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Chairman: Mr. Károly CSATORDAY (Hungary).

AGENDA ITEM 30

Urgent need for suspension of nuclear and thermonuclear tests: reports of the Conference of the Eighteen-Nation Committee on Disarmament (continued) (A/5731-DC/209, A/5986-DC/227, A/C.1/L.345)

GENERAL DEBATE (continued)

1. Mr. ASTROM (Sweden) said that the successful outcome of the discussion on the first two agenda items should spur the First Committee on to greater efforts. The treaty banning nuclear weapon tests in the atmosphere, in outer space and under water, signed at Moscow in August 1963, had gone a long way towards a comprehensive test ban, and since then there had been a strong current of opinion ceaselessly insisting that the treaty should be followed by arrangements to ensure that underground testing was also discontinued. The way would then be open to real nuclear disarmament, as part of general and complete disarmament. No one should expect the General Assembly to be able to eliminate the remaining difficulties at the current session but, by firmly expressing their wishes based on genuine concern, Member States would facilitate the negotiations, which should be resumed very soon. It was in that spirit that the sponsors had submitted draft resolution A/C.1/L.345, which the Swedish delegation was introducing on their behalf.

2. The basic stand of the Swedish Government was that nuclear weapon tests should cease immediately, in whatever country or environment they were conducted. Sweden viewed the 1963 treaty, which it had signed, as a first and limited step on the road to nuclear disarmament. The nuclear Powers should make some real sacrifices in order to prove that the spiral of the nuclear arms race was not unending and that they were in earnest when they said that a halt in that frightening race was in their own interest. Real sacrifices could also be legitimately expected of the non-nuclear Powers. The most logical first step seemed to be the conclusion of a comprehensive

test ban treaty, which would be accompanied or followed by arrangements aimed specifically at preventing the spread of nuclear weapons and limiting existing nuclear capabilities. That would be a balanced approach involving mutual sacrifices. It was therefore natural that Sweden should attach great importance to the preambular paragraph of the draft resolution which drew attention to the crucial importance of a comprehensive test ban to the issue of non-proliferation of nuclear weapons. Such a ban, if universally observed, would in fact be the best obstacle to proliferation at the present time.

3. Of course, advances in detection and identification techniques were of the greatest importance for the success of the negotiations and would facilitate arrangements for a comprehensive test ban, as they had already facilitated the conclusion of the partial test ban treaty. Sweden was convinced that detection and identification techniques had already reached the stage where they significantly reduced the political risks that might be involved in an immediate ban on underground tests. Furthermore, it would like the countries which claimed that existing techniques offered satisfactory possibilities of verification to offer to help establish a world-wide surveillance system. However, even if it was not now possible to obtain complete guarantees of verification—whether through seismological observations or by other means—that must not delay work on the preparation and acceptance of a comprehensive test ban. The fact that the ultimate sanction against a breach of an agreement of that kind was withdrawal from the agreement by the party that considered its supreme national interests to be endangered was worth considering. Indeed, any State party to the treaty which suspected an unidentified event of being an underground nuclear weapon test and whose request for clarification and verification was rejected or answered in a manner that international scientific opinion found unsatisfactory would be entitled to reconsider its participation in the agreement.

4. It was often said that no real progress could be made until there was an improvement in the political atmosphere prevailing between the nuclear Powers. That was true in the sense that failure to reach agreement was due more to a lack of political will than to difficulties of a technical nature. However, the political atmosphere should not be considered as an immovable object; it was created by men who were responsible for the fate of their countries and ultimately for the survival of mankind. His delegation therefore thought that the objections concerning the political atmosphere should not discourage the non-nuclear Powers from pressing for early agreement on a comprehensive test ban. They had a right and duty to point out that, what-

ever the military advantages of continued underground testing, the political risks of failure to reach agreement far outweighed the risks that an agreement might entail. It was to be hoped that reason and enlightened self-interest would guide the negotiations.

5. Mr. KISELEV (Byelorussian Soviet Socialist Republic) said that the Soviet Union, as was known, was in favour of the prohibition of all nuclear weapon tests and the extension of the provisions of the partial test ban treaty to cover underground tests. The ban on underground tests could be effectively controlled, as scientific studies had confirmed, by national means of detection and control and therefore did not require any international inspection: in its memorandum of 28 January 1964,^{1/} the Government of the USSR had stated its readiness to reach forthwith an agreement on that basis.

6. The Byelorussian delegation considered that an agreement banning underground tests of nuclear weapons should be concluded immediately on the basis of the use of national means of control. In the opinion of the experts, existing techniques for detecting explosions were such that a country could, using only its own means, determine the place and nature of an explosion without the need for any on-site inspection. Seismologists agreed that it was difficult to confuse the short, sharp jolt produced by a man-made nuclear explosion with the infinitely larger vibrations of the earth's crust caused by a big earthquake. The advances of science therefore strengthened the position of the USSR.

7. The United States Government, for its part, refused to take into account the opinion of all the world's scientists. Its insistence that a system of control and inspection should be evolved for the on-site detection and identification of seismic events was preventing an extension of the provisions of the partial test ban treaty. Otherwise, the question of underground nuclear tests would already have been settled. The reason why the United States was demanding on-site inspections by foreign teams was apparently that it wanted to use them for the purpose of reconnoitring the territory of the Soviet Union.

8. In the Disarmament Commission, where the problems raised by a comprehensive nuclear test ban had been considered, no change had taken place in the positions of the principal groups of States. The neutral countries of Asia, Africa and Latin America were calling for the extension of the partial test ban treaty. The Soviet Union, the Byelorussian SSR and the other socialist countries favoured a ban on underground tests based on national systems of detection. The Western Powers and particularly the United States, while pretending to be in favour of a ban on such tests, were still insisting on the establishment of an international control system. That was as far as the discussion had gone. If the question had not yet been settled, the responsibility lay primarily with the Western Powers—particularly the United States, with its negative attitude.

9. The main task of mankind at the moment was to avert a thermonuclear war and achieve peaceful co-existence. The socialist countries were making practical efforts in favour of a ban on nuclear weapon tests and against the spread of nuclear weapons, in favour of the creation of denuclearized zones and the prohibition of the use of foreign territories for the installation of nuclear weapons—in short, in favour of general and complete disarmament.

10. Since the signing of the partial test ban treaty, the United States and the United Kingdom had carried out, officially, over fifty underground nuclear explosions but the actual figure was about 150. According to the *U.S. News & World Report* of 24 May 1965, there had been 496 nuclear explosions since the invention of the atomic bomb.

11. The Byelorussian SSR had always advocated the extension of the partial test ban treaty to cover underground tests. It resolutely supported the position of the Soviet Union in considering national means of control to be adequate. Events in recent years had confirmed the validity of the principles underlying the treaty, including those relating to control, as shown by the undeniable fact that an increasing number of States were demanding the prohibition of underground nuclear tests in conformity with those principles.

12. It was essential for an agreement to that effect to be concluded as quickly as possible, on the basis of recourse to national systems of detection and control, as proposed by the Soviet Union. Many delegations had rightly declared over and over again in the First Committee, particularly in the debate on the non-proliferation of nuclear weapons, that a comprehensive test ban would prevent nuclear dissemination. Unfortunately, such a ban, were it already in effect, would not remove altogether the danger of the proliferation of nuclear weapons, since several Western Powers, and especially the United States, had not yet abandoned their plan to establish a NATO multi-lateral nuclear force—the main obstacle to the solution of several grave international problems.

13. The Western Powers, apparently, did not want a ban on tests in all environments, not, as the United Kingdom representative had asserted, for technical reasons, but because the necessary political decision and realism were lacking.

14. As the representative of the USSR had recalled (1382nd meeting), the Soviet Union, by contrast, had declared its readiness, in order to make progress towards the desired goal, to support the proposals set forth by the representative of the United Arab Republic on 17 August 1965, at the 224th meeting of the Eighteen-Nation Committee. With regard to the Soviet Union's own repeated proposals, the whole world had interpreted them as showing a readiness to settle difficult problems by reasonable mutual concessions. The United States and the United Kingdom, on the other hand, had not shown the slightest desire for co-operation in the past and, at the present time, the United States, which wished to arm the West German revanchists with nuclear weapons, was anxious to improve its weapons and was seeking any pretext to postpone or to avoid participating in a settlement.

^{1/} See Official Records of the Disarmament Commission, Supplement for January to December 1964, document DC/209, annex I, sect. E (ENDC/123).

15. Guided by the principles of the peaceful co-existence of all States and anxious to avert a thermo-nuclear world war, his country, like the other socialist countries, was resolutely and logically in favour of general and complete disarmament, the banning of nuclear weapon tests and the outright prohibition of such weapons. He hoped that the Western Powers would ultimately demonstrate the same good will so that an agreement impatiently awaited by all peace-loving peoples might be concluded.

16. Mr. BELAUNDE (Peru) said that nuclear rivalry was perhaps one of the most tragic phenomena in the history of mankind. The great English philosopher, John Stuart Mill, already a pessimist in the nineteenth century, and almost a Manichean in his later years, would surely believe in the triumph of evil if he returned to earth today. Nevertheless, if all the peoples of the world joined in addressing a sincere and respectful warning to the great Powers, it was possible that the partial test ban treaty might be completed. Some favourable indications could already be seen. The countries represented at the Asian-African Conference at Bandung in 1955 had unanimously called for the complete cessation of nuclear weapon tests, an appeal which His Holiness Pope Pius XII had also made. Subsequently, under the pressure of public opinion, a nuclear moratorium had been declared, but it had been broken and the consequent reaction of world opinion and the effect produced by the Cuban crisis had paved the way for the conclusion of the partial test ban treaty. Nevertheless, that treaty still left grounds for distrust which threatened to have fatal repercussions on its actual application. Moreover, a comprehensive test ban treaty offered the non-nuclear countries their only compensation for the privileges which a treaty on non-proliferation would give the nuclear Powers.

17. The First Committee must decide forthwith in favour of the categorical prohibition of nuclear weapon tests, not only to eliminate anything which might imperil the partial test ban treaty, but as the logical consequence of the action it had already taken with regard to the non-proliferation of nuclear weapons and in order to prepare the way for the reduction of nuclear stockpiles and a cut-back in the manufacture of such weapons. He commended the United States for having proposed a progressive destruction of nuclear weapons and the use for peaceful purposes of the fissionable materials thus obtained. There were some who claimed that a comprehensive test ban, extended to cover underground tests, would be unfair to certain Powers on the point of reaching advanced nuclear capacity. That argument could not be taken into consideration for, strictly from the standpoint of humanity, the essential aim was to prevent at all costs any increase in the danger of nuclear conflict. It would be much more difficult to maintain the balance of power if the number of nuclear Powers increased. The first step must therefore be to remove that danger. That was not being unjust or lacking in loyalty to the countries in a fair way to becoming great nuclear Powers.

18. The question of the guarantees that must accompany any treaty had already been dealt with by the representative of Sweden. It was now likely that scientific advances would permit the extension to

underground tests of the detection techniques that had made possible the conclusion of the treaty banning tests in the other environments, and any discovery made in the Soviet Union which would enable underground explosions to be detected by national devices would undoubtedly be communicated to scientists in the United States. A nuclear Power which signed a comprehensive test ban treaty, trusting that the other nuclear Powers would respect the treaty, would be entitled, even if it did not itself have all the available means of detecting a violation of the treaty, to ask another signatory Power, in the event of an unidentified explosion, to agree to verification by an international agency. The verification would not be carried out by one of the parties—and he wished to reject in advance any suggestion that it would involve espionage—but by impartial scientists belonging to non-aligned countries. To reject a request for verification would place the Power concerned in an awkward position and he did not believe that it would refuse an opportunity to prove its innocence without running any political risk.

19. He appealed to all delegations to assume their responsibilities and to do everything in their power to halt the nuclear rivalry forthwith by unanimously adopting the draft resolution before the Committee (A/C.1/L.345).

20. Mr. CORNER (New Zealand) said that the conclusion of the partial test ban treaty in 1963 had been greeted with relief but, at the same time, with the consciousness that the treaty was not a victory but a respite and that, unless it was reinforced by accompanying related measures, the protection it offered would tend to be eroded. That was the prospect the world faced today, since there had been no further progress since 1963; moreover, in two significant instances, the treaty itself had been breached or disregarded. In the first instance, the Peking Government had demonstrated its determination to build a nuclear armoury by staging nuclear tests in defiance of international opinion; that development, coupled with the doctrines and policies of the Peking Government, had caused anxiety throughout the world and it was not too much to say that such anxiety was one of the principal constituents in the wide-ranging consensus in the Committee in favour of a world disarmament conference. In the second instance, France had not signed the treaty and, to the concern of New Zealand and that of the Pacific islands with which it had close links, was continuing with preparations to test thermonuclear weapons in the near future in the South Pacific. New Zealand's opposition to those projected tests had been voiced consistently in United Nations forums ever since the eighteenth session of the General Assembly. There was an additional reason for continued international preoccupation with the question of nuclear weapon tests—the fact that an agreement to stop all testing could help to secure another critical objective: the prevention of the further proliferation of nuclear weapons. That objective could be prejudiced if even the partial test ban was to be ignored.

21. His delegation therefore shared the anxiety expressed in the current debate and in the memorandum submitted by the eight non-aligned members of the

Eighteen-Nation Committee^{2/} that serious negotiations in pursuit of a comprehensive test ban agreement should be resumed. New Zealand, geologically a young country and subject to earthquakes, had accumulated experience in the science of seismology and had taken a particular interest in the research undertaken by the United States and the United Kingdom into the possibility of distinguishing between the shock waves caused by earthquakes and those caused by underground nuclear explosions. It had recently acted on the invitation of the United States to send an observer to a demonstration of seismic detection devices and would be prepared to co-operate in an international detection system of the type suggested by Sweden in the Eighteen-Nation Committee.^{3/}

22. Since its own seismologists remained unconvinced that it was possible by seismic measurement to distinguish satisfactorily between all earthquakes and underground nuclear tests, New Zealand supported the view that there should be a serious examination of the current state of the science of detection; it was to be hoped that the nuclear Powers principally concerned would undertake such a review, in association with the work of the Eighteen-Nation Committee. Meanwhile, his delegation could not accept the repeated assertions made by the Soviet Union that national detection systems were wholly adequate to verify the observance of a comprehensive test ban; if Soviet scientists had made greater advances in that field than their Western colleagues, that fact could be demonstrated. Otherwise the inevitable conclusion was that the right of a minimum number of on-site inspections a year was still necessary. Surely, given the will, a reasonable compromise that would safeguard the vital interests of both sides was possible.

23. Anxious as it was to see an end to all nuclear testing, his delegation did not believe that, failing some understanding on minimum requirements for verification, an unverified moratorium on all underground tests could reasonably be demanded: that would go beyond what had been asked of the nuclear Powers in resolution 1762 (XVII) as an interim arrangement, and the fate which had befallen a similar moratorium on tests in the atmosphere was not a happy precedent. The text of the draft resolution under consideration would therefore be improved by a greater emphasis on the need for agreement on verification procedures and by some closer association of that need with a cessation of all testing, which remained the ultimate goal.

24. Mr. LIATIS (Greece) said that it was disappointing that the Eighteen-Nation Committee, although admittedly it had had very little time at its disposal, had not given any indication of the slightest progress in the urgent negotiations on extending the partial test ban treaty to cover underground tests. Nevertheless, that body, with its fund of specialized knowledge and experience, was the one best equipped to deal with a matter of such complexity. To start anew in another forum would be to nullify the not inconsiderable progress already made in narrowing the gap between the opposing views. His delegation therefore trusted

that the current debate would give a new impulse to the Geneva negotiations, and it was ready to support the draft resolution under consideration.

25. It had to be admitted, however, that the Eighteen-Nation Committee was deadlocked; it might well be that its very knowledge and the accumulation of documents, statements and precedents had contributed to a hardening of the individual positions, and that the current discussion in the First Committee could help to stimulate the flow of new ideas. As was well known, there was a basically technical aspect to the problem; for one and the same reason—technical advances—the Soviet Union had decided that inspections were superfluous, and the United States had reduced the number of inspections it considered necessary. The gap between those positions, though apparently small, had remained unbridgeable. Since one side tended to equate inspection with espionage, it was necessary to determine whether or not a minimum of inspection was indispensable and, according to the findings, urge one or the other side to move from its position. To that end, the contending parties should be urged to make a frank exchange of available scientific information; such an exchange might produce at least a partial solution, serving to pinpoint the level of magnitude in excess of which underground nuclear explosions could be identified by national means, and thus lead to a partial underground test ban, as suggested by the United Arab Republic and accepted in principle by the Soviet Union. Even that would be progress.

26. In such matters, lack of progress was equivalent to regression: as the Nigerian representative had pointed out, if the nuclear Powers insisted on reserving the right to carry out underground tests, they could hardly expect countries aspiring to nuclear-Power status to refrain from testing in the only environment within their financial means, the atmosphere, which was also the most immediately dangerous. The partial test ban treaty had been arrived at by direct negotiation between the nuclear Powers, and those same Powers could well agree to extend it to underground tests; but since they had failed to do so, they might receive help from the General Assembly and also from the Eighteen-Nation Committee, where the presence of non-aligned and non-nuclear countries had already produced useful suggestions, such as the aforementioned proposal by the United Arab Republic and the Italian proposal for unilateral declarations of non-acquisition of nuclear weapons of limited duration. Only a new political impetus could make the negotiations move forward, and his delegation welcomed the Secretary-General's suggestion that a meeting of the Eighteen-Nation Committee should be held at which the members would be represented by their Ministers for Foreign Affairs.

27. Unless an underground test ban could soon be agreed upon, confidence in the prospect of ending the nuclear arms race would be shaken and the possibility of non-proliferation would further recede. The General Assembly had just decided to refer back to the Eighteen-Nation Committee the question of a treaty on non-proliferation; it should now follow up, in the same expeditious and unanimous manner, by referring to it the question of banning underground tests.

^{2/} Ibid., Supplement for January to December 1965, document DC/227, annex 1, sect. F.

^{3/} Ibid., sect. B.

28. Mr. SHAW (Australia) said that his delegation's most earnest wish was to see an end to nuclear testing, which would be a step towards preventing the proliferation of nuclear weapons, itself in turn a part of controlled disarmament, both nuclear and conventional. At the meetings of the Disarmament Commission held earlier in 1965, his delegation had joined with others in supporting a resolution^{4/} reaffirming the General Assembly's call upon all States to become parties to the partial test ban treaty and recommending that the Eighteen-Nation Committee should consider as a matter of priority the question of extending the scope of that treaty to cover underground tests. It would continue to support other resolutions and activities directed towards those ends.

29. The Moscow treaty was a partial test ban treaty both because it had not been accepted by all and because it did not cover underground tests. Testing in the atmosphere by any country that had not signed the treaty would endanger the existence of the treaty itself, for the parties to it had the right to withdraw if extraordinary events related to the subject-matter of the treaty had jeopardized their national interests. The limitations of a treaty that did not apply to two of the five nuclear Powers were becoming increasingly apparent. Australia deeply regretted France's intention to build up a nuclear arsenal, and continued to hope that France would put aside those plans. The attitude of the Peking Government gave Australia deeper cause for anxiety, for that Government had not merely declined to be bound by the treaty but had rejected it as a "fraud" and as running "diametrically counter to the wishes of the peace-loving peoples of the world". Peking was thus free to carry out its nuclear ambitions, which was a cause for great concern to countries in Asia and the Pacific, particularly in view of Peking's assertions concerning the inevitability and even desirability of war. It was somewhat disconcerting that the Committee appeared to accept the assumption that Peking was entitled to remain outside the treaty. A few nuclear explosions were not, of course, evidence of real nuclear power; nevertheless with each new nuclear experiment the objective of a universal test ban treaty receded and it became increasingly difficult to restrain yet more countries from going in the same direction. Peking's attitude was in direct contrast to that of other countries, including Asian countries, which had the capacity of developing nuclear weapons but had preferred to devote their resources to the well-being of their peoples. His delegation hoped that the Committee would speak for world opinion by unequivocally supporting a call for all countries to accept the obligations of the partial test ban treaty; it would have preferred to see, in operative paragraph 2 of the draft resolution (A/C.1/L.345), a much more direct exhortation by the Assembly.

30. The second deficiency of the partial test ban treaty was that it failed to cover underground tests. In the preamble to the treaty the signatories declared their intention to achieve the discontinuance of all test explosions of nuclear weapons for all time. That commitment fell most heavily on the nuclear Powers; however, the members of the Eighteen-Nation Com-

mittee and, indeed, all the members of the First Committee shared in the responsibility. It was in the interest of all countries that there should be verification of any commitment; indeed, the joint statement of agreed principles for disarmament negotiations^{5/} specifically provided that there should be strict and effective international control. It had been recognized in the case of the partial test ban treaty that there did exist national means of verifying that the provisions of the treaty were carried out; it was precisely because no such agreement had existed as to underground testing that that category of tests had been excluded from the treaty. Thus, the only question that arose was what constituted effective verification at the present stage of scientific knowledge. The disagreement between the United States and the Soviet Union on that point should not be beyond solution, given good will on both sides: a possible approach might be that suggested in the memorandum submitted by Sweden^{6/}—a "detection club"—or that advocated in the memorandum of the eight non-aligned members of the Eighteen-Nation Committee^{7/}—exchange of scientific and other information, improvement of techniques. It remained for the First Committee, therefore, to reaffirm its determination that all efforts should be made towards the conclusion of a comprehensive test ban treaty with effective verification, whatever the requirements for that might be. That appeared to be the object of operative paragraph 3 of the draft resolution before the Committee.

31. Turning to the moratorium on underground testing proposed in operative paragraph 1 of the draft resolution, he said that the Australian delegation would have some difficulty in accepting the proposal in the simple form in which it had been put forward; in view of the somewhat discouraging experience of another moratorium, which had been broken by the Soviet Union, it was hard to expect the nuclear Powers to enter again into the same sort of unqualified agreement. As a matter of practical necessity, those principally concerned must be urged to work for an agreement banning underground tests with effective verification. Similar considerations applied to proposals that there should be an unverified moratorium on underground tests below a certain magnitude; even small underground tests could be useful in terms of weapons development, and any moratorium excluding verification would defeat the very purposes which the United Nations was trying to achieve. Doubtless, the Soviet Union had difficulty in accepting international inspection; however, it would be recalled that at a previous stage in the negotiations the Soviet Union had accepted the principle of on-site inspection, and, indeed, that it had been prepared to discuss the number of such inspections. It was the more regrettable, therefore, that the Soviet Union now appeared unwilling to discuss the question of what would constitute effective verification. The Australian delegation joined all others which had urged the nuclear Powers to make greater efforts to settle their differences; it was convinced that the

^{5/} See *Official Records of the General Assembly, Sixteenth Session, Annexes*, agenda item 19, document A/4879.

^{6/} See footnote 3.

^{7/} See footnote 2.

^{4/} *Ibid.*, Supplement for January to December 1965, document DC/225.

margin which divided them was probably narrower than at any previous stage. Australia was one of the non-nuclear Powers which would be asked to assume certain obligations in order to achieve an agreement to prevent the proliferation of nuclear weapons. His delegation was convinced that a comprehensive test ban treaty would be an important step in convincing the world of the readiness of the nuclear Powers to accept a curtailment of their military capabilities—which was the over-all objective in view.

32. Negotiations should be continued in a spirit of urgency in the Eighteen-Nation Committee in order to bring underground tests within the scope of the partial test ban treaty, with adequate provisions for verification; and the obligations of the treaty should be accepted universally, particularly by countries which already possessed some nuclear capability. If further progress was not made in both of those directions it was to be feared that the hopes raised when the treaty had been signed would prove illusory, and that the armaments race would continue unabated, with disastrous consequences.

33. Mr. VAJNAR (Czechoslovakia) said that a total ban on all nuclear weapons testing would be a great step forward, for the cessation of such testing would halt the development and dissemination of nuclear weapons and would help to reduce international tension. It was for that reason that despite its limited scope the partial test ban treaty had been so warmly welcomed, and so speedily ratified by more than 100 States; its conclusion had been seen as a first step towards the comprehensive prohibition of all nuclear weapon testing. The treaty was not a legitimization of underground testing; the parties to it had pledged themselves, on the contrary, to continue negotiations with a view to the discontinuance of all nuclear weapon tests—a measure for which all the necessary conditions now existed.

34. The immediate cessation of underground testing was a matter for political decision, depending on the desire of those concerned to agree to the total prohibition of nuclear weapon tests, in other words, to put a brake on the development and improvement of nuclear weapons and, if possible, to renounce such weapons. At the same time, it would testify to the existence of a will for progress towards the termination of the nuclear armaments race.

35. The conclusion of a test ban agreement did not hinge on the solution of technical problems relating to the detection of underground tests; those problems had been solved. In laying down conditions despite that fact the Western Powers, particularly the United States, were pursuing a precise political objective: to find justification for their refusal to conclude an agreement on the total cessation of nuclear weapon tests. The dozens of underground explosions which had been carried out by the United States since the signing in 1963 of the partial test ban treaty made it very clear who it was that did not desire agreement.

36. Czechoslovakia appreciated the efforts of the non-aligned countries, whose representatives had submitted a number of proposals designed to lay the foundations for compromise. In particular, the suggestion made by the United Arab Republic that the

provisions of the partial test ban treaty should be extended to cover underground nuclear explosions above a seismic magnitude of 4.75 could be valuable in that connexion, since it provided in addition that pending the conclusion of an agreement on a comprehensive test ban the nuclear Powers should agree to a moratorium on all new tests. The proposal of the United Arab Republic, if adopted, would mark a very important advance. A similar idea had also been put forward by the Indian Minister for Foreign Affairs in the Assembly's general debate (1358th plenary meeting).

37. The USSR had declared in the Eighteen-Nation Committee that it was prepared to accept a solution of the problem of underground testing based on the proposals on the United Arab Republic; and Mr. Tsarapkin, the Soviet representative in the First Committee, had confirmed that position at the Committee's 1382nd meeting. If the Western Powers agreed to it the foundations could be laid for a final settlement and for the total prohibition and cessation of all nuclear weapons testing. But so far as could be seen, the United States was opposed to such a solution.

38. The urgency of a total ban on nuclear weapon tests had been stressed by many delegations. It was therefore the duty of the General Assembly to do its part in the quest for a satisfactory agreement.

39. Mr. FOSTER (United States of America) said that a treaty providing for a total ban on all testing of nuclear weapons, following the limited test ban treaty, would fulfil an almost universal desire, pave the way to other measures designed to halt the nuclear arms race, contribute to current efforts to prevent the spread of nuclear weapons, and help to reduce international tension.

40. It was not enough, however, to will an agreement; the technical obstacles could not be overlooked. In the past decade no other disarmament subject had received more study and attention than that of a ban on weapons testing. His Government had played a key role, and he recalled that it had been on the initiative of President Eisenhower that a technical conference on the question of the cessation of nuclear testing had been convened in 1958^{8/} with the agreement of the USSR. Throughout those and later negotiations, which had resulted in a limited test ban, and up to the present day, the United States Government had given exhaustive study to the problems. It had continued to devote sizable resources to seismic research in order to improve its capability of detecting and identifying underground nuclear tests. The representatives of States Members of the United Nations who had been invited in October 1965 to the inauguration of the large aperture seismic array in Montana had been able to judge for themselves one direction which United States research activity had been taking.

41. While he wished to avoid going into great detail on the technical aspects of the detection of underground tests, which he had discussed at some length on 2 September 1965, at the 229th meeting of the

^{8/} Conference of Experts to Study Methods for Detecting Possible Violations of an Agreement on the Cessation of Nuclear Tests, held at Geneva from 1 July to 21 August 1958.

Eighteen-Nation Committee, he considered that a few general observations would be useful. What was detected by seismic means was simply earth tremors. By a complex process of interpretation of the data from seismometers an attempt was made to determine whether the tremors recorded resulted from natural causes, in other words, earthquakes, and therefore could not be due to man-made explosions. While the geographic distribution of earthquakes varied considerably, two areas seemed particularly affected: a belt surrounding the Pacific Ocean and a belt extending from the Kamchatka Peninsula to the Black Sea. Moreover, there was considerable variation from year to year in the number and size of earthquakes. Furthermore, some earthquakes produced seismic signals which could not be distinguished from those produced by nuclear explosions. The strength of the seismic signal generated by a nuclear explosion also varied with the nature of the soil in which the underground nuclear explosion was contained.

42. Under the broad programme of research in seismology which the United States had conducted since the Geneva conference of experts in 1958, it had found that the use of large arrays of seismometers would improve the capability of separating out the background noise caused by continuous vibrations of the earth from the signals emitted by a seismic event. In the past, such background noise had prevented detection of the smaller seismic events. Such a large array, like that now in operation in the State of Montana, comprised 525 seismometers distributed in a certain pattern over a large area. If a system of ten to twenty such arrays were to be established on a world-wide basis, then it would be possible to detect events which produced signals equivalent to nuclear detonations in the range of hundreds of tons.

43. Yet after an event had been detected it was necessary to attempt to identify its cause. Identification required the recording of a larger seismic signal than was needed for detection purposes alone. By reducing the background noise and thus making the seismic signal more distinct, large arrays would aid in identifying seismic events. Unfortunately, the recordings of some earthquakes were like those of man-made explosions. At present, there was no technique known which would permit the identification of explosions as such by seismic systems at remote locations, that is, at distances that might be involved with strictly "national" systems. However, a variety of techniques had been developed to permit identification of those earthquakes which had characteristics most distinguishable from those of explosions. By using those techniques, it would be possible to identify about 80 per cent of the natural earthquakes producing seismic signals corresponding to yields above a few kilotons.

44. In the case of the Soviet Union, for example, the 20 per cent of natural events which could not be distinguished from possible explosions would amount to an average of forty-five events each year. While some of those events might be identified with the use of ocean-bottom seismometers, even with the use of such sophisticated techniques there would remain a

substantial number of unidentified events in any one year.

45. No way was known to identify those events except by on-site inspections. If the scientists of the Soviet Union, or of any other country, could demonstrate any satisfactory technique for identification of those events without on-site inspection, they would be making a great contribution.

46. The United States had indicated earlier to the Committee, and also to the Eighteen-Nation Committee, that it was prepared to take current scientific capabilities fully into account in discussing the numbers and modalities of on-site inspections for verification of a comprehensive test ban. It warmly welcomed the eight-Power memorandum^{2/} suggesting that the nuclear Powers should exchange scientific and other information. In view of the disagreement between the Soviet Union and the United States on the technical potential of seismic detection and identification methods, scientists of both countries should discuss the problem objectively. Unfortunately, the Soviet Union had shown no interest whatsoever.

47. The Soviet Union argued that the principle of the limited test ban treaty, which contained no explicit provision for international control, should be followed. The United States, however, considered that the limited test ban treaty vindicated the position that international obligations in the disarmament field should be accompanied by appropriate measures of verification. The nature of the measures—national or international—depended on what was to be controlled, but verification was clearly necessary. The limited test ban applied to environments where means of verification could be developed adequately on a national basis but, unfortunately, in the case of underground tests, some other form of verification had to be devised. Verification did not need to be intrusive and, contrary to continued Soviet allegations, it would certainly not be for espionage purposes. It would merely be necessary to permit a small inspection team to go to a given site to determine whether an unidentifiable event was due to a nuclear explosion or to natural causes. The Soviet Union, which a few years previously had been prepared to agree to a certain number of on-site inspections, now refused to agree to any inspections at all, claiming that national control measures were adequate. The United States considered that some on-site inspections were essential if there was to be adequate assurance that all parties were complying with the agreement. Moreover, it would be in the interest of all parties to ensure that a comprehensive test ban was lasting; any agreement which would not allay—and might even stimulate—distrust and suspicion would be tenuous and potentially short-lived.

48. He was convinced that the difficulties he had mentioned were not insurmountable and that an agreement could be achieved. It was tempting to look for short cuts. One such short cut might be a moratorium on underground nuclear tests. The United States had previously had an understanding with the Soviet Union to suspend underground testing, but the Soviet Union had started testing again in spite of official statements that it would not be the first to do so. Therefore, the United States was not inclined to

^{2/} See footnote 2.

repeat that unfortunate experience. Moreover, a moratorium might diminish pressure for the conclusion of a permanent agreement and the breaking of a moratorium would hardly create conditions conducive to the subsequent negotiation of a comprehensive test ban treaty. A moratorium on underground testing was therefore unacceptable to his Government.

49. Agreement could be found if both sides demonstrated flexibility. The United States, for its part, had expressed willingness to exercise flexibility regarding its past position and remained prepared to negotiate. It called on the Soviet Union to do likewise. The United States would return to Geneva determined and hopeful that negotiations would be resumed leading to the early conclusion of an agreement on a verified, comprehensive test ban.

50. Mr. GOLDBLAT (Poland) said that a ban on all nuclear tests would slow down the armaments race and prepare the ground for the eventual elimination of nuclear weaponry by preventing the great Powers from proceeding with some significant weapon development programmes and making it difficult, if not impossible, for the non-nuclear Powers to acquire nuclear weapons through national production.

51. What stood in the way of extending the provisions of the partial test ban treaty so that it would cover the prohibition of underground tests too? It had been asserted by some that the obstacle resided in ensuring that all the parties complied with the obligation they had assumed. Nobody, however, had ever suggested that abidance by a disarmament treaty should go unchecked, or be left to blind trust. The point at issue was whether the measures of verification were to be consistent with the purposes of the treaty, or should serve other purposes as well.

52. For many years, the United States had been insisting on the need for on-site inspection. The improvement in monitoring capabilities since 1958, when the talks on the cessation of tests had begun, did not seem to have affected its attitude in that regard, although an American statesman had described the achievements in that area as phenomenal.

53. Theoretically speaking, it was possible to conduct tests of such small size—say, in laboratory conditions—that they could never be discovered by any means. But what really counted was tests having military value. And no militarily significant shots could go unnoticed by the existing network of seismic stations. In any event, no single explosion could produce a breakthrough in military technology, and a whole series of tests would have even less chance of escaping detection.

54. The technical aspects of the issue, however, carried less weight than its political aspects. No one could force a nuclear Power to conclude an international agreement which would not be politically advantageous and in conformity with its national interests. Since an agreement to stop nuclear explosions could be entered into only freely, it would in fact be self-enforceable. For it was inconceivable that a State would be willing to risk the loss of the political gains resulting from a test ban treaty by resorting to secret underground testing of a doubtful military value.

55. Nevertheless, while admitting that violations of a test ban treaty were politically and technically improbable, some parties demanded additional reassurances in order to strengthen confidence in the treaty and ensure its permanence. They suggested inspecting certain areas, digging holes and visiting mines and sub-surface cavities. But the value of such inspections would be highly questionable, since the inspection team would be physically unable to go everywhere, and some zones, as envisaged by the supporters of the scheme themselves, could be excluded. On the other hand, seismic recordings provided not only by the opposite side, but also by a number of stations in different countries, including the non-aligned countries, could give far more conclusive proof of a breach of obligations than could an expedition equipped with pickaxes and drills.

56. It had been established by seismologists, as was set out in the memorandum submitted by Sweden to the Eighteen-Nation Committee, that events corresponding to yields of small order could be detected from distances of up to 10,000 kilometres. No State, consequently, had a territory large enough to contain such seismic signals within its borders. The waves propagated by tests travelled through the earth and reached seismic stations situated on one-half of the globe. The Director of the Seismological Laboratory at the California Institute of Technology had even said that there were advantages to distant monitoring. It would therefore be ill-advised to rely more on the subjective judgement of a few inspectors than on objective scientific data. In any event, progress in monitoring techniques would impose far greater restraint upon a prospective violator of the treaty.

57. As some representatives had indicated, the solution of the problem did not hinge on technicalities. The problem of inspection had been dramatized merely to cover up the lack of a political decision not to test. Once that decision was taken, there would be no difficulty in concluding a treaty.

58. The signing of the partial test ban treaty had resulted in a marked improvement in the political atmosphere, which had led to the expression of intention by the United States and the USSR not to station nuclear weapons in outer space, and to such other important measures as a cut-back in the production of fissionable materials for military purposes and the adoption of legal principles governing the activities of States in the exploration and use of outer space. There was good reason to believe that even more important steps in the field of disarmament might follow a comprehensive test ban agreement.

59. Mr. SETTE CAMARA (Brazil) found it disheartening to realize, two years after the signing of the partial test ban treaty and the adoption of General Assembly resolution 1910 (XVIII), that there were countries which, instead of contributing to the efforts to achieve the total cessation of nuclear weapon tests, still insisted on perfecting their means of mass destruction.

60. The Brazilian delegation had commended the United States, the United Kingdom and the Soviet Union on the efforts which had led to the signing of a treaty to which more than 100 countries had acceded.

It could not hide its apprehensions, however, over their sudden reluctance to conclude a comprehensive test ban treaty. It had always been the position of the Brazilian Government not to recognize the right of any country to conduct nuclear tests in any circumstances. He could not but endorse what the Indian representative had said at the 1384th meeting: that nuclear explosions were an indefensible crime against the present generation and generations yet unborn.

61. Notwithstanding the problem of inspection and its technical difficulties, progress was not ruled out; the eight mediating countries had put forward various practical proposals aimed at achieving an agreement acceptable to the nuclear Powers on a suspension of testing above a certain threshold.

62. If agreement was to be achieved, the differences among the nuclear Powers would have to be fully aired. By establishing technical sub-committees to deal with intricate questions that were likely to raise doubts and delay negotiations, it might be possible

to narrow down many of the differences. In that connexion, the Brazilian delegation could not conceal its satisfaction with the proposal in the memorandum submitted by the Swedish delegation to the Eighteen-Nation Committee. International scientific co-operation could play a wider role in the detection and differentiation of a number of seismic events which, because of their small size, could not appropriately be identified through national monitoring systems alone.

63. The General Assembly had recently adopted a resolution providing the Eighteen-Nation Committee with guidelines for the preparation of a treaty to prevent the proliferation of nuclear weapons. It was beyond understanding, however, that the political will demonstrated by the nuclear Powers to prevent countries with nuclear capabilities from developing nuclear weapons could not be applied to a decision to discontinue all nuclear tests immediately.

The meeting rose at 1.20 p.m.