes to all Parties to the Treaty, whether nuclear-weapon or non-nuclear-weapon States,

Affirming also the principle that resources, freed by measures of arms control and disarmament, should be channelled, to the greatest extent possible, to social and economic development, particularly of developing countries,

Declaring their intention to conclude at the earliest possible date, a separate international agreement regarding nuclear explosions for peaceful purposes,

Have agreed as follows:

Article I

1. Each State Party to this Treaty undertakes to prohibit, to prevent and not to carry out underground nuclear weapon test explosion, or, subject to the exemption embodied in paragraph 3, any other underground nuclear explosion, at any place under its jurisdiction or control.

2. Each State Party to this Treaty undertakes, furthermore, to refrain from causing, encouraging or in any way participating in, the carrying out of any such nuclear weapon test explosion, or any such other nuclear explosion.

3. The provisions of paragraphs 1 and 2 of this article do not apply to explosions which are carried out for construction or other peaceful purposes and which take place in conformity with an international agreement to be negotiated separately.

Article II

1. Each State Party to this Treaty undertakes to co-operate in good faith to ensure the full observance and implementation of this Treaty.

2. Each State Party to this Treaty undertakes to co-operate in good faith in an effective international exchange of seismological data in order to facilitate the detection, identification and location of underground events,

3. Each State Party to this Treaty undertakes to co-operate in good faith for the clarification of all events pertaining to the subject matter of this Treaty. In accordance with this provision, each State Party to the Treaty is entitled:

(*a*) To make inquiries and to receive information as a result of such inquiries;

(*b*) To invite inspection on its territory or territory under its jurisdiction, such inspection to be carried out in the manner prescribed by the inviting Party;

(*c*) To make proposals, if it deems the information available or made available to it under all or any of the preceding provisions inadequate, as to suitable methods of clarification.

4. Each State Party to this Treaty may bring to the attention of the Security Council of the United Nations and of the other Parties to the Treaty that it deems another Party to have failed to co-operate to the fullest extent for the clarification of a particular event.

Article III

1. Any Party to this Treaty may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Governments which shall circulate it to all Parties to the Treaty. Thereupon, if requested to do so by one-third or more of the Parties to the Treaty, the Depositary Governments shall convene a conference, to which they shall invite all the Parties to the Treaty, to consider such an amendment.

2. Any amendment to this Treaty must be approved by a majority of the votes of all the Parties to the Treaty, including the votes of all nuclear-weapon States Party to this Treaty. The amendment shall enter into force for each Party that deposits its instrument of ratification of the amendment upon the deposit of instruments of ratification by a majority of all the Parties, including the instruments of ratification of all nuclear-weapon States Party to this Treaty. Thereafter, it shall enter into force for any other Party upon the deposit of its instrument of ratification of the amendment.

Article IV

1. This Treaty shall be open to all States for signature. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this Article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of . . . which are hereby designated the Depository Governments.

3. This Treaty shall enter into force after its ratification by the States, the Governments of which are designated Depositaries of the Treaty, and . . . other States signatory to this Treaty and the deposit of their instruments of ratification.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or of accession, the date of the entry into force of this Treaty, and the date of receipt of any requests for convening a conference or other notices.

6. This Treaty shall be registered by the Depository Governments pursuant to article 102 of the Charter of the United Nations.

Article V

This Treaty shall be of unlimited duration. Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty, if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

Article VI

This Treaty, the Chinese, English, French, Russian and Spanish texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

In witness whereof the undersigned, duly authorized, have signed this Treaty.

DONE in . . . at . . . this . . . day of . . .

7.

Canada: working paper listing recent Canadian scientific papers concerning the detection and identification of underground nuclear explosions by seismological means

[ENDC/244 of 17 April 1969]
[Original text: English]

Reference was made in the statement of the Canadian delegation at the 404th meeting on 17 April to Canadian scientific papers concerning the detection and identification of underground nuclear explosions by seismological means published since the meetings of the Stockholm International Peace Research Institute (SIPRI). For the convenience of members on the Eighteen-Nation Committee on Disarmament the titles of these papers and particulars of their publication are set out below:

Canadian magnitudes of earthquakes and nuclear explosions in southwestern North America by P. W. Basham, Geophysical Journal, Royal Astronomical Society, London 1969, vol. 17, pp 1-13.

Operation and maintenance of the Yellowknife seismological array 1966-68 by E. B. Manchee and W. D. Cooper, Seismological Series of Dominion Observatory, Ottawa, 1968.

Comparison of Montreal P-wave magnitudes from short period and intermediate period seismograms by P. W. Basham, Seismological Series of Dominion Observatory, Ottawa, 1968.

The following directly relevant papers are in press in the open literature:

Canadian magnitude of Asian earthquakes and explosions by P. W. Basham, Geophysical Journal, Royal Astronomical Society.

Correlogram discrimination parameters from Yellowknife seismic array data by K. Whitham, P. W. Basham and H. S. Hasegawa, Seismological Series of Dominion Observatory, Ottawa.

Theoretical response of a seismograph at Yellowknife to an underground explosion at the Nevada test site, by H. S. Hasegawa and K. Witham, Canadian Journal of Earth Sciences, Ottawa.

Epicentral determination by seismic arrays by D. H. Weichert, Nature, London.

8.

Italy: working paper setting forth suggestions for the adoption of an organic disarmament programme

[ENDC/245 of 21 April 1969]
[Original text: French]

1. In resolution 2454 B (XXIII) the United Nations General Assembly requested the Conference of the Eighteen-Nation Committee on Disarmament "to take renewed efforts towards achieving substantial progress in reaching agreement on the question of general and complete disarmament under effective international control, and urgently to analyse the plans already under consideration and others that might be put forward to see how in particular rapid progress could be made in the field of nuclear disarmament".

2. The adoption of agreements on effective disarmament measures therefore remains the basic aim of the work of the Conference.

3. It should be noted that since 1962 (when the United States and the Soviet Union submitted their respective plans for general and complete disarmament) no effective disarmament measure has been adopted.

4. This is probably due to the fact that in 1962 it was thought that the process of general and complete disarmament could be initiated by immediate measures for the reduction of armaments. But experience has shown that disarmament must be "prepared" in an adequate manner and that the preparation itself of this process must, from the beginning, form the subject of a plan.

5. The Italian delegation therefore believes that in order to give a new impetus to disarmament negotiations it is necessary to proceed on the basis of a plan or programme containing, on the one hand, the elements which must precede the disarmament process or serve to prepare for it, and, on the other hand, the methods of its implementation.

6. The Italian delegation considers that, in order to prepare for the disarmament process and to open the way thereto, it is necessary at the same time to halt the nuclear arms race, to create a climate of confidence and to undertake studies on concrete measures that will make it possible to reduce armaments and armed forces. Furthermore, in order to make possible the complete implementation of a disarmament process, it is necessary to establish guidelines which should be provided for and laid down from the start.

7. If the usefulness of this approach is recognized, it is necessary to envisage the conclusion of an agreement on an organic programme aimed at defining the content of the preparatory phase and the guidelines which are to govern the subsequent process of disarmament.

8. As regards the preparatory phase, it will be a matter, in particular, of determining the measures which it should comprise in order to achieve the aforementioned aims, namely, the halting of the nuclear arms race, the creation of a climate of mutual confidence and a study of concrete measures for arms reduction. The Italian delegation has already expressed its opinion on this matter and hopes that other delegations will also make their views known. In particular, the Italian delegation believes that the halting of the nuclear arms race must be regarded as an integral problem, the various aspects of which are interdependent. This is tantamount to recognizing that there is a link between the various measures to be adopted in this field, although this does not mean that agreement concerning a given measure must necessarily be subject to the conclusion of an agreement on other measures. Some degree of flexibility is necessary in practice.

9. Regarding the determination of guidelines for the disarmament process as a whole, the Italian delegation believes that it could be based on the principles agreed as long ago as September 1961[33] between the United States and Soviet Governments. These principles, brought up to date and supplemented as far as possible, could be reproduced within the framework of a joint declaration by the Conference. For example, the original texts could be supplemented by stating:

(*a*) that the process of general and complete disarmament shall take place in a preparatory phase and in three successive phases of arms reduction until it is completed;

(*b*) that the three phases of arms reduction may be negotiated separately: the first phase simultaneously with the implementation of the preparatory phase; the second simultaneously with the implementation of the first; and the third simultaneously with the implementation of the second;

(*c*) that reductions in all categories of nuclear and conventional weapons shall be progressive, from the first phase onwards.

10. With regard to the stages of negotiation, the Italian delegation suggests, for its part, the following programme of work: to undertake immediate negotiations on an organic disarmament programme; to carry on, at the same time, negotiations on partial disarmament measures that have already been considered previously; after the conclusion of an agreement on a general programme, and after obtaining concrete results in the field of partial measures (which are an essential part of the preparatory phase), to begin negotiations on the first phase of the disarmament process.

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[33] *Official Records of the General Assembly, Sixteenth Session, Annexes,* agenda item 19, document A/4879.

11. The Italian delegation will be grateful to other delegations for any suggestions they may wish to put forward in regard to the points submitted for their consideration.

9.

Nigeria: working paper on a comprehensive test ban treaty

[ENDC/246 of 15 May 1969]
[Original text: English]

The question of verification constitutes the greatest stumbling block to concluding a comprehensive test ban. Although much progress has been made in developing the means of identifying earthquakes or nuclear explosions through long range teleseismic systems, the experts are all agreed that there is yet a gap to be bridged to make the seismic identification system foolproof.

In the general atmosphere of suspicion and distrust among States it is little wonder that exclusive reliance on seismic identification has not found full acceptance.

The Nigerian delegation considers that to inspire the confidence necessary for concluding the test ban treaty, a foolproof method of verification must be established. This will involve the augmentation of seismic verification with some other form of verification where the former is inconclusive.

The Nigerian delegation is well aware of the reservations about "on-site" inspections The delegation believes that these reservations do not attach to the system, *per se*, but stem from the uneasiness that "on-site" inspections might be exploited for purposes of espionage. If therefore the possibility of espionage can be eliminated or reduced considerably, "on-site" inspections, where seismic verifications are inconclusive will, it is hoped, be acceptable.

In its working paper of 20th August 1968[34] the United Kingdom delegation proposed the establishment of a committee that would undertake "on-site" inspections if strong evidence of a possible infringement of a test ban treaty was produced. The proposal envisaged the inclusion of the super-Powers in the committee. Such an inclusion would not remove the basis of the reservations about "on-site" inspections. To overcome this short-coming, the Nigerian delegation now recommends that the committee should be composed, exclusively, of non-aligned countries that have signed the Treaty on the Non-Proliferation of Nuclear Weapons[35] and possess the technological know-how to cope with the implications of such inspections.

Such a committee of non-aligned countries should allay apprehensions about "on-site" inspections. Since they would have signed the non-proliferation Treaty, the members of the committee should not be interested in atomic weapon espionage because the Treaty prohibits them from putting into practical use any knowledge of nuclear weapons they may thus unlawfully acquire. On the other hand, their being non-aligned would ensure that they are unlikely to act as agents of the super-powers.

10.

Nigeria: working paper on a proposed amendment to article II of the USSR draft treaty on prohibition of the use for military purposes of the sea-bed and the ocean floor and the sub-soil thereof (*ENDC/240*)

[ENDC/247 of 15 May 1969]
[Original text: English]

After the words "coastal States is prohibited" in paragraph 1 of Article 1 add:

"provided that where such 12 mile maritime zone overlaps a similar zone in respect of another State, signatory to the Treaty, both States so affected shall waive their rights in regard to the use of such maritime zone for military purposes and shall accept the verification obligations in this Treaty within such zone without prejudice to their rights under the United Nations Continental Shelf Convention of 1958."[36]

11.

Canada: working paper listing recent Canadian scientific papers on seismological research with abstracts now available

[ENDC/248 of 21 May 1969]
[Original text: English]

For the convenience of members of the Conference of the Eighteen-Nation Committee on Disarmament the titles and available abstracts on papers produced recently in Canada on seismological research are set out below. The list includes articles to which reference has already been made in document ENDC/244 of 17 April 1969, (see above, section 7), and other papers in press or contributed to the Conference on Seismological Data Exchange, held at Stockholm in May 1966, and the Seismic Study Group convened by the Stockholm International Peace Research Institute (SIPRI) in Sweden, April and June 1968:

(*a*) *Array research*

H. Somers and E. B. Manchee, *Selectivity of the Yellowknife seismic array*, Geophysical Journal, Royal Astronomical Society, 1966, vol. 10, p. 401. See abstract No. 1.

E. B. Manchee and H. Somers, *The Yellowknife seismological array*, Dominion Observatory, XXXII, No. 2, 1966. See abstract No. 2.

D. H. Weichert, E. B. Manchee and K. Whitham, *Digital experiments at twice real-time speed on the Capabilities of the Yellowknife Seismic array*, Geophysical Journal, Royal Astronomical Society, 1967, vol. 13, p. 277. See abstract No. 3.

D. H. Weichert, *Computer hardware and programming requirements for the delay-sum-and-correlate method of processing seismic array data* Seismological Series of Dominion Observatory, 1967-2. See abstract No. 4.

F. M. Anglin and E. B. Manchee, *Discrimination of temporally overlapping seismic events*, Nature, 1968 vol. 218, No. 5143.

E. B. Manchee and D. H. Weichert, *Epicentral uncertainties and detection probabilities from the Yellowknife seismic array data*, Bulletin of the Seismological Society of America, 1968, vol. 58, p. 1359. See abstract No. 5.

K. Whitham, P. W. Basham and H. S. Hasegawa, *Correlogram discrimination parameters from Yellowknife seismic array data*, Seismological Series of Dominion Observatory, 1968-5.

K. Whitham and D. H. Weichert, *Geophysical results from digital processing of Yellowknife array signals*, Travaux Scientifiques, 1968, fasc. 24. See abstract No. 6.

D. H. Weichert, *Epicentre determination by seismic arrays*, Nature.

E. B. Manchee and W. D. Cooper, *Operation and maintenance of the Yellowknife seismological array, 1966-1968*, Seismological Series of Dominion Observatory, 1968.

D. H. Weichert and E. B. Manchee, *A photogrammetric resurvey of the Yellowknife seismic array*, Seismological Series of Dominion Observatory, 1969-2.

[34] See *Official Records of the Disarmament Commission, Supplement for 1967 and 1968*, document DC/231, annex I, section 8.

[35] General Assembly resolution 2373 (XXII) annex.

[36] United Nations, *Treaty Series*, vol. 499, 1964, No. 7302.

D. H. Weichert and K. Whitham, *Calibration of the Yellowknife seismic array with first zone explosions,* submitted to the Geographical Journal, Royal Astronomical Society, 1969. See abstract No. 7.

(*b*) *Surface wave studies*

P. W. Basham, *Canadian magnitudes of earthquakes and nuclear explosions in Southwestern North America,* Geophysical Journal, Royal Astronomical Society, 1969, vol. 17, pp. 1 to 13. See abstract No. 8.

P. W. Basham, *Canadian magnitudes of Asian earthquakes and explosions,* submitted to the Geophysical Journal, Royal Astronomical Society, 1969. See abstract No. 9.

(*c*) *Signal characteristics*

P. W. Basham, *Comparison of Montreal P-wave magnitudes from short-period and intermediate period seismograms,* Seismological Series of Dominion Observatory, 1968-3.

H. S. Hasegawa, *A study of the effects of the Yellowknife crustal structure upon the P coda of teleseismic events,* Geophysical Journal Royal Astronomical Society. See abstract No. 10.

H. S. Hasegawa and K. Whitham, *Theoretical response of a seismograph at Yellowknife to an underground explosion at the Nevada test side,* Canadian Journal of Earth Sciences.

P. W. Basham and R. M. Ellis, *The composition of P codas using magnetic tape seismograms,* Bulletin of the Seismological Society of America. See abstract No. 11.

Abstract No. 1

SELECTIVITY OF THE YELLOWKNIFE SEISMIC ARRAY

H. Somers and E. B. Manchee

An idealized signal, consisting of a noise-free, single-frequency infinite-duration input, is theoretically applied to the Yellowknife seismic array. A comparison of the output responses resulting from three possible signal processing techniques, viz. cross-correlation, sumall-squared, and multiple correlation, indicates that cross-correlation is the preferred technique for determining the azimuth and velocity of arrival of the incident seismic energy.

Abstract No. 2

THE YELLOWKNIFE SEISMOLOGICAL ARRAY

E. B. Manchee and H. Somers

The United Kingdom Atomic Energy Authority, in cooperation with the Department of Mines and Technical Surveys of Canada, has established a large seismological array at Yellowknife, Northwest Territories. The purpose of the array is to investigate the possibility that teleseismic detection and identification of underground nuclear tests anywhere in the world may be possible using a relatively small number of similar stations. The Yellowknife Array is a research and development facility, not an operational monitoring station.

Nineteen evenly spaced seismometer vaults are arranged in in an asymmetrical cross, each arm of the cross being 22.5 km in length. The output of the single vertical Willmore Mark II seismometer in each vault is recorded on a separate track on magnetic tape. The large size of the array makes azimuth searching and velocity filtering desirable and necessary in the processing of the data. The Department of Mines and Technical Surveys is in the process of acquiring digital computing facilities which will allow the magnetic tapes to be searched for all events at twice real time speeds. In addition to the identification problem, many routine seismological problems may also be investigated by use of this new and powerful tool.

Abstract No. 3

DIGITAL EXPERIMENTS AT TWICE REAL-TIME SPEED ON THE CAPABILITIES OF THE YELLOWKNIFE SEISMIC ARRAY

D. H. Weichert, E. B. Manchee and K. Whitham

A number of experimental seismic arrays have been constructed in the past few years. One such array in the form of an asymmetric linear cross has been built at Yellowknife, Northwest Territories, by the United Kingdom Atomic Energy Authority in collaboration with the Canadian Department of Mines and Technical Surveys. Data from the nineteen individual seismometers are recorded continuously on FM magnetic tape. The analogue tape data are multiplexed into a digital computer at twice the recording speed. The system allows the formation of 168 beams by the delay and sum method: different approaches to this problem and their implications for real time processing are discussed. The correlations between the phased sums of the two lines are calculated and events are detected automatically when the correlation rises above a trigger level for a preset length of time. For each event a selection of logarithmic correlations is output in analogue form, together with other pertinent information.

The recorded data have been analysed in two modes: free search, in which the entire tape is searched by the computer; and selective search fine scan, in which events are selected visually from a helicorder record and subjected to a variety of search procedures. A thirty-day free search experiment indicated that the 50 per cent detection probability level is m4.1 $\pm$ 0.2. The location accuracy of the events detected during the thirty-day experiment is of the order of 300 km in latitude and longitude and fine scan experiments have shown that this accuracy may be improved. The signal/noise ratio improvement is close to the theoretical value.

Abstract No. 4

COMPUTER HARDWARE AND PROGRAMMING REQUIREMENTS FOR THE DELAY-SUM-AND-CORRELATE METHOD OF PROCESSING SEISMIC ARRAY DATA

D. H. Weichert

The data from the Yellowknife seismic array have been processed digitally in Ottawa since early 1966. The method used was the delay-sum-and-correlate method and required approximately 16,000 words of computer memory when conducted at twice real-time speed, because of trade-offs between memory and processing speed. For the particular configuration of the Yellowknife array, and for a sufficiently uniform crust, it is demonstrated that, with an average third generation computer with about 4 usec addition time and 24-bit word length, the data could be processed continuously at four times the recording speed. About 100 beams would be maintained, covering uniformly the third zone.

The routine formation of digital files for all detected events is not possible at four times the recording speed, unless more than one direct-memory-access channel is incorporated in the digital computer system. With two such channels, approximately one digital tape would be required per recording week. With only one channel as presently approved for purchase, digital tape formation for international data exchange is possible, but at twice real-time speed the tape utilization is only 18 per cent.

Abstract No. 5

EPICENTRAL UNCERTAINTIES AND DETECTION PROBABILITIES FROM THE YELLOWKNIFE SEISMIC ARRAY DATA

E. B. Manchee and D. H. Weichert

Analog recording tapes from the Yellowknife seismic array have been processed digitally in Canada for over a year, with

concentration on the automatic detection and epicenter location of events between 26° and 90° distance, using short period P-wave arrivals.

For the purpose of detection, signals from the individual seismometers in the two-arms of the cross array are analog band-pass filtered, digitized at 20 samples/s, multiplexed into a digital computer, velocity and azimuth filtered and correlated, using an exponentially weighted integration over time with an equivalent width of 1.6s. The correlograms for up to 168 phased beams are scanned for values exceeding a present trigger level and an event is recorded when the level is passed consistently a number of times. In late 1966, during a seismically quiet period and with the array fully operational, the 50 per cent automatic detection level achieved by this method for events in the Third Zone to Yellowknife was m4.0 ± 0.1, slightly better than the level of an analog trigger operated at the station which uses the correlogram method for a single unphased beam only. The 50 per cent detection level of the Yellowknife standard station is about m4.4 and thus the array-computer automatic detection method gives about △m0.4 improvement, which is expected from the processing method used if the noise is largely uncorrelated. No significant variations in the detection level with azimuth have yet been observed.

Approximate epicenter locations are determined from the best apparent arrival vector. The best vector is assumed to be given by the maxima of parabolas at constant azimuth and wave number interpolated between the highest values of the correlograms.

United States Coast and Geodetic Survey P.D.E. information is used in conjunction with the Jeffreys-Bullen tables to calculate an expected apparent arrival vector. The difference between the expected and best interpolated arrival vectors has an average deviation of about 6 ms/km. Their distribution does not suggest a simple crustal or upper mantle cause under the array station.

Abstract No. 6

Geophysical results from digital processing of Yellowknife array signals

K. Whitham and D. H. Weichert

Results are described from the automatic digital processing of teleseismic signals from the medium aperture crossed seismic array at Yellowknife, Northwest Territories. Developments in the automatic processing method are described which increase the speed from that previously described. Epicentral uncertainties from a single array determination are outlined.

Intensive digital processing is described of a tape obtained by the superposition of the signals from the Early Rise chemical explosions at an epicentral distance of about 21°. The results and other observations from chemical explosions at 11° to 17° are compared with the prediction for the average upper mantle structure derived from observations of chemical explosions on the Canadian standard seismic network at long ranges. Preliminary upper mantle structural interpretations are given incorporating phase velocity data with time and distance data. The difficulties in self-consistent interpretations using velocity filtering are outlined. The best model to date requires only a very weak P-wave low velocity layer at considerable depth in the pre-Cambrian Shield.

Abstract No. 7

Calibration of the Yellowknife seismic array with first zone explosions

D. H. Weichert and K. Whitham

Recordings from a crustal seismic experiment, which was conducted in the Yellowknife area in 1966, were used for calibration of the Yellowknife seismic array. In the immediate vicinity of the array the crust is found to be very uniform. A superficial layer with an intercept time of 0.172 ± 0.012 s and unknown velocity is underlain by a crust with a P-wave velocity of 6.04 ± 0.01 km/s near the top: assuming this velocity constant throughout the second layer, the total thickness of the crust is about 34 ± 2 km. The Mohorovicic discontinuity is horizontal under the array within the resolution of this experiment and the apparent P_n velocity is 8.15 km/s. At a distance of a few tens of kilometres the crustal uniformity breaks down. The distances are such that, for most teleseismic signals, the effect of these inhomogeneities should be negligible.

Abstract No. 8

Canadian magnitudes of earthquakes and nuclear explosions in Southwestern North America

P. W. Basham

Canadian seismograph network mean body-wave and surface-wave magnitudes are computed for twenty-eight earthquakes and twenty-eight nuclear explosions in southwestern North America to test the effectiveness of the surface vs body-wave discriminant between earthquakes and explosions for purely continental paths. For the present Canadian network, the magnitude threshold of discrimination is about m4.5. A comparison is made between these and other (intercontinental) surface vs body-wave relationships by normalizing all data to standard magnitudes. Surface-wave attenuation for intercontinental paths limits the effectiveness of the discriminant to magnitudes about 1.0 higher than the same recording techniques can achieve for intracontinental paths.

Abstract No. 9

Canadian magnitudes of Asian earthquakes and explosions

P. W. Basham

A suite of thirty-three Asian earthquakes and thirty-six central Asia and Novaya Zemlya nuclear explosions are used to define the minimum detection levels in terms of surface-wave and body-wave magnitudes and the discrimination thresholds of the M versus m discriminant for the Canadian seismograph network. Under low microseismic noise conditions surface-waves can be observed for earthquakes down to m4.9 and explosions down to m5.9 for the region near the central Asia test site. For events above these magnitudes, the M versus m relationships provide reliable discrimination between earthquakes and explosions. Comparison with an intracontinental study leads to the conclusion that the discrimination threshold is limited by path effects and greater distances to events about m1.3 larger near the central Asia test site than near the Nevada test site.

Abstract No. 10

A study of the effects of the Yellowknife crustal structure upon the P coda of teleseismic events

H. S. Hasegawa

The short-period P codas of seven earthquakes and four underground nuclear events recorded in the Yellowknife region of the Canadian Shield are analysed both in the time and in the frequency domains. In the time domain, the applications of a "P-detection" filter to the earthquake events facilitates the identification of several phases (pP and sP) in the first 25 seconds of the P coda. The application of this filter to two nuclear events (originating at the Nevada test site) assists in the separation and in the identification of the crustal reverberations at the respective sources. In the frequency domain studies, the application of the spectral ratio test to six earthquake events resulted in poor agreement between the theoretical and the experimental spectral ratio

curves; closer agreement was obtained for the nuclear events. Since the earthquake events did not possess the appropriate type of waveform for the spectral ratio test, it is not possible, at this stage, to pass judgement as to whether the crustal layering at Yellowknife fulfils the requirements of Haskell's matrix theory.

Signal-generated noise studies are based on the observation of P-generated SH and SV waves. Anomalous P-SH conversion is much less in this region than in the sedimentary basin of central Alberta. However, there are indications of appreciable anomalous P-SV conversion; the source is likely in the lower part of the crust and possibly in the upper part of the mantle at Yellowknife.

Abstract No. 11

THE COMPOSITION OF P CODAS USING MAGNETIC TAPE SEISMOGRAMS

P. W. Basham and R. M. Ellis

The short-period P codas of forty-one seismic events recorded on the plains of western Alberta are examined for compressional and shear phases. A non-linear "P-Detection" polarization filter is applied to 25 seconds of the records following the P onset. Numerous compressional wave signal pulses are detected amid the codas; these include PcP and PKP phases for events at appropriate distances and the common depth phases pP and sP. The phase pP is detected on the records of twenty-five events, sixteen of which have reported depths shallower than 40 km. For events with pP visible at two stations, pP-P times are accurate to about ±1 second, allowing focal depth assignment to an accuracy of about ±15 km. Locally-generated shear phases are studied using particle motion plots in the vertical (vertical-radial) and horizontal planes. These are large variations in SV/P amplitude ratios for individual events at stations separated by 60 to 160 km. Anomalous SV and SH-type motions are attributed to a complex pre-Cambrian basement.

12.

United States of America: draft treaty prohibiting the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and ocean floor

[*ENDC/249 of 22 May 1969*]
[*Original text: English*]

The States Parties to this Treaty,

Recognizing the common interest of all mankind in the progress of the exploration and use of the sea-bed and ocean floor for peaceful purposes,

Considering that the prevention of a nuclear arms race on the sea-bed and ocean floor serves the interests of maintaining world peace, reduces international tensions, and strengthens friendly relations among States,

Convinced that this Treaty will further the principles and purposes of the Charter of the United Nations, in a manner consistent with the principles of international law and without infringing the freedoms of the high seas,

Have agreed as follows:

Article I

1. Each State Party to this Treaty undertakes not to emplant or emplace fixed nuclear weapons or other weapons of mass destruction or associated fixed launching platforms on, within or beneath the sea-bed and ocean floor beyond a narrow band, as defined in article II of this Treaty, adjacent to the coast of any State.

2. Each State Party to the Treaty undertakes to refrain from causing, encouraging, facilitating or in any way participating in the activities prohibited by this article.

Article II

1. For the purpose of this Treaty, the outer limit of the narrow band referred to in article I shall be measured from baselines drawn in the manner specified in paragraph 2, hereof. The width of the narrow band shall be three (3) miles.

2. Blank (Baselines).

3. Nothing in this Treaty shall be interpreted as prejudicing the position of any State Party with respect to rights or claims which such State Party may assert, or with respect to recognition or non-recognition of rights or claims asserted by any other State, relating to territorial or other contiguous seas or to the sea-bed and ocean floor.

Article III

1. In order to promote the objectives and ensure the observance of the provisions of this Treaty, the Parties to the Treaty shall remain free to observe activities of other States on the sea-bed and ocean floor, without interfering with such activities or otherwise infringing rights recognized under international law including the freedoms of the high seas. In the event that such observation does not in any particular case suffice to eliminate questions regarding fulfilment of the provisions of this Treaty, Parties undertake to consult and to co-operate in endeavouring to resolve the questions.

2. At the review conference provided for in article V, consideration shall be given to whether any additional rights or procedures of verification should be established by amendment to this Treaty.

Article IV

Any State Party to the Treaty may propose amendments to this Treaty. Amendments shall enter into force for each State Party to the Treaty accepting the amendments upon their acceptance by a majority of the States Parties to the Treaty and thereafter for each remaining State Party on the date of acceptance by it.

Article V

Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held at Geneva, Switzerland, in order to review the operation of this Treaty with a view to assuring that the purposes of the Preamble and the provisions of the Treaty are being realized. Such review shall take into account any relevant technological developments. The review conference shall determine in accordance with the views of a majority of those Parties attending whether and when an additional review conference shall be convened.

Article VI

Each Party shall in exercising its national sovereignty have the right to withdraw from this Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

13.

Italy: additional suggestions on underground nuclear explosions, following the Italian working paper of 23 August 1968 (ENDC/234)

[*ENDC/250 of 22 May 1969*]
[*Original text: English*]

1. On 23 August 1968 the Italian Government submitted to the Eighteen-Nation Committee on Disarmament some sugges-

tions[37] with a view to achieving partial progress in the field of the suspension of underground nuclear tests.

2. Under paragraph 3 (*a*) of the above-mentioned working paper it was suggested that "Governments responsible for underground nuclear explosions should act in a different manner according to whether underground nuclear explosions for peaceful or for military purposes are concerned. The former, before being carried out, should be announced to the United Nations with all the necessary details. . ." Taking into account different opinions expressed on this subject, and also some important events that have since taken place —namely the approval by the United Nations General Assembly of the Treaty on the Non-Proliferation of Nuclear Weapons[38]—it is now suggested that the notification envisaged in the aforementioned paragraph 3 (*a*) should, instead, be made to the international service for nuclear peaceful explosions to be set up within the framework of the International Atomic Energy Agency (United Nations General Assembly Resolution 2456 C (XXIII)).

3. Paragraph 3 (*c*) of the working paper of 23 August 1968 suggested that "non-nuclear Governments, in their turn, should submit a list of experts to the Governments of the States where the nuclear explosions are to take place". In accordance with the suggestions set forth in paragraph 2 above, it is further suggested that the proposed list of experts should be submitted instead to the Agency.

14.

Canada: working paper on a comprehensive test ban and requests to Governments for information on the exchange of seismological data

[ENDC/251 of 23 May 1969]
[Original text: English]

1. Among many others, the Canadian delegation believes that the problems of verifying a comprehensive test ban would decrease, even though they might not be entirely resolved, if guaranteed access to original seismological data could be assured within the framework of an organized and effective world-wide seismological data exchange. The Canadian delegation also thinks that a practical method of achieving such an exchange would be through an increase and intensification of the international co-operation which already exists in this field.

2. To this end, but before attempting to find an acceptable economic, technical means by which all parties would make seismological information freely available, two essential points need clarifying: what seismic information would Governments make available and in what form? In this connexion the Canadian delegation suggested at the 404th meeting of the Conference of the Eighteen-Nation Committee on Disarmament on 17 April that countries should be invited to send a list of the seismographic stations from which they would be ready to supply records on the basis of guaranteed availability of data in the framework of a world-wide exchange of seismic data and to provide certain details concerning these stations. The suggested form of such a request from the Committee is set out below. The Canadian delegation is presenting this suggestion now in the hope that agreement to it can be speedily reached without prejudice to any other proposals under consideration by the Committee and the request sent out as soon as possible.

REQUEST FROM THE EIGHTEEN-NATION COMMITTEE ON DISARMAMENT TO THE GOVERNMENT OF . . . CONCERNING THE PROVISION OF CERTAIN INFORMATION IN THE CONTEXT OF THE CREATION OF A WORLD-WIDE EXCHANGE OF SEISMOLOGICAL DATA WHICH WOULD FACILITATE THE ACHIEVEMENT OF A COMPREHENSIVE TEST BAN

In order to assist in clarifying what resources would be available for the eventual establishment of an effective world-wide exchange of seismological information which would facilitate the achievement of a comprehensive test ban, the Eighteen-Nation Committee on Disarmament requests the Government of . . . to supply to the Secretary-General of the United Nations for transmission to the Committee a list of all its seismic stations from which it would be prepared to supply records on the basis of guaranteed availability, and to provide certain information about each station as set out below:

A. Photographic recording seismograph stations
   (i) Name of station
   (ii) Co-ordinates of station
   (iii) Instrumentation and components recorded (This should include operational magnification at one second periods for short period and broad band seismographs and at 15 or 20 seconds for long period instruments.)

The Government of . . . is also requested to indicate whether full operational magnification curves in absolute units with fully annotated records would be provided, as only through provision of this information can the maximum usefulness of an international exchange of seismological data be guaranteed. It would also be useful to know the time window within which the Government of . . . would be prepared to supply original records or good quality microfilm, and if the latter, whether the microfilm would be 16.35 or 70 millimetre film.

B. Tape recording seismograph stations (including arrays)
   (i) Name of station
   (ii) Co-ordinates of station
   (iii) A general account of the instrumentation geometry of the array
   (iv) Components recorded on magnetic tape and magnetic tape specifications. (This would include the operational magnifications at one second for short period instrumentation and at 15 or 20 seconds for long period instruments.)

As under A above, in the interests of obtaining maximum usefulness from an international exchange of data, the Government of . . . is requested to indicate whether it would provide full operational curves for band-pass and time code recorded on tape. It would also be useful if the Government of . . . could indicate how long the original tape can be made available before the tapes are erased and re-used.

In view of the urgency in making progress in the direction of a solution for a comprehensive test ban the Committee would greatly appreciate it if the information requested above could be forwarded to the Secretary-General of the United Nations with the least possible delay for transmission to the Committee.

15.

Canada: revised working paper on a comprehensive test ban and requests to Governments for information on the exchange of seismological data

[ENDC/251/Rev.1 of 18 August 1969]
[Original text: English]

In an earlier version of the working paper (see above, section 14), the Canadian delegation expressed the view that the problems of verifying a comprehensive test ban would decrease even though they might not be entirely resolved, if guaranteed access to original seismological data could be

[37] See *Official Records of the Disarmament Commission, Supplement for 1967 and 1968*, document DC/231, annex 1, section 9.

[38] General Assembly resolution 2373 (XXII), annex.

assured. This proposition was a response to United Nations General Assembly resolution 2455 (XXIII) which in its preamble took into account "the existing possibilities of establishing, through international co-operation, a voluntary exchange of seismic data so as to create a better scientific basis for a national evaluation of seismic events", and in paragraph 3 expressed the hope "that States will contribute to an effective international exchange of seismic data".

2. As a first step in defining a practical method for achieving such an exchange the Canadian delegation suggested that two essential points should be clarified: what seismic information would Governments make available, and in what form. The Canadian working paper contained a draft request specifying the details which might be sought from all countries in order to obtain this basic information.

3. At an informal meeting of the Conference of the Eighteen-Nation Committee on Disarmament on 13 August 1969, various delegations offered suggestions regarding the procedures proposed by Canada and the specific wording of any requests to Governments for information. On the basis of these suggestions and the discussion during the informal meeting, the Canadian delegation has now amended the draft formulation for the requests to Governments.

4. To the Canadian delegation it would appear essential that the Conference should include in its recommendations to the next session of the General Assembly of the United Nations, a proposal that clarification should be sought from Governments as to what seismological information they are prepared to make available. Without attempting to suggest definitive wording for any United Nations General Assembly resolution on this subject, the Canadian delegation considers that a request from the Secretary-General for this purpose might be based on the following wording:

REQUEST FROM THE SECRETARY-GENERAL OF THE UNITED NATIONS TO THE GOVERNMENT OF . . . CONCERNING THE PROVISION OF CERTAIN INFORMATION IN THE CONTEXT OF THE CREATION OF A WORLD-WIDE EXCHANGE OF SEISMOLOGICAL DATA WHICH WOULD FACILITATE THE ACHIEVEMENT OF A COMPREHENSIVE TEST BAN

In order to assist in clarifying what resources would be available for the eventual establishment of an effective world-wide exchange of seismological information which would facilitate the achievement of a Comprehensive Test Ban, the Secretary-General of the United Nations requests the Government of . . . to supply to him for transmission to the Eighteen-Nation Committee on Disarmament a list of all its seismic stations from which it would be prepared to supply records on the basis of guaranteed availability and to provide certain information about each station as set out below:

A. Conventional seismograph stations

(i) Name of station and name and address of the operating organization

(ii) Co-ordinates of station including elevation

(iii) Instrumentation and components recorded together with speed of recording. (This should include operational magnification at one second period for short period and broad bank seismographs and at 15 or 20 seconds for long period instruments. A complete response curve in absolute units should also be provided.)

The Government of . . . is also requested to give information on the geological description of the station foundation and indicate if fully annotated records will be provided, including the precision of the time. It would also be useful to know the time window within which the Government of . . . would be prepared to supply original records or good quality copies, and if the latter, the form of the copies (for example 16, 35 or 70 millimetre film, Xerox copies, etc.). It would be useful if it could be indicated whether the intention is to deposit copies of all records in a seismological centre which makes its data available to everyone, or whether the Government of . . . wishes to guarantee the data only on a bilateral demand.

B. Array stations

(i) Name of station and the name and address of the operating organization

(ii) Co-ordinates of station and array points, including elevation

(iii) A general account of the instrumentation geometry of the array

(iv) Instrumentation and components recorded, including magnetic tape specifications. (This should include the operational magnification at one second periods for short period or broad band instrumentation and at 15 or 20 seconds for long period instruments. A response curve in absolute units should be provided for each instrument)

(v) A list of components which record on a parallel visual basis.

As under A above, in the interest of obtaining maximum usefulness from an international exchange of data, the Government of . . . is requested to give information on the geological foundation of the array stations, together with complete technical information on the recording medium, the precision of time keeping, etc. It would also be useful to know the time window within which the Government of . . . would be prepared to supply the original records, or as applicable, photographic copy, magnetic tape copy, or good quality microfilm. In the event that the Government of . . . does not envisage depositing copies of all array data automatically in a seismological centre which makes its data available to everyone, it would be useful if the Government of . . . could indicate how long an original magnetic tape recording could be made available for individual demands before the tapes are erased and re-used.

In view of the urgency in making progress in the direction of a solution for a comprehensive test ban, the Secretary-General would greatly appreciate it if the information requested above could be forwarded to him with the least possible delay for transmission to the Eighteen-Nation Committee on Disarmament.

16.

United States of America: working paper on a seismic investigation proposal

[ENDC/252 of 23 May 1969]
[Original text: English]

The United States is now prepared to take action in connexion with its proposal to the First Committee at the twenty-third session of the United Nations General Assembly on 5 December 1968,[39] that certain underground nuclear explosions should serve collaterally for studies in connexion with world-wide seismic investigations.

As indicated in the United States proposal, all States with appropriate seismic instrumentation will have the option to collect and evaluate seismic data resulting from such explosions, and the success of the proposal will depend in large degree on the extent to which they exercise their option. Presuming broad participation in the procedures foreseen by the United States, the experiments will have a threefold result; they will facilitate further analysis of seismological characteristics, both of the geological media and of the explosions themselves; they will provide a basis for systematizing world-wide use for seismic purposes of the information released on underground nuclear explosions; and they will facilitate world-wide evaluation and comparison, to the extent that

[39] See *Official Records of the General Assembly, Twenty-third Session, First Committee*, 1630th meeting, para. 33.

the data are exchanged, of the seismic information gathered on such events.

The underground nuclear explosions contemplated by the United States for these experiments will not involve development or testing of nuclear weapons.

The purpose of this working paper is to elaborate on the first of these experiments and on how it would apply to the seismic investigation proposal. The experiment, denoted Project Rulison, will be conducted in the state of Colorado in the western United States.[40] Like a previous experiment (Project Gasbuggy) conducted in December 1967, its purpose will be to investigate the use of a nuclear explosion to increase the recovery of natural gas. The explosion will have a yield of about 40 kilotons. It will take place in a low permeability gas-bearing formation, geologically referred to in this region as the Mesa Verde formation. The explosion is expected to create an underground chimney of broken rock about 370 feet high and 160 feet in diameter. The chimney thus created will act as a chamber where the gas will collect and then be drawn off through a well to be drilled from the ground down to the chimney. The energy released by the explosion is expected to crush and fracture the rock out of about 290 feet around the chimney, thereby greatly increasing the permeability of the reservoir and enabling the gas to flow more readily to the producing well.

With regard to the seismic investigation aspect of this experiment, the following data are pertinent:

1. The depth of the explosion will be 8443 feet.
2. The precise site of the explosion will be 39 degrees, 24 minutes, 21 seconds north latitude and 107 degrees, 56 minutes, 53 seconds west longitude.
3. The general geology in the vicinity of the depth for which the explosion is planned is basically shale, with some sandstone.

Approximately two weeks before the experiment, the United States Coast and Geodetic Survey will alert seismic stations all over the world by telegram. In addition to providing technical details, the messages will request the transmission of seismic data back to the United States Coast and Geodetic Survey for incorporation into an overall analysis. Similar messages will also be sent to the World Data Centres for Geophysical Data in Moscow and at Strasbourg, and to the International Seismological Centre at Edinburgh. Following the experiment, the actual time of the explosion, the depth, the yield, and the preliminary estimate of the seismic magnitude will be furnished through the same channels.

Data from the explosion collected in the United States will be available to others from the World Data Centre at the United States Coast and Geodetic Survey in Washington, D.C. The United States Coast and Geodetic Survey will in turn assemble data collected from outside the United States, as well as inside, and will prepare a report which will include computations, using all the available seismic data, of the calculated location of the explosion, the origin time, the yield of the explosion, and the seismic magnitude. The report will also include an analysis of the data using seismic identification criteria for distinguishing between explosions and earthquakes.

Since the original seismic data will also be available from the United States and other World Data Centres, other interested States and organizations will, of course, be able to subject it to their own analyses independent of the United States analysis. The results of this experiment, and of such others as may follow it, can then be discussed in relevant scientific and technical forums.

Because of the yield of this experiment and the geophysical characteristics of the medium in which Project Rulison will be conducted, it may be that this event will be identified as an explosion through teleseismic means. It must of course be recognized that this experiment by itself cannot be expected to permit definitive conclusions regarding seismic detection and identification capabilities. On the other hand, judging from responses already received indicating interest in participation, there are reasonable grounds for expecting that the seismic investigation aspect of Project Rulison will achieve the specific and limited objectives intended for it and provide the threefold result outlined above.

[40] Originally scheduled for June, the experiment has been postponed until September for technical reasons.

17.

United States of America: message from the President of the United States, Mr. Richard M. Nixon, to the Conference of the Eighteen-Nation Committee on Disarmament

[ENDC/253 of 23 July 1969]*
[Original text: English]

I have followed closely the activities of the spring session of the Conference of the Eighteen-Nation Committee on Disarmament and Ambassador Smith has reported to me on the prospects for progress in the near future.

As the Conference resumes its work after a recess of six weeks, I should like to address the following thoughts to the members of the Committee:

First, the ground has been prepared for concrete arms control negotiations. In addition to the valuable suggestions by many members of the Committee, draft agreements have been submitted by the United States and by the Soviet Union to prevent an arms race on the sea-bed. Although differences exist, it should not prove beyond our ability to find common ground so that a realistic agreement may be achieved that enhances the security of all countries.

The framing of an international agreement to apply to more than 100 million square miles of the earth's surface lying under the oceans is a high challenge to our vision and statesmanship. I ask the participants in this Committee to join with us in elaborating a measure that is both practical and significant. With goodwill on all sides and a fair measure of hard work, we may achieve agreement in the course of this session. With each passing day our sea-bed becomes more important for the security and well-being of all nations. Our goal should be to present a sound sea-bed arms control measure to the twenty-fourth session of the General Assembly of the United Nations.

Secondly, the Secretary-General of the United Nations has just issued his study on the effects of chemical and biological warfare.[41] Experts from many countries have contributed to this important work. I am pleased that an expert from the United States, Dr. Ivan Bennett, has also played a role in the study. We welcome the Secretary-General's study, since it will draw the attention of all mankind to an area of common concern. The spectre of chemical and biological warfare arouses horror and revulsion throughout the world.

The delegation of the United States is prepared to examine carefully, together with other delegations, any approaches that offer the prospect of reliable arms control in this field.

Thirdly, in my letter to Ambassador Smith on 18 March at the opening of the first session of this committee (see above, section 3), I reaffirmed United States support for the conclusion of a comprehensive test ban adequately verified; I stated my conviction that efforts must be made towards greater understanding of the verification issue. I am pleased that, during your first session, serious exploration of verification problems took place. The United States delegation will be prepared to continue to participate in efforts towards greater understanding of this key issue. It is only by means

* This document was reissued for technical reasons and replaces the text dated 3 July 1969.

[41] *Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible Use* (United Nations publication, Sales No.: E.69.I.24).

of careful study, with due regard for all of the relevant technical and political considerations, that progress can be made.

Fourthly, I recently announced that the United States hopes to be able to commence talks with the Soviet Union on strategic arms limitations around 31 July or shortly thereafter. When these talks begin, which I hope and trust will be soon, they will of necessity be bilateral negotiations between the United States and the Soviet Union. The United States Government is, however, deeply conscious of its responsibilities to its allies and to the community of nations.

While these talks progress, it is particularly important that multilateral negotiations continue in this Committee in an atmosphere of determination and promise. Arms control is without dispute a subject of direct concern to all nations, large and small. The wisdom, the advice, and the informed concern of many nations are needed in a continuing body such as this to ensure that no opportunities are missed to achieve genuine progress.

This Committee clearly is the world's pre-eminent multilateral disarmament forum. Its record of accomplishment, which needs no recital here, is greater than that of any other disarmament committee in history. I trust that your Committee will continue its efforts with all of the combined skill and dedication which its members have demonstrated in the past.

The negotiation of sound arms control and disarmament, like all work contributing to peace, must be an integrated and comprehensive effort. Progress in the tasks of the Committee will be a contribution to a world of peaceful international co-operation, a world where fear and conflict are supplanted by the honest give-and-take of negotiation aimed at meeting the legitimate aspirations of all.

The United States will work in every way to bring us closer to such a world.

18.

Letter dated 1 July 1969 from the Secretary-General of the United Nations to the Co-Chairmen of the Conference of the Eighteen-Nation Committee on Disarmament, transmitting the report on chemical and bacteriological (biological) weapons and the effects of their possible use

[ENDC/254 of 7 July 1969]
[Original text: English]

I have the honour to transmit herewith the report entitled *Chemical and Bacteriological (Biological) Weapons and the Effects of their Possible use*[42] which, by General Assembly resolution 2454 A (XXIII), I was requested to prepare with the assistance of qualified consultant experts.

In accordance with paragraph 4 of the resolution, I am at the same time transmitting this report to the General Assembly and the Security Council, as well as to the Governments of Member States of the United Nations in time to permit its consideration at the twenty-fourth session of the General Assembly.

19.

United Kingdom of Great Britain and Northern Ireland: draft convention for the prohibition of biological methods of warfare and accompanying draft Security Council resolution

[ENDC/255 of 10 July 1969]
[Original text: English]

DRAFT CONVENTION

The States concluding this Convention, hereinafter referred to as the "Parties to the Convention",

Recalling that many States have become Parties to 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,[43]

Recognizing the contribution that the said Protocol has already made, and continues to make, to mitigating the horrors of war,

Recalling further United Nations General Assembly resolutions 2162 B (XXI) of 5 December 1966 and 2454 A (XXIII) of 20 December 1968, which called for strict observance by all States of the principles and objectives of the Geneva Protocol and invited all States to accede to it,

Believing that chemical and biological discoveries should be used only for the betterment of human life,

Recognizing nevertheless that the development of scientific knowledge throughout the world will increase the risk of eventual use of biological methods of warfare,

Convinced that such use would be repugnant to the conscience of mankind and that no effort should be spared to minimize this risk,

Desiring therefore to reinforce the Geneva Protocol by the conclusion of a convention making special provision in this field,

Declaring their belief that, in particular, provision should be made for the prohibition of recourse to biological methods of warfare in any circumstances,

Have agreed as follows:

Article I

Each of the Parties to the Convention undertakes never in any circumstances, by making use for hostile purposes of microbial or other biological agents causing death or disease by infection or infestation in man, other animals, or crops, to engage in biological methods of warfare.

Article II

Each of the Parties to the Convention undertakes:

(*a*) Not to produce or otherwise acquire, or assist in or permit the production or acquisition of:

(i) microbial or other biological agents of types and in quantities that have no independent peaceful justification for prophylactic or other purposes;

(ii) ancillary equipment or vectors the purpose of which is to facilitate the use of such agents for hostile purposes;

(*b*) Not to conduct, assist or permit research aimed at production of the kind prohibited in sub-paragraph (*a*) of this article; and

(*c*) To destroy, or divert to peaceful purposes, within three months after the Convention comes into force for that Party, any stocks in its possession of such agents or ancillary equipment or vectors as have been produced or otherwise acquired for hostile purposes.

Article III

1. Any Party to the Convention which believes that biological methods of warfare have been used against it may lodge a complaint with the Secretary-General of the United Nations, submitting all evidence at its disposal in support of the complaint, and request that the complaint be investigated and that a report on the result of the investigation be submitted to the Security Council.

2. Any Party to the Convention which believes that another Party has acted in breach of its undertakings under articles I and II of the Convention, but which is not entitled to lodge a complaint under paragraph 1 of this article, may similarly lodge a complaint with the Security Council and request that the complaint be investigated.

[42] United Nations publication, Sales No.: E.69.I.24.

[43] League of Nations, *Treaty Series*, vol. XCIV (1929), No. 2138.

3. Each of the Parties to the Convention undertakes to co-operate fully with the Secretary-General and his authorized representatives in any investigation he may carry out, as a result of a complaint, in accordance with Security Council resolution . . .

Article IV

Each of the Parties to the Convention affirms its intention to provide or support appropriate assistance, in accordance with the United Nations Charter, to any other Party to the Convention, if the Security Council concludes that biological methods of warfare have been used against that Party.

Article V

Each of the Parties to the Convention undertakes to pursue negotiations in good faith on effective measures to strengthen the existing constraints on the use of chemical methods of warfare.

Article VI

Nothing contained in the present Convention shall be construed as in any way limiting or derogating from obligations assumed by any State under 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.

Article VII

[Provisions for amendments.]

Article VIII

[Provisions for signature, ratification, entry into force, etc.]

Article IX

1. This Convention shall be of unlimited duration.

2. Each Party shall in exercising its national sovereignty have the right to withdraw from the Convention, if it decides that extraordinary events, related to the subject matter of this Convention, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Convention and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

Article X

[Provisions on languages of texts, etc.]

DRAFT SECURITY COUNCIL RESOLUTION

The Security Council,

Welcoming the desire of a large number of States to subscribe to the Convention for the Prohibition of Biological Methods of Warfare, and thereby undertake never to engage in such methods of warfare; to prohibit the production and research aimed at the production of biological weapons; and to destroy, or divert to peaceful purposes, such weapons as may already be in their possession,

Noting that under article III of the Convention, Parties will have the right to lodge complaints and to request that the complaints be investigated,

Recognizing the need, if confidence in the Convention is to be established, for appropriate arrangements to be made in advance for the investigation of any such complaints, and the particular need for urgency in the investigation of complaints of the use of biological methods of warfare,

Noting further the declared intention of Parties to the Convention to provide or support appropriate assistance, in accordance with the Charter, to any other Party to the Convention, if the Security Council concludes that biological methods of warfare have been used against that Party,

1. *Requests* the Secretary-General:

(*a*) To take such measures as will enable him:

(i) to investigate without delay any complaints lodged with him in accordance with article III, paragraph 1, of the Convention;

(ii) If so requested by the Security Council, to investigate any complaint made in accordance with article III, paragraph 2, of the Convention;

(*b*) To report to the Security Council on the result of any such investigation.

2. *Declares* its readiness to give urgent consideration:

(*a*) To any complaint that may be lodged with it under article III, paragraph 2, of the Convention;

(*b*) To any report that the Secretary-General may submit in accordance with operative paragraph 1 of this resolution on the result of his investigation of a complaint.

If it concludes that the complaint is well-founded, to consider urgently what action it should take or recommend in accordance with the Charter.

3. *Calls upon* Member States and upon specialized agencies of the United Nations to co-operate as appropriate with the Secretary-General for the fulfilment of the purposes of this resolution.

20.

United Kingdom of Great Britain and Northern Ireland: revised draft convention for the prohibition of biological methods of warfare and accompanying draft Security Council resolution

DRAFT CONVENTION

[*ENDC/255/Rev.1 of August 1969*]
[*Original text: English*]

The States concluding this Convention, hereinafter referred to as the "Parties to the Convention",

Recalling that many States have become Parties to 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,[44]

Recognizing the contribution that the said Protocol has already made, and continues to make, to mitigating the horrors of war,

Recalling further United Nations General Assembly resolutions 2162 B (XXI) of 5 December 1966 and 2454 A (XXIII) of 20 December 1968, which called for strict observance by all States of the principles and objectives of the Geneva Protocol and invited all States to accede to it,

Believing that chemical and biological discoveries should be used only for the betterment of human life,

Recognizing nevertheless that the development of scientific knowledge throughout the world will increase the risk of eventual use of biological methods of warfare,

Convinced that such use would be repugnant to the conscience of mankind and that no effort should be spared to minimize this risk,

Desiring therefore to reinforce the Geneva Protocol by the conclusion of a convention making special provision in this field,

Declaring their belief that, in particular, provision should be made for the prohibition of recourse to biological methods of warfare in any circumstances,

Have agreed as follows:

[44] *Ibid.*

Article I

Each of the Parties to the Convention undertakes, insofar as it may not already be committed in that respect under Treaties or other instruments in force prohibiting the use of chemical and biological methods of warfare, never in any circumstances, by making use for hostile purposes of microbial or other biological agents causing death, damage or disease by infection or infestation to man, other animals, or crops, to engage in biological methods of warfare.

Article II

Each of the Parties to the Convention undertakes:

(*a*) Not to produce or otherwise acquire, or assist in or permit the production or acquisition of:

(i) microbial or other biological agents of types and in quantities that have no independent justification for prophylactic or other peaceful purposes;

(ii) ancillary equipment or vectors the purpose of which is to facilitate the use of such agents for hostile purposes;

(*b*) Not to conduct, assist or permit research aimed at production of the kind prohibited in sub-paragraph (*a*) of this article;

(*c*) To destroy, or divert to peaceful purposes, within three months after the Convention comes into force for that Party, any stocks in its possession of such agents or ancillary equipment or vectors as have been produced or otherwise acquired for hostile purposes.

Article III

1. Any Party to the Convention which believes that biological methods of warfare have been used against it may lodge a complaint with the Secretary-General of the United Nations, submitting all evidence at its disposal in support of the complaint, and request that the complaint be investigated and that a report on the result of the investigation be submitted to the Security Council.

2. Any Party to the Convention which believes that another Party has acted in breach of its undertaking under articles I and II of the Convention, but which is not entitled to lodge a complaint under paragraph I of this article, may lodge a complaint with the Security Council, submitting all evidence at its disposal, and request that the complaint be investigated.

3. Each of the Parties to the Convention undertakes to co-operate fully with the Secretary-General and his authorized representatives in any investigation he may carry out, as a result of a complaint, in accordance with Security Council resolution . . .

Article IV

Each of the Parties to the Convention affirms its intention to provide or support appropriate assistance, in accordance with the United Nations Charter, to any Party to the Convention, if the Security Council concludes that biological methods of warfare have been used against that Party.

Article V

Each of the Parties to the Convention undertakes to pursue negotiations in good faith on effective measures to strengthen the existing constraints on chemical methods of warfare.

Article VI

Nothing contained in the present Convention shall be construed as in any way limiting or derogating from obligations assumed by any State under 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.

Article VII

[Provisions for amendments.]

Article VIII

[Provisions for signature, ratification, entry into force, etc.]

Article IX

1. This Convention shall be of unlimited duration.

2. Each Party shall in exercising its national sovereignty have the right to withdraw from the Convention, if it decides that extraordinary events, related to the subject matter of this Convention, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Convention and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

Article X

[Provisions on languages of texts, etc.]

DRAFT SECURITY COUNCIL RESOLUTION

The Security Council,

Welcoming the desire of a large number of States to subscribe to the Convention for the Prohibition of Biological Methods of Warfare, and thereby undertake never to engage in such methods of warfare; to prohibit the production and research aimed at the production of biological weapons; and to destroy, or divert to peaceful purposes, such weapons as may already be in their possession,

Noting that under article III of the Convention, Parties will have the right to lodge complaints and to request that the complaints be investigated,

Recognizing the need, if confidence in the Convention is to be established, for appropriate arrangements to be made in advance for the investigation of any such complaints, and the particular need for urgency in the investigation of complaints of the use of biological methods of warfare,

Noting further the declared intention of Parties to the Convention to provide or support appropriate assistance, in accordance with the Charter, to any other Party to the Convention, if the Security Council concludes that biological methods of warfare have been used against that Party,

Reaffirming in particular the inherent right, recognized under article 51 of the Charter, of individual and collective self-defence if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security,

1. *Requests* the Secretary-General:

(*a*) To take such measures as will enable him:

(i) to investigate without delay any complaints lodged with him in accordance with article III, paragraph 1, of the Convention;

(ii) If so requested by the Security Council, to investigate any complaint made in accordance with Article III, paragraph 2, of the Convention;

(*b*) To report to the Security Council on the result of any such investigation.

2. *Declares* its readiness to give urgent consideration:

(*a*) To any complaint that may be lodged with it under Article III, paragraph 2, of the Convention;

(*b*) To any report that the Secretary-General may submit in accordance with paragraph 1 of this resolution on the result of his investigation of a complaint;

if it concludes that the complaint is well-founded, the Council declares its readiness to consider urgently what action it should take or recommend in accordance with the Charter.

3. *Calls upon* Member States and upon specialized agencies of the United Nations to co-operate as appropriate with the Secretary-General for the fulfilment of the purposes of this resolution.

21

Poland: working paper concerning the report dated 1 July 1969 on chemical and bacteriological (biological) weapons and the effects of their possible use[45]

[ENDC/256 of 22 July 1969]
[Original text: English]

1. The problem of the prohibition and total elimination of weapons of mass destruction is one of the urgent tasks facing the international community.

In the field of nuclear weapons certain steps have already been taken, such as the 1963 Moscow partial test ban Treaty,[46] the 1967 convention concerning the peaceful utilization of the outer space[47] and the 1968 Treaty on the Non-Proliferation of Nuclear Weapons.[48]

These steps have been significantly contributed to the slowing down of the nuclear arms race and the creation of conditions favouring other measures that may lead to further reduction, and ultimately to total elimination of nuclear weapons.

2. Weapons of mass destruction are a class of weapons that also includes agents of chemical and bacteriological (biological) warfare. The danger inherent in these weapons has been particularly strongly exposed in the report of the Secretary-General of the United Nations on chemical and bacteriological (biological) weapons and the effects of their possible use. The danger derives among others from the fact that these weapons can be manufactured relatively cheaper and easier than is the case with nuclear weapons. Thus, any country not necessarily technologically advanced or industrially developed could manufacture or acquire a capability in this type of warfare.

Chemical and bacteriological (biological) weapons are weapons of mass destruction that pose a threat to the whole of mankind. Their use has been declared a crime against humanity and a violation of the generally recognized principles of international law as well as the Charter of the United Nations.

One of the principal goals of the international community in the field of disarmament should therefore be an effort aimed at ensuring that the prohibition of use of chemical and bacteriological (biological) weapons is strictly and universally observed as well as efforts designed to accomplish their total elimination, particularly through a prohibition of development, prohibition of manufacture and a prohibition of their stockpiling.

3. General Assembly resolution 2454 A (XXIII) of 20 December 1968 requested the Secretary-General to prepare, with the assistance of qualified consultant-experts, a report on chemical and bacteriological (biological) weapons and the effects of their possible use. The resulting report, issued on 1 July 1969, is of great significance for the strengthening of effectiveness of the Geneva Protocol of 1925[49] and offers a considerable encouragement to further search for ways and means of total elimination of these weapons.

Prepared by highly competent consultant experts, the report emphasizes the significance of the Geneva Protocol which, as it indicates, helped establish "a custom and hence a standard of international law". The report also placed chemical and bacteriological (biological) weapons unequivocally in a class of weapons of mass destruction underlining the high urgency of taking further steps that would ultimately lead to their complete elimination from military arsenals.

4. Poland considers, therefore, that the report of the Secretary-General on chemical and bacteriological (biological) weapons and the effects of their possible use could serve as a suitable basis for further deliberations in the Conference of the Eighteen Nations Committee on Disarmament concerning these weapons.

To our mind the starting point in this regard should be to work to strengthen the existing international juridical norms banning the use of these weapons in warfare, which, as we know, are contained in the Geneva Protocol of 1925. Bearing in mind that not all States have as yet acceded to the Protocol, it becomes imperative to ensure universal applicability of the Protocol's prohibitions and their strict observance.

The Polish delegation wishes to propose, therefore, that the Conference of the Eighteen-Nation Committee on Disarmament, in its report to the General Assembly, should underline the importance and significance of the report of the Secretary-General, recommending its further consideration particularly in the light of the guidelines contained in the Secretary-General's foreword where U Thant urges the Members of the United Nations:

"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 the purposes of war and to achieve their effective elimination from the arsenals of weapons."

As in the past, Poland is ready to co-operate, in this Committee, as well as in the General Assembly and in other international organizations, with all States to ensure strict observance of the prohibition of the use of chemical and bacteriological (biological) weapons and to make a sustained effort to achieve a complete elimination of those weapons from the armouries of States.

22.

Sweden: working paper describing the Hagfors Seismological Observatory in Sweden

[ENDC/257 of 14 August 1969]
[Original text: English]

Background

As a contribution towards a better understanding of the control problems connected with a treaty banning underground nuclear weapons tests the Swedish Government has established a tripartite seismological array station at Hagfors

[45] United Nations publication, Sales No. E.69.I.24.

[46] Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water (see United Nations, *Treaty Series*, vol. 480, 1963, No. 6964).

[47] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (General Assembly resolution 2222 (XXI), annex).

[48] General Assembly resolution 2373 (XXII), annex.

[49] Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (League of Nations, *Treaty Series*, vol. XCIV, 1929, No. 2138).

in central western Sweden. This observatory is operated by the Research Institute of National Defence in Stockholm and was brought into service on 29 May 1969. It is intended for research purposes and its observations are available for data exchange.

Details of the present arrangements and the existing or envisaged routines are given below.

Location

The Hagfors Observatory (HFS) employs three sub-stations, at preliminary geographical co-ordinates:

Gunnerudsaetern (Gu)
N 60° 08′ 01″ E 13° 41′ 44″ 265 m m.s.l.

Aeppelbo (Ae)
N 60° 32′ 26″ E 13° 55′ 46″ 354 m m.s.l.

Stoellet (St)
N 60° 28′ 37″ E 13° 19′ 22″ 420 m m.s.l.

The sub-stations are on granite of the Baltic Shield.

Sub-station links

Sub-stations Ae and St are unmanned out-stations linked by radio telemetry for recording at the manned sub-station Gu.

Instrumentation

All sub-stations have one vertical short period seismometer in a shallow borehole in the bedrock and one vertical long period high sensitivity seismometer in a pressure tight underground vault on the bedrock. At Gu there are also N and E horizontal short and N and E horizontal long period high sensitivity seismometers in vaults. The short period instruments are Geotech model 20171a and Geotech model 18300, with 0.95 seconds period. The long period instruments are Geotech model 7505a and 8700c, with 20 seconds period.

Cluster

At Gu there is also a cluster of five short period vertical instruments in subsurface vaults on bedrock or in shallow boreholes, arranged in a 1 km diameter circle and feeding into an automatic detector. These seismometers are also of the Geotech model 18300.

Digital magnetic tape output

All seismometer outputs are digitally sampled, on line, the short period instruments 10 times/second and the long period instruments once/second. The samples have 14 bits, corresponding to an 80 db dynamic range. All samples, together with timing information, are recorded at Gu on 9 channel IBM compatible ½″ digital magnetic tape, with 800 bpi packing density. This output amounts to one 2400 ft tape/day and constitutes a main product of the station.

Analog magnetic tape output

Short and long period vertical seismograph signals from all three sub-stations are also continuously recorded at 0.06 inches/second on 14 channel 1″ analog IRIG standard magnetic tape, frequency modulated at 54 cps centre frequency. The band width is 10 cps and the dynamic range 40 db/channel. This output amounts to about one 3600 ft tape/week.

Visual monitoring

For visual monitoring at Gu the automatic detector, one short period vertical and all long period instruments are also continuously strip-recorded on paper, with 0.2 mm/second. This output is about 17 m paper/day.

Automatic detector output

The detector ring seismometer outputs are fed through narrow analog filters (2-5 cps) to the automatic detector, which tests them for arrival time coincidence and selects events with apparent surface velocities above 8 km/second and above an adjustable amplitude level. This selection is not sensitive to source azimuth. Upon detection of an event analog strip-recording on paper of eight short period outputs and of detector and time information is started. Using the analog magnetic tape as a data buffer, the strip-recording starts 11 seconds before event detection and is held at 20 mm/second during the first 65 seconds and then at 2 mm/second for 160 seconds, then it ends. A new cycle is started if a new arrival occurs during these 160 seconds. This output amounts to, as an average, ten to fifteen events/day. The automatic detector arrival times and peak vertical amplitudes at about 1 cps are also automatically printed by a typewriter.

Process control

System operation is co-ordinated by a Raytheon 703 computer with a 16 bits by 4 k memory. Input and output is by magnetic tape, perforated tape and typewriter. Operator commands may be entered by sense switches.

Calibration

At Gu there is daily pulsecalibration of the seismographs there, period and mass position checks for long period instruments and checks of local clocks against radio time signals. At out-stations St and Ae calibration is made once/week.

Editing and analysis

The recorded data are sent in weekly batches to an analysis group at the Institute in Stockholm for playback, manual and computer analysis of selected events.

Availability of record copies

(*a*) Digital recordings from Hagfors' sub-stations, by short and long period vertical and horizontal seismometers, on a track 800 bpi digital magnetic tape, as obtained from IBM 360/75 or equivalent, available at nominal cost on request to Stockholm, one week but not later than thirty days after recording, with calibration data, format description, etc.

(*b*) Analog recordings, on 14 channel IRIG magnetic tape, of short and long period vertical traces from Hagfors sub-stations Gu, Ae and St. Copies available on request to Stockholm within three months of recording, at nominal cost.

(*c*) Paper playout of analog magnetic tapes as in (*b*) above, for selected events, on request to Stockholm within three months of recording, at cost.

Availability of edited data

(*a*) Detector readings: Vertical short period signal arrival times and amplitudes, as seen by the automatic detector at Gu, are teletyped in batch within twenty-four hours from Hagfors to Stockholm and are available on request to Stockholm. Daily teletyped distribution from Hagfors can also be arranged.

(*b*) Visual readings: Fixed format routine, giving short and long period arrival times, amplitudes and periods, visually read from analog monitor outputs of vertical instruments at the Hagfors' sub-stations Gu, Ae and St. Gives also very rough epicentres as obtained from apparent velocity and direction over the array and estimated body and surface wave magnitudes. Prepared with one week's delay at Stockholm, for all events automatically detected by Hagfors. Available on request to Stockholm.

(*c*) Preliminary epicentre determinations: Computer runs to improve rough epicentre from visual readings, using extraneous arrival times, as received from a fixed selection of stations. Performed as needed in Stockholm, results available on request.

(*d*) Computer readings: Flexible content and fixed format off-line routine for events selected in Stockholm among visual readings, computed from digital tapes recorded at Hagfors'

sub-stations. Comprising Fourier transforms of signals, spectral body and surface magnitudes, revised locations, long period chirp filter searches, short, medium and long period spectral ratios, complexities etc. Produced in monthly batches, not yet available on request.

Management

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23.

United Kingdom of Great Britain and Northern Ireland: further notes on United Kingdom research on techniques for distinguishing between earthquakes and underground explosions

[*ENDC/258 of 14 August 1969*]
[*Original text: English*]

1. In September 1965, research by United Kingdom scientists on techniques for distinguishing between earthquakes and underground explosions was described to the Eighteen-Nation Committee on Disarmament.[50] This early work had led in 1962 to the concept of monitoring by means of some twenty to twenty-five control stations external to the country conducting tests: this number compared with 180 stations proposed by the Geneva Conference of Experts.[51] The system considered depended on the use of large arrays deployed on carefully chosen low noise sites, recording on magnetic tape, and electrical and machine processing to further enhance the clarity of the signals. The conclusion reached in the document of 9 September 1955 was that, in spite of the technical advances which had been made, there would remain a number of detected seismic events greater than magnitude 4.0 which would not be identified by remote seismic means alone and which could be suspected as possible violations of a test ban, unless they could be eliminated by some supplementary means such as on-site inspection.

2. In December of the same year (1965) the United Kingdom Atomic Energy Authority published a special report which reviewed the discussions and outstanding problems of Technical Working Group 2 (which had been set up at Geneva to re-examine the facts relating to underground explosions), the early United Kingdom work on discrimination assuming the use of a network of the type envisaged by the Geneva Conference of Experts, and the results of investigations (briefly described in the document of 9 September 1955) into the possibilities of using control stations spaced at much greater distances than was envisaged by the Geneva experts. The studies described confirmed the hypothesis that seismic signals recorded at distances between 3,000 km-10,000 km from the source of explosion and earthquakes were much less disturbed by signals trapped in the complex transmission paths formed by the crustal skin of the earth than those recorded nearer the source; information about the source could therefore be extracted with greater clarity and interpreted with greater confidence.

3. In particular, the United Kingdom Atomic Energy Authority reported comparisons between earthquakes and 35 underground explosions fired at eight different locations in the USSR, the United States and North Africa. It was shown that the first group of seismic signals which arrive at a distant station (the P-wave train) could be used to identify 90 per cent of the annual total of earthquakes down to magnitude 4.0 and to distinguish them from explosions in those regions, using three criteria. These were first motion, depth of focus and complexity, the last being the most useful. However, shortly before the report was published, another test was carried out at a new underground site. This explosion radiated signals typical of explosions to Europe, but signals typical of earthquakes to North America. Doubt was thereby cast on the usefulness of the complexity criterion. United Kingdom scientists are still investigating this unusual effect, and have narrowed the possible causes to the source region, and almost certainly to the effect of rugged topography on the seismic signals spreading round the source. It is analogous to the effect of rugged topography around a receiving station, which results in signal-generated noise.

4. It is to be noted especially that the United Kingdom Atomic Energy Authority special report referred only to identifying earthquakes, since at the time of its publication there was no established method for identifying explosions. Events were classified either as earthquakes or as unidentified events. The Atomic Energy Authority report did, however, refer to observations which appeared to confirm some theoretical studies (presented by United Kingdom scientists at an international conference in Beaugency, France in October 1964) which predicted that explosions were much less efficient than earthquakes at generating Rayleigh surface waves (R-waves).

5. This observation offered some hope that a good criterion for identifying explosions might be developed but was not given prominence because R-waves were not well recorded by the long period equipment deployed at that time, and because it was still uncertain whether a useful detection threshold for R-waves from explosions could be achieved. Since then, however, many more observations have accumulated, which bear out the suggested relationship. In all but a very few cases the magnitude of an explosion as measured by R-waves is approximately one unit (a factor of 10) less than its magnitude as measured by P-waves. For earthquakes the magnitude determined from the observation of these two waves are the same.

6. Techniques and instrumentation for observing R-waves have been enormously improved in recent years and this method of distinguishing between earthquakes and explosions is now well established. It is the only one which enables explosions to be identified as such.

7. In 1966, United Kingdom scientists used the World Wide Standard Seismological Network (WWSSN) and the four United Kingdom arrays to test the surface wave, and the other three criteria, on events which occurred in that year in the Sino-Soviet region of Asia. It was also a useful test of the capability of the 120-station network, which was established on the initiative of the Vela Uniform Programme of the United States of America. These stations have a worldwide distribution except for the Sino-Soviet region and transmit the arrival times of seismic signals to the United States Coast and Geodetic Survey data centre in Washington which calculates epicentre locations. The data centre also provides low cost microfilm copies of the original records. (These records were delayed up to two months, depending on the timing of routine despatches by individual stations to the data centre). With the exception of the four arrays the stations were all equipped with standard six component seismometers recording on photographic paper. Only the short period and long period vertical components were used in the investigations.

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[50] *Official Records of the Disarmament Commission, Supplement for January to December 1965*, document DC/227, annex 1, section C.

[51] See *Official Records of the General Assembly, Thirteenth Session, Annexes*, agenda items 64, 70 and 72, document A/3897.

8. A total of 245 events were detected in the region studied, and the threshold at which 90 per cent of the events were detected lay between m_b 4.5 and m_b 4.75 (where m_b is the magnitude of the event as determined from the P-wave train). Surface waves were recorded from 214 of the 245 events. In 9 of these 214 results m_b was greater than m_s by an order of magnitude and they were located at a known test site (m_s is the magnitude of the event determined from the R-wave component). They could therefore be confidently identified as explosions. All but ten of the remaining thirty-one events were identified as earthquakes, using the other three criteria. Ten events remain unidentified, and the magnitude of eight of them lie below the threshold for 95 per cent confidence in detection. Of the other two one appeared to have been located at a known test site and may therefore have been an explosion.

9. In this study the detection threshold of the WWSSN for earthquake R-waves was similar to that for P-waves, as would be expected. On the other hand, for explosions, the detection threshold for R-waves corresponded to an event which gave m_b equal to 5.25.

10. These results were presented to the study group on seismic methods for monitoring underground explosions organized by the Stockholm International Peace Research Institute (SIPRI). They were the principal data on which the group concluded that the national systems which are operational at the present time could detect and identify explosions in the Northern Hemisphere down to a level of 20-60 kilotons. On the basis of research presented by Canada, the United States and the United Kingdom, the group further concluded that the R-wave criterion was valid down to m_b 4.5. This was tacitly accepted by the group to be the equivalent of about 10 kt. There is not however complete technical agreement about the exact hard rock magnitude-yield equivalence and the discussions are without doubt confused by differences in regional geology.

11. The study group also concluded that it is possible to reduce by a factor of 10 the amplitude of the P-signal by conducting explosions in a suitable thickness of dry alluvium. It was agreed that dry alluvium is present in most continents in thicknesses sufficient to decouple up to 20 kilotons, that is to reduce an event in hard rock of m_b 5 to one of m_b 4. Since m_b 4 is close to the ultimate detection threshold of a practical control system, it is difficult to see how it will be possible to achieve a high probability of seismically locating a 10 kiloton explosion which is fired in dry alluvium at distances greater than two or three thousand kilometres, let alone to identify it by means of its R-waves.

12. The SIPRI study group therefore made two significant advances in terms of scientific agreement: it agreed that explosions of yields down to 10 kilotons in hard rock could be identified (given the deployment of a seismic system incorporating the improvements suggested in the SIPRI report) and it agreed that seismic amplitudes from explosions of up to 20 kt could be reduced by a factor of ten by firing in dry alluvium. The United Kingdom concludes that seismological verification of a test ban over large areas is limited to yields of about 10 kt and over: and even this capability assumes that modern equipment replaces that of the standard stations. Improving the instrumentation of the existing network may, however, be uneconomical or insufficient to do more than fully realize the limited capabilities recognized by the SIPRI group: to lower the identification threshold (and there are already some studies which indicate that this can be achieved) it may be necessary to consider new systems. Stations using new techniques are listed in table 1.1 of the SIPRI report and their capabilities have been described in a large number of reports. The next step may be a detailed study of the ways and means of deploying an operational system based on the new techniques.

ANNEX

PUBLICATIONS ON DETECTION GEOPHYSICS BY SCIENTISTS OF THE UNITED KINGDOM ATOMIC ENERGY AUTHORITY AND OTHERS

A. *Review papers*

1963

Thirlaway H. I. S., *Earthquake or explosion*, New Scientist, No. 18, p. 311.

1965

Carpenter E. W., *Explosion seismology*, Science, vol. 147, p. 363.

Thirlaway H. I. S., *Detecting explosions*, International Science and Technology, April.

The detection and recognition of underground explosions, United Kingdom Atomic Energy Authority special report.

1967

Data processing facilities and data available at the United Kingdom Atomic Energy Authority data analysis centre for seismology, Atomic Weapons Research Establishment pamphlet No. 2.

1968

Thirlaway H. I. S., *Diagnosing underground explosions and earthquakes, Contemporary* Physics, No. 9, p. 17.

B. *Papers on specific topics*

1958

Wright J. K., Carpenter E. W., Hunt A. G. and Downhill B., *Observations on the explosion at Ripple Rock*, Nature, vol. 182, p. 1597.

1960

Black M. C., Carpenter E. W. and Spencer A. J. M., *On the solution of one dimensional elastic wave propagation problems in stratified media by the method of characteristics*, Geophysical Prospecting, vol. 8, p. 218.

1961

Carpenter E. W., Harwood G. F. and Whiteside T., *Microbarograph records from the Russian large nuclear explosions*, Nature, vol. 192, p. 857.

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Key F. A., Wright J. K., Carpenter E. W. and Stott B. H., *Possible method for increasing signal-noise ratio in the detection of first motion of a refracted P wave*. Nature, vol. 191, p. 1382.

1962

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Carpenter E. W., *The Atomic Weapons Research Establishment Borehole programme*, Vesiac Deep Borehole Report, University of Michigan.

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Maddock I., *Detection of nuclear explosions in space and underground*, Journal, British Institute of Radio Engineers, No. 23, p. 415.

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Thirlaway H. I. S., *A summary of research in the United Kingdom on the detection of underground explosions*, Proceedings of Colloquium on Detection of Underground Explosions. Vesiac, University of Michigan.

Wright J. K., Carpenter E. W. and Savill R., *Some studies of the P waves from underground nuclear explosions*, Journal of Geophysical Research, vol. 67, p. 1155.

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1964

Agger H. and Carpenter E. W., *A crustal study in the vicinity of the Eskdalemuir seismological array station*, Geophysical Journal, Royal Astronomical Society, vol. 9, p. 69.

Carpenter E. W., *Teleseismic methods for the detection identification and location of underground explosions*, Vesiac, University of Michigan.

Carpenter E. W., *Reflections of the United Kingdom Atomic Energy Authority Tabor Pluto programme as of early 1964*, Vela Uniform Periodic Digest, vol. 4.

Key F. A., Marshall P. D. and McDowall A. J., *Two recent British earthquakes recorded at the United Kingdom Atomic Energy Authority seismometer array at Eskdalemuir*, Nature, vol. 201, p. 484.

Thirlaway H. I. S., *Some observations from large arrays*, Proceedings of the Vesiac Conference on Magnitudes, University of Michigan.

Truscott J., *The seismological station Eskdalemuir*, Geophysical Journal, Royal Astronomical Society, vol. 9, p. 59.

1965

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Birtill J. and Whiteway F. E., *The application of phased arrays to the analysis of seismic body waves*, Philosophical Transactions of Royal Society, Series A, No. 258, p. 421.

Carpenter E. W. and Flinn E. A., *Attenuation of teleseismic body waves*, Nature, vol. 207, p. 745.

Carpenter E. W., *Explosion seismology*, Science, vol. 147, p. 363.

Keen C. G., Montgomery J., Mowat W. M. H., Mullard J. E. and Platt D. C., *British seismometer array recording systems*. Radio and Electronic Engineer, vol. 30, p. 297.

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Whiteway F. E, *The recording and analysis of seismic body waves using linear cross arrays*, Radio and Electronic Engineer, vol. 29, p. 33.

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Carpenter E. W., *A quantitative evaluation of teleseismic explosion records*, Proceedings of the Royal Society, vol. 290, p. 396.

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Carpenter E. W. and Thirlaway H. I. S., *Seismic signal anomalies travel times and amplitudes and pulse shapes*, Vesiac Conference, Beaugency, Vesiac, University of Michigan.

Cleary J., *Array and multi-station analysis of an earthquake in Cornwall*, Geophysical Journal, Royal Astronomical Society, vol. 12, p. 437

Douglas A., *A special purpose least squares program*, Atomic Weapons Research Establishment Report O-54/66.

Hutchins W., *A real time seismic array data analyser and its associated event selector*, Radio and Electronic Engineer, vol. 31, p. 293.

Marshall P. D. and Carpenter E. W., *Estimates of Q for Rayleigh waves*, Geophysical Journal, Royal Astronomical Society, vol. 10, p. 549.

Marshall P. D., Carpenter E. W., Douglas A., Young J. B., *Some seismic results of the LONGSHOT Explosion*, Atomic Weapons Research Establishment report O-67/66.

Thirlaway H. I. S., *Interpreting array records: explosion and earthquake P wave trains which have traversed the deep mantle*, Proceedings of the Royal Society, vol. 290, p. 385.

Thirlaway H. I. S., *Seismology and fundamental geology*, Discovery (U.K.) 27, p. 43.

Whiteway F. E., *The use of arrays for earthquake seismology*, Proceedings of the Royal Society, vol. 290, p. 328.

1967

Carpenter E. W., *Quantitative deductions from explosion and earthquake mechanism concepts*, Vesiac Willow Run Laboratories, University of Michigan.

Douglas A, *Joint epicentre determination*, Nature, vol. 215, p. 47.

Douglas A, *P signal complexity and source radiation patterns*, Vesiac Willow Run Laboratories, University of Michigan.

Carpenter E. W., Marshall P. D. and Douglas A., *The amplitude-distance curve for short period teleseismic P waves*, Geophysical Journal, Royal Astronomical Society, vol. 13, p. 61.

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Thirlaway H. I. S., *New developments in seismology (abstract only), Mantles of the Earth and Terrestrial Planets*, Interscience Publications, p. 109.

1968

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Douglas A. and Corbishley D. J., *Measurement of $dT/d\Delta$*, Nature, vol. 217, 1243.

Douglas A. and Lilwall R. C., *Does epicentre source bias exist?* Nature, vol. 220, p. 469.

Francis T. J. G., *The detailed seismicity of mid-oceanic ridges*, Earth and Planetary Science Letters, vol. 4, p. 39.

Francis T. J. G., *Seismicity of mid-oceanic ridges and the relation to properties of the upper mantle and crust*, Nature, vol. 220, p. 899.

Grover F. H., *A note on infrasonics at United Kingdom Atomic Energy Authority Blacknest*. Geophysical Journal, Royal Astronomical Society, vol. 16, p. 311.

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Inston H. H. and Jeffs R. M., *Ground illumination by an h.f. transmitter through a twilight ionosphere*, Proceedings of the Institution of Electrical Engineers, vol. 115, p. 1089.

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Young J. B. and Gibbs P. G., *GEDESS: A series of computer programs for deriving information at selected seismic recording sites for signals from known hypocentres*, Atomic Weapons Research Establishment report No. 054/68.

Burch R. F., *A comparison of short period seismic noise at the four United Kingdom Atomic Energy Agency type arrays and an estimate of their detection capabilities*, Atomic Weapons Research Establishment report No. 079/68.

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Underwood R. and Lilwall R. C., *The systematic error in seismic location*, Geophysical Journal, Royal Astronomical Society, vol. 18.

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24.

Canada: remarks made by Mr. G. Ignatieff and Mr. K. Whitham at the informal meeting on the comprehensive test ban, held on 13 August 1969

[*ENDC/259 of 14 August 1969*]
[*Original text: English*]

Remarks by Mr. Ignatieff

In leading off today's informal meeting on the subject of a comprehensive test ban, I should perhaps begin by outlining the reasons for the Canadian decision to call for this session. Delegates will remember that on 23 May I submitted to the Committee a working paper on seismic exchanges (see above, section 14). At that time, I pointed out that United Nations General Assembly resolution 2455 (XXIII) requested this Committee to take up "as a matter of urgency" the elaboration of a treaty banning underground nuclear weapon tests; no wonder, since, as everyone knows, there is nothing more symptomatic of the continuation of the nuclear arms race than the continuation of testing nuclear weapons. As the time is fast approaching when the Committee must prepare its usual report to the United Nations General Assembly making an accounting of just what has been accomplished at this 1969 session in response to the Assembly's resolution, the Canadian delegation is of the opinion that steps must be taken which would permit the report to demonstrate some progress in this critical area. Our working paper outlined what we considered would represent a minimal degree of progress—agreement to issue a call for essential data on seismic exchanges which would be a prerequisite for any more effective exchange mechanism.

We recognize that we are not alone in our desire to effect progress in this field. The delegations of Sweden, the United Kingdom, Ethiopia and Japan have all, during the current or previous session of the Committee, advanced various ideas regarding more effective exchanges of information. We consider that the proposals put forward in our working paper might therefore receive the support of other interested delegations, and it is our hope that by convening this informal session, we may help pave the way to define some common purposes in this important area.

It is the belief of the Canadian delegation that, before specific machinery can be considered for any world-wide seismological data exchange, clarification is required on the extent of co-operation which Governments would be prepared to extend and the form in which seismic information might be made available.

Our working paper addressed itself to this specific aspect of the seismological exchange proposal on the assumption that the problems of verifying any comprehensive test ban would decrease provided an exchange of original seismological data could be assured. We recognize, however, that there is a definite relationship between any comprehensive test ban and progress in the United States/USSR bilateral negotiations on the limitation of strategic weapon vehicles.

As I said in my remarks at the 424th meeting of this Committee on 31 July, if we are to make progress in the first instance we have to seek common purposes on each issue before trying to agree on language. It is our hope in this informal meeting that with the help of the experts present, through the process of questions and answers we shall find certain aims in common which will be useful both from a scientific as well as from an arms control standpoint (and perhaps it is well to bear in mind that the less inexact the questions, the less inexact the answers are likely to be).

I would hope that in our discussions today we might clarify the technical aspects of the role of seismological exchanges in any verification proposals, keeping in mind that progress in the political field is, of course, basic to the eventual negotiation of a complete test ban. We are, moreover, hopeful that this meeting will help to crystallize the informal expressions of interest—and for that matter, support—which have so far come to our attention. I cannot conceal from you, and I think we are probably on common ground here, that my main concern is to try to ensure that some progress may be reflected in our report to the General Assembly. I hope, therefore, that the results of this morning's discussions will give us all some guidance on the most useful course to pursue with this consideration in mind.

In order to assist the Committee in understanding fully the Canadian proposal outlined in our working paper, we have arranged for a senior Canadian seismologist, Mr. Kenneth Whitham, to be present for these informal discussions. With your permission, therefore, I propose now to ask Mr. Whitham to offer some explanation of the technical aspects of the Canadian proposal. I would further suggest that, after an opportunity has been provided for the observations of any other delegations, Mr. Whitham would be willing to answer questions on this subject, insofar as specific answers can be provided at this stage in the development of Canadian capabilities in this field.

Remarks by Mr. K. Whitham

It appears self-evident that the effectiveness of seismological verification of a comprehensive test ban is a major issue before this Committee. The discussions here indicate that there is, as yet, no agreement between the different Powers about the national security risks involved for them in the event of their acceptance of any one of the different proposals introduced from time to time in this Committee. The only clear agreement apparent at this time is that improvements in seismological verification must help to hasten an acceptable test ban, and that, as the report published by the Stockholm International Peace Research Institute (SIPRI) indicates, remarkable improvements in seismological verifica-

tion have been developed by the seismologists of the world in the last decade.

As the Canadian representative stated at the 404th meeting of the Eighteen-Nation Committee on Disarmament on 17 April 1969, in seismology there has been a long tradition of informal international co-operation in the study of earthquakes, between scientists and institutions in many different countries, both bilaterally and through existing international and regional seismic centres. This exchange has covered abstracted information from seismic records, the seismic records themselves and the results of scientific analysis, and in general these exchanges on earthquakes for humanitarian and scientific purposes have been restricted by economic rather than political factors. This international co-operation is to everyone's mutual benefit since the seismological waves from earthquakes travel through the earth without respect for national frontiers.

I should like to remind this Committee that the seismic waves generated by underground nuclear explosions do not recognize national frontiers either.

We believe that the problems in seismological verification of a test ban, whether complete or of a threshold nature, would decrease if guaranteed access to all original seismological data could be assured. The reason is simply that it is necessary both to detect and identify underground nuclear explosions against the background of natural earthquakes and both the detection and identification problems are simplified by widespread data including data at regional distances from the shot point. By simplification, I mean that the seismological detection and identification can be made increasingly effective for lower and lower yield explosions, as increasing and more nearby data is made available. In particular, the method of identification which depends upon the partition of the energy between long and short periods being different for an underground explosion and for a natural earthquake can only be applied if the principle works for the yields of interest and if the detection capability for the long and short period waves exists to apply the identification criteria. The guaranteed availability of seismic data will enhance research on the validity of the method at lower yields, about which there is as yet no universal technical agreement for explosions with body wave magnitude below perhaps 4 1/2 to 4 3/4. It will also immediately increase the area of the earth adequately covered by this technique at any calculable magnitude such as, for example, explosions with a body wave magnitude 5. It should then be possible for technical advisers to estimate the effectiveness of verification for any and all regions, which effectiveness must depend upon what data Governments will make available.

I should like to give an example. For underground nuclear explosions at the Nevada test site, using data from the Canadian standard network, we have published results which we believe unequivocally demonstrate that for this combination of test site and observing stations, the identification method mentioned above works down to explosions with an equivalent body wave magnitude 4.5, that is to say for explosions of about 5 to 10 kiloton yield in hard rock. Unfortunately, and this is most important, by this magnitude we are at the limit of capability of detection of the long period signals with our standard seismic network and therefore although we believe we have proved that the method works and might indeed work at even lower magnitudes, we know that we have a rapidly falling possibility of detecting the long period signals and that at some magnitude range, which is above the 4.5 lower limit I have quoted above, our probability of being able to apply the method is not high. Now, if we apply the same technique to some presumed underground nuclear explosions in central Asia, we find for this new combination that we have no detection capability for the long period waves using the Canadian network below explosions with a body wave magnitude of about 5.9 i.e., about 200 kiloton yield in hard rock. The difference is, we believe, produced essentially by the increasing distance between the stations and the shot point, the fact that for the second example given above the long period waves cross two ocean-continent boundaries and that certain other natural peculiarities involving the structure of the outer layers of the earth favour the first combination. We know, and work published in the SIPRI report confirms this, that seismic data is obtained at the present time at closer distances to the Asian test site than Canada and the amount of data already freely available allows a considerable reduction in the body wave magnitude 5 9 figure quoted above for the Canadian network alone looking at this site. The exact amount of the reduction depends upon the location and instrumentation at the seismic stations and the usefulness of the criterion in verification for this site depends upon which data would be guaranteed available. These sorts of arguments with different but calculable numbers could be applied in reverse by, for example, an Asian country in seeking to monitor the Nevada test site.

Before finding acceptable economic and technical means to ensure the world-wide availability of seismic data, it seems to us that the first step is to clarify what seismic information Governments would make available, in what form and with what delays. We believe that the answers to these questions are directly relevant to the possibilities of coming to an agreement about a test ban which is the direct concern of this Committee. We further believe that such a clarification would increase the possibility of smaller countries being able to make their own technical assessment of some of the different problems involved and enable some of them to contribute usefully, through this forum and elsewhere, to this vital debate.

We do not hold fixed views about the mechanism of such a data exchange. We are aware that, at one extreme, a world depository of data could be envisaged: perhaps, but not necessarily, as an extension of one of the already existing international centres for seismology. In this respect we are also aware that the international seismological community and UNESCO are at present discussing the needs, problems and economics of one such centre at Edinburgh. We believe that no centre is equipped at the present time to act effectively as a world-wide seismic data archive, but one could conceivably become so if this were the wish of the international community. We are not forgetting either that a major international archival service would produce considerable advantages for the science of seismology in general.

At the other extreme we can envisage the situation where access to guaranteed data is required by only a few countries for a limited number of stations for a limited number of events only and both these may vary according to the particular national requirement. We consider that at this extreme of demand, it is unlikely that a seismological centre for this purpose need be established or developed.

With respect to the delays inherent in the supply of copies of the original data or the original data themselves, we would express the hope that these could be minimized. It is my personal opinion that a matter of some weeks would be the order of time interval which any country or international body, if one were established, would require to assess the situation created if a concealed test were suspected or claimed, and if verification in a treaty situation depended on a seismological decision. This interval of time appears to us to be entirely compatible with the time framework within which the seismic networks could distribute copies of data without excessive expense and effort on their part. In making our proposal, we invite the views of member States and in particular those of countries which operate the larger seismic networks. The guaranteed availability of seismic data without archival deposition would merely formalize existing international practice for earthquakes without further extensive costs to co-operating countries. However, our proposal would extend existing practice to cover explosions and events which any nation considered suspicious and would give governmental assurances of the availability of the data on request from those stations listed.

The technical data listed in the Canadian proposal is not in any way different from that which would normally be supplied by any scientist or institution to another with record copies for purposes of earthquake research.

We regard this modest proposal as a first and logical step in any process whereby the seismologists of the world can help the essentially political decision-making processes and provide the best guide for them.

25.

Japan: statement by Mr. K. Asakai at the informal meeting on the comprehensive nuclear test ban, held on 13 August 1969

[ENDC/260 of 14 August 1969]
[Original text: English]

At the 424th meeting of 31 July, I put forward a suggestion concerning the system of verification which would monitor underground nuclear explosions. My suggestion consisted of four specific measures. First, to expand and improve the network of seismological observatories; secondly, to promote the international exchange of seismic data; thirdly, to establish an international centre which will process all these data promptly; and finally, to establish an international monitoring centre which shall objectively analyse these data.

The Canadian suggestion concerning the registration of seismographic stations contained in its working paper of 23 May 1969 (see above, section 14) is, we believe, the first step toward the expansion and improvement of the network of seismological observatories and the promotion of international exchange of seismic data which I have just mentioned. It is for this reason and in this sense that the Japanese delegation supports the purport of the Canadian working paper.

However, I have some comments to make on this working paper.

The Canadian working paper states that the Eighteen-Nation Committee on Disarmament requests the Governments concerned to supply to the Secretary-General of the United Nations for transmission to the Committee, a list of all its seismic stations from which it would be prepared to supply relevant records.

If we adopt such a procedure, information concerning the instrumentation and components recorded which is to be supplied by the Governments concerned in accordance with the Canadian formula could well become divergent in ways of its description.

In order to obtain a uniform answer it might be advisable that the lists of seismographic stations which have already been prepared by such international or major national centres as those in Edinburgh, Strasbourg, Moscow, Washington and Tokyo, should be compiled into a list in the appropriate format, which would then be sent to the Governments concerned, requesting them to correct and complement it.

Particular attention should be paid to the station list prepared by the United States Coast and Geodetic Survey which covers almost all seismological observatories in the world, although that list does not contain a description of the instruments employed in the observatories. I must also refer to the publication entitled "Parameters etc. of the main seismic stations of the USSR" prepared by the Institute of Physics of the Earth, Academy of Sciences of the USSR, which well describes the characteristics of the instruments employed in the main Soviet stations.

With regard to the data to be exchanged, the Canadian proposal seems to cover seismogram copies only. However, as I explained in my statement of 31 July, my delegation attaches equal importance to the interpretation message to be sent to one international centre by cable every day. It seems to be advisable to register all observatories which can provide a daily interpretation message and/or seismogram copies.

It may be added that if all seismogram data were exchanged, they would be too voluminous to be dealt with properly. In our view therefore it might be more practical to obtain necessary data on a request basis, as I suggested on 31 July.

I must now beg your indulgence for making some detailed and technical comments on the Canadian working paper. I do this because the paper itself deals with technical points.

First, it might be better to replace the word "Photographic" of paragraph A of the request by the word "graphic", as recordings are made in the form of ink-writing or heated-stylus as well. May I also suggest that the name of the operating organization, the address and the date of the beginning of observation should be added after the name of station in paragraphs A (i) and B (i)?

I should also like to suggest the addition of the words "height above sea level, geological and geomorphological description of the station foundation" after the words "coordinates of station" which are found in paragraphs A (ii) and B (ii).

The request also asks if Governments would be prepared to supply "original records or good quality microfilm, and if the latter, whether the microfilm would be 16, 35 or 70 millimetre film", but it seems to us that this part is too strict and detailed. My delegation prefers that this should be replaced by "original records or some appropriate copies".

I hope that the Canadian delegation will give due regard to the suggestions made in this informal meeting and submit to the Eighteen-Nation Committee on Disarmament its revised working paper for final adoption by the United Nations General Assembly at its coming session.

26.

India: statement by Mr. M. A. Husain at the informal meeting on the comprehensive test ban, held on 13 August 1969

[ENDC/261 of 14 August 1969]
[Original text: English]

1. The delegation of India is strongly in favour of intensive co-operation for international exchange of seismological data, which would facilitate a comprehensive nuclear weapon test ban. The Indian delegation, therefore, welcomes the initiative taken by the delegation of Canada in submitting its working paper (see above, section 14), in which it has proposed that "countries should be invited to send a list of the seismographic stations from which they would be ready to supply records on the basis of guaranteed availability of data in the framework of a world-wide exchange of seismic data and to provide certain details concerning these stations". The Canadian delegation has also suggested that a request should be made by the Committee to Governments on these lines.

2. I should like today to offer the views of my delegation on certain aspects of the Canadian proposal.

3. Undoubtedly, an effective scheme for the unrestricted exchange of high quality seismic data on a world-wide basis, coupled with centralized means for collating and reducing them for quick and reliable interpretation leading to accurate estimates of location, depth and nature of seismic sources will help to remove to a very great extent, if not fully, the remaining reservations regarding the effectiveness of seismic means for verifying a comprehensive test ban treaty. As was brought out at the meetings of the Stockholm International Peace Research Institute (SIPRI) last year, such a step would only be an extension of the principle of international co-operation which has been the main feature of seismological research and development.

4. However, the data exchange required for improving seismic methods of detection and identification would clearly need to be more elaborate and diversified. It should include: (*a*) the complete, original record of all the phases of the seismogram covering the entire spectrum of earth waves; (*b*) the exact response characteristic of the sensing and recording instruments; (*c*) the precise location and configuration of the instruments or the network of instruments deployed for detection; (*d*) a complete description of the format in which the data is available; (*e*) an indication of the accuracy of the time information.

5. A clear idea of the characteristics of instrumentation and recording formats is indispensable for evaluating the requirements of the centralized processing facilities needed to utilize fully the extensive data involved.

6. Equally useful from the point of view of enhancing the reliability of seismic identification of underground explosions would be the following data pertaining to underground tests:

(*a*) The scheduled time of firing;

(*b*) Latitude and longitude of test point;

(c) Depth at which the device is emplaced;

(*d*) Yield;

(*e*) General topography and geology of the test area.

7. The Canadian proposal is quite in conformity with the stand we have consistently taken in relation to the exchange of seismological data for which our data is freely available. However, the financial implications and logistic support required for committing ourselves to such an arrangement will have to be examined carefully.

8. From a purely technical point of view the information sought in the Canadian working paper might be augmented as follows:

Stations of type A:

(i) Option of Xerox copy of the original records;

(ii) The time resolution in, say, millimetres per second of each type of record;

(iii) The estimate of precision of the timing system.

Stations of type B:

(iv) The lay-out drawing of the array, the depth of emplacement of sensors, and topographical and geological features of the array site;

(v) Indication of the type of raw magnetic records whether digital or continuous, as well as the normal period up to which they are retained; the format in which library tapes containing events of a specified type or above a specified magnitude are prepared for long-term preservation;

(vi) Accuracy of the time code.

9. The Department of Atomic Energy of the Government of India operates stations of type B only in the form of a medium aperture short period array and some long period instruments in southern India. With the existing processing facilities, we shall not be able to release the original tapes earler than six months after recording. By this time they would hardly be useful for the international processing scheme envisaged. The most convenient method, therefore, for making copies available for exchange would be to take duplicate recordings of both short and long period instruments of our array.

10. In conclusion, I should like to reiterate that the Government of India would have no objection to providing the information required in respect of our southern India station. However, as mentioned earlier, this process would have financial implications, since it would be difficult for us to loan the original magnetic tape containing the information. I would think that a similar problem would be faced by many other countries as well. Should it, therefore, be decided that the Eighteen-Nation Committee on Disarmament should address a letter to Governments on the lines suggested by the Canadian delegation, an inquiry might also be made as to whether their countries envisaged any financial implications in meeting the request for information.

11. The Government of India would be ready to co-operate actively in any system of seismological data exchange provided it is an effective one based on the equal participation and full co-operation of all concerned.

27.

United States of America: remarks made by Mr. James F. Leonard on seismic data exchange and the Canadian working paper (ENDC/251) at the informal meeting on the comprehensive test ban, held on 13 August 1969

[*ENDC/262 of 14 August 1969*]
[*Original text: English*]

I should like to comment first on the general subject of seismic data exchange and then to make some specific suggestions regarding the Canadian proposal contained in the working paper of 23 May 1969 (see above, section 14).

As many of you will recall from the last meeting of our spring session, Mr. Fisher, speaking for our delegation, said that we believe seismic data exchange would serve as a useful complement to a comprehensive test ban, which in our view would have to include on-site inspections for adequate verification. On the basis of our belief in the value of seismic data exchange, we have been making efforts, both on our own and with others, to bring about greater co-operation in this field.

For example, considerable progress in seismology has resulted from research which the United States Government and private United States institutions have performed and published, and from seismic data made available through the operation of the United States-sponsored World-Wide Standard Seismograph Network (WWSSN). This network now has 115 seismic stations, including stations in several States represented in this committee. In addition, the Montana Large Aperture Seismic Array continues to be operated as a research tool to provide data for evaluation of the detection capability of such arrays. We are, in co-operation with Norway, installing a second large array—the Norwegian Seismic Array, called NORSAR—which we hope will be completed this fall. Finally, we are pleased to announce that we are going forward with Project Rulison, an underground nuclear explosion for peaceful purposes aimed at developing the technology for increasing the production of natural gas. The project is now tentatively scheduled for 4 September 1969. As we explained in our working paper on seismic investigation (see above, section 16), this experiment will help in our efforts to facilitate world-wide evaluation and comparison, to the extent that the data are exchanged, of the seismic information gathered on such events.

In line with this demonstrated interest in seismic research, the United States stands ready to make available a list of seismic stations from which we would be willing to supply records in a world-wide exchange of data, as suggested by our Canadian colleagues. We are also willing to supply all the pertinent data on technical characteristics of these stations.

In view of our own readiness to co-operate in data exchange along the lines suggested by Canada, we, of course, hope that other countries whose participation would increase the value of the exchange will also join in. Carrying out the Canadian idea would be a useful step in implementing United Nations General Assembly resolution 2455 (XXII), and would be welcomed as a sign of progress on a question to which the General Assembly has attached great urgency.

Our technical experts have carefully studied the information requirements for a possible questionnaire, and their conception of what would be most useful has been passed out to each delegation (see attached proposal). With your forebear-

ance, I should like to go through the revisions and explain the reasons we are putting forward these suggestions for consideration.

First, you will note that we have suggested two different categories of stations about which information would be provided. Category (*a*) would now cover conventional seismograph stations and (*b*) would cover array stations. This seems to us a more useful distinction than that now made by the Canadian proposal between photographic and tape recording types of stations. Since there are other common types of seismograph recordings, such as smoked paper and hot wire, the categories we suggest would ensure that Governments would know how to respond for any type of seismograph.

Secondly, under sections (*a*) (iii) and (*b*) (iii), dealing with the instrumentation and components recorded, we believe that a response curve for each instrument should also be provided. Our technical advisors believe that information on response curves is very desirable for any significant data exchange because of the need to provide a basis for accommodating differences among the various instruments in use.

Thirdly, under the category (*b*) we propose, we have added two more requests, which involve, respectively, co-ordinates of array points and a list of components which record on a parallel visual basis. This information would also be helpful to participants in deriving maximum possible utility from the data exchanged.

Finally, if our suggestions are incorporated it would be possible to delete the requests under A and B of the Canadian working paper which call for full operational curves to be provided, since this information would already be covered. In our proposal we have consolidated in the last paragraph the statements regarding the time window within which Governments would provide records and the availability of original magnetic tape recordings.

In conclusion, I should like to express my delegation's hope that the Canadian proposal will help us to make badly needed progress in the near future. For our part, we are very appreciative that the Canadian delegation has presented its suggestions to this Committee. We think that these suggestions are practical and valuable.

SUGGESTED REVISION OF REQUESTS FOR TECHNICAL INFORMATION

(*a*) Conventional seismograph stations

(i) Name of station

(ii) Co-ordinates of station

(iii) Instrumentation and components recorded. (This should include operational magnification at one second periods for short period and broad band seismographs and at 15 or 20 seconds for long period instruments. Also, a response curve for each instrument should be provided.)

(*b*) Array stations

(i) Name of station

(ii) Co-ordinates of station

(iii) Instrumentation and components recorded. (This should include operational magnification at one second periods for short period and broad band seismographs and at 15 or 20 seconds for long period instruments. Also, a response curve for each instrument should be provided.)

(iv) Co-ordinates of array points

(v) A general account of the instrumentation geometry of the array

(vi) A list of components which record on a parallel visual basis.

It would also be useful to know the time window within which the Government of . . . would be prepared to supply the original records or, as applicable, photographic copy, magnetic tape copy, or good quality microfilm (16, 35 or 70 mm). It would also be useful if the Government of . . . could indicate how long an original magnetic tape recording could be made available before the tapes were erased and re-used.

28.

Italy: statement by Mr. R. Caracciolo at the informal meeting of the Conference of the Eighteen-Nation Committee on Disarmament, held on 20 August 1969

[ENDC/263 of 20 August 1969]
[Original text: English]

First of all I should like to express my gratitude to the Co-Chairmen for having agreed to convene this meeting for a preliminary discussion regarding the Committee's report to the twenty-fourth session of the United Nations General Assembly and to thank all delegations for graciously accepting this extra burden on their daily work. I should also like to avail myself of this opportunity to extend my warmest welcome to the delegations that have joined our Committee recently. This welcome applies, of course, to all the six new delegations equally, with whose Governments my own has the most friendly relations. May I add, however, in view of the very close collaboration existing between our respective countries in different fields, that we are particularly happy to see among us the delegation of the Netherlands.

I shall now try to explain to the Committee the reasons that have prompted me to request this meeting on behalf of my delegation.

The main reason stems from the feeling that our discussions have reached a crucial stage. Though we are confronted with more draft treaties than we have discussed before, on each of them the views of the delegations of the nuclear Powers are still wide apart and we see at present few prospects of reaching any agreement before the end of this session. Therefore, despite the valuable efforts made during the present session and the concrete contributions of all delegations, the ultimate goal of our negotiations—which is actual disarmament, especially in the nuclear field—is still far from sight. Even if some progress were to be made in these last few weeks in one more specific field (and Italy would be among the first to welcome such a development), it would very likely be progress towards an agreement on a non-armament measure rather than progress toward strictly disarmament measures.

On the other hand, we are confronted with resolutions from the General Assembly and with the agenda formulated by our Committee itself, both of which clearly indicate the direction our work should take. In other words, there seems to be a certain gap between the work we are supposed to do and what we are actually doing.

We are also approaching the moment when the valuable and important work we have done in 1969 will come under the scrutiny of the General Assembly. That body will have no other way of judging it than by going through the final report submitted, as in previous years, by our Committee. I am afraid that a report of a factual character, that is a report mentioning only, in less or greater detail, the topics discussed, the meetings that have taken place, and the documents that have been submitted, would lend substance to the criticisms we have heard in the past, which imply that the structure of our Committee is not the most suitable one for fulfilling the task that has been given to us. The very existence and the survival of our Committee might then be jeopardized. We therefore believe, and we hope that this belief is shared by other delegations, that this year's report to the General Assembly should have a substantial character.

Another valid reason why the report to the General Assembly should this year be of a more positive character is the fact that our Committee has undergone a substantial enlargement with the addition of eight new members; this is a

milestone in the history of the Committee and, in our opinion, it should be marked by a renewed effort by the Committee to prove that real efforts are being made to come close to the expectation of mankind which still looks upon this body as a concrete hope for making progress along the hard but essential road to disarmament.

The important point, therefore, is to agree on what is meant by a substantial report.

As I said before, I do not think that even a lengthy list of topics, of meetings and of papers, would be sufficient to qualify our report as a substantial one, or that it would give the General Assembly that ray of hope to which it is entitled and is looking forward. No doubt it will show that we have been very hard at work and that we have made great efforts during this year's session, but I am afraid that would not be enough to inspire confidence in the results we may attain in the future. A substantial report would, in our mind, be achieved if, besides synthesizing the core of our discussions and the difficulties we have met, we were to devote a certain part of it to some hard thinking on the shape and nature of our future activities. By doing so we would at least convey to the General Assembly our earnest conviction that though we have not been able so far, because of objective difficulties, to make substantial progress in the fields assigned to us, progress could be reasonably expected, in a not too distant future, through an improvement in our methods of work, coupled with a renewed determination on the part of our Governments.

The Italian delegation has, for a long time, upheld the necessity of an organic programme of disarmament. By organic programme we mean something different and more precise than the provisional agenda we agreed upon on 15 August 1968[52] exactly one year ago: the agenda was, in part, mainly a list of headings for the members of the Committee to discuss. What we have in mind is a clearer definition of a programme of work, both short and long term.

Of course it was not our intention to suggest a philosophical exercise or an academic discussion, nor did we ever think that the pieces of this programme should be linked to one another with rigid ties to form a sort of a package deal.

The kind of programme we had in mind was instead a very flexible one, but one that could somehow provide the necessary guidelines for our future work and increase its efficiency. We are, in fact, fully aware of the tremendous difficulties which lie on the road to general and complete disarmament and which stem from the harsh facts of international life: mainly the necessity of maintaining the balance of forces as a prerequisite to armament reductions. It is, however, undeniable that the search for an agreement on several specific sectors has made us lose, to a certain extent, the indispensable over-all view and this is dangerous, since the balance of interests, which is the natural foundation of any agreement, is all the more difficult to achieve if the search for it is limited by the narrow framework of each specific measure. It was with the purpose of regaining this over-all view, of trying to bring our starting point closer to our final goal, that we tabled at the last session the working paper ENDC/245 (see above, section 8).

I should like to summarize the suggestions we submitted in our working paper in order to furnish a concrete example of the thoughts I am trying to express.

We first listed some of the basic premises of present Committee negotiations; they are well known to everybody and therefore I need not dwell on them: it would be sufficient to quote the joint statement of agreed principles for disarmament negotiations submitted in September 1961 to the Geneva Conference by the Governments of the United States and the USSR;[53] the plans for general and complete disarmament submitted respectively by the Soviet and the United States delegations on 15 March and on 18 April 1962;[54] General Assembly resolution 2454 B (XXIII) and the most significant promise of them all, that is article VI of the Treaty on the Non-Proliferation of Nuclear Weapons,[55] by which the nuclear Powers, as well as the other parties to the Treaty, undertook "to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control".

After having recalled these premises of our work, we expressed in our document the belief that the aim of Committee negotiations, that is general and complete disarmament, could best be attained by a series of agreements to be reached in a suitable sequence—that is within the framework of an over-all programme—so as to guide the process of disarmament from the introductory stage to the final one. Though we did not deem it proper, at this stage, to anticipate detailed propositions we thought, only as a matter of suggestion—that a suitable sequence could proceed along the following lines which I will express in five points:

(1) Since a wide consensus seems to exist on the point that priority should be given to negotiations on interrelated subjects with a direct bearing on the problem of stopping the vertical proliferation of nuclear weapons by states now possessing them, we thought that within this framework the beginning of bilateral talks between the Governments of the United States and the USSR for the limitation of strategic armament was, of course, of paramount importance.

(2) We then thought that in a preliminary stage new efforts should be made to carry on discussions in order to reach agreement on measures aimed at preventing the spread of nuclear weapons to new environments where they have never been deployed, and at limiting the zones in which they may actually be deployed.

(3) In this same preliminary stage, we also thought that other measures might be negotiated in order to promote a climate of greater confidence among nations. Such measures could apply to specified parties, having in view particularly the situation prevailing in Europe as one of the focal points of international tension.

(4) After significant progress had been made towards the cessation of the nuclear arms race and the creation of an atmosphere of greater confidence, a first stage of concrete negotiations on actual disarmament could then take place.

(5) Subsequent negotiations on further stages, linked to one another and following the principle of gradual and balanced reductions, might then lead to the ultimate goal of general and complete disarmament.

As I said, these were the general thoughts that prompted my delegation to introduce its working paper on 21 April. We never claimed that they represented the only or complete answer to the problems we mentioned; we only hoped that they would constitute a useful contribution to a general discussion on the subject.

Today we have before us a first draft report prepared by the Co-Chairmen. While expressing the appreciation of my delegation for the effort they have made in presenting us with a complete text in such a short time, and for giving us the opportunity of considering it with all the attention it deserves, I am sorry not to be in the position today of commenting on it in detail or of giving our reactions. On the other hand, as this meeting was requested for the purpose of enabling all delegations to participate in a preliminary discussion on the drafting

[52] See *Official Records of the Disarmament Commission, Supplement for 1967 and 1968*, document DC/231, paragraph 17.

[53] See *Official Records of the General Assembly, Sixteenth Session, Annexes*, agenda item 19, document A/4879.

[54] See *Official Records of the Disarmament Commission, Supplement for January 1961 to December 1962*, document DC/203, annex 1, sections C and F.

[55] General Assembly resolution 2373 (XXII), annex.

of this report, we shall certainly study, in the next few days, the text that has been submitted to us informally with the greatest attention, also in the light of the comments that other delegations will wish to make.

I should also like to ask the Secretariat to circulate my statement as an official document of the Conference.

29.

Brazil: working paper on the control provisions for a treaty on the non-armament of the sea-bed and ocean floor

[ENDC/264 of 21 August 1969]
[Original text: English]

The Government of Brazil follows with great interest and high expectations the current negotiations in the Conference of the Eighteen-Nation Committee on Disarmament concerning a treaty on the non-armament of the sea-bed and ocean-floor. In the present stage of development of the technology for the exploration of the sea-bed, only a very limited number of States has the capacity to carry on large-scale activities in this environment. For this reason, the Government of Brazil regards with apprehension the possible implications of a Treaty on the non-armament of the sea-bed and the ocean-floor that could damage the interests of medium and small nations still lacking those technological resources. This possibility would in any case run counter to the fifth principle of the joint statement of agreed principles for disarmament negotiations,[56] of 20 September 1961, which asserts that: "All measures of general and complete disarmament should be balanced so that at no stage of the implementation of the treaty could any State or group of States gain military advantage and that security is ensured equally for all." The Government of Brazil considers that coastal States have sovereign and exclusive rights to explore and exploit the resources of their continental shelves. Thus it believes that none of these sovereign rights can be jeopardized or disregarded, directly or indirectly, as a consequence of an international treaty on disarmament. By creating a process of control of compliance with its objectives, a treaty which prohibits the installations of weapons or weapon systems on the sea-bed can conceivably create such risks if the utmost consideration is not given to the inclusion of appropriate provisions that would prevent these undesirable consequences. The Government of Brazil considers it indispensable that the future treaty should safeguard the continental shelf of member States from the undue interference which could materialize if the control provisions were not clearly formulated. It is indeed necessary to prevent situations where, under the allegation that a normal verification of compliance is being sought, operations would actually be deployed that could threaten the security and the sovereignty of the coastal State or to violate its exclusive rights of exploitation of the continental shelf. Since there exists a substantial technological gap among contracting parties of a treaty on the non-armament of the sea-bed and ocean-floor, it is possible to foresee several instances when the coastal State would not be aware of operations that were taking place on its continental shelf and/or might be lacking the means of acquiring firm assurances that these operations are permitted under international law. To protect the security and interests of medium-sized and small nations, the Government of Brazil strongly urges that a provision should be incorporated in the future treaty on the non-armament of the sea-bed and ocean-floor with a view to enable the coastal State to participate effectively in control operations that take place on its continental shelf. Such provision must not infringe rights recognized under international law, including the freedom of high seas, nor should it condition the carrying out of control procedures to the previous agreement or goodwill of the coastal State, as long as the control procedures do not involve actions which the coastal State has the right to limit or prevent under existing positive or customary international law, or according to the accepted doctrine, e.g. access of third States to installations on its continental shelf. In particular such provision should not require previous notification to the coastal State when only a simple and casual observation in the normal course of navigation or overflight is to take place. However, the coastal State should be previously notified of the intention of any other Party to implement its right of control by performing a legal but more comprehensive control on the continental shelf of the coastal State concerned. This would enable the latter to exercise its right of co-participation in the operations, thereby protecting its national interests and rights, without any hindrance to the process of control itself.

[56] *Official Records of the General Assembly, Sixteenth Session, Annexes*, agenda item 19, document A/4879.

30.

Argentina, Brazil, Burma, Ethiopia, India, Mexico, Morocco, Nigeria, Pakistan, Sweden, United Arab Republic and Yugoslavia: working paper on a proposed declaration by the United Nations General Assembly regarding prohibition of the use of chemical and biological methods of warfare

[ENDC/265 of 26 August 1969]
[Original text: English]

The General Assembly,

Considering that chemical and biological methods of warfare have always been viewed with horror and been justly condemned by the international community;

Considering that these methods of warfare are inherently reprehensible, because their effects are often uncontrollable and unpredictable and may be injurious without distinction to combatants and non-combatants and because any use would entail a serious risk of escalation;

Recalling that successive international instruments have prohibited or sought to prevent the use of such methods of warfare;

Noting specifically in this regard:

that the majority of States then in existence adhered to the Geneva Protocol of 17 June 1925,[57]

that since then further States have become Parties to that Protocol,

that yet other States have declared that they will abide by its principles and objectives,

that these principles and objectives have commanded broad respect in the practice of States,

that the General Assembly, without any dissenting vote, has called for the strict observance by all States of the principles and objectives of the Geneva Protocol;

Recognizing therefore, in the light of all the above circumstances, that a customary rule of international law prohibits the use in international armed conflicts of all biological and chemical methods of warfare, regardless of any technical developments;

Mindful of the report of the group of experts, appointed by the Secretary-General of the United Nations under General Assembly resolution 2454 A (XXIII) of 20 December 1968, on chemical and bacteriological (biological) weapons and the effects of their possible use, published on 1 July 1969;[58]

Considering that this report and the foreword to it by the Secretary-General adds further urgency for an affirmation of this rule and for dispelling, for the future, any uncertainty

[57] Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (League of Nations, *Treaty Series*, vol. XCIV (1929), No. 2138).

[58] United Nations publication, Sales No.: E.69.I.24.

as to its scope and, by such affirmation, to assure the effectiveness of the rule and to enable all States to demonstrate their determination to comply with the rule;

Condemns and declares as contrary to international law the use in international armed conflicts of:

any chemical agents of warfare: chemical substances, whether gaseous, liquid, or solid, which might be employed because of their direct toxic effects on man, animals or plants,

any biological agents of warfare: living organisms, whatever their nature, or infective material derived from them, which are intended to cause disease or death in man, animals or plants, and which depend for their effects on their ability to multiply in the person, animal or plant attacked.

31.

Canada: draft United Nations General Assembly resolution on chemical and bacteriological (biological) methods of warfare

[*ENDC/266 of 26 August 1969*]
[*Original text: English*]

To facilitate consideration at the twenty-fourth session of the United Nations General Assembly of that part of the report of the Conference of the Eighteen-Nation Committee on Disarmament on chemical and bacteriological (biological) warfare, the Canadian delegation submits the following draft resolution which has been developed from the remarks made by the Canadian representative at the 424th meeting of the Committee on 31 July 1969. The draft resolution takes into account the report of the Secretary-General on chemical and bacteriological (biological) weapons and the effects of their possible use of 1 July 1969,[59] the proposals of delegations, especially those of the delegation of Poland, on this report, the draft convention on the prohibition of biological methods of warfare submitted by the delegation of the United Kingdom on 10 July 1969 (see above, section 19), as well as other views advanced by various delegations on this subject during the 1969 session of the Committee.

DRAFT UNITED NATIONS GENERAL ASSEMBLY RESOLUTION ON CHEMICAL AND BACTERIOLOGICAL (BIOLOGICAL) METHODS OF WARFARE

The General Assembly,

Recalling its resolution 2454 A (XXIII) of 20 September 1968,

Having considered the report of the Secretary-General of 1 July 1969 on chemical and bacteriological (biological) weapons and the effects of their possible use,

Noting the recommendations of the Secretary-General contained in the foreword to his report,

Noting further the conclusion of the report that chemical and bacteriological (biological) weapons stand in a class of their own as armaments which exercise their effects solely on living matter,

Sharing the sense of horror also expressed in the report at the idea that bacteriological (biological) weapons could deliberately be used to spread disease,

Mindful of the further conclusion of the report that the prospects for general and complete disarmament under strict and effective international control and hence for peace throughout the world brighten significantly if the development, production and stockpiling of chemical and biological agents intended for purposes of war were to end and if they were eliminated from all military arsenals,

Having considered the report of the Conference of the Eighteen-Nation Committee on Disarmament on its preliminary consideration of the action to be taken in the light of the report of the Secretary-General,

Recognizing the importance of the Geneva 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,[60]

Conscious of the need to maintain inviolate the Geneva Protocol and to ensure its universal applicability,

1. *Reaffirms* its resolution 2162 B (XXI) of 5 December 1966 and calls anew 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;

2. *Invites* all States to accede to the Geneva Protocol;

3. *Welcomes* the report of the Secretary-General on chemical and bacteriological (biological) weapons and on the effects of their possible use, and expresses its appreciation to the Secretary-General and to the consultant experts who assisted him;

4. *Requests* the Secretary-General to publicize the report in as many languages as is considered desirable and practicable, making use of the facilities of the United Nations Office of Public Information;

5. *Recommends* to all Governments the publication of the report, translated as appropriate, so as to acquaint public opinion with its contents, and invites the specialized agencies, regional inter-governmental organizations, and national and international non-governmental organizations to use their facilities to make the report widely known;

6. *Recommends* the report of the Secretary-General to the Eighteen-Nation Committee on Disarmament as a basis for its further consideration of the question of the elimination of chemical and bacteriological (biological) weapons;

7. *Commends* the draft convention on the prohibition of biological methods of warfare submitted by the United Kingdom and urges the Eighteen-Nation Committee on Disarmament to complete work on this draft convention at an early date;

8. *Requests* the Eighteen-Nation Committee on Disarmament to present a report on progress on all aspects of the problem of the elimination of chemical and bacteriological (biological) weapons to the twenty-fifth session of the United Nations General Assembly.

32.

Brazil: working paper on the settlement of disputes arising from the implementation of a treaty for the non-armament of the sea-bed and ocean floor

[*CCD/267* of 1 September 1969*]
[*Original text: English*]

1. At the 413th and 423rd meetings, in the course of its intervention on the general aspects of item 3 of the Committee's agenda (see para. 14 of this report) and when commenting specifically on the Soviet and United States draft treaties (see above, sections 4 and 12), the Brazilian delegation stated its firm conviction that any normative convention for the non-armament of the sea-bed and the ocean-floor would be incomplete if it did not include appropriate provisions for the solution of disputes and controversies arising from its implementation.

2. The Government of Brazil is of the opinion that the implementation of a treaty for the non-armament of the sea-bed and ocean-floor depends basically on two conditions:

(i) the clear and uncontroversial definition of the objects which are to be banned from the sea-bed and ocean floor;

[59] *Ibid.*

[60] League of Nations, *Treaty Series*, vol. XCIV (1929), No. 2138.

* Previous documents in this series appeared under symbols ENDC/....

(ii) the establishment of adequate control provisions which would provide any party to the treaty with firm assurances that all Parties are honouring their obligations and respecting rights recognized under international law.

3. The present working paper aims to draw the attention of the Committee to the necessity of examining the natural corollary of these conditions, namely, the formulation of suitable provisions for the settlement of disputes arising from the actual interpretation of a treaty for the non-armament of the sea-bed and ocean floor and especially from the operation of its norms of control.

4. The Government of Brazil is also convinced that the inclusion in the future treaty of such provisions would considerably facilitate the acceptance of any control mechanism by a substantial number of States.

5. It is possible to envisage a number of situations where disputes, controversies or conflicts of interpretation among Parties might arise. Some of them could comprise the following elements in several possible combinations:

(i) Divergent interpretations concerning the nature or ultimate purpose of an installation placed or implanted on the sea-bed and ocean floor;

(ii) Disputes stemming from the manner in which an operation, in any of the stages of the control system, was conducted, especially when involving inspection, access and consequently interference with installations or activities on the sea-bed and ocean floor or with the security areas that could surround these installations;

(iii) Disputes related to control activities undertaken in waters superjacent to the continental shelf of any State Party to the treaty or in its territorial waters when these have a width of more than twelve miles;

(iv) Conflicting contentions on the jurisdiction covering military or other installations on the sea-bed and ocean floor and on the responsibility for the emplacement of military or other installations in this environment;

(v) Disputes arising from the lack of co-operation among States Parties in endeavouring to resolve questions regarding the fulfilment of the provisions of the treaty as a whole and especially the norms of control.

6. This list does not intend to cover all specific situations where a dispute might arise but it still provides, in the view of the Brazilian delegation, an illustration of the extent to which controversies might appear in the implementation of the treaty.

7. When presenting this working paper, the Brazilian delegation remains fully aware of the fact that the treaty under examination would become the first international instrument on arms control and disarmament negotiated in the Committee on Disarmament to include provisions for the settlement of disputes. It is however necessary to point out that never before has the Committee prepared directly or participated in the preparation of a treaty which comprehended foreign means of control in areas that are under the national jurisdiction of States. This is clearly the case of a treaty for the non-armament of the sea-bed and ocean floor since the continental shelf or even territorial waters of States Parties might form part of the area where control operations may take place by national means of other States Parties.

8. The provisions for the settlement of disputes could conform with the usual processes such as mediation and eventual recourse to international instances such as the International Court of Justice. They could also specifically conform with the mechanisms of Chapter VI of the Charter of the United Nations. In such circumstances, the Security Council of the United Nations would be called upon to examine disputes on the basis of substantiated cases put to it by the States Parties involved in the dispute and take a resolution on it. A system could also be envisaged according to which the Secretary-General of the United Nations could be asked, by the interested Party or Parties, to perform the task of setting up the adequate methods and adopting the necessary measures which would expedite the verification of any complaint.

9. The Brazilian delegation hopes that the present preliminary suggestions, which are put forward in a spirit of frank co-operation, will be thoroughly and attentively examined by the Committee.

33.

Mexico: report on the first session of the General Conference of the Agency for the Prohibition of Nuclear Weapons in Latin America

[*CCD/268 of 15 September 1969*]
[*Original text: Spanish*]

The first part of the first session of the General Conference of the Agency for the Prohibition of Nuclear Weapons in Latin America (OPANAL), established under the Treaty for the Prohibition of Nuclear Weapons in Latin America[61] (Treaty of Tlatelolco) was held at Mexico City from 2 to 9 September 1969.

The meeting was attended by the representatives of thirteen of the fourteen States which are already Parties to the aforesaid Treaty (Barbados, the fourteenth, was unable to be present). Also present were twenty-six observers from countries of other continents.

The General Conference, which, under the terms of the Treaty, is the "supreme organ" of the Agency, unanimously approved seventeen resolutions on subjects of a legal, political, technical, administrative and budgetary nature, and elected the five members who will constitute the Council of OPANAL.

Also present at the opening meeting of the General Conference, by special invitation, were U Thant, Secretary-General of the United Nations and Mr. Sigvard Eklund, Director-General of the International Atomic Energy Agency, who both made important speeches.

Being considered to have a particular bearing on the subjects which the Committee on Disarmament has on its programme, the following documents are attached as annexes to this report: the full text of resolution 1 (I) adopted by the Conference entitled "Status of Additional Protocol II to the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco)"; a message addressed to the Conference by the President of Mexico, Mr. Gustavo Díaz Ordaz, and statements by U Thant, Mr. Sigvard Eklund and Mr. Alfonso García Robles, Under-Secretary for Foreign Affairs of Mexico, at the same opening meeting.

ANNEX I

RESOLUTION ADOPTED BY THE GENERAL CONFERENCE OF THE AGENCY FOR THE PROHIBITION OF NUCLEAR WEAPONS IN LATIN AMERICA

RESOLUTION 1 (I)

Status of Additional Protocol II, of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco)

The General Conference,

Having considered the report of the Depositary Government on the status of Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco),[62]

Considering that the Treaty of Tlatelolco is the only international instrument now in force designed to ensure the total

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[61] *Official Records of the General Assembly, Twenty-second Session, Annexes*, agenda item 91, document A/C.1/946.

[62] Document OPANAL/2.

absence of nuclear weapons from an inhabited region of the Earth and is also the only instrument relating to disarmament measures which establishes an effective international system of control under its own permanent supervisory body,

Recalling that the General Assembly of the United Nations declared in its resolution 2286 (XXII) that the Treaty of Tlatelolco "constitutes an event of historic significance in the efforts to prevent the proliferation of nuclear weapons and to promote international peace and security",

Recalling further that the Conference of Non-Nuclear-Weapon States in its Resolution B expressed the conviction that, "for the maximum effectiveness of any treaty establishing a nuclear-weapon-free zone, the co-operation of the nuclear-weapon States is necessary and that such co-operation should take the form of commitments likewise undertaken in a formal international instrument which is legally binding, such as a treaty, convention or protocol",[63]

Taking into account that, for reasons similar to those stated by the Conference of Non-Nuclear-Weapon States, the Preparatory Commission for the Denuclearization of Latin America (COPREDAL) approved Additional Protocol II of the Treaty of Tlatelolco, which was opened for the signature of the nuclear-weapon States on 14 February 1967,

Noting that being Parties to the said Protocol involves for the nuclear-weapon States only the following obligations:

(*a*) To respect "the statute of denuclearization of Latin America in respect of warlike purposes, as defined, delimited and set forth" in the Treaty of Tlatelolco "in all its express aims and provisions";

(*b*) "Not to contribute in any way to the performance of acts involving the violation of the obligations of article 1 of the Treaty in the territories to which the Treaty applies";

(*c*) "Not to use or threaten to use nuclear-weapons against the Contracting Parties of the Treaty",

Convinced that such obligations are essentially nothing more than the application to a specific case of the general obligations undertaken in the United Nations Charter and which all Members of the said Organization have solemnly promised to "fulfil in good faith" in Article 2 of the Charter itself,

Bearing in mind that the General Assembly of the United Nations in two of its resolutions—resolution 2286 (XXII) of 5 December 1967 and resolution 2456 B (XXIII) of 20 December 1968—and the Conference of Non-Nuclear Weapon States in one resolution—resolution B of 27 September 1968—have urged the Powers possessing nuclear weapons to sign and ratify Additional Protocol II of the Treaty of Tlatelolco as soon as possible.

Observing that, despite these appeals, despite the support which, as the nuclear Powers themselves have repeatedly proclaimed, should be given to any nuclear-weapon-free zone which may be established on the initiative of the States situated within the zone, and despite the fact that the Treaty of Tlatelolco is the only treaty which it has so far been possible to conclude for the establishment of such a zone comprising territories densely populated by man, Additional Protocol II, which has already been open for signature for more than two and a half years, has so far been signed by only two of the nuclear-weapon States and has not yet been ratified by any of them,

Convinced that, if this situation is prolonged, it will be necessary for the General Assembly of the United Nations to consider, as it does each year in regard to the Declaration on the Granting of Independence to Colonial Countries and as it did at its twenty-first session in regard to the Declaration of the Inadmissibility of Intervention in the Domestic Affairs of States and the Protection of Their Independence and Sovereignty, the status of the implementation of its resolution 2456 B (XXIII) in which it reiterated with particular emphasis paragraph 4 of its resolution 2286 (XXII) and the relevant clauses of resolution B of the Conference of Non-Nuclear-Weapon States,

1. *Deplores* that not all the nuclear-weapon States have yet signed Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco),

2. *Urges* the nuclear-weapon States fully to comply with the appeals addressed to them by the General Assembly of the United Nations and by the Conference of Non-Nuclear Weapon States to the effect that they sign and ratify the said Protocol as soon as possible,

3. *Invites* the States members of the Agency for the Prohibition of Nuclear Weapons in Latin America, in the event of Additional Protocol II not having been signed and ratified by all the nuclear-weapon States by 30 June 1970, to take joint action for the inclusion of the following subject: "Status of the implementation of resolution 2456 B (XXIII) on the signing and ratification of Additional Protocol II of the Treaty for the Prohibition of Nuclear Weapons in Latin America (Treaty of Tlatelolco)" in the agenda of the twenty-fifth session of the General Assembly of the United Nations,

4. *Requests* the President of the General Conference to communicate the text of this resolution to the Governments of the nuclear-weapon States.

[63] See *Official Records of the General Assembly, Twenty-third Session*, agenda item 96, document A/7277 and Corr.1 and 2, para. 17.

ANNEX II

MESSAGE ADDRESSED BY THE PRESIDENT OF MEXICO, MR. GUSTAVO DÍAZ ORDAZ, TO THE GENERAL CONFERENCE OF THE AGENCY FOR THE PROHIBITION OF NUCLEAR WEAPONS IN LATIN AMERICA ON THE OCCASION OF THE OPENING MEETING OF ITS FIRST SESSION ON 2 SEPTEMBER 1969

I convey my warmest greetings to the distinguished members of the delegations participating in the General Conference of the Agency for the Prohibition of Nuclear Weapons in Latin America, which has honoured my country by establishing its headquarters here.

In the name of the people and Government of Mexico, I extend my most cordial welcome to the Secretary-General of the United Nations and to the Director-General of the International Atomic Energy Agency, Mr. Sigvard Eklund.

The presence among us of U Thant, whose untiring efforts on behalf of peace have earned him a universal debt of gratitude, constitutes in itself the best proof of the recognition by the community of nations of the importance and nobility of the tasks before the Conference, for whose success I am happy to express my most sincere wishes.

It is greatly to be hoped, as was expressed by the presidents of America States at Punta del Este in April 1967, that the body whose life is being initiated will very soon be able to group together all the countries of our region. May the step we are now taking serve to remind our peoples and the world of Latin America's firm will and determination to devote its resources—which are so meagre when compared with the size of its needs—before all else to promoting, in friendship and mutual respect, the progress and well-being of its peoples.

ANNEX III

STATEMENT BY U THANT, SECRETARY-GENERAL OF THE UNITED NATIONS, AT THE OPENING MEETING OF THE FIRST SESSION OF THE GENERAL CONFERENCE OF THE AGENCY FOR THE PROHIBITION OF NUCLEAR WEAPONS IN LATIN AMERICA (OPANAL), ON 2 SEPTEMBER 1969

It is a great pleasure and indeed an honour for me to be at Mexico City for the inauguration of the General Conference of the Agency for the Prohibition of Nuclear Weapons

in Latin America, which is known by its Spanish acronym, OPANAL. The Agency is in a sense an offspring of the United Nations. In November 1963, by resolution 1911 (XVIII), the General Assembly first gave its blessing and encouragement to the idea of creating a nuclear-free zone in Latin America. The establishment of such a zone, it was felt, would not only be of great benefit to the people of Latin America by assuring their security and permitting them to concentrate their energies and resources on peaceful economic and social pursuits, but it would also be of benefit to the people of the world as a whole by eliminating the threat of a nuclear arms race and of nuclear war from an important area of the world, and thus help to promote the cause of disarmament and of international peace and security.

Yesterday I had the opportunity of expressing personally to His Excellency President Díaz Ordaz, as well as to His Excellency the Secretary of Foreign Relations, Mr. Carrillo Flores, that the support which both have given to the initiative for the denuclearization of Latin America will no doubt occupy an outstanding place in the record of the international action of the present Mexican administration.

The creation of the zone is in full accord with the purposes and principles of the United Nations Charter. In fact, after the Treaty for the Prohibition of Nuclear Weapons in Latin America was adopted and signed by the members of the Preparatory Commission, the General Assembly in December 1967, by resolution 2286 (XXII), welcomed the Treaty "with special satisfaction" as "an event of historic significance in the efforts to prevent the proliferation of nuclear weapons and to promote international peace and security . . . which at the same time establishes the right of Latin American countries to use nuclear energy for demonstrated peaceful purposes in order to accelerate the economic and social development of their peoples".

It is a matter of great satisfaction to me that, pursuant to the General Assembly resolution of 1963, I was able to provide such assistance as the Preparatory Commission requested and that a technical consultant from the Secretariat participated in its important work. I have followed the efforts of the States of Latin America with very close attention and have been greatly encouraged and impressed by the progress made at each successive stage.

It is no secret that, as is the case with any great endeavour or pioneering project, there were some who had serious doubts as to whether the States of Latin America could succeed in their work or achieve any concrete results. Nevertheless, they persisted in their efforts and made steady progress year by year towards the attainment of their objective. Today we see the culmination and fruition of five years of difficult and painstaking work. I should like to extend my sincere congratulations to all the Governments and statesmen who have laboured so long and so well to arrive at the goal you have reached today, and in particular to the Government of Mexico, which has been host to all your meetings, and to Mr. Alfonso García Robles, who has presided over and given leadership and guidance to your meetings from the very beginning until the present time.

It is a matter of profound regret to me that successes in the field of disarmament have been few and far between. It is, of course, easy to appreciate the great obstacles that make progress in the field of disarmament and arms control so slow, so complicated and so frustrating, but these very difficulties make your achievement all the more remarkable and significant. In a world that all too often seems dark and foreboding, the Treaty of Tlatelolco will shine as a beacon light. It is a practical demonstration to all mankind of what can be achieved if sufficient dedication and the requisite political will exist.

The Treaty of Tlatelolco is unique in several respects. It is true that the Antarctic Treaty and the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, have prevented an arms race from taking place in those regions and that concerted international efforts are now being undertaken to keep the arms race from spreading to the sea-bed and the ocean floor. All these regions have an element in common in that they are not inhabited. The Treaty of Tlatelolco is unique in that it applies to an important inhabited area of the earth. It is also unique in that the Agency which is being established at this session will have the advantage of a permanent and effective system of control with a number of novel features. In addition to applying the safeguards system of the International Atomic Energy Agency, the régime under the Treaty also makes provision for special reports and inquiries and, in cases of suspicion, for special inspections. There is embodied in the Treaty a number of aspects of the system known as "verification by challenge", which is one of the more hopeful new concepts introduced into the complicated question of verification and control.

The Treaty of Tlatelolco preceded the Treaty for the Non-Proliferation of Nuclear Weapons by more than a year and exceeds it in the scope of its prohibitions and its control features. Both Treaties have a similar goal, but the former Treaty goes beyond the latter in also prohibiting the use or threat of use of nuclear weapons in the area of the nuclear-free zone. The Treaty of Tlatelolco has already created some precedents in the field of control. The provisions of the Treaty concerning the application of the International Atomic Energy Agency safeguards system were officially recognized as having provided the basis for a somewhat similar provision in the non-proliferation Treaty. The Treaty of Tlatelolco also establishes a form of "complaints procedure" which has been used as a guide in other draft instruments and which may become an important model for adaptation to other treaties in the field or arms control and disarmament. It seems quite evident that this Treaty will provide an example and precedent for the establishment of nuclear-free zones in other areas of the world. It is my earnest hope that it will also be a stimulant for the creation of additional nuclear-free zones and for progress towards other disarmament measures of a world-wide nature.

It is a matter of gratification that the number of ratifications of the Treaty is steadily increasing and that new members continue to swell the ranks of participants in the Agency. I am also happy to note that, pursuant to the invitations addressed by the General Assembly to the nuclear-weapon Powers to sign and ratify Protocol II of the Treaty, two of them have already affixed their signatures and have thus demonstrated their intention of respecting the denuclearized status of the zone. It is my hope that additional signatures and ratifications will be forthcoming soon to ensure that not only the States Parties to the Treaty refrain from manufacturing or acquiring nuclear weapons, but also that the nuclear-weapon Powers will refrain from stationing, deploying, using or threatening to use weapons against any of the countries in the zone.

Under the safeguards and guarantees provided by the Treaty of Tlatelolco and by the operations of the Agency, nuclear energy will be used for exclusively peaceful purposes in the countries within the zone and its benefits will be devoted solely towards the economic development and social progress of your people. Thus, the States members of OPANAL will take the lead in demonstrating to the world that nuclear energy will be, as it should be, a great boon to mankind and not the instrument of its doom.

The States of Latin America, which also include the States of the Caribbean Sea, have laboured hard and built well in erecting the edifice of the Agency for the Prohibition of Nuclear Weapons in Latin America. Perhaps history will record that they, too, "builded better than they knew"; and now OPANAL has come to life. I am confident that it has the good wishes of the Members of the United Nations. As the Agency proceeds with its work for security, for peace and for progress, I feel sure it will continue to have the encouragement and support of the United Nations. Under

the Agency's charter—the Treaty of Tlatelolco—you have provided for close links with the United Nations. It is my hope that in the years to come these links will be forged ever stronger for the mutual benefit of both organizations in their common cause.

ANNEX IV

STATEMENT BY DR. SIGVARD EKLUND, DIRECTOR GENERAL OF THE INTERNATIONAL ATOMIC ENERGY AGENCY, AT THE OPENING MEETING OF THE FIRST SESSION OF THE GENERAL CONFERENCE OF THE AGENCY FOR THE PROHIBITION OF NUCLEAR WEAPONS IN LATIN AMERICA ON 2 SEPTEMBER 1969

I am honoured to be invited to be present on this important occasion, when for the first time an international body has been created specifically to ensure compliance with a treaty under which parties to the treaty solemnly pledge to use nuclear energy exclusively for peaceful purposes, and to keep an entire sub-continent free from nuclear weapons. It is also the first meeting of a regional grouping that has accepted the application of safeguards by another organization on their nuclear activities.

Although the concept of establishing a nuclear-weapon-free zone is not new, the creation of the Agency for the Prohibition of Nuclear Weapons in Latin America is the first tangible realization of such an ideal. With it the aspirations of the people of Latin America for security and the prospect of wider and more productive applications of atomic energy for peaceful purposes has come nearer to fulfilment.

This is an important occasion for the International Atomic Energy Agency, since under the Treaty for the Prohibition of Nuclear Weapons in Latin America it is given significant recognition. The Treaty envisages that the International Atomic Energy Agency, which I have the honour to direct, will co-operate in various ways with the Agency you have established. It is therefore a particular pleasure for me to be here today. I congratulate the Governments concerned upon their courage and their imagination in this enterprise in establishing the Agency for the Prohibition of Nuclear Weapons in Latin America and recognize that credit is due to the five Heads of State in Latin America whose initiative in 1963 was the first step on the path that has culminated in today's Conference. Particular recognition is due to the Government of Mexico for the efforts it has made towards the conclusion of the Treaty, which is given due recognition by the decision to establish the Agency in this magnificent city, and in this connexion a special tribute should be paid to Dr. García Robles, who might justly be described as the architect of the Tlatelolco Treaty. His vision, his tenacity and his energy devoted to the cause of peace are embodied in the Treaty, which will serve as a monument to his services to the countries of Latin America. I have no doubt that the International Atomic Energy Agency, within its statutory powers, will do its best to fulfil the tasks which may be allocated to it under the Treaty and to assist your Agency, its various organs and its member States, singly and in concert, to meet the high goals that they have set for themselves.

Under the Treaty for the Prohibition of Nuclear Weapons in Latin America, the International Atomic Energy Agency is mentioned in connexion with two broad categories of activities: firstly, the functions arising out of safeguards agreements concluded by it, with a Contracting Party, or Parties; and secondly, other functions such as those stemming from the establishment of the Agency for the Prohibition of Nuclear Weapons in Latin America, in particular those arising within the framework of an agreement which may be concluded between our two Agencies. The Treaty also makes reference to possible complementary safeguards functions for the International Atomic Energy Agency, such as the receipt of particular reports or the observation of peaceful nuclear explosions.

About one year after the Tlatelolco Treaty was signed, a draft Treaty on the Non-Proliferation of Nuclear Weapons was tabled within the Eighteen-Nations Disarmament Committee at Geneva. Apart from the close similarity in a number of provisions of the treaties, Article VII of the non-proliferation Treaty recognizes specifically the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their territories. The Tlatelolco Treaty might thus be regarded as the first multilateral treaty in the field of nuclear disarmament which provides for the application of an institutionalized and international control system and as such represents a decisive step forward in the recognition and acceptance of international safeguards. Both treaties call upon the International Atomic Energy Agency to perform one of its main statutory functions, that is, to apply safeguards at the request of the parties to a multilateral arrangement. It is desirable that we should co-ordinate our functions under both treaties by applying a single control system and using a single yardstick. It is equally desirable that the safeguards to be applied by the International Atomic Energy Agency under both treaties should be similar and as identical as possible in the things they cover, the extent and the manner of coverage and in other relevant aspects.

The International Atomic Energy Agency must also take account of existing safeguards obligations in Latin America. It is at present a party to nine agreements providing for the application of safeguards in six Latin American countries. In four of these it applies safeguards provided for in bilateral agreements, namely with Argentina, Brazil, Colombia and Venezuela. Safeguards are also applied under four agreements for the provision of various items of equipment and material; of which two have been concluded with Argentina and one each with Mexico and Uruguay. A further agreement of this type is now under discussion with Chile. Argentina has recently announced that it will submit its new power reactor to Agency safeguards, and Mexico has already concluded with the International Atomic Energy Agency an agreement under article 13 of the Treaty for the Prohibition of Nuclear Weapons in Latin America.

Each of the fourteen Latin American States for whom the Treaty for the Prohibition of Nuclear Weapons in Latin America has gone into effect has also signed the Treaty on the Non-Proliferation of Nuclear Weapons and of these two have also ratified it. Six further Latin American countries, which have signed, but not yet ratified, the Treaty of Tlatelolco have also signed the non-proliferation Treaty. It is therefore likely that many of the signatories of the Latin American Treaty will also eventually become parties to the non-proliferation Treaty.

As a basis for the safeguards functions which the Treaty for the Prohibition of Nuclear Weapons in Latin America foresees for the International Atomic Energy Agency, each State concerned will first of all need to conclude with the Agency the safeguards agreement mentioned in article 13 of the Treaty. This should enable the terms of reference for the Agency's safeguards operation to be established, and serve as the instrument by which the States accept the obligations, the compliance with which the Agency is required to supervise. The conclusion of such agreements, whilst creating for the International Atomic Energy Agency the obligation to carry out its tasks, will also give the States concerned the appropriate rights and obligations towards the Agency. As I have already said, it would be highly desirable for the agreements concluded between the Contracting Parties and the International Atomic Energy Agency to be basically similar and leave room for the observance of further obligations which these States and the Agency may have incurred or will incur in the future.

So far I have spoken only of the functions of the International Atomic Energy Agency for the prevention of improper uses of nuclear energy. These functions are of course only the counterpart to the promotion of nuclear energy.

I hope that the Treaty for the Prohibition of Nuclear Weapons in Latin America will not only increase security in the area but that in so doing will impose a positive beneficial impact on the development of nuclear energy in Latin America. Although the control functions of the Agency are so much in the spotlight of public interest, we never forget that it is our primary objective to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world. In Latin America the International Atomic Energy Agency has already found a fruitful field for these promotional aspects of its work.

The assistance given by the International Atomic Energy Agency to its member States in fostering the application of atomic energy for peaceful purposes embrace a wide range of activities. Within the limits of its available funds it focuses on problems of high priority in which minimum expenditure can achieve the maximum results. It sends out experts to advise Governments on matters concerning nuclear power and advises them on the basic legislation needed. It organizes seminars and sends advisory missions to assist in planning power programmes and dealing with safety problems. Member States are assisted in making the best use of existing research reactors. On the fuel side, technical advice is given to help member States in locating resources of nuclear materials and in developing cheaper methods for recovering uranium. The Agency awards fellowships to help train the scientists and technical personnel necessary in any country which wishes to embark on the use of nuclear energy.

Among other subjects which the International Atomic Energy Agency is active in promoting are the various applications of radioisotopes and radiation in agriculture, medicine and industry. A further interesting example of the work done is the studies on the use of nuclear power for the dual purpose of desalting and electricity production in which the Agency has been a partner with Mexico and the United States in preliminary studies of the possibilities for nuclear desalination in the Pacific Coast.

Much of the programme which I have described has benefited directly and indirectly the countries of Latin America. In the ten years between 1958 and 1968, total expenditure on technical assistance in Latin America, for experts, equipment and fellowships, was about $5 million, which was 21% of the total technical assistance provided by the Agency. About 300 experts have been provided in fields ranging from general atomic energy development to the application of radioisotopes. During the same period 440 fellowships were awarded to Latin American countries and fourteen regional training courses were held in seven different States. A number of special missions were organized to advise governments on a variety of subjects and nuclear power studies were made in Argentina and Brazil. Research contracts of a value exceeding $600,000 were awarded to thirteen countries in the region. I mention these figures to illustrate the efforts of the Agency to advance the development of the peaceful uses of nuclear energy in the countries signatories of the Tlatelolco Treaty and to indicate those other Agencies' activities which are the counterpart of safeguards.

The possibilities for the use of nuclear explosives for peaceful purposes has excited public interest particularly in relation to the Treaty on the Non-Proliferation of Nuclear Weapons and this is a field in which Latin American countries have shown great awareness. In 1968, the General Conference of the International Atomic Energy Agency adopted a resolution on this subject[64] following which the Board of Governors made a study of the role the Agency could play in providing the necessary services. In the report resulting from these studies the Board stressed that the technology of nuclear explosives for peaceful purposes is still in an early stage of development, that much research and experimenting is needed before nuclear explosives can usefully service in projects for which conventional explosives have been used hitherto, and that the Agency's role in bringing the benefits of this technology to its member States is likely to evolve gradually in the years ahead. Initially, the chief task will be to ensure the fullest possible exchange and dissemination of information on nuclear explosives techniques and applications, the convening of panels and the provision to member States of advice on the status of the technology, the feasibility of possible applications of nuclear explosives, etc. At some later stage, the International Atomic Energy Agency would, if invited, be prepared to participate in actual projects.

The establishment of the Agency for the Prohibition of Nuclear Weapons in Latin America has been a long and difficult task. The tasks it now faces are no less formidable. The new Agency has to ensure that the aims of the Treaty are met, so that Latin America indeed is and will remain an area free from nuclear weapons. I am convinced that if it succeeds in this task it will establish an atmosphere of security among its member States—with the help of the nuclear-weapon States acting in accordance with Additional Protocol II. It will thereby do much to further international exchange and national and regional development in the peaceful uses of nuclear energy, in which objective the International Atomic Energy Agency is prepared to assist the Latin American States. I am looking forward to fruitful co-operation between the Agency at Mexico and the Agency at Vienna, and I wish to assure you in concluding of my willingness to discuss substantive steps that will be needed to make this co-operation a reality.

[64] Resolution GC(XII)/RES/245.

ANNEX V

STATEMENT MADE BY THE PRESIDENT OF THE GENERAL CONFERENCE OF THE AGENCY FOR THE PROHIBITION OF NUCLEAR WEAPONS IN LATIN AMERICA, MR. ALFONSO GARCÍA ROBLES, UNDER-SECRETARY FOR FOREIGN AFFAIRS, AT THE OPENING MEETING OF THE FIRST SESSION OF THE CONFERENCE, ON 2 SEPTEMBER 1969

Tuesday, 2 September 1969, will be a date never to be forgotten, not only in the annals of Latin America, but also in the history of humanity's efforts to eliminate nuclear weapons and contribute to the strengthening of peace.

To realize that there is no exaggeration in the preceding statement, it is sufficient to reflect for a moment that the nuclear-weapon-free zone which is the objective of the Treaty of Tlatelolco will one day cover the whole area of the Latin American sub-continent, and that it already contains more than 5.5 million square kilometres, consisting not of expanses of eternal snows or of uninhabited celestial bodies, but of fertile lands inhabited by approximately 100 million human beings.

It should not be forgotten that the Treaty for the Prohibition of Nuclear Weapons in Latin America is the only international instrument now in force designed to ensure, through an effective international control system under its own permanent supervisory body, the total absence of nuclear weapons in a densely populated region of the earth. I take the word "absence" from the definition which, in November 1964, was incorporated in the first resolution adopted by the Preliminary Meeting on the Denuclearization of Latin America. "Absence" is a conception of pellucid clarity, which does not lend itself to false or subtle interpretations, and can mean nothing else but the non-existence in perpetuity of nuclear weapons in the territories of the Contracting Parties, whatever State may have such weapons under its dominion or control.

It can therefore be asserted with every justification that the establishment of nuclear-weapon-free zones constitutes an effective method of nuclear disarmament, and that if it should prove feasible to bring into force a universal treaty on the lines of the Treaty of Tlatelolco, the problem of nuclear disarmament will have been automatically solved.

since that would entail the abolition of the vast nuclear arsenals which at present exist in the world.

For the States of Latin America which are already Parties to the Treaty, as for those which will accede to it in the future, the regime of total military denuclearization established under the Treaty entails a two-fold benefit: that of removing from their territories the danger of being converted into a possible target for nuclear attack, and that of avoiding the wastage of their resources, indispensable for the economic and social development of their peoples, on the production of nuclear weapons.

To give an idea of the potential savings which this implies, we need only recall that world expenditure for military purposes—largely earmarked for nuclear weapons and the vehicles for their propulsion—amounted in 1968 to about $185,000 million. That expenditure engulfed more than 7 per cent of the gross world product. It is equivalent to the total annual product of the 1,000 million inhabitants of Latin America, Southern Asia and the Near East. It is 40 per cent greater than world expenditure on education and more than three times what the world spends on public health.

To illustrate the perils which the possible utilization of nuclear weapons would involve and which even their mere existence constitutes for mankind, it is enough to refer to the report submitted two years ago by the expert committee appointed by the Secretary-General of the United Nations. According to that report:

> "There is one inescapable and basic fact. It is that the nuclear armouries which are in being already contain large megaton weapons every one of which has a destructive power greater than that of all the conventional explosive that has ever been used in warfare since the day gunpowder was discovered. Were such weapons ever to be used in numbers, hundreds of millions of people might be killed, and civilization as we know it, as well as organized community life, would inevitably come to an end in the countries involved in the conflict. Many of those who survived the immediate destruction, as well as others in countries outside the area of conflict, would be exposed to widely-spreading radio-active contamination, and would suffer from long-term effects of irradiation and transmit, to their offspring, a genetic burden which would become manifest in the disabilities of later generations."[65]

If we reflect a little on the meaning of such authoritative statements, it is easy to understand why, in the Preamble to the Treaty of Tlatelolco, the signatory States, "in the name of their peoples, and faithfully interpreting their desires and aspirations", express their conviction:

> "That nuclear weapons, whose terrible effects are suffered, indiscriminately and inexorably, by military forces and civilian population alike, constitute, through the persistence of the radio-activity they release, an attack on the integrity of the human species and ultimately may even render the whole earth uninhabitable".

The benefits of the Treaty, however, are not restricted to Latin America. As was well said by U Thant in his message to the Preparatory Commission on 12 February 1967, the success achieved in Latin America "will stand not only as a landmark but will be an encouraging example, and I trust also an important stimulant, for progress in other disarmament measures of world-wide as well as of regional significance". On the same occasion he added that the importance of the Commission's work "goes beyond that of the field of nuclear disarmament; it contributes in a concrete way to the promotion of international peace and security".

It should also be remembered that, apart from the absolute prohibition of nuclear weapons, the fundamental aims of the Treaty of Tlatelolco include that of encouraging the use of nuclear energy for peaceful purposes in the region, and of ensuring "that the Latin American countries should use their right to the greatest and most equitable possible access to this new source of energy in order to expedite the economic and social development of their peoples".

The inclusion of this statement in the Preamble to the Treaty was doubtless intended to stress the need to ensure that international co-operation to promote the peaceful uses of atomic energy in the area covered by the Treaty should be organized in such a way as to help to reduce the economic and social gap between what are figuratively called the "peoples of the North" and the "peoples of the South".

The reasons I have just outlined were certainly those which induced the United Nations General Assembly, on 5 December 1967, to approve resolution 2286 (XXII) without a single dissenting vote. That resolution welcomed the Treaty for the Prohibition of Nuclear Weapons in Latin America "with special satisfaction" and proclaimed that it "constitutes an event of historic significance in the efforts to prevent the proliferation of nuclear weapons and to promote international peace and security and . . . at the same time establishes the right of Latin American countries to use nuclear energy for demonstrated peaceful purposes in order to accelerate the economic and social development of their peoples".

The Agency for the Prohibition of Nuclear Weapons in Latin America, which is known by the initials OPANAL and whose principal and fully representative organ, the General Conference, is today beginning its work, represents the culmination of almost five years of joint and persevering effort by the Latin American States since the Preliminary Meeting of November 1964. The Agency's goal will be to ensure the practical implementation of the provisions of the Treaty and the attainment of its two fundamental aims, to which I referred earlier: to guarantee the total absence of nuclear weapons and, in an equitable manner, to promote the use of the atom for peaceful purposes.

The agenda of the first session of the Conference faithfully reflects this dual concern. Apart from the eight predominantly legal and administrative texts proposed under item 7, which, if approved, will constitute the basic rules governing the operation and budgetary arrangements of OPANAL, the agenda contains three substantive items on which I should like to make a few general remarks.

Item 9, which refers to the status of Additional Protocol II to the Treaty, is of particular importance for ensuring its maximum effectiveness. The report submitted on this subject by the Depositary Government focuses attention on the need for nuclear-weapon States to which the Protocol is open for signature to take speedy measures to give effect to the invitations repeatedly addressed to them by the United Nations General Assembly to sign and ratify the Protocol "as soon as possible". In this connexion, emphasis should be placed on the very pertinent statement made by the Conference of Non-Nuclear-Weapon States in September 1968 when it expressed its conviction that "for the maximum effectiveness of any treaty establishing a nuclear-weapon-free zone, the co-operation of the nuclear-weapon States is necessary and that such co-operation should take the form of commitments likewise undertaken in a formal international instrument which is legally binding, such as a treaty, convention or protocol".[66]

The report of the Mexican Government on the Safeguards Agreement which it concluded with the International Atomic Energy Agency on 6 September 1968—agenda item 10—is evidence of a concern which I am sure is shared by all member States of OPANAL: to give practical effect to one of the most important aspects of the system of control estab-

[65] *Effects of the Possible Use of Nuclear Weapons and the Security and Economic Implications for States of the Acquisition and Further Development of these Weapons* (United Nations publication, Sales No.: E.68.IX.1), para. 1.

[66] See *Official Records of the General Assembly, Twenty-third Session*, agenda item 96, document A/7277 and Corr.1 and 2, para. 17, resolution B.

lished under the Treaty of Tlatelolco by the negotiation of agreements for the application of the International Atomic Energy Agency safeguards to the nuclear activities of the Contracting Parties pursuant to the provisions of article 13 of the Treaty.

The third of the points to which I referred a moment ago is agenda item 11, which deals with the use of nuclear energy for peaceful purposes. In considering this subject, the Conference will have before it working paper OPANAL/3, which sets forth and comments on a set of measures which could appropriately be adopted in pursuance of the sixteenth paragraph of the Preamble to the Treaty and of article 17 of the Treaty itself. This is clearly a matter which deserves close study by the competent organs of member States before any final conclusions are adopted on the subject, partly because of its exceptional importance and partly because, to some extent, it deals with what might be called a "new" field, since it received no detailed attention during the proceedings of the Preparatory Commission. It would therefore seem appropriate to adopt the procedure suggested in the working paper, which, by its avoidance of haste, could be the most suitable means of ensuring constructive and fruitful results in due course.

In concluding my speech, I think I can usually revert to the point which I raised at the beginning.

I am convinced that all the member States participating in this first session of the General Conference will unreservedly share the wish expressed by the President of Mexico in the message he has just addressed to the Conference, that OPANAL should very soon embrace all the countries in our region.

When this happens, and when, in addition, the Treaty of Tlatelolco extends to all the other territories forming part of this region, the statute enforcing absolute prohibition of nuclear weapons will apply throughout an area of more than 20 million square kilometres with a population, at the present density level, of some 260 million human beings.

This is the ideal we must pursue, and its attainment must be one of OPANAL's chief tasks.

Fortunately, we are able, in working towards this end, to draw encouragement and strength from a concrete fact: the impressive reality that the territories of the fourteen member States in which the system of total absence of nuclear weapons set up by the Treaty of Tlatelolco is fully operative now covers more than 5.5 million square kilometres with a population of some 100 million inhabitants.

So great an achievement is clearly a credit to all the peoples and Governments of Latin America which, in collaboration with the United Nations and its Secretary-General, have striven with exemplary perseverance to bring it about, to the gratitude of posterity.

34.

Union of Soviet Socialist Republics and United States of America: draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the subsoil thereof

[*CCD/269 of 7 October 1969*]
[*Original text: English and Russian*]

The States Parties to this Treaty,

Recognizing the common interest of mankind in the progress of the exploration and use of the sea-bed and the ocean floor for peaceful purposes,

Considering that the prevention of a nuclear arms race on the sea-bed and the ocean floor serves the interests of maintaining world peace, reduces international tensions, and strengthens friendly relations among States,

Convinced that this Treaty constitutes a step towards the exclusion of the sea-bed, the ocean floor and the subsoil thereof from the arms race, and determined to continue negotiations concerning further measures leading to this end,

Convinced that this Treaty constitutes a step towards a treaty on general and complete disarmament under strict and effective international control, and determined to continue negotiations to this end,

Convinced that this Treaty will further the purposes and principles of the Charter of the United Nations, in a manner consistent with the principles of international law and without infringing the freedoms of the high seas,

Have agreed as follows:

Article I

1. The States Parties to this Treaty undertake not to emplant or emplace on the sea-bed and the ocean floor and in the subsoil thereof beyond the maximum contiguous zone provided for in the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone[67] 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.

2. The States Parties to this Treaty undertake not to assist, encourage or induce any State to commit actions prohibited by this Treaty and not to participate in any other way in such actions.

Article II

1. For the purpose of this Treaty the outer limit of the contiguous zone referred to in article I shall be measured in accordance with the provisions of section II of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone and in accordance with international law.

2. Nothing in this Treaty shall be interpreted as supporting or prejudicing the position of any State Party with respect to rights or claims which such State Party may assert, or with respect to recognition or non-recognition of rights or claims asserted by any other State, related to waters off its coasts, or to the sea-bed and the ocean floor.

Article III

1. In order to promote the objectives and ensure the observance of the provisions of this Treaty, the States Parties to the Treaty shall have the right to verify the activities of other States Parties to the Treaty on the sea-bed and the ocean floor and in the subsoil thereof beyond the maximum contiguous zone, referred to in article II, if these activities raise doubts concerning the fulfilment of the obligations assumed under this Treaty, without interfering with such activities or otherwise infringing rights recognized under international law, including the freedoms of the high seas.

2. The right of verification recognized by the States Parties in paragraph 1 of this article may be exercised by any State Party using its own means or with the assistance of any other State Party.

3. The States Parties to the Treaty undertake to consult and to co-operate with a view to removing doubts concerning the fulfilment of the obligations assumed under this Treaty.

Article IV

Any State Party to the Treaty may propose amendments to this Treaty. Amendments must be approved by a majority of the votes of all the States Parties to the Treaty, including those of all the States Parties to this Treaty possessing nuclear weapons, and shall enter into force for each State Party to

[67] United Nations, *Treaty Series*, vol. 516 (1964), No. 7477.

the Treaty accepting such amendments upon their acceptance by a majority of the States Parties to the Treaty, including the States which possess nuclear weapons and are Parties to this Treaty. Thereafter, the amendments shall enter into force for any other Party to the Treaty after it has accepted such amendments.

Article V

Each Party to this Treaty shall in exercising its national sovereignty have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it considers to have jeopardized its supreme interests.

Article VI

1. This Treaty shall be open for signature to all States. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this Article may accede to it at any time.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and of accession shall be deposited with the Governments of . . . , which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force after the deposit of instruments of ratification by twenty-two Governments, including the Governments designated as Depositary Governments of this Treaty.

4. For States whose instruments of ratification or accession are deposited after the entry into force of this Treaty it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall forthwith notify the Governments of all States signatory and acceding to this Treaty of the date of each signature, of the date of deposit of each instrument of ratification or of accession, of the date of the entry into force of this Treaty, and of the receipt of other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to article 102 of the Charter of the United Nations.

Article VII

This Treaty, the English, Russian, French, Spanish and Chinese texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the States signatory and acceding thereto.

In witness whereof the undersigned, being duly authorized thereto, have signed this Treaty.

DONE in . . . at . . . this . . . day of . . .

35.

Canada: working paper on article III of the draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the subsoil thereof submitted by the Union of Soviet Socialist Republics and the United States of America (CCD/269)

[*CCD/270 of 8 October 1969*]
[*Original text: English*]

PROCEDURES WHICH SHOULD GOVERN THE "RIGHT TO VERIFY"

1. In order to promote the objectives and ensure compliance with the Treaty, each of the Parties to this Treaty recognizes that other Parties may, in pursuance of their existing rights, observe its activities on the sea-bed elsewhere than within the areas referred to in article II provided that observance does not interfere with its activities nor otherwise infringe on rights recognized under international law including freedom of the high seas.

2. If a Party is not satisfied that a particular activity of another Party is compatible with the provisions of this Treaty, the Parties concerned shall consult and co-operate in an endeavour to resolve the issue.

3. If the procedures outlined in paragraph 2 do not resolve the issue, States Parties to this Treaty wishing to carry out further verification procedures shall give notice to the other State or States involved of their intention to request inspection. Parties recognize that such verification should not interfere with the activities in question.

4. Normally, if inspection is requested under these verification procedures, States would undertake to co-operate in facilitating inspection and granting such access as may be required. In the event of failure to co-operate, Parties may have recourse to the Security Council which may request that such co-operation be provided under the procedures of this article.

5. (*a*) In order to facilitate the carrying out of such verification on a non-discriminatory basis by all States Parties to this Treaty, each State Party to this Treaty shall have the right to apply to another State Party or to the Secretary-General of the United Nations for assistance by other States Parties to the Treaty in the carrying out of verification of the fulfilment of obligations assumed under this Treaty.

(*b*) On receipt of such an application for assistance the Secretary-General of the United Nations shall make arrangements for appropriate verification measures to be carried out by a technically competent State or States Party or Parties to the Treaty. The applying State or States shall have the right to nominate an official to accompany the technicians of the investigating State or States.

(*c*) The cost of the investigation shall be borne by the State or States making the application for assistance, if verification procedures do not provide evidence of a violation of the Treaty. In the event that verification procedures provide evidence that the Treaty has been violated, the cost of the investigation will be paid for through an agreed procedure administered by the Secretary-General of the United Nations.

6. (*a*) Except as provided for in sub-paragraph (*c*) of this paragraph, verification procedures shall not be carried out on the continental shelf of any State Party or in its superjacent waters without due regard to the exclusive rights of coastal States under the 1958 Geneva Convention on the Continental Shelf[68] and rights inherent in existing international law;

(*b*) Prior to initiating verification procedures on the continental shelf of any State Party or in its superjacent waters, the State Party proposing to initiate such procedures undertakes to notify the coastal State which shall manifest within a reasonable period of time whether it wishes to be associated with the verification;

(c) The provisions of this paragraph do not apply to the process of simple observation in the normal course of navigation or over-flight and shall not be so implemented as to interfere with the freedom of the high seas.

7. Each State Party to the Treaty undertakes to extend its full co-operation in the implementation of the article.

8. At the review conference provided for in article . . . consideration shall be given to whether any additional rights or procedures of verification should be established by amendment to this Treaty.

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[68] *Ibid*, vol. 499 (1964), No. 7302.

36.

Sweden: suggestion for an article to be added to the draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the sea-bed and the ocean floor and in the subsoil thereof, submitted by the Union of Soviet Socialist Republics and the United States of America (CCD/269)

[CCD/271 of 16 October 1969]
[Original text: English]

Each of the Parties to the Treaty undertakes to continue negotiations in good faith on further measures relating to a more comprehensive prohibition of the use for military purposes of the sea-bed and the ocean floor and the subsoil thereof.

37.

Mexico: statements made by the representative of Mexico at the 416th, 424th and 431st meetings of the Conference on 3 and 31 July and 27 August 1969, concerning the enlargement of the Eighteen-Nation Committee on Disarmament and the change of its name

[CCD/272 of 30 October 1969]
[Original text: English and Spanish]

STATEMENT MADE BY THE REPRESENTATIVE OF MEXICO AT THE 416TH SESSION

On the express instructions of my Government, I should like first of all to extend a very warm welcome to the delegations of Japan and Mongolia, which are present for the first time at a meeting of the Eighteen-Nation Committee on Disarmament. We have always believed—and we have said so from the outset—that States like those which these delegations represent could make a valuable contribution to the accomplishment of the tasks which the United Nations General Assembly has entrusted to us since 1961 and which it insistently repeats to us each year in its resolutions.

We consider it essential, however, to place on record the position of principle which the Government of Mexico has upheld, and continues to uphold, in regard to the enlargement of the Committee. This is all the more necessary because up to now there has been nothing in the documents of the Committee to explain the presence among us of the aforesaid delegations. Consequently my delegation will now proceed to read out the full text of the statement which the Co-Chairmen circulated to the other members of the Committee on 23 May 1969:

"The Co-Chairmen of the Eighteen-Nation Committee on Disarmament have been in consultation for some time about the composition of this Committee. Our aim is to promote further the use of this Committee as an instrument to pursue the relaxation of international tensions and to negotiate disarmament measures, ending ultimately in an agreement on general and complete disarmament, in accordance with the report of the United States and the Soviet Union to the sixteenth session of the General Assembly on the results of bilateral talks—joint statement of agreed principles for disarmament negotiations of 21 September 1961.[69]

"The choice of additional candidate countries has been most difficult for both Co-Chairmen. Many countries desire and deserve to be included in this Committee, but it has been found impossible to reach agreement on Co-Chairmen's recommendation before the close of this session which would preserve the balance of the Committee when it was established in 1961.

"The Co-Chairmen, at this stage, have agreed on two countries, Japan and the Mongolian People's Republic, which they could jointly recommend as additional members of the Committee.

"The Co-Chairmen also agree that the enlargement of the Committee cannot be confined to these two countries. Various other regions of the world should be represented, to give the enlargement geographic and political balance.

"The Co-Chairmen will continue their efforts to reach agreement urgently on these other countries during the recess.

"The Co-Chairmen would like the views of the Committee on whether it would be appropriate to invite Japan and the Mongolian People's Republic to participate in the summer session, scheduled to start 3 July 1969."

We should also like to have included in the record of our meeting today the full text of the memorandum of the Secretariat of Foreign Affairs of Mexico, dated 2 June 1969, which was transmitted by the delegation of my country to the Co-Chairmen on 15 June 1969, in response to the request made by the Co-Chairmen themselves in the last paragraph of the statement which I have just read out. That memorandum was worded as follows:

"The Secretariat of Foreign Affairs of Mexico has given careful study to the joint statement of the Co-Chairmen of the Eighteen-Nation Committee on Disarmament which was put before the Committee at its informal meeting on 23 May last and, in response to the request made by the authors of that statement, has pleasure in setting forth below the opinion of the Government of Mexico on the subject:

"1. The Government of Mexico has no objection to the composition of the Committee being enlarged to include Japan and Mongolia, since it believes that both States, and more particularly the former, which is the only State whose own people have suffered the terrible effects of nuclear weapons, will be able to make a valuable contribution to the Committee's work.

"2. The Government of Mexico considers, however, that the inclusion of these States in the Committee should not take effect until:

"(*a*) The Co-Chairmen have reached agreement, in consultation with the representatives of the eight non-aligned States members of the Committee, to suggest the simultaneous addition of two other States belonging to this category, in order to preserve the balance which at present exists in the Committee and which has proved very advantageous for its work;

"(*b*) The United Nations General Assembly has been informed and has had an opportunity to endorse the agreement reached by the Co-Chairmen concerning the enlargement in question, as it did in 1961 by means of resolution 1722 (XVI), in which the members which at present compose the Committee are specifically mentioned. This procedure appears to be essential in the light also of the provisions of resolution 1660 (XVI), which was also adopted in 1961 and which constitutes the immediate antecedent to the establishment of this Committee. In that resolution, as will be recalled, the General Assembly both urged the Governments of the United States and the Soviet Union to reach agreement 'on the composition of a negotiating body which both they and the rest of the world can regard as satisfactory', and requested the two Governments to report 'to the General Assembly, before the conclusion of its sixteenth session, on the results of such negotiations'."

The Government of Mexico agrees that the function of the two Co-Chairmen is absolutely essential for the smooth running of the work of the Eighteen-Nation Committee on Disarmament; but at the same time it takes the view that, as far as the admission of new members to the Committee is concerned,

[69] See *Official Records of the General Assembly, Sixteenth Session, Annexes*, agenda item 19, document A/4879.

their function should be confined to making recommendations to the General Assembly. In its resolution 1660 (XVI) the General Assembly expressed "the hope that such negotiations"—that is, those to take place between the United States and the Soviet Union at the time on the composition of the Committee—"will be started without delay and will lead to an agreed recommendation to the General Assembly". I emphasize the word "recommendation". The recommendation, by its very nature, has to be made before admission by the Assembly. Making a recommendation is not equivalent to an *a posteriori* report that the Committee has been enlarged in one way or another. We believe that, although there are differences between the present situation and that which prevailed in 1961, basically the procedure for establishing or enlarging the Committee is the same.

Having said that, I repeat my very warm welcome to the representatives of Japan and Mongolia.

STATEMENT MADE BY THE REPRESENTATIVE OF MEXICO AT THE 424TH SESSION

The position of the Government of Mexico in regard to the enlargement of the Eighteen-Nation Committee on Disarmament has been and continues to be that which was explained by my delegation at the meeting of 3 July 1969. Furthermore, we consider that the fact of the adoption on one occasion of a procedure that seems to us inappropriate and incorrect, in order to bring about the entry of new members into the Committee, is not a sufficient reason to justify, nor to induce us to accept, the use of the same procedure on another occasion.

STATEMENT MADE BY THE REPRESENTATIVE OF MEXICO AT THE 431ST SESSION

As all the members of the Committee are aware, the delegation of Mexico objected from the start to the procedure followed for enlarging its membership. As a logical consequence of our position in regard to the enlargement itself, we must also record our objection to the change in the name of the Committee, which is a corollary of its enlargement. We do not think that it is essential to change the name now, before giving the General Assembly an opportunity to pronounce its opinion both on the enlargement of the Committee and the name itself.

I have no objection as regards the name itself, suggested the other day by the Co-Chairmen, but I should like to have it put on record that my delegation takes exception also to the name being changed now before allowing the General Assembly to pronounce its opinion on the subject.

ANNEX D

List of verbatim records of the meetings of the Conference of the Committee on Disarmament

ENDC/PV.395-430 (18 March to 21 August 1969):
Verbatim records of the 395th to 430th meetings.

CCD/PV.431-448 (26 August to 30 October 1969):
Verbatim records of the 431st to 448th meetings

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