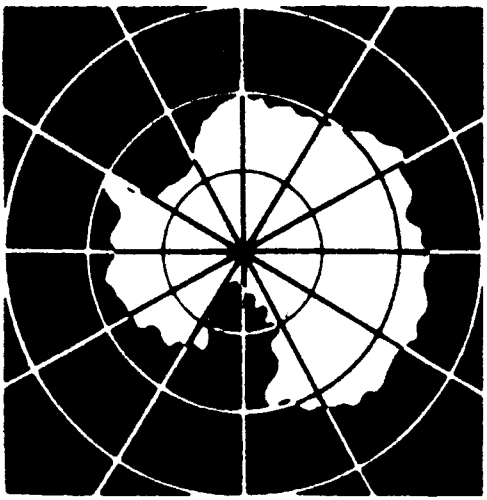
ANTARCTIC TREATY



REPORT
OF THE
NINTH CONSULTATIVE MEETING

LONDON

19 SEPTEMBER—7 OCTOBER

1977

ANTARCTIC TREATY

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FOREIGN AND COMMONWEALTH OFFICE
LONDON
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I

FINAL REPORT

OF THE

NINTH ANTARCTIC TREATY CONSULTATIVE MEETING

1. In accordance with the provisions of Article IX of the Antarctic Treaty, representatives of the Consultative Parties (Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, Poland, the Republic of South Africa, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America) met in London from 19 September to 7 October 1977 to consult together and consider measures which might be taken to further the principles and purposes of the Treaty and, where appropriate, make recommendations to their Governments.

2. Mr. George Hall, Representative of the United Kingdom, acted as Temporary Chairman of the Meeting pending the election of a Chairman.

3. The Meeting was formally opened by Mr. Ted Rowlands, M.P., Minister of State for Foreign and Commonwealth Affairs of the United Kingdom.

4. Mr. Hall was then elected Chairman, Mr. John Smallwood of the F.C.O. was appointed Secretary-General, and Mr. Ian Duncan of the F.C.O. was appointed Assistant Secretary-General.

5. The Opening Session was held in public. Opening statements were made by the Heads of Delegations (Annex 1).

6. The Meeting adopted the following Agenda:

(1) Opening of meeting
(2) Election of officers
(3) Opening statements
(4) Adoption of agenda

(5) Antarctic resources – the question of mineral exploration and exploitation (Recommendation VIII–14, operative paragraph 4)
(6) Antarctic marine living resources (Recommendation VIII–10, operative paragraph 5)
(7) Improvement of telecommunications in Antarctica and of the collection and distribution of meteorological data
(8) Effects of tourists and non-governmental expeditions in the Antarctic Treaty Area. Completion of Annexes A and B to Recommendation VIII–9
(9) Co-operation in transport (Recommendation VIII–7)
(10) Man's impact on the Antarctic environment
(11) Activities in the Antarctic of States that are not Contracting Parties
(12) Documents of the Consultative Meetings
(13) Review of conservation measures and Sites of Special Scientific Interest
(14) Date and place of next Consultative Meeting
(15) Any other business
(16) Adoption of Final Report
(17) Closing of Meeting.

7. The Meeting considered in Plenary Session all the items on the agenda and appointed four main Working Groups, as well as Working Committees, comprising members of all those Delegations wishing to participate, to assist it in reaching conclusions on certain items. A Working Group of Experts on Exploration and Exploitation of Antarctic Minerals was chaired by Dr. Martin Holdgate, Alternate Representative of the United Kingdom; a Working Group on Antarctic Marine Living Resources was chaired by H.E. Mr. John McArthur, Representative of New Zealand; a Working Group on Antarctic Telecommunications was chaired by H.E. Mr. Stephane Hessel, Representative of France; a Working Group on the Legal and Political Aspects of Mineral Resources, was chaired by H.E. Mr. Juan Carlos Beltramino, Representative of Argentina. H.E. Mr. Keith Brennan, Representative of Australia, chaired a Working Committee on Marine Living Resources; Mr. Jorge Berguno, Deputy Representative of Chile, chaired a Working Committee on Tourism; and H.E. Mr. Stephane Hessel, Representative of France, chaired a Working Committee on the Legal and Political Aspects of Mineral Resources.

8. The Meeting adopted unanimously the following Recommendations, which are set forth in this Report:

IX–1: Antarctic mineral resources
IX–2: Antarctic marine living resources
IX–3: Improvement of telecommunications in the Antarctic
IX–4: Co-operation in transport
IX–5: Man's impact on the Antarctic environment
IX–6: Oil contamination of the Antarctic marine environment

Mineral resources

9. The Working Group of Experts on Exploration and Exploitation of Antarctic Minerals met from 20 September until 29 September and had before it the report of the Scientific Committee on Antarctic Research

(SCAR) Group of Specialists entitled "A Preliminary Assessment of the Environmental Impact of Mineral Exploration/Exploitation in Antarctica (EAMRA)." Its Report was submitted to Plenary by Dr. Holdgate on 29 September. The Report was welcomed by Representatives who decided that it should be annexed to the Final Report of this Meeting, together with a list of the experts who participated in the discussions (Annex 5).

The Working Group on the Legal and Political Aspects of Mineral Resources, and its Working Committee, met from 29 September – 6 October. Its Report, which included a draft Recommendation, was submitted to Plenary on 7 October.

Living resources

10. The Working Group on Marine Living Resources, and its Working Committee, met from 21 September – 6 October. Its Report, which included a draft Recommendation, was submitted to Plenary on 7 October.

The Working Group agreed to include in its Report the understanding of the Group that the word "conservation" as used in the draft Recommendation includes rational use, in the sense that harvesting would not be prohibited, but the regime would exclude catch allocation and other economic regulation of harvesting. It was similarly the understanding of the Group that the word "resources" was not limited to commercially exploitable species.

In connection with the Special Consultative Meeting referred to in paragraph 2, Part III of Recommendation IX–2, the Representatives welcomed the invitation issued by the Government of Australia to hold the meeting in Canberra from 27 February to 16 March 1978.

Telecommunications

11. The Working Group met on 30 September and 4 October. Its Report, which included a draft Recommendation, was submitted to Plenary on 6 October.

Tourism

12. A draft statement of accepted practices and the relevant provisions of the Antarctic Treaty, together with a draft containing practical guidance for visitors to the Antarctic, was considered for inclusion in Annex A of Recommendation VIII–9 but, owing to lack of time for full discussion, the matter was referred to the Tenth Consultative Meeting. The drafts are reproduced at Annex 6.

No action was taken to list or define areas of Special Tourist Interest for inclusion in Annex B of Recommendation VIII–9.

Man's impact on the Antarctic environment

13. With the items on the agenda concerning Antarctic resources particularly in mind, the Representatives discussed the question of man's impact on the Antarctic environment. They recalled the numerous steps already taken by Consultative Parties designed to protect the Antarctic environment from unnecessary interference, including:

(i) The designation by the Consultative Parties of the Treaty Area as a Special Conservation Area and the adoption of the "Agreed Measures for the Conservation of the Antarctic Fauna and Flora";

(ii) The designation of "Specially Protected Areas" to preserve their unique ecological system and "Sites of Special Scientific Interest" to enable scientific investigations to be carried out at those sites without interference;

(iii) The negotiation of the Convention for the Conservation of Antarctic Seals (London 1972);

(iv) The adoption of measures to preserve and protect from damage historic monuments situated in the Antarctic Treaty Area;

(v) The adoption of a Code of Conduct to be observed at their stations and by their expeditions within the Antarctic Treaty Area.

They also recalled that in close co-operation with the Scientific Committee on Antarctic Research (SCAR) of the International Council of Scientific Unions, and through SCAR with other appropriate international organizations concerned, they have developed plans for the comprehensive study of the Antarctic marine ecosystem considered as an integral part of the Antarctic environment and have sought to:

(a) identify the types and assess the extent of human interference which has occurred in the Treaty Area as a result of man's activities;

(b) assess the possible impact on the environment of the Treaty Area and other dependent ecosystems if mineral exploration and/or exploitation were to occur there.

The Representatives, while considering the next steps to be taken with regard to questions concerning Antarctic resources, decided to recommend that their Governments should reaffirm their commitment to environmental protection. Accordingly the Representatives drew up the statement contained in Recommendation IX–5.

Activities in the Antarctic of other States

14. This question was widely discussed.

In connection with possible substantial or continuing activities in the Antarctic Treaty Area by States that are not Contracting Parties of the Treaty, the Representatives recalled their agreed view expressed in the Final Report of the Seventh Antarctic Treaty Consultative Meeting that it would be advisable for Governments to consult together as provided for by the Treaty and be ready to urge or invite as appropriate the State or States concerned to accede to the Treaty, pointing out the rights and benefits they would receive and also the responsibilities and obligations of Contracting Parties.

Information and documents of Consultative Meetings

15. The question of availability of information and documents to the public was discussed and it was generally agreed that there should be increased efforts to make both more available to the public.

Review of Conservation Measures and Sites of Special Scientific Interest

16. The attention of Representatives was drawn to two errors in Recommendations VIII–1 and VIII–4 respectively. The Representatives decided to correct the latitude shown on the map attached to Recommendation VIII–1 so as to read 66° 16′ S. The Representatives decided to remove the discrepancy between the Management Plan for Site of Special Scientific Interest No. 6 (attached to Recommendation VIII–4) and the attached map by substituting the word "three" for the word "four" in section (i) of the Management Plan.

The Meeting considered the question of the designation of Marine Sites of Special Scientific Interest and the opinion was expressed that SCAR should be invited to examine this matter. In this connection, Representatives noted that the Government of Chile intended to propose to SCAR, following agreed procedures, two Marine Sites of Special Scientific Interest.

The United States Delegation submitted the following information on its experience in Sites of Special Scientific Interest:

Management plans for seven Sites of Special Scientific Interest (SSSI) were accepted as interim guidelines by Recommendation VIII–4 in 1975. The 1976–77 austral summer provided the first opportunity to incorporate these guidelines into Antarctic operating procedures.

The existing seven SSSI expire on June 30, 1981, which date is likely to occur before the eleventh Consultative Meeting.

The US Antarctic Program controls visits to SSSI by a permit system and has found this to be an effective means of reducing harmful interference at SSSI 1, 2, 3 and 4 during the 1976–1977 operating season. The posting of information signs around SSSI has been a deterrent to unintended interference by tourists. During this initial year of operations, the US issued one permit for access to SSSI. One request for access to SSSI 3 was denied on grounds that the proposed purpose was in conflict with the Management Plan as set forth in Recommendation VIII–4.

Tenth Consultative Meeting

17. Representatives accepted with pleasure the invitation of the Representative of the United States to hold the Tenth Consultative Meeting in Washington, DC, in 1979.

Other business

18. The United States Delegation submitted documents showing the status of approvals by Governments of Recommendations adopted at Consultative Meetings, as received and recorded by the United States Government as depositary Government for the Antarctic Treaty, up to and including 13 September 1977. The documents are reproduced at Annex 3.

During the course of the Ninth Consultative Meeting it was unanimously agreed that the greetings of all Representatives be conveyed to the Antarctic Stations of the Consultative Parties. The text is at Annex 4.

The Consultative Parties were agreed that in view of the number of important matters requiring continuing consideration it was desirable to

meet on a more frequent basis than in the past. It was noted that the holding of Special Consultative Meetings for *ad hoc* purposes would be a response to this need; and it was agreed that the question of periodicity and nature of meetings within the Treaty framework should be included as an item on the agenda of the Xth Consultative Meeting.

II

RECOMMENDATIONS

ADOPTED AT THE

NINTH ANTARCTIC TREATY CONSULTATIVE MEETING

IX–1

Antarctic Mineral Resources

The Representatives,

Recalling the provisions of the Antarctic Treaty, which establishes a regime for international co-operation in Antarctica, with the objective of ensuring that Antarctica should continue forever to be used exclusively for peaceful purposes and should not become the scene or object of international discord;

Bearing in mind the provisions of Article IV of the Treaty;

Convinced that the framework established by the Antarctic Treaty has proved effective in promoting international harmony in furtherance of the purposes and principles of the United Nations Charter, in ensuring the protection of the Antarctic environment, and on promoting freedom of scientific research in Antarctica;

Noting with thanks the Report of the Scientific Committee on Antarctic Research (SCAR) Group of Specialists entitled Preliminary Assessment of the Environmental Impact of Mineral Exploration/Exploitation in Antarctica (EAMREA);

Recognizing nevertheless that adequate scientific data concerning the harmful environmental effects of activities related to the exploration and exploitation of Antarctic mineral resources, should they occur, are not yet available;

Concerned that unregulated activities related to exploration and exploitation of mineral resources could adversely affect the unique environment of the Antarctic and other ecosystems dependent on the Antarctic environment;

Conscious that the Consultative Parties to the Antarctic Treaty in carrying out scientific research in the area have accumulated valuable experience and can substantially contribute to the protection of the environment and the rational use of Antarctic mineral resources, should exploration or exploitation thereof occur;

Aware of the special responsibilities of Consultative Parties to ensure that any activities in Antarctica, including commercial exploration and exploitation in the future, should they occur, should not become the cause of international discord, of danger to the unique Antarctic environment, of disruption to scientific investigation, or be otherwise contrary to the principles or purposes of the Antarctic Treaty;

Recommend to their Governments that:

1. They reaffirm the basic principles set forth in Recommendation VIII–14 of the Eighth Antarctic Treaty Consultative Meeting;

2. They take note with appreciation of the Report of the Group of Experts on Mineral Exploration and Exploitation annexed to the Report of the Ninth Consultative Meeting and make the best possible use of its conclusions and guidelines;

3. They continue to study the environmental implications of mineral resource activities in the Antarctic Treaty Area and hold at a time and place to be arranged through diplomatic channels a meeting of ecological, technological and other related experts, in accordance with Recommendation IV–24, with a view to developing scientific programmes aimed at:

(i) improving predictions of the impact of possible technologies for mineral exploration and exploitation in the Antarctic, as outlined in Section IIB of the Report of the Group of Experts, and in Section 5 of the SCAR/EAMREA Group Report;

(ii) developing measures for the prevention of damage to the environment or for its rehabilitation, in accordance with Section IIC of the Report of the Group of Experts;

4. They endorse the following principles elaborated at the Special Preparatory Meeting held in Paris from 28 June to 10 July 1976:—

(i) the Consultative Parties will continue to play an active and responsible role in dealing with the question of the mineral resources of Antarctica;

(ii) the Antarctic Treaty must be maintained in its entirety;

(iii) protection of the unique Antarctic environment and of its dependent ecosystems should be a basic consideration;

(iv) the Consultative Parties, in dealing with the question of mineral resources in Antarctica, should not prejudice the interests of all mankind in Antarctica;

5. They note that the provisions of Article IV of the Antarctic Treaty shall not be affected by the regime. It should ensure that the principles embodied in Article IV of the Antarctic Treaty are safeguarded in application to the area covered by the Antarctic Treaty;

6. They study the content of a future regime based on the principles contained in paragraphs 4 and 5 and on such further principles, rules and arrangements as may be agreed, taking full account of all proposals submitted to the IXth Consultative Meeting;

7. The subject "Antarctic Resources – The Question of Mineral Exploration and Exploitation" be the subject of intensified consultation among them and they urge the host Government of the Tenth Consultative Meeting to convene a meeting to consider legal and political aspects of mineral resource issues; this meeting to report to the Tenth Consultative Meeting on the results of its work;

8. They urge their nationals and other States to refrain from all exploration and exploitation of Antarctic mineral resources while making progress towards the timely adoption of an agreed regime concerning Antarctic mineral resource activities. They will thus endeavour to ensure that, pending the timely adoption of agreed solutions pertaining to exploration and exploitation of mineral resources, no activity shall be conducted to explore or exploit such resources. They will keep these matters under continuing examination;

9. The subject "Antarctic Resources – The Question of Mineral Exploration and Exploitation" be placed on the Agenda of the Tenth Antarctic Treaty Consultative Meeting.

IX–2

Antarctic Marine Living Resources

The Representatives,

Recalling the special responsibilities conferred upon the Consultative Parties in respect of the preservation and conservation of living resources in the Antarctic by virtue of Article IX paragraph 1(f) of the Antarctic Treaty;

Recalling further the history of action taken by Consultative Parties concerning conservation and protection of the Antarctic ecosystem including, in particular, Recommendations III–VIII, VIII–10, VIII–13 and IX–5;

Noting that concentrations of marine living resources are found in the Antarctic Treaty area and adjacent waters;

Aware of the need to compile more information with a view to developing a good scientific foundation for appropriate conservation measures and rational management policies for all Antarctic marine living resources;

Recognising the urgency of ensuring that these resources are protected by the establishment of sound conservation measures which will prevent overfishing and protect the integrity of the Antarctic ecosystem;

Concerned that interim guidelines for the protection and conservation of Antarctic marine living resources are desirable until such time as a definitive regime enters into force;

Convinced that provision for effective measures to conserve Antarctic marine living resources as well as for collection and analysis of the data necessary to develop such measures will require the early conclusion of a definitive conservation regime;

Recommend to their Governments that:

I

Scientific Research

1. To the greatest extent feasible, they cooperate broadly and comprehensively in scientific investigations, and in the exchange of information thereon, relating to the Antarctic marine environment and that they intensify as far as possible scientific research related to Antarctic marine living resources;

2. In planning their marine activities in the Antarctic, they have regard to the advantages that will accrue from coordination by them of their scientific investigations contributing to the BIOMASS programme;

3. They give sympathetic consideration to the provision of practical measures (such as ships, ship time, personnel and finance) in support of the implementation of the BIOMASS programme or other similar programmes;

4. They examine the possibility of integrating, in so far as is practicable, research vessel programmes with the activities of other vessels, and make available on vessels operating in the Antarctic, other than research vessels contributing directly to the BIOMASS programme, time and facilities for routine observations aimed at extending the data base for the programme.

II

Interim Guidelines for the Conservation of Antarctic Marine Living Resources

1. They observe the following interim guidelines pending entry into force of the definitive regime for Antarctic Marine Living Resources:

(a) they cooperate as broadly and comprehensively as possible in the mutual exchange of statistics relating to catch of Antarctic Marine Living Resources;

(b) they should show the greatest possible concern and care in the harvesting of Antarctic Marine Living Resources so that it does not result in the depletion of stocks of Antarctic marine species or jeopardizing the Antarctic marine ecosystem as a whole;

(c) they urge those Governments which are not parties to the Antarctic Treaty and which engage in activities involving the use of the marine living resources of Antarctica to take account of these guidelines;

2. They review these interim guidelines as and when necessary and in any event following the conclusion of the definitive regime with a view to their future elaboration in the light of the provisions of the definitive regime.

III

Establishment of a Definitive Conservation Regime

1. A definitive regime for the Conservation of Antarctic Marine Living Resources should be concluded before the end of 1978.

2. A Special Consultative Meeting be convened in order to elaborate a draft definitive regime, and in particular:

(a) to determine the form of the definitive regime, including the question as to whether an international instrument such as a convention is necessary;

(b) to prepare, if necessary, draft rules of procedure for a subsequent decisive meeting for the establishment of the definitive regime;

(c) to decide on participation in such a meeting by States other than Consultative Parties which are actively engaged in research and exploitation of Antarctic Marine Living Resources and the participation, on an observer basis, of appropriate international organisations;

(d) to finalise the date and place of the decisive meeting;

(e) to take any other steps in order to facilitate the work of the decisive meeting referred to above.

3. The Special Consultative Meeting shall base its work on this recommendation and take account of the discussions at the Ninth Consultative Meeting, its report and the documents presented to it, and, in the elaboration of a draft definitive regime, shall take into account *inter alia* the following elements:

(a) the regime should explicitly recognise the prime responsibilities of the Consultative Parties in relation to the protection and conservation of the environment in the Antarctic Treaty area and the importance of the measures recommended by the Consultative Parties to this end;

(b) The provisions of Article IV of the Antarctic Treaty shall not be affected by the regime. It should ensure that the principles embodied in Article IV are safeguarded in application to the marine areas south of 60° South latitude;

(c) the regime should provide for the effective conservation of the marine living resources of the Antarctic ecosystem as a whole;

(d) the regime should cover the area of specific competence of the Antarctic Treaty;

(e) the regime should, however, extend north of 60° South latitude where that is necessary for the effective conservation of species of the Antarctic ecosystem, without prejudice to coastal state jurisdiction in that area;

(f) the regime should not apply to species already regulated pursuant to existing international agreements but should take into account the relationship of such species to those species covered by the regime.

IX–3

Improvement of Telecommunications in the Antarctic

The Representatives,

Considering that requirements in the field of telecommunications as regards collection and dissemination of meteorological data, and the need for scientific, administrative and operational traffic have developed substantially since the second telecommunications meeting of experts of the Consultative Parties held in Buenos Aires in 1969;

Considering that the implementation of Recommendation VI–1 and VII–7, and participation in the programmes of the World Meteorological Organisation, particularly the World Weather Watch, require a thorough review and improvement of the network operating in the Antarctic;

Recommend to their Governments that they:

1. Compile comprehensive data, each for its own part, on the types of traffic, modes of transmission, timing, frequencies of their telecommunications schedules and current equipment of their telecommunications programmes in the Antarctic, as well as on projects in the process of implementation and proposed improvements, in particular by designating, where appropriate, stations capable of replacing others in the event of breakdown;

2. Forward all such data to each of the other Consultative Parties via diplomatic channels on the one hand and on the other by direct despatch to the departments concerned;

3. Arrange for a meeting of telecommunications experts to be held, on the initiative of the Government of the host country, before the Tenth Consultative Meeting, to analyse the data thus compiled, suggest desirable measures of harmonisation and put forward recommendations on improvements to be made in the operation of the telecommunications network in the Antarctic;

4. Request SCAR through their National Antarctic Committees to undertake, at the earliest opportunity, a study of the most recent applications of science and technology to the specific problems of the Antarctic in the field of propagation of radio waves, and to pass on its conclusions to the Consultative Parties prior to their Tenth Meeting or if necessary to the next Consultative Meetings.

IX–4

Co-operation in Transport

The Representatives,

Recalling the appropriate provisions of the Treaty as well as Recommendation VIII–7;

Acknowledging the comprehensive report on transport resources and potential requirements delivered to the Fourteenth Meeting of the Scientific Committee on Antarctic Research (SCAR);

Concurring that the most effective use of aviation assets will be in co-ordinated air support projects (as circumstances permit) without major additional construction or investment;

Noting that new types of aircraft, equipment, and facilities are either being developed or likely to be introduced, and the continuing need for standardization of facilities and procedures to ensure effective co-ordination;

Recommend to their Governments that:

1. They request SCAR, through their National Antarctic Committees, to continue the work of the Sub-committee on Co-operative Air Transport System for Antarctica (CATSA) of the Working Group on Logistics;

2. They request their offices responsible for the administration of Antarctic expeditions to adopt, to the extent practicable, such measures for improved compatibility of facilities and procedures as SCAR might be able to suggest.

IX–5

Man's Impact on the Antarctic Environment

The Representatives,

Recommend to their Governments that they approve the following declaration on the Protection of the Antarctic Environment:

The Governments participating in the Ninth Antarctic Treaty Consultative Meeting,

Deeply aware that the Antarctic environment is unique and vulnerable to contamination and disturbance;

Determined to protect the Antarctic environment from harmful interference;

Having particular regard to the conservation principles developed by the Scientific Committee on Antarctic Research (SCAR) of the International Council of Scientific Unions;

Recalling their obligation to exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity in Antarctica contrary to the principles or purposes of the Antarctic Treaty;

Declare as follows:

1. The Consultative Parties recognise their prime responsibility for the protection of the Antarctic environment from all forms of harmful human interference;

2. They will ensure in planning future activities that the question of environmental effects and of the possible impact of such activities on the relevant ecosystems are duly considered;

3. They will refrain from activities having an inherent tendency to modify the Antarctic environment unless appropriate steps have been taken to foresee the probable modifications and to exercise appropriate controls with respect to harmful environmental effects;

4. They will continue to monitor the Antarctic environment and to exercise their responsibility for informing the world community of any significant changes in the Antarctic Treaty Area caused by man's activities.

IX–6

Oil Contamination of the Antarctic Marine Environment

The Representatives,

Recommend to their Governments that:

1. They consider the possibility of preparing reports concerning the pathways by which oil may reach the Antarctic marine environment as a result of man's maritime activities in the Antarctic;

2. They include in these reports proposals relating to practicable means, if any, by which such oil contamination might be reduced;

3. They consider the possibility of instituting, in association with appropriate organisations, a programme for the determination of baseline levels of contamination of the Antarctic marine environment by oil;

4. They provide such reports as they may have prepared to, and further consider this matter at, the Meeting of Experts recommended in paragraph 3 of Recommendation IX–1, with a view to making proposals concerning these matters for consideration at the next Consultative Meeting.

III

ANNEXES

Annex 1

SPEECHES AND STATEMENTS AT THE OPENING SESSION

- Opening speech by Mr. Ted Rowlands, M.P., Minister of State for Foreign and Commonwealth Affairs, United Kingdom
- Statement by His Excellency Mr. J. C. Beltramino, Representative of Argentina
- Statement by His Excellency Mr. K. G. Brennan, Representative of Australia
- Statement by Professor A. van der Essen, Representative of Belgium
- Statement by His Excellency Mr. F. Zegers, Representative of Chile
- Statement by His Excellency Mr. S. Hessel, Representative of France
- Statement by Mr. S. Kadota, Representative of Japan
- Statement by His Excellency Mr. J. G. McArthur, Representative of New Zealand
- Statement by His Excellency Mr. O. Bucher-Johannessen, Representative of Norway
- Statement by His Excellency Mr. A. Starewicz, Representative of Poland
- Statement by His Excellency Mr. M. I. Botha, Representative of South Africa
- Statement by Dr. J. A. Heap, Alternate Representative of the United Kingdom
- Statement by Mr. R. C. Brewster, Representative of the United States of America
- Statement by His Excellency Professor O. N. Khlestov, Representative of the Union of Soviet Socialist Republics

UNITED KINGDOM

SPEECH BY Mr. TED ROWLANDS, M.P., MINISTER OF STATE FOR FOREIGN AND COMMONWEALTH AFFAIRS

Your Excellencies, Ladies and Gentlemen:

Just over 200 years ago Captain Cook confidently forecast that the Antarctic was useless to man. But twice since then man has over-exploited Antarctic waters and virtually wiped out first the population of fur seals and then the stocks of Antarctic baleen whales. Are those sad stories to be repeated or can we be wiser than our forefathers?

The gigantic Antarctic ice mass has been a regulating feature of the world's weather for some 10 to 15 million years longer than man has been on this planet. Is it possible that what man may do over the next century or two will unbalance this climatic regulator? Or is the Antarctic so vast as to be virtually untouchable by man's activities?

The two questions I have posed – those of resources and environment – come together in this conference. We are meeting here under the aegis of the Antarctic Treaty. That Treaty was framed eighteen years ago to enable the scientists of the signatory nations to pool their knowledge and resources to deal with scientific problems which none had the capacity to tackle in isolation.

The results of the scientific co-operation achieved within the Treaty have quietly revolutionised the way scientists all over the world look at, and think about, the planet we live on. These achievements are now taken for granted but they were only made possible by a politically far-sighted act that replaced discord with co-operation.

We now know that the Antarctic influences the whole world through the atmosphere and the oceans. The Antarctic is not a place the world can afford to neglect or to abuse – neglect its resources or abuse its environment.

There is now a world-wide revolt against the misuse of the environment: a revolt not only in the industrialised nations but also in the vast new urban complexes of the developing world and in the rural areas faced with the tragic results of unwise agricultural exploitation. All over the world peoples and nations are being forced to recognise that they must limit what they do to their environment.

Where these limits have been exceeded the environment has changed, sometimes irreversibly, posing enormous problems for the communities involved – problems such as:

desertification;

destruction of rain forests;

wastage of water; and

over exploitation of fish resources.

Are we really going to allow problems like this to arise in the Antarctic?

The Antarctic is at present a virgin continent – and this virginity is one of its most valuable assets. This is a laboratory in which, because of its

purity, we can monitor all the effects of man on the world in which he lives. Exploitation of resources will inevitably have its effects on the Antarctic and the sure lesson from our mistakes in the rest of the world is that these effects will be harmful unless they are foreseen and guarded against.

I do not mean to imply that Antarctic resources should not be exploited – the world need for them is probably too great for such an argument to be tenable. What I do mean is this: in 1959 the challenges then posed by the need to know more about the Antarctic induced a farsighted response – the Antarctic Treaty – from which all of us here, as well as the world community, have benefitted enormously.

The resources of the Antarctic present us with new challenges, calling for equally farsighted and courageous responses. The idea that we should devote so much attention and importance to the Antarctic may seem almost fanciful. Not to us perhaps – not to the scientists and politicians deeply concerned with the issues – but to the general public.

It is up to us to get the message across. We must seek to show to our peoples the relevance of the Antarctic to their daily lives. If this is not done it may not in the end be possible for governments, however enlightened, to carry out policies based on wider, longer-term considerations. We must alert our peoples to the real issues if we are to carry them with us.

Elsewhere in the world we usually find ourselves trying to catch up with the consequences of our past mistakes. In the Antarctic the case is different. We have the opportunity, the obligation, and much of the knowledge we need to foresee the results of exploitation and to regulate them in such a way as to keep to the minimum the harmful effects such exploitation will have. And above all, we have a chance to do this while the problems are still ours to solve.

But on what basis can exploitation of resources be regulated? Some delegations here start from the position that regulation should be based on claims to territorial sovereignty and jurisdiction over continental shelves and fish zones. Other delegations start from the position that they do not recognise such claims.

We need to recognise:

firstly, that there is a measure of justification for both these positions;

secondly, that neither position is likely to provide the sole basis for an agreement; and

thirdly, that without an agreement the Antarctic environment may be despoiled and Antarctic resources decimated once again.

Here is a challenge that requires the courageous responses of which I spoke before.

If we do not face up to this challenge a vacuum will be created and that vacuum would be filled, if not by us then by others. The countries represented in this hall are pre-eminent amongst the family of nations in the knowledge that they have acquired of the Antarctic by long years of effort. That knowledge gives all of us here the responsibility to reach decisions about the future of Antarctica and the opportunity to ensure that

such decisions are wiser than those which could be reached by others. But that opportunity will last only so long as the responsibility is clearly being accepted.

Whether we like it or not, one of the tests of the obligation imposed on us by our possession of knowledge is whether the decisions we reach are acceptable to the wider world community. The test of that acceptability will largely depend on the clarity with which we are seen, as we were in 1959, to be serving the long term interests of the Antarctic and the world community rather than short term illusions of national advantage.

The world will not give us long to see if we can pass these tests. If we fail them, the obligation to come up with answers to Antarctic problems will inevitably devolve on the wider community where the knowledge which we possess about the Antarctic could be dangerously diluted or even swamped.

The British Government is confident that we can pass these tests and meet these challenges, instead of leaving behind a moribund Treaty as a monument to what might have been. We can construct new models of agreement on the firm basis of all that we have so far achieved.

Your Excellencies, Ladies and Gentlemen, it gives me great pleasure to declare open this, the Ninth in the series of Antarctic Treaty Consultative Meetings.

ARGENTINA

STATEMENT BY HIS EXCELLENCY Mr. J. C. BELTRAMINO

Mr. Chairman:

May I first of all express the Argentine Delegation's satisfaction that the Ninth Antarctic Consultative Meeting should be taking place in a country having close and traditional ties with ours; and we trust that from it a final settlement will, as recommended by the United Nations, be reached to the sole outstanding issue between us. At the same time we should like to welcome Poland, which is taking part in this Consultative Meeting for the first time, and to congratulate the Chairman on his election.

This further meeting brings us together at a time when there have been substantial developments in scientific co-operation and when the future deployment of economic activities presents a challenge to the ongoing efforts to arrive at mutually acceptable solutions within the provisions and principles of the Antarctic Treaty.

My country's delegation, whose position on sovereignty in Antarctica – which I take this opportunity of reaffirming – is well-known, considers that when the complex task of preparing the rules which will have to govern such activities is put in hand, on the basis of the relevant studies and meetings held on the matter, it is absolutely essential that the existing political realities in Antarctica, and the continuing interest taken

and activities pursued by certain Consultative Parties prior to the International Geophysical Year, be accepted as a fact, while at the same time keeping the said rules compatible with legislation in the various countries concerned.

There is a right time for attempting such action, according to the nature of the subject at issue, and it would be unrealistic not to take this into account. The search for the necessary understanding will not be easy, but we feel sure that the spirit of co-operation which has hitherto presided over implementation of the Antarctic Treaty will ultimately prevail.

The greater nearness of Argentina's lands in Antarctica and South America clearly accounts for our enduring interest in the conservation of the ecosystem and other dependent ecosystems, and the living resources of the whole area. We therefore feel genuine concern over the growth of activities involving exploitation of marine living resources as well as others which may have an impact on these ecosystems and resources.

That effective conservation measures, i.e., measures conducive to rational utilisation of such resources, should be adopted seems to us to be glaringly obvious, and, as in the past, it is the Consultative Parties who should take the initiative in this respect.

We maintained at the time that scientific research should continue to be boosted and promoted so as to ensure the best results in terms of both pure and applied science. We note with satisfaction that over the years co-operation among the Consultative Parties in this field has proceeded without a hitch and in accordance with the provisions of the Antarctic Treaty and the Recommendations adopted.

We feel, however, that the time has come to examine ways and means of ensuring a better geographical distribution of scientific bases by promoting the establishment of new ones so as to give a better and more comprehensive coverage of Antarctica as a whole.

This Consultative Meeting is confronted by problems whose difficulties and complexities cannot be ignored, besides others probably more easily capable of solution. We cherish the hope that in every instance the Antarctic Treaty, by which we are all united, will rise to the occasion, and that we shall be able to contend with the political realities that face us in the co-operative, sensible and intelligent spirit that has always distinguished these Consultative Meetings.

AUSTRALIA

STATEMENT BY HIS EXCELLENCY Mr. K. G. BRENNAN

Thank you, Mr. Chairman:

Might I first express my delegation's pleasure at seeing you in the Chair and congratulate you on your election, and indeed congratulate the Meeting on the wisdom of its choice. We would be grateful also if

you would convey our thanks and compliments to the Minister of State at the Foreign and Commonwealth Office who was here to open our meeting. Like our distinguished colleagues from Argentina, I would also like, on behalf of the Australian Delegation, to express pleasure at the presence here of Poland, which is participating in our discussions for the first time.

Now, Sir, this is one of the most important and historic of the Consultative Meetings in which we regularly participate. In addition to the normal agenda in which we review the scientific work that has been carried out to further the plans for scientific co-operation under the Treaty, we have of course issues of enormous importance affecting resources in the Antarctic, both living resources and mineral resources.

The Minister of State posed a question to us today; I hope it was a rhetorical question not asking for an answer. He said: "Are we wiser than our forefathers?" Well, there is an old saying that if we can see further than our forefathers it is because we are able to stand on their shoulders. I think that we must all be very sure that we do stand on the shoulders of our forefathers and that we do profit from the experience of others in moulding the future.

It is common ground amongst us that the Treaty partners have a serious obligation to ensure that the delicate ecological balance in this unique part of the world is not damaged by the unwise activities of men, particularly in the exploitation of the resources, whether those resources be living resources or mineral resources.

One of our most urgent tasks in the next few days will be to further the activities which have already begun to lay down careful principles by which we will all be guided and which will ensure that the delicate ecology of that area is not adversely affected by what we do. It is to be hoped that decisive steps will be taken at the present meeting for the development of a Convention in regard to the conservation of the living resources of the Antarctic Area. Certainly the Australian Delegation is looking forward to very active participation in discussion with colleagues on this question.

So far as the mineral resources are concerned, it would be my delegation's hope that, there again, energy will activate our discussions and that we will push forward in the development of agreed principles to govern the exploitation. Perhaps I might here mention that my own delegation will be urging very strongly that the parties here should agree to a moratorium on the exploitation of the non-living resources of Antarctica until the various environmental and other studies which we have under way have been completed.

The Minister of State referred to the differing positions that the participants in this meeting have on the question of sovereignty in regard to the resources of the Antarctic.

Of course, it is well known that my own country adheres very strongly to a position of sovereignty over the Australian Antarctic Territory and could not accept any arrangements which did not respect our position there. This, of course, will not inhibit Australia from the very active

pursuit, to which our Argentine colleague referred, of an acceptable solution. And in the same way that we faced this issue when the Antarctic Treaty was drawn up, and found a resolution of the difficulties, my own delegation has every confidence that we will again succeed in this task.

Thank you very much, Mr. Chairman.

BELGIUM

STATEMENT BY PROFESSOR A. VAN DER ESSEN

Mr. Chairman:

May I first of all offer the sincere congratulations of the Belgian Delegation of your unanimous election as Chairman of the Ninth Antarctic Treaty Consultative Meeting. Congratulations also to the Secretary-General, Mr. Smallwood.

It is particularly fortunate that the Ninth Consultative Meeting, which will undoubtedly be of considerable importance, should be held in London.

The United Kingdom has a very long history of Antarctic investigation. From the early nineteenth century it organised expeditions to Antarctica which made a substantial contribution to the discovery of its particular features. Names such as Ross, Scott, Shackleton or Fuchs, are in everyone's memory, and we need do no more than list them to emphasise the particular merits of our host country in the field of exploration and discovery. The most famous of special centres, the Scott Polar Institute, Cambridge, bears witness to Britain's admirable and unceasing endeavours in this direction.

And finally it was in London that the Convention for the Conservation of Antarctic Seals was concluded and signed in 1972, the culmination of persevering efforts in British circles, by Dr. Brian Roberts in particular.

All this seems to augur well for the success of our Consultative Meeting. I should be most grateful, Mr. Chairman, if you would act as our interpreter in thanking the British Government for the welcome accorded to us.

The Belgian Delegation is approaching the Ninth Consultative Meeting in a completely open and co-operative spirit. Of course, we may hope that Antarctica will remain for ever as an outstanding research laboratory, with its own very special environment unimpaired. Basically this is, I think, the real wish of the signatory Powers, who have reason to be proud of the highly innovative diplomatic instrument they drew up in 1959.

But a realistic view requires us to take into consideration the increasing interest shown elsewhere in what is held to be the wealth of Antarctica. To meet this need, we must devise a suitable system for the exploration of these resources which takes other countries into account.

This is a task which devolves upon the signatory Powers to the Antarctic Treaty, for they alone are inherently capable of bringing it to a successful conclusion while safeguarding the principles and purposes of the Treaty. But in the light of the provisions of Article IV it will not be an easy task.

Richelieu said that whatever is necessary must be made possible: an attractive idea, but something which is certainly easier said than done. Yet duty requires us to make every effort to put it into practice, despite the serious legal, political or psychological problems we shall have to tackle. I have no doubt that such attempts will be made, and my most ardent wish is that they may be brought to a successful conclusion at our meeting.

Mr. Chairman, the Belgian Delegation cannot conclude without expressing its satisfaction at the presence of Poland at our Consultative Meeting. The establishment of the Henryk Arctowski Station gave Poland this right, which was placed on record by the Special Consultative Meeting held in July. Poland was the first Power to accede to the Treaty, as early as 1961, and its nationals have a long history of participation in Polar exploration, for Henryk Arctowski was the meteorologist on the " Belgica " expedition, which was the first in 1898, to winter south of the Antarctic Circle.

CHILE

STATEMENT BY HIS EXCELLENCY Mr. F. ZEGERS

Mr. Chairman:

As our proceedings begin, the Chilean Delegation is happy to salute the United Kingdom of Great Britain and Northern Ireland as a friendly country with a distinguished record of Polar achievement, which has so cordially welcomed us to its capital city.

The delegation also wishes to pay special tribute to the memory of the great Norwegian jurist and public figure, Edvard Hambro, now no longer with us, who presided with such distinction over the Eighth Consultative Meeting, and rendered invaluable service to the Antarctic system.

This Ninth Consultative Meeting is taking place at a critical juncture in the history of the Washington Treaty, when various circumstances appear to threaten both the privileged status conferred upon the Continent by that instrument, and the political and legal equilibrium which gave it birth and allowed it to evolve.

Looking back over the nearly twenty years which have elapsed since the Treaty was negotiated, we have good grounds for affirming that it has produced a set of achievements. The Antarctic sub-system is in many ways more effective than the global system applied to problems on a world scale.

In Antarctica we have established an ecological reserve; an absolutely clear field for the advancement of human knowledge through scientific research; disarmament, that gives expression to its fundamental character of being a peaceful continent; and effective co-operation among countries differing in respect of latitudes, stages of growth and political systems. This is an impressive achievement, both in its preservation of the marvels of nature and its creation of a legal and political system unique in contemporary history.

The work of the Treaty Parties active in the area, on whom the primary responsibility in Antarctic matters has devolved, in the past as in the present, is to be regarded as an important contribution for the benefit of mankind, in complete conformity with the aims and objectives of the United Nations Charter.

The challenge to the Treaty's achievement and progress during twenty years of work by the Consultative Parties, has taken the form of the drive to discover and benefit from new resources, partly directed towards the seas and land masses of Antarctica. Such possibility of exploring for, and exploiting, the living and mineral resources existing in the Treaty area jeopardizes the very status the Treaty sought to confer upon Antarctica, as an ecological reserve for the benefit of all mankind.

In other words, it threatens the natural wonders of Antarctica which have caught the admiration of poets and scientists and are of such vital importance to the world ecosystem. It also imperils the political equilibrium which the Treaty achieved between countries having rights or claims to sovereignty in Antarctica, and other States pursuing activities and interests in that Continent.

These problems do not, of course, mean that the Consultative Parties now assembled can seek indefinitely to prevent the utilisation of these resources or to hold back the tide of history which sometimes carries all before it. But any system of exploration and exploitation we may establish must on the one hand be compatible with, and even subordinate to, the status of Antarctica as an ecological reserve, and on the other uphold the equilibrium achieved in 1959, which implies safeguarding the rights which were deliberately subordinated to obligations under the Treaty for the purpose of certain goals, which will henceforward no longer be the only ones.

Chile is the country nearest Antarctica and possesses indubitable and age-old rights of sovereignty there which are safeguarded by Article IV of the Treaty, and need to be emphatically reaffirmed on this momentous occasion. It cannot, therefore, stand apart in any way from any agreements and measures which may be adopted in respect of existing resources in the lands and seas to which they apply.

This very proximity means that the Chilean ecosystem is closely enmeshed in the Antarctic ecosystem as a whole, and this relationship involves on our side a special interest in the agenda item " Man's impact on the Antarctic environment ", and its essential corollaries, those dealing with mineral and living resources. The President of the Republic of Chile reaffirmed this dual definition during his recent visit to Antarctica.

The Treaty, and later developments in the form of Recommendations and action by the Consultative Parties, have defined the whole of the Treaty zone as a Special Conservation Area, in the terminology used in the Agreed Measures for the Protection of its Fauna and Flora. The Consultative Parties have acknowledged, and accepted, in these and other agreements, a special responsibility for the Antarctic ecosystem, which ought to be reaffirmed in a solemn declaration.

This responsibility should find expression in according the necessary priority to the preservation of the environment over any utilisation of Antarctica's resources, and in adopting adequate measures for the conservation of all living resources found within the Treaty area.

The new state of affairs cannot and should not cause the Treaty and Antarctica to lose their status or priorities: as a peaceful area, open to scientific research, and as an ecological reserve.

As one aspect of their special responsibility, the Parties should fully accept the joint undertaking enshrined in Article X, by endeavouring in conformity with the Charter of the United Nations to ensure that no one engages in any activity in the Treaty area contrary to the principles and purposes of the Treaty as clarified and developed in its lifetime of almost two decades.

At this meeting we should give separate consideration, under Items 6 and 7*, to the problems posed by the question of the exploitation of minerals and living resources. Nevertheless, each should, following the example of the Eighth Consultative Meeting, be tackled in relation to the topic of Man's Impact on the Antarctic Environment.

We believe that these matters should be despatched, albeit without undue haste, with all due urgency, but no precipitation liable to make us commit irreparable errors.

Without prejudice to the intensive discussion we can devote to these fundamental issues, we should consider the possibility of calling, if necessary, a Special Consultative Meeting during the coming year at which further consideration could be given to all or some of them. And the annual frequency of Consultative Meetings that prevailed during the early years of the Treaty's operation, could be reinstated on a permanent basis.

As to the substance of these issues, we must never lose sight in our work of the objectives set by the Treaty and the twofold necessity of not spoiling the natural world of Antarctica nor upsetting the equilibrium so arduously achieved twenty years ago. Antarctica is no uncharted territory, and it is moreover covered by a special legal system which has proved its worth over time and at the bar of history.

Mr. Chairman, Chile most emphatically reiterates its espousal of the Antarctic Treaty and dedication to the understanding, preservation and development of this Continent, to which it is indissolubly linked.

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* In the final agenda, these became items 5 and 6.

At this decisive moment in our debates – perhaps the most important in the history of the Treaty – my delegation trusts that they will at this meeting be sufficiently illuminating for our acts to be accompanied by all the wisdom that present circumstances demand.

Thank you.

FRANCE

STATEMENT BY HIS EXCELLENCY Mr. S. HESSEL

Mr. Chairman:

The French Delegation would like to begin by offering you its warm congratulations on your being elected to assume the Chairmanship of our Meeting. We have no doubt that, under your enlightened guidance, the present Ninth Consultative Meeting will be as fruitful as those which have preceded it. May I also be permitted to express our congratulations to the Secretary-General, Mr. Smallwood, and to Mr. Loader, the Conference Officer.

But, first and foremost, I would like to address myself to the Norwegian Delegation, to tell them how profoundly we regret the passing last year of our friend, Ambassador Edvard Hambro, who was not only an eminent diplomat but also possessed an uncommon knowledge of matters relating to the Antarctic. He was unremitting in his devotion to our cause and we shall doubtless frequently have occasion to feel the want of the excellent advice which he was able to offer with so much wisdom, insight and friendship.

In my turn, I wish to express my satisfaction at seeing in our midst a Polish Delegation for the first time, and in circumstances provided for by the Treaty. May I also take this opportunity, Mr. Chairman, of expressing to you on behalf of my delegation our deep gratitude to the British Government, whose generous hospitality has made it possible for us to meet here and who have this year very efficiently arranged two Preparatory Meetings, the organisation and usefulness of which have been much appreciated by us.

Our delegation is, naturally, fully aware of the far-reaching importance of this meeting, to which the Minister of State, Mr. Ted Rowlands, drew attention so effectively in his opening address. I believe that I should even be correct in saying that, from many points of view, the present meeting is the most significant of all those held since 1959.

In this context, the agenda covers two main issues: the possible prospecting for, and exploitation of, mineral resources, and the marine resources of Antarctica. We all understand the complexity of these questions, but in my view this provides a powerful argument for reaffirming our solidarity and for the joint exercise of the full range of our responsibilities.

Be that as it may, I hope that during the course of the present Meeting, while continuing firmly in our support for the stated objectives of the Treaty – the preservation of the Continent for all time from military confrontation, the protection of the environment and the freedom of scientific research – we shall approach the new problems which will inevitably arise in this part of the world in the same spirit of loyal and active co-operation.

With this in mind, my delegation hopes that the present Meeting will lead to a very clear expression of the intention of the Consultative Parties to go ahead with the formulation of principles and directives to regulate future activities connected with prospecting and the exploitation of resources in the Antarctic.

JAPAN

STATEMENT BY Mr. S. KADOTA

Thank you, Mr. Chairman:

I wish to join the previous speakers in congratulating you on your election as the Chairman of this Consultative Meeting.

I wish also to thank the United Kingdom Government – the host government – for the courtesy and efficiency with which it has prepared and organised this meeting.

I would also like to welcome most cordially the Delegation of the Polish Government among us. May I say that my delegation wishes to collaborate most closely with the Delegation of Poland in the future work of this group.

I would like to take this opportunity to make one remark on the work of the present Consultative Meeting. We see in the agenda that the question of resources – both living and mineral – has now become a central issue for the Consultative Parties of the Antarctic Treaty.

We know, through our preliminary studies of this question, that it represents a major challenge to us all, possibly involving the interpretation and implementation of Article IV of the Treaty. And we think most imaginative efforts may be needed on the part of all of us to deal with this important question.

I believe that in meeting with such a challenge, it is essential that the integrity of the Antarctic regime, which has been built up and consolidated in the course of the past 18 years, should not be weakened but be further strengthened. The Japanese Delegation will spare no efforts in this regard.

NEW ZEALAND

STATEMENT BY HIS EXCELLENCY Mr. J. G. McARTHUR

Mr. Chairman:

It gives the New Zealand Delegation much pleasure to be in London for this, the Ninth Antarctic Treaty Consultative Meeting. I would like to congratulate you, Mr. Chairman, on your election to guide our deliberations and to thank the British Government most sincerely for the arrangements made on our behalf.

The burden on the host government for this particular meeting has been especially heavy with two Extended Preparatory Meetings and numerous more informal gatherings. We are appreciative of the work of the Conference Secretariat throughout this year, and particularly of Dr. John Heap's efforts to ensure that all delegations were fully acquainted in advance with all of the items on our agenda.

It is appropriate to hold this meeting in London, for it was here that the foundations for the "heroic age" of Antarctic exploration were laid. Britain has a long and distinguished history in Antarctic exploration and research, from the time of Ross, Scott and Shackleton through to Sir Vivian Fuchs.

Many of those British expeditions sailed from New Zealand and included New Zealanders in their parties. The hardships endured by those early explorers, who laid the foundations for the later development of scientific activity in the Antarctic, are remembered in our country. The area of Antarctica which they explored is now the Ross Dependency, with which New Zealand has had a lasting association.

I should also like to thank the French Government for their having organised the extremely valuable Special Preparatory Meeting which I had the good fortune to attend in Paris in June and July last year. This meeting expanded the concept of regular consultations between us on Antarctic matters. It has given us a new and valuable mechanism which allows us to isolate and focus on individual matters of pressing concern.

I think we will find ourselves using Special Preparatory Meetings more frequently in the future. Indeed we believe that the time has also come for the Consultative Parties to return to the practice followed in the early years after the Treaty entered into force of meeting on a more frequent basis than has been the practice in recent years.

At this point I would like to take the opportunity to pay tribute to our Chairman at the Eighth meeting, His Excellency Mr. Edvard Hambro, whose wisdom, wit and sound commonsense we shall sorely miss in our counsels. I would ask the Norwegian Delegation to accept our most sincere sympathy on the loss of such a great man.

This is an historic meeting in that for the first time since the signature of the Antarctic Treaty in 1959 the twelve original signatories are joined at a full Consultative Meeting by a country which has earned its right to take its seat at this table by clearly demonstrating that it is "conducting

substantial scientific research activity" in Antarctica. New Zealand welcomes most warmly this extension of the Antarctic group and in extending our congratulations to the Polish Delegation we are sure that they will bring fresh thoughts and ideas to our consideration of the many problems which confront the Treaty governments. In particular we shall welcome the views of Poland as a new member for the fresh insights they may offer on the difficult questions which we have been grappling with over recent years in the Treaty context.

The New Zealand Government is pleased to note that considerable progress has been made in preliminary consideration of the marine living resources issue – and we are hopeful that with sufficient political will there will be further progress in the next three weeks. For the fact is that new, non-traditional living resources of the Antarctic have already become the subject of commercial investigation. The exploitation phase is now at hand.

We believe that following from the special responsibilities that the Treaty powers have accepted in respect of the Antarctic environment it is incumbent upon them to establish appropriate conservation measures, as a matter of urgency, for the protection of the entire ecosystem. We would hope that it will be possible at this meeting to agree on the principles upon which a conservation regime would be based. It may also be desirable to adopt some limited interim measures in this regard pending the negotiation of an appropriate convention or other instrument, perhaps at a special meeting in the coming year.

The New Zealand Delegation would also like to see positive progress made on the vital issue of mineral resource exploration and exploitation. We do not underestimate the enormous difficulties which have to be overcome, but remain convinced that, if the Treaty is to survive, an early solution to this most pressing problem must be found.

We have certain expectations of any regime to control mineral exploitation:

First, it should limit and carefully regulate exploitation activities to ensure the widest possible protection of the fragile Antarctic environment;

Second, the regime would need to ensure, in some practical way, that the special interests of certain countries in the Antarctic are accommodated;

Third, that it is necessary to bear in mind the ultimate need for acceptance of any resources regime by the international community at large.

The Paris Meeting was an extremely useful forum enabling a wide range of views to be aired. As a result of that meeting, we have established a good base, and we look forward to a continuation of the dialogue at this present meeting.

In the opening statement by my delegation at the Paris Meeting, we spoke of the atmosphere of increasing external pressure which surrounds consideration by the Treaty Powers of the most important topics before them.

Since Paris, nothing has occurred to invalidate that statement – indeed, to the contrary. I would not say that Consultative Meetings in the past have been meetings for the *cognoscenti* alone: but they certainly had a different quality from that which must inevitably mark them today.

It is difficult to avoid a deeper feeling of the responsibility which we, as the Treaty Powers, have assumed in our preoccupation with the affairs of Antarctica; or that we must be conscious in all we do that our actions now have a wider public. They need therefore to carry with them a conviction that what we decide is arrived at not as a result of narrow considerations but in the best interests of all. It is in this spirit that my delegation will consider most carefully all ideas which may be put forward.

NORWAY

STATEMENT BY HIS EXCELLENCY Mr. O. BUCHER-JOHANNESSEN

Mr. Chairman:

Eighteen years have passed since the Antarctic Treaty was signed in Washington and developments during the period it has been in force have shown that it has been a good treaty which has served its parties well. I think we are all of the opinion that the Treaty and the co-operation under it can serve as an example to other parts of the world.

Since the signing of the Treaty the development in technological capability has increased to a considerable extent, opening up new areas to human endeavour. Although Antarctica proper most probably will not be open to profitable exploitation in the immediate future, we nevertheless assume that the technological capability for developing possible Antarctic mineral resources, in a longer term perspective, will be within our grasp. We also know that within some quarters there is at the same time a clearly felt need – when the time is right – for the extraction of these resources.

Furthermore, the establishment of national economic zones in areas that used to be open to all nations engaged in fishing, within a short period of time, might lead to increased pressure for exploitation of these resources in Antarctic waters, making measures for their protection an important goal. At the same time certain countries and organisations have proposed that the marine living resources in the Antarctic area should be utilised for the benefit of the developing countries.

The questions posed by the possibility of utilising both the living and non-living resources in the Antarctic have political and legal implications which call for our immediate attention.

It goes without saying, Mr. Chairman, that due to the development we now can foresee in the Antarctic, we are entering a period of crucial

importance to the Treaty Powers. It is the belief of the Norwegian Government that if the Treaty shall continue to remain a useful instrument we must be able to meet this challenge.

In this connection, Mr. Chairman, I would like to underline that we must take into account that pressures from certain developing countries aiming at transforming the authority over Antarctica to the international community as such, must be expected to increase in the years to come.

The initiative for the solution of these problems lies and should lie with the Consultative Parties. Therefore it is our hope that this meeting will make a positive contribution to their solution and that we eventually will be arriving at arrangements which will be accepted by the Parties as well as by the world community.

At this meeting we are confronted with very complex problems. The Norwegian Delegation comes to the meeting with an open mind and is prepared to discuss all proposals put before us and to work towards constructive solutions. In this way we hope to be able to give a useful contribution to our common effort.

Thank you, Mr. Chairman.

POLAND

STATEMENT BY HIS EXCELLENCY Mr. A. STAREWICZ

Mr. Chairman:

On behalf of the Polish Delegation may I join the earlier speakers in congratulating you on your unanimous election as Chairman of this important meeting.

Poland acceded to the Antarctic Treaty in June 1961. We have come to this meeting as representatives of Poland which under the Treaty provisions has now become one of the Consultative Parties to the Treaty, with the lucky number 13. At this point may I thank most warmly all other Consultative Parties for their unanimous support of Poland to become a permanent member of this meeting.

In our presence here we see your acknowledgement, distinguished Representatives, that the Polish People's Republic has fulfilled the requirements established in Article IX, paragraph 2, of the Antarctic Treaty.

I would also like to thank all those distinguished delegates for their friendly words and greetings addressed to us on the occasion of my country's accession to the group of Consultative Members. It is my and my colleagues' great honour to represent our country here for the first time at the Consultative Meeting.

Poland's substantial and independent research in Antarctica started in 1974/75 with an expedition of r.v. Prof. Siedlecki and M. P. Tazar,

organised jointly by the Polish Academy of Sciences and the Sea Fisheries Institute. In 1976/77 a permanent scientific station named after Henryk Arctowski was set up on King George Island, South Shetlands Archipelago, and is in full operation at present.

At the same time another marine research expedition was sent on board r.v. Prof. Siedlecki and a number of other vessels. The programme covers a wide scope of biological, oceanographic and meteorological long-term research work in Antarctica and southern sectors of the Indian and Pacific Oceans.

The Antarctic Treaty of 1959 continues to demonstrate its remarkable utility and viability first of all as concerns the investigation and protection of the Antarctic environment.

I would like to assure you that Poland shall strictly abide by the decisions and recommendations adopted by the previous eight Consultative Meetings. We are deeply convinced that both the Treaty and the work done so far by the Consultative Meetings serve not only the best interests of the member States but also those of mankind as well as the peaceful co-operation all over the world. The Polish Delegation hopes to contribute to the work of this Meeting to the best of their ability and experience.

May I finally express our great appreciation for the excellent organisation and hospitality offered us by the British Government during this Meeting.

SOUTH AFRICA

STATEMENT BY HIS EXCELLENCY Mr. M. I. BOTHA

Mr. Chairman:

I wish first of all to express the appreciation of my delegation that the Minister of State for Foreign and Commonweatlh Affairs honoured us with his presence, and opened our session with such a clear exposé of the particular importance of Antarctica and of the special responsibility which consequently rests upon Treaty Parties in regard thereto.

I would like also to convey to you the most sincere congratulations of the South African Delegation, on your election as Chairman of the Ninth Antarctic Treaty Consultative Meeting. Your outstanding qualities as Chairman are not unknown to us who attended the July Special Consultative Meeting. For that reason we cannot but feel satisfaction and pleasure knowing that our deliberations during the next three weeks will be guided most expertly.

May I, Mr. Chairman, also convey our thanks to the Government of the United Kingdom in acting as host to the Ninth Antarctic Treaty Meeting, as well as our appreciation of the extensive preparations for the meeting and the fine accommodation and facilities that have been placed at our disposal.

The Ninth Antarctic Treaty Consultative Meeting will probably go down in history as one of the most important meetings of the Treaty Powers ever to be held. But it will also be remembered as the meeting when the number of the Consultative Parties was increased by the addition of Poland to the original signatory States. I would like to make use of this opportunity to welcome Poland to consultative status. We are confident that Poland's membership of the consultative group will serve to strengthen our efforts in achieving the objectives of the Antarctic Treaty.

Mr. Chairman, we are in London to discuss an agenda which contains some items of immense importance and, may I add, unusual complexity. I am, of course, referring to the items dealing with the question of Antarctic mineral resources and Antarctic marine living resources.

It is, under the present circumstances, perhaps to be expected that while we are discussing these items at this meeting there are increasing signs of interest from outside in regard to these very items. It is hoped that such outside pressures, if nothing else, would serve as a stimulus to the Treaty Powers in their search for just and equitable solutions to these issues within the context of the Antarctic Treaty regime.

Mr. Chairman, it is not my intention to make any detailed comments on the individual agenda items at this stage. May I merely stress that my delegation stands prepared to work together actively with all concerned to find solutions to the many problems faced by this meeting.

We do believe that it is our duty to spare no effort to ensure the continued success of our Treaty. In doing so we shall have to strengthen our co-operation in that spirit of mutual goodwill and common understanding which has always guided us in the past and will become ever more important in the future. As our task becomes increasingly difficult this can be the only guarantee of success.

UNITED KINGDOM

STATEMENT BY Dr. J. A. HEAP

Mr. Chairman:

I would like to add my words of congratulations to those of others on your election to the Chair.

It gives me and our delegation particular pleasure to welcome the Delegation of Poland to this meeting. We are grateful to them for the help and co-operation that they have given us in the procedures which led to their presence here.

I should like also to refer to the kind words of the Belgian Delegation in referring to my predecessor in this position, Dr. Brian Roberts, whose wisdom I, for one, sorely miss. And perhaps I might also refer to the thanks that I was given by the New Zealand Delegation, but turn that

into thanks to all the representatives of Embassies and High Commissions in London who have been so very helpful and forebearing during the preparations for this meeting.

For some time, Mr. Chairman, it has been a commonplace thought between us that the Ninth Antarctic Treaty Consultative Meeting might turn out to be the most important since the Antarctic Treaty Conference in 1959, where the foundations were laid for this unique organisation. This thought has been very much in our minds during the preparations for this meeting.

In the case of the two main items on our agenda, concerning Antarctic resources our task, I believe, is not to reach final decisions but to lay the foundations for the conclusion of such agreements in the future. To achieve this, however, we have to face one fundamental issue. It relates, as previous delegations have suggested, to the question of jurisdiction. Up to the present time, Mr. Chairman, we have for the most part taken the line that either this question does not need to be resolved or perhaps that its resolution is too difficult to contemplate.

The presence on our agenda of these resource issues does not allow us to continue avoiding the question of jurisdiction in this way any longer. We have to decide whether as partners in the Antarctic Treaty we are in one boat, and if so, whether we can agree on the necessity of rowing in one direction. In the view of the British Delegation we do not need at this meeting to reach a final destination. But we do need to decide on the destination we shall try to reach.

The question seems to us to be more important in connection with living resources than it is for mineral resources.

Fisheries activities have already begun in the Southern Ocean; operations to explore the practical problems of krill exploitation are under way. And several countries, including some from outside the Treaty forum, have become active in this field. If we delay, we risk allowing the development of the same situation that occurred with the rapid expansion of whaling operations between the Wars, where massive investment had already been made before anyone had devised a regulatory framework in which rational exploitation could take place. I need not, I think, here refer to the consequences of that order of events.

We must not throw away our opportunity to ensure that the other marine living resources of the region are not so abused. Stocks must be conserved, both for the protection of the unique ecosystem and for the benefit of future generations.

The question of Antarctic mineral resources is, we think, of a slightly lower priority than that of marine living resources. But here, too, progress is needed. Exploitation of Antarctic minerals may not be imminent; no economically exploitable minerals have been found. But we should show that we are formulating a rational plan for the years leading up to the day, perhaps still decades distant, when those resources are needed.

In laying the foundations for future agreements on both living resources and mineral resources we need to ensure that we continue to

take into account the interest of all mankind in the Antarctic in the same way as was done in the preamble to the Antarctic Treaty. We need to show to the outside world the fact that our special role in the administration of the Antarctic is neither selfish nor harmful to their interests.

There is an English proverb, Mr. Chairman, that "a stitch in time saves nine." Translated into the context of this meeting we understand this proverb to mean that we should find solutions, or in the case of living and mineral resources, lay the foundations for those solutions, before our problems grow to unmanageable proportions.

Though we have much to do and only three weeks to do it in, the British Delegation is confident that we can achieve real agreement to row in the same boat, in the same direction, towards the same destination.

Thank you, Mr. Chairman.

UNITED STATES OF AMERICA

STATEMENT BY Mr. R. C. BREWSTER

Mr. Chairman:

I extend to you my congratulations and those of my delegation on your selection to preside over these important proceedings. It is indeed a pleasure to see you again in the Chair. We are confident that you will bring the same energy and wisdom to guiding these discussions that you did to our sessions in July. May I convey through you, Mr. Chairman, the appreciation of my delegation to the Government of the United Kingdom for the quality of the facilities and the warmth of the welcome extended to us.

In coming to Church House today, I had occasion to pass H.M.S. Discovery moored a short distance downriver on the Thames. That valiant vessel affords a visible reminder of the key role the United Kingdom has played in Antarctica from the first voyages of discovery to today's complex scientific expeditions. It makes it particularly fitting that this important Consultative Meeting be held in this historic and hospitable capital.

Mr. Chairman, my delegation wishes to join with others in welcoming the Delegation of the People's Republic of Poland to this Consultative Meeting. We are confident that they will make a significant contribution to our deliberations.

During its first eighteen years, the Antarctic Treaty has been the vehicle for constructive co-operative efforts in investigating the last great scientific frontier of this planet. The success of these efforts in which we have all shared has confirmed anew that nations with varying interests can work together for a common goal which serves all mankind.

Our combined scientific activity in Antarctica has made immeasurable contributions to man's knowledge of glaciology, cartography, geophysics,

geology, biology, oceanography, and meteorology, as well as to many other scientific disciplines. We are confident that this joint effort will endure and expand as new needs and new techniques emerge. The BIOMASS Programme is just one example.

From our scientific co-operation under the Treaty has come a realization of the unique opportunity offered by Antarctica, first to witness and then to begin, to understand the basic processes at work on our planet. We have come to appreciate even more the importance of Antarctica and Antarctic systems to the global environment.

Our understanding of the global significance of Antarctica forms the basis of our shared commitment to the protection of the unique Antarctic environment. This commitment has increasingly spurred United States activities relating to Antarctica in the period since the Eighth Consultative Meeting.

The United States last year ratified the Convention for the Conservation of Antarctic Seals. On May 23 President Carter, in his environmental message to the Congress, stressed the importance of Antarctica to the earth's oceans and atmosphere and the need for preservation of its environment. The President also forwarded to the Congress on that date the draft legislation which will enable the United States to formally implement the Agreed Measures for the Protection of Antarctic Fauna and Flora. I had the pleasure of opening the Administration's testimony before two Committees of the Congress on that draft legislation last week.

Although the United States has been observing the Agreed Measures since their adoption in 1964, the proposed legislation will strengthen our ability to do so and re-emphasize our commitment to the Antarctic Treaty and our concern for the protection of the Antarctic ecosystem.

The health and integrity of the Antarctic environment is a common thread that runs through and joins most if not all of the issues facing us. It is a basic element in most of the items on the agenda of this meeting: Man's impact on the Antarctic environment; improved procedures for gathering and distributing hydrometeorological information; the effect of tourists and non-Governmental expeditions in the Antarctic area, etc. But its sharpest focus now unquestionably centres upon the two agenda items dealing with Antarctic resource matters.

The possibility of activities directed toward Antarctic living and non-living resources are the key issues. The challenge such activities could pose to our common commitment to the preservation of the Antarctic environment and to the Treaty itself is, in the view of my delegation, the prime issue facing this Consultative Meeting.

In the case of living resources found within the Treaty area, the question is not so much whether harvesting will occur, but how it can be ensured that utilization of living resources will take place in accord with our commitment to the Antarctic environment.

My delegation believes that development of a conservation arrangement covering Antarctic marine living resources is required, and urgently. The

discussions at the July Preparatory Meeting suggest that we are substantially agreed on this. My delegation believes that a conservation regime should incorporate the following elements:

- First, it should be directed to fishery resources and not directly apply to species already regulated pursuant to existing international agreements (whales and seals), provided that it takes account of the relationship of target species to such other species and to the Antarctic ecosystem as a whole;
- Second, it should provide for effective conservation of the species covered throughout their entire range;
- Third, it should provide for, and encourage, participation by all interested states;
- Fourth, it should provide for a separate institutional mechanism to perform two basic functions: 1) the development and implementation of conservation measures themselves; 2) the collection and analysis of the data necessary for the development of effective conservation enforcement;
- Fifth, it should provide for effective enforcement arrangements to ensure compliance with conservation measures.

In our view, these principles provide a sound basis for an initiative by the Consultative Parties on living resources in Antarctic waters, an initiative which would not only reflect the vitality of the Antarctic Treaty system but also accommodate the legitimate interests of the international community at large.

The commitment we all share to the preservation of the Antarctic environment is a touchstone of our approach to the equally important issue of possible mineral resource development in the Treaty area. Unlike living resources, Antarctic mineral resources have not yet been the object of commercial exploration or exploitation activities.

Nonetheless, we believe it essential that there be an agreed arrangement to determine whether mineral resource activities would be compatible with the objective of preserving the Antarctic environment and to ensure the effective management of such activities, if undertaken.

An important contribution to understanding the mineral resource issues can be made by the work of the technical experts included on our delegations. We hope that the nations participating in this meeting will bring their extensive knowledge and experience to bear in elaborating a workable and open arrangement for dealing with Antarctic mineral resources which can be in place prior to whatever mineral resource activities may occur.

Mr. Chairman, the Antarctic Treaty Consultative Parties have in the past eighteen years established an impressive record of co-operation in scientific activity and in environmental preservation and conservation. It is a solid record of success, one of which we are justifiably proud. But we cannot rest upon this record, admirable though it is. The resource

issues now before us will require our concentration, imagination, accommodation, and goodwill if we are to find satisfactory solutions. The future of Antarctica and of the Treaty system may well depend upon our doing so – and doing so in time.

Mr. Chairman, the United States Delegation looks forward to the days ahead, confident that we can act together to meet the challenges of today as we have the problems of yesterday.

UNION OF SOVIET SOCIALIST REPUBLICS

STATEMENT BY PROFESSOR O. N. KHLESTOV

Mr. Chairman:

Permit me to congratulate you on your election to your high office. As we are aware of the breadth of your experience and knowledge, we are convinced that your election will guarantee the successful outcome of the whole meeting. On behalf of our entire delegation I should also like to congratulate your colleagues of the British Foreign and Commonwealth Office on their election to posts of responsibility connected with the meeting.

I also wish to express the deep satisfaction of the Soviet Delegation at the presence in our midst of the Delegation of the Polish People's Republic headed by Ambassador Starewicz of the PPR. Poland has made a substantial contribution to scientific research in the Antarctic, and we are convinced that it will play a significant role in the work of our meeting and will contribute to the formulation of constructive resolutions.

The development of international relations confirms beyond argument that the solution of complex international problems can be arrived at only by agreement between the interested countries. A clear example of this is provided by the Antarctic Treaty which guarantees that this region will be used exclusively for peaceful purposes and ensures both the freedom of scientific research and a wide measure of international collaboration between the countries which have signed the Treaty in the investigation and opening up of the Antarctic.

It is agreeable to note that in the Antarctic – that coldest region of our planet – the relationships formed between scientists of different nationalities have invariably been warm. The wide-spread exchange of the results of investigations and observations, the close contact between expeditions, the help and mutual assistance unselfishly given in overcoming difficulties – all these are characteristic of the spirit of co-operation which has become established in the Antarctic since the signing of the Treaty in 1959.

During the time which has elapsed since the Antarctic Treaty came into force, the Consultative Meetings have done much to ensure the implementation of the aims and principles of the Treaty. The entire work of the meeting bears witness to the fact that the measures devised by the members, covering a whole range of activities in the Antarctic, contribute

both to the more profound study of the region and to the conservation of its environment in the interests, not only of those countries participating in the Consultative Meetings, but of all the nations of the world and the whole of mankind.

Among the important Recommendations adopted by the Consultative Meetings we may mention the Agreed Measures for the Conservation of Antarctic Fauna and Flora, those relating to the effects of man on the Antarctic environment, the consequences of tourism and unofficial expeditions, and others.

It is clear that scientific investigations in the Antarctic are indispensable and important to the study of many natural phenomena occurring over the whole earth. For instance, Antarctica's mighty ice-cap represents an enormous source of cold which exerts a powerful influence on climatic conditions and on the general circulation of the atmosphere.

Antarctica – that enormous area of our planet – has still not revealed many of her secrets. Once these have been understood, man will gain a better insight into many phenomena occurring in other parts of the world. The investigation of Antarctica, which requires colossal effort and the application of substantial material resources, thus acquires the character of a noble mission bringing benefits to all the peoples of the earth.

During recent years considerable attention has begun to be given to questions of the possible exploitation of the living and mineral resources of Antarctica. However, before adopting any resolutions whatsoever relating to the possibility of establishing in the Antarctic an industry based on the exploitation of its mineral resources, it is essential to weigh carefully all the possible consequences of this for the Antarctic Continent and the surrounding regions.

In the whole world there is no territory more sensitive and vulnerable than Antarctica in its natural conditions and ecological balance. Let us make every effort to ensure that man's activity in the Antarctic does not lead to a violation of the natural balance of this particular land mass and, perhaps, of the entire planet.

The Soviet Delegation hopes that the Ninth Consultative Meeting will successfully deal with the tasks confronting it, and that the resolutions adopted by it will promote the development of peaceful international co-operation in the area on the basis of the principles and aims of the 1959 Antarctic Treaty.

For its part, the Soviet Delegation will make every effort to contribute to the success of the Meeting.

Thank you, Mr. Chairman.

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REVIEW OF THE IMPLEMENTATION OF ARTICLE IX-4 OF THE TREATY

The following documents show the status of approvals by Governments of Recommendations adopted by Consultative Parties, as received and recorded by the United States Government as depositary Government for the Antarctic Treaty, up to and including 13 September, 1977:

1. Chart showing status of approvals of all Recommendations;

2. List of dates on which Consultative Parties approved Recommendations of the Eighth Consultative Meeting.

APPROVAL OF RECOMMENDATIONS OF PREVIOUS CONSULTATIVE MEETINGS

	16 Recommendations adopted at First Meeting	10 Recommendations adopted at Second Meeting	11 Recommendations adopted at Third Meeting	28 Recommendations adopted at Fourth Meeting	9 Recommendations adopted at Fifth Meeting	15 Recommendations adopted at Sixth Meeting	9 Recommendations adopted at Seventh Meeting	14 Recommendations adopted at Eighth Meeting
	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved
Argentina	All	All	All	All	All	All	All	All
Australia	All	All	All except VIII	All except 1–19	All except 5 & 6	All except 8, 9, 10	All	All except 1–5([6])
Belgium	All	All	All except VIII	All except 1–19	All except 5 & 6	All except 8 & 10	All except 5	All except 1, 2, 4 & 5
Chile	All	All	All	All	All	All	All except 4 & 9	All
France	All	All	All	All	All	All	All	All
Japan	All	All	All except VIII	All except 1–19	All except 5 & 6	All except 8, 9, 10	All except 5	
New Zealand	All	All	All	All	All	All	All	All
Norway	All	All	All	All	All	All	All	All
Poland	All	All	All	All	All	All	All	All
South Africa	All	All	All	All	All	All	All	All
U.S.S.R.	All	All	All	All	All	All	All	
U.K.	All	All	All	All except 12	All	All except 8 & 10([2])	All except 5([4])	All
U.S.A.	All	All	All except VII & VIII	All except 1–19	All except 5 & 6([1])	All except 10([3])	All except 5([4])	All except 1, 2 & 5([5])

([1]) 5 and 6 accepted as interim guidelines.
([2]) 8 and 10 accepted as interim guidelines.
([3]) 10 accepted as interim guideline.
([4]) 5 accepted as interim guideline.
([5]) 1, 2 and 5 accepted as interim guidelines.
([6]) 1–5 accepted as interim guidelines.

Recommendations (14) adopted at the Eighth Consultative Meeting

Oslo June 9 to 20, 1975

Effective date*:

State	Date of Government's approval, as notified to Government of United States of America†
Argentina	April 23, 1977
Australia	August 27, 1976(2)
Belgium	January 21, 1977(1)
Chile	December 22, 1976
France	September 8, 1977
Japan	
New Zealand	June 30, 1977
Norway	December 17, 1976
Poland	July 11, 1977
South Africa	August 20, 1976
Union of Soviet Socialist Republics	
United Kingdom of Great Britain and Northern Ireland	September 1, 1977
United States of America	April 8, 1977(3)

* Article IX, paragraph 4, of the Antarctic Treaty provides that recommended measures "shall become effective when approved by all the Contracting Parties whose representatives were entitled to participate in the meetings held to consider those measures".

† The date of the Government's approval is considered to be the date of that Government's notification of such approval to other Governments, unless stated otherwise therein. If the notification states that the Government had approved the Recommendations on an earlier date, that date is listed as the date of the Government's approval.

(1) Approval of Recommendations VIII–3, VIII–6, VIII–7, VIII–8, VIII–9, VIII–10, VIII–11, VIII–12, VIII–13, VIII–14.

(2) Approval of Recommendations VIII–6 to VIII–14.

(3) Approval of Recommendations VIII–3 and 4, and VIII–6 through 14. Recommendations VIII–1, 2 and 5 accepted as interim guidelines.

MESSAGE FROM THE IXTH CONSULTATIVE MEETING TO THE ANTARCTIC STATIONS OF THE CONSULTATIVE PARTIES

Representatives of the Consultative Parties to the Antarctic Treaty have just completed three weeks of discussions at the IXth Consultative Meeting as guests of the British Government.

In recognising the importance of your work being carried out in a full spirit of co-operation in the Antarctic and that your continuing research programmes in this area will contribute to the furthering of science, the Representatives gave particular attention to the need for continued concern and protection for the environment in all future activities that might take place.

In participating in these discussions, Representatives have been conscious that scientists of the Treaty States have just completed another winter of activity in stations all over the continent, and as the austral summer approaches all delegations send to you their best wishes for a successful year.

REPORT OF THE GROUP OF EXPERTS ON MINERAL EXPLORATION AND EXPLOITATION

1. The Group of Experts was established in accordance with Recommendation VIII–14, operative paragraph 4, and the Report of the Special Preparatory Meeting held in Paris in June 1976. The Group met between 20 and 29 September 1977.

2. The Group conducted its business according to the terms of reference established at the Special Preparatory Meeting and guidelines submitted to the Plenary.

3. At its first session the Group elected Dr. M. W. Holdgate (United Kingdom) as its Chairman.

4. The Group adopted the following agenda:

I. To review the present state of technology for exploration and exploitation of minerals in the Antarctic—
   (a) geophysical and other exploratory techniques
   (b) construction techniques for onshore or offshore installations
   (c) drilling and other extraction techniques
   (d) processing and storage techniques
   (e) transport techniques.

II. To review the probable impact of such exploration and exploitation on the environment.

III. To review measures for the prevention or restoration of damage to the environment –
   (a) techniques for the prevention of pollution
   (b) remedial and restorative techniques
   (c) techniques for monitoring
   (d) techniques for the assessment (prediction) of environmental impact.

IV. To suggest preliminary guidelines on appropriate methods for exploration and exploitation and on preventive, corrective and restorative measures for the protection of the environment.

5. The attached record of the discussions and conclusions of the Group of Experts is presented in the following order:

I. Guidelines on appropriate methods for mineral exploration and exploitation in the Antarctic, and for the protection of the environment.

II. A record of the Group's discussion, arranged in accordance with Items I–III of its agenda.

6. In presenting their Report to Plenary the Group noted that the implementation of all the guidelines, including the proposals for scientific

research, set out in the Report would demand substantial effort before exploratory drilling or the extraction of hydrocarbons or other minerals began (if this in fact were to occur) in the Antarctic.

7. The Group also stressed that these guidelines would need regular review as technology and scientific understanding advanced. The standards, pollution levels, environmental impact and other parameters referred to in the Guidelines and Report would also need careful quantification.

I

GUIDELINES ON APPROPRIATE METHODS FOR MINERAL EXPLORATION AND EXPLOITATION IN THE ANTARCTIC, AND FOR THE PROTECTION OF THE ENVIRONMENT

Introduction

8. The Group of Experts consider that were it thought possible to commence mineral exploration or exploitation in the Antarctic, guidelines would need to be developed and agreed covering scientific baseline studies, site studies, environmental impact assessment and many technical details of the actual operation of activities related to minerals.

9. Not only should existing international agreements such as those on safety at sea, pollution from shipping, dumping at sea and other marine environmental matters be upheld, but consideration should be given to the development (in pursuance of Recommendation VIII–11) of special rules related to the exacting climatic conditions of the Antarctic, and the importance of safeguarding its unique environment and ecosystems.

10. Programmes of scientific research, monitoring and information exchange should be set in hand, according to procedures established by Consultative Meetings under the Antarctic Treaty, so as to provide as complete a foundation as possible before exploration or exploitation is likely to be considered.

Geological and Geophysical Investigations Prior to Exploratory Drilling for Hydrocarbons

11. Areas which may contain hydrocarbons are likely to be identified only after extensive, basic geophysical and geological surveys. Before any exploratory drilling was undertaken there would be a need for further detailed geological and geophysical studies and the investigation of environment factors that determine the feasibility of safe drilling operations. This second category of information should include sea state data; weather trends during different seasons; currents; pack ice distribution, types and pressures; iceberg size, frequency, drift rate and direction; and location of contemporary iceberg scour. Information is also needed about the composition, stability and strength of sea bed sediments and strata on which installations might be based.

12. Most established geological and geophysical techniques, including geological and geochemical surveys and magnetic, gravimetric and seismic profiling systems, can be used safely and successfully for exploration for mineral resources in the Antarctic at appropriate seasons. Their initial environmental impact is likely to be no greater than that of present research activities, and can probably be controlled in the way that research is controlled (for example under the Agreed Measures for the Protection of Antarctic Fauna and Flora), but revised standards may be required should there be a marked increase in the scale of these activities.

13. Seismic techniques using high explosives as an energy source are required for geophysical research on deep crustal structures, and may be used occasionally in hydrocarbon exploration at sea, to confirm the findings of other methods. However, the detonation of explosives can have severe local impact on the biota and their use should be kept to a minimum. They should not be used on land (or in fresh waters) of biological or geomorphological interest.

Exploratory drilling for hydrocarbons at sea

14. Before any exploratory drilling is undertaken, there should be foundation investigations using methods such as high-resolution seismic and a range of physical studies of sea bed conditions at the proposed drill site.

15. Because of the special environmental conditions and environmental sensitivity, any exploratory drilling in the Antarctic should be arranged with particularly thorough attention to safety precautions, both in the design of the equipment and installations and in its operation.

16. Floating structures used for exploratory drilling in the Antarctic should conduct their operations so as to be able to stop drilling rapidly and move away when threatened by icebergs, and subsequently recover their boreholes, without risk of pollution. Because it is most efficient to undertake such disconnection in an orderly way, early warning of approaching icebergs and storms that might also require movement off station is essential.

17. There is a divergence of expert opinion on how far technological developments might permit exploratory drilling from installations on the sea bed within the mid-term (10–25 years). Such developments would allow operations in areas inaccessible at present (although not below ice shelves). It would be essential for such installations (and similar sea bed installations used in exploitation) to be located in areas not liable to iceberg scour.

18. Platforms and other installations for use for oil exploration or exploitation in the Antarctic should, wherever possible, be constructed outside the region and towed to their location. On-shore bases for the support of exploratory and exploitative activities should be kept as few and as small as possible and sited with great care so that the least possible environmental damage results. Installations for oil exploitation in the Antarctic should be as self-contained as possible.

19. Under the exacting conditions of the Antarctic, and because of its environmental sensitivity, special attention should be given to the thorough training of technical personnel and to the elaboration and enforcement of strict codes of conduct governing drilling operations.

Design of installations for the exploitation of hydrocarbons at sea

20. There is no technology presently suited to year-round oil production in the Antarctic. The concepts behind such potential technology are being developed actively, and may lead in the direction of self-contained, unmanned installations on the sea bed. It is important that guidelines are agreed to ensure that design, installation and maintenance are to the highest standard so as to prevent pollution, waste of energy and other resources, and hazard to human life. These guidelines will need continual review as the technology is developed.

21. Risk analyses should be performed to identify possible modes of failure of installations under the extreme environmental conditions of the Antarctic (which would need careful definition to this end), or through accident, and provision should be made for redundant paths or systems to insure against serious failure.

22. High standards should be set for the processing of hydrocarbons exploited in the Antarctic. As a general rule, gas should not be flared but used to provide energy for local needs, re-injected, or exported from the Antarctic. Water emerging with the oil should be re-injected.

23. Storage systems should be designed so as to ensure that hydrocarbons are separated from displaced seawater in accordance with agreed standards.

24. Further studies are needed in order to develop suitable vessels for use in the transportation of hydrocarbons from the Antarctic. These vessels should conform to advanced design standards and include systems for the prevention of the discharge of oily ballast water or polluted seawater south of 60° South.

Mineral Exploration and Exploitation on Land

25. Exploratory drilling is unlikely to be undertaken widely on land in the Antarctic, but should be carefully localised and controlled so as to minimise the disturbance of vulnerable Antarctic soils and the importation of chemical and microbial contamination.

26. Although the mining of minerals on land in the Antarctic is not likely in the foreseeable future, were it to occur severe local impact could be caused. This could also result from quarrying of aggregate and rocks for use in construction. Processing of ores would demand substantial energy and water, and generate large volumes of wastes. Sites and associated transport routes for any such mining or quarrying need a thorough environmental evaluation, and its operation would need careful monitoring to minimise damage.

Environmental Impact Assessment and Environmental Protection or Rehabilitation

27. Methods for environmental impact assessment in the Antarctic should be developed in accordance with recent developments in the concept. Such

assessments should involve the close association of environmental scientists, specialists in the technology of mineral exploration and exploitation, and others concerned with the regulation of such activities. Impact assessment should be so conducted as to aid the adjustment of proposed developments so as to reduce their environmental effects, and should lead on to continuing monitoring.

28. Methods for the containment, recovery or safe dispersion of oil spilled at sea in the Antarctic in all but ideal conditions do not exist at present, and need urgent development. Research on this topic (or on that described in the following paragraph) should not, however, involve the deliberate release of oil into the sea in the Antarctic.

29. Knowledge is insufficient at present to allow reliable estimation of the impact of possible oil spills on Antarctic ecosystems, and it is vital that research on this subject be expanded.

30. There are no effective methods for the full restoration of sites on land, on ice, or at sea in the Antarctic disturbed by mineral exploration or exploitation. Artificial re-vegetation of land areas, as practised in the Arctic, does not appear appropriate in the Antarctic because of differing habitat conditions and a lack of suitable indigenous plant species. The most that can be done is to grade land surfaces and remove all possible extraneous material.

II

RECORD OF THE DISCUSSION OF THE GROUP OF EXPERTS

A. Review of the present state of technology for Exploration and Exploitation of Minerals in the Antarctic

(i) *General Considerations*

31. In discussing mineral exploration and exploitation techniques it is desirable to discriminate between the position on land (and there between ice-free and ice-covered terrain) and at sea. Marine situations should be examined in three categories: areas of sea bed situated beneath floating ice shelves several hundred metres thick, areas beneath pack ice that persists for nine or more months in the year, and areas beneath seas open for at least three summer months.

32. It is also useful to distinguish three successive stages in the process commencing with exploration and ending in the exploitation of minerals. These stages are:

(i) basic exploration, which involves many activities inseparable from those in normal scientific geological and geophysical research and seeks to define the structures of the strata most promising for detailed examination;

(ii) exploratory drilling in restricted areas chosen as a result of such preliminary investigations;

(iii) full-scale exploitation.

33. Although there is a wide range of opinions concerning the likely location and extent of hydrocarbon and other mineral deposits in the Antarctic, at present there is no proof that significant deposits exist south of latitude 60° South. However, the Group agrees with a number of previous national and international evaluations, including those by SCAR, that exploration for hydrocarbons on the continental margins around Antarctica is foreseeable, and commercial exploitation is a possibility in the longer term. The exploitation of metallic minerals and fossil fuels on land appears much less probable in the foreseeable future, while there are more accessible deposits in other regions, but it would be unwise to exclude it completely. Should offshore oil or gas reserves be exploited, moreover, there could be onshore mining of rocks and quarrying of aggregates for use in construction. While the technology for exploration for, and exploitation of, hydrocarbons has received most urgent attention therefore, some attention has been given to that employed for other minerals.

34. The Antarctic remains one of the world's least known regions. Much of its land surface is mantled in ice, and its shallow seas obscured by ice shelves and pack. The development and application of geophysical methods, especially those employing remote sensing, are vital to its exploration for science, irrespective of possible mineral exploitation. Only approximately 1 per cent of other geologically comparable areas contain hydrocarbon resources, so that most of this exploration is unlikely to lead to possible commercial development.

35. Exploration or exploitation of hydrocarbons seems likely to be technically feasible at some time, but estimates of the likely time scale vary and there was a wide divergence of views in the Group. No delegation believed that exploratory drilling in the Antarctic would begin in less than five years, and most of the experts considered that it was unlikely in less than ten years. The time scale for possible exploitation is even more uncertain, but in the much less exacting conditions of the North Sea ten years elapsed between exploratory drilling and the commencement of exploitation.

36. It is important that a sufficient environmental data base to allow wise decisions about the conduct of exploratory drilling is obtained. Information is needed about sea states and depths; the persistence of storms and of spells of good weather; currents; pack ice (including pressures in pack); iceberg size, depths, frequency and rate of movement; and the depths of iceberg scour in areas that might be explored for hydrocarbons. In such areas information is also needed on the composition and stability of sea bed sediments and rocks to which structures might be moored or on which they could be based. Areas of faulting and slumping, which could threaten the integrity of structures, need to be defined. Techniques to determine all these features are available (including side scan sonar and high-resolution seismic studies of the sea bed) but this programme of data gathering could well take ten years.

37. The design of structures for drilling, production, oil collection, processing, storage and transportation of the final products from the Antarctic must be based on recommended practices. Guidelines will need to be laid down to ensure that structures are designed, installed and maintained in a manner that provides safeguards against pollution, the waste of resources, or risks to life.

(ii) *Geophysical and other exploratory techniques*

38. Geophysical exploration needs to be combined with other techniques. On land the continued mapping of ice thickness and sub-ice relief and the extension of geological investigations are needed as well as gravimetric, magnetic or seismic investigations if crustal structures are to be defined. At sea bathymetric surveys and geological sampling of the sea bed are important, alongside more specialised geophysical techniques.

39. Aeromagnetic techniques using a fairly widely spaced network of traverse lines are particularly appropriate to the search for basins containing substantial thicknesses of sediment. At sea, methods involving the sampling of water just above the sea bed in the search for traces of hydrocarbon seepage is another possible environmentally safe technology, as a supplement to the seismic studies that are likely to be instituted on an increasing scale.

40. Seismic surveys undertaken at sea involve two kinds of technique. Reflection methods, now widely used by the petroleum industry, involve long multi-channel arrays and energy sources which include non-explosive systems (such as "air guns"). Despite the problems posed by sea ice, these systems can be used in many parts of the Antarctic at certain seasons. They can give penetration of the sea bed for up to 10–15 km, which is sufficient for exploration for hydrocarbon minerals and they have no damaging impact on the marine flora and fauna. However, additional velocity information may be required, and therefore many commercial operations also use refraction methods to a limited degree. These methods involve "air guns", or occasionally high explosives. Use of explosives is not considered essential in exploring for hydrocarbons, and it has been prohibited in some regions (such as the Norwegian continental shelf) because of the severe local damage it can cause to the marine biota.

41. Refraction seismic studies using explosives, on the other hand, are unavoidable at present in certain fundamental fields of crustal geophysics where the aim is to study deep structure (to 30–40 km) as when examining the relationship between the Antarctic and other continents.

42. While satisfactory geophysical methods appear to be available for scientific exploration and the search for minerals in Antarctica, there are dangers in over-generalisation. One thing is, however, clear. The present ignorance of the structure of much of the Antarctic land and continental margin*, coupled with the hostile environment and the extent of ice cover, means that the exploratory phase is likely to be prolonged in most areas, before exploratory drilling could be considered.

* In this report the term "continental margin" is used to include the continental shelf, continental slope and continental rise.

(iii) *Drilling and other extraction techniques*

43. Considerable experience of drilling has been gained on land in the joint Japanese-New Zealand-United States Dry Valley Drilling Project. Technology developed in the Arctic could be used under certain conditions to explore for and exploit hydrocarbons on land in the Antarctic. Conversely no technology exists for drilling through moving ice-sheets on land and it is unlikely that there will be much incentive to develop it.

44. In considering off-shore drilling technology it is useful to discriminate between strictly technological aspects (for example relating to platforms, drilling systems or prevention of blow-outs) and environmental factors determining the period for which drilling is feasible and the special hazards to be guarded against.

45. It is important to discriminate between drilling to only shallow depths to obtain geological samples of sea bed strata for scientific purposes and exploratory drilling for hydrocarbons. The latter requires blow-out preventers and other safety devices while the former may not. Generally shallow drilling to confirm sea bed geology should precede deep drilling for hydrocarbons.

46. Technology already exists for drilling from dynamically positioned mobile structures in depths below 1,000m. It appears theoretically possible in the Antarctic in areas free of ice and where massive icebergs are infrequent for at least three months in summer. Such areas are rare and of very limited extent. Thorough studies of environmental conditions in such areas would be required before operations could be conducted without risk.

47. The Group was informed by several delegations of the development of technology (such as large floating caisson structures) in their countries that would allow drilling in deeper waters and in areas covered with Arctic pack ice throughout the year. Such technology would need very careful evaluation before its use was considered in the Antarctic, but it might allow the exploration of larger areas on the Antarctic margin (but not the regions below thick ice shelves).

48. Experience off Labrador has come from the use of a Pelican-type dynamically-positioned ship. Such a vessel may not be ideal for exploratory drilling in the Antarctic and a floating dynamically-positioned structure may be preferable.

49. Ice conditions in the Antarctic, which differ in many ways from those in the Arctic, pose certain special problems. There is an annual discharge to the oceans around Antarctica of about 4,000 km^3 of icebergs, many of which persist for several years. Antarctic icebergs are much larger, and many could not readily be towed away from a drilling platform. A platform would therefore need to be able to cease work and move away if threatened. Experience off Labrador confirms that towing can change the direction of drift of the smaller icebergs sufficiently to approximately halve the number of times the drilling vessel needs to disconnect from the borehole, but in the Antarctic the benefit might be

considerably less. Towing is at present impracticable with icebergs exceeding two million tonnes weight, and when the sea is rough, or the berg inconveniently shaped or unstable.

50. Technology exists for shutting down and disconnecting from wells, and re-entering them afterwards without risk of pollution, but it is desirable to conduct the shut-down process in an orderly fashion because this facilitates re-entry, and hence an effective "early warning" system of approaching icebergs would be needed. Forecasts of the frequency of such encounters are also required since drilling would be unacceptably protracted if it had to stop very often. Such operations would also demand reliable meteorological information in advance of developing storms. Environmental studies designed to ensure the safety of exploratory drilling activities appear to need urgent development.

51. Exploratory drilling is not an end in itself. It costs large sums, and is undertaken in the hope that it will lead on to exploitation. Hence the technology for exploration and exploitation needs to be considered together, but there is the important difference that while the former can be done satisfactorily in areas of sea open for three months in summer the latter demands operations for a much longer period, for which there is no technology appropriate to the Antarctic at present.

52. It is important to discriminate between the process of drilling (whether for exploration or production wells) and the control of production. Drilling is always done at present from ships or platforms at the sea surface, but there are several systems allowing control of production wells by structures on the sea bed. At present all of these are in shallow water and many are controlled from a surface vessel to which oil is piped.

53. Existing technology does not appear suitable for exploratory drilling in those parts of the Antarctic seas covered almost throughout the year by pack and fast ice of many years' accumulation or by floating ice shelves and glaciers. For these reasons most of the seas on the Antarctic margin are inaccessible for exploratory drilling at present, and fixed or floating platforms of the kind used in oil exploitation today seem equally unsuited to these areas. Technology permitting drilling from installations on the sea bed in other regions is being developed and may help to overcome this obstacle except in those areas where icebergs ground on the sea bed. Advances are also being made in the design of systems both for drilling and operating production wells on or below the sea bed in deep waters. The water depth presents no inherent problem because such systems would be unmanned and their maintenance would be likely to be undertaken by submarines rather than divers. Such systems have not yet been developed for the conditions prevailing in the Antarctic.

(iv) *Construction techniques for on-shore and off-shore installations*

54. At present several kinds of platform are used in oil exploitation at sea. Fixed structures of concrete or steel are being used today in depths of water down to 130 and 300 m respectively, and have been developed for safe operation even in seismic zones. One floating platform, linked by risers to production wells, is in use in the North Sea. About 100 underwater well head systems are in use, mainly in shallow water and none

below 300 m. Despite considerable advances in the design of platforms, risers (the link between ocean floor and surface platform) and safety devices, none of these platform systems is suitable in their present form for installation in the Antarctic. While considerable progress has been made in developing surface platforms to withstand storms, and pack ice, none is proof against icebergs on an Antarctic scale. At the present, the design of equipment for use in oil exploitation in the Antarctic remains in the conceptual stage.

55. The first action in evaluating a newly discovered oilfield is to determine its size, and where the technology for exploitation is very expensive, a field needs to be very large if it is to be worth exploiting. In the Antarctic a further constraint would be imposed by limited access. It is difficult to envisage any Antarctic oilfield being exploited if it were only accessible to transport removing the production for three months of the year even though this period would suffice for the actual drilling of wells.

56. In the North Sea, using today's technology (but with year-round access), before an oilfield is exploited the potential recoverable reserves need to be of the order over 100–200 million barrels. In the Antarctic it is likely that only very large fields would be attractive for exploitation. The limit will however depend on world energy costs and on the available technology in the future. Should oilfields be found and technology allow their exploitation, it would be unwise to assume that they might not become economically attractive in the future.

57. Any structures used for oil exploitation in the Antarctic would almost certainly be constructed in a region of warmer waters outside the region and towed to the point of installation. There are no technological problems in this process, but seas in the area of installation would need to be ice-free at least for the period of 1–3 days needed for correct positioning.

58. The logistic support of exploitation activities will also need careful planning. It could involve the construction of supply bases on land in the Antarctic if there were suitable sites nearby, or outside the region (the latter being the more likely). Structures used in the Antarctic are likely to be more self-contained than those used elsewhere, in less exacting climates. These features are likely to reduce the extent of major construction activities on land with their associated environmental impact.

59. Should mineral exploration or exploitation occur on-shore the associated construction of bases for support personnel, processing plant, or other installations would be possible adapting technology already developed in Arctic regions and in the building of the larger Antarctic stations.

(v) *Processing and storage operations : hydrocarbon minerals at sea*

60. All oil emerging from a well is a mixture of liquid hydrocarbons, gas and (especially as the exploitation of a field continues) water. The gas needs to be separated from the oil before the latter can be transported (since transport of oil in tankers takes place at atmospheric pressure). The hydrocarbon gases produced are generally either flared (burned) or re-injected thereby maintaining pressure and helping continued exploitation.

The water is separated from the oil and can also be injected back into the oil reservoir or into some other strata.

61. Existing technology for this separation and reinjection could be employed in any fixed or floating surface production platforms used in the Antarctic (it would be more difficult to liquefy the separated gas and remove it for marketing). Some gas could be used as a fuel, for power drilling and other operations: The Group advises that gas should not generally be flared in the Antarctic (Guidelines paragraph 15). Appropriate technology which has also been developed and tested in production wellhead structures on the sea bed, operated by remote control from the surface, could be developed as an integral part of the perfection of such submerged structures for use in the Antarctic.

62. Substantial storage capacity might be required at installations at sea from which separated oil was loaded directly into ships, because of the inevitable interruption of surface shipping operations by storms, and occasionally by heavy pack or icebergs. Even sub-sea installations loading into submarine tankers might require considerable capacity.

(vi) *Processing and storage operations: minerals on land*

63. If minerals were exploited on-shore in the Antarctic, it is likely that they would also (as elsewhere in the world) need to be enriched before transport away from the mining area. This processing would demand substantial installations, although the technology would be likely to be the same as was applied elsewhere, for example in the Arctic. Large amounts of fuel would be required since the processing of such ores is an energy-intensive process. Large volumes of water would also be needed – again demanding energy, in most parts of the Antarctic, to melt ice. Substantial volumes of wastes would be produced.

(vii) *Transport techniques*

64. Transport would be required for two purposes should mineral exploration or exploitation occur in the Antarctic. It would be needed to support personnel and installations and to remove the products of their activities. Present technology, as used to supply Antarctic bases, would be adequate for the support role although the volume of equipment and numbers of people moved might be much greater (in exploratory drilling two or three service ships might be needed to support the 100 or so men on a rig and the tugs employed in iceberg towing). Small storage bases might be needed on shore should this be possible near enough to areas being explored. However, exploitation of hydrocarbons would require a considerable increase in the number of personnel at drilling installations, with the possible resulting need to build land bases with the least possible damage to the environment.

65. It seems likely that separated oil would be loaded directly into ships at installations at sea for removal from the Antarctic. Either specially designed surface vessels or submarines could be used to remove oil. Information obtained during the voyage of the " Manhattan " may allow the design of tankers that could operate commercially through Arctic pack

ice. The attraction of submarines lies in their greater certainty of year-round access. The concepts behind the design of both types of vessel are being explored actively, and it is likely that technology would be available by the time Antarctic oil exploitation became possible on other grounds. Pipelines, however, provide a third option. Their use is unlikely in many parts of the Antarctic, especially because of iceberg scour but also because there is little attraction in removing oil from the open sea to coastal areas which might be no more easily accessible by tankers; modern techniques of tunnelling in the sea floor at depths of up to 300 m could possibly be developed to the point where pipelines could be adequately protected.

B. Environmental impact of mineral Exploration and Exploitation

66. The Group of Experts could not undertake a thorough study of the impact of mineral exploration and exploitation on the Antarctic environment. However, the discussion of the technical aspects of mineral exploration and exploitation in the Antarctic showed that the question of the impact of these activities on the environment has been studied very inadequately and that there is an urgent need for a further examination of this problem. The Group considers that measures for the protection of the Antarctic environment need to be worked out prior to any commercial exploration for, or exploitation of mineral resources in Antarctica, should such activities occur there.

67. The Group had before it the Report of the SCAR Group of Specialists on the Environmental Impact Assessment of Mineral Exploration/Exploitation in Antarctica (EAMREA) prepared at the request of the Eighth Consultative Meeting and the Special Preparatory Meeting in Paris in June 1976. Attention was also drawn to a number of other papers, including those presented to the Special Preparatory Meeting in Paris by the Soviet Delegation and by the Australian Delegation, and the summary of the Report on Environmental Impact Assessment by Dr. D. H. Elliot. The Group of Experts considered that the EAMREA Report, taken in conjunction with the other papers, provided a useful starting point for the assessment of the likely impact on the Antarctic environment of various possible technological developments and for the development of a programme to provide more precise assessments.

68. The Group advised the Consultative Meeting that technological and ecological experts need to work together in the further evaluation of these questions. Only through a direct interaction of this kind will it be possible to define the ways in which new technological advances may alter physical and chemical properties of the Antarctic as a habitat and apply the most recent advances in scientific understanding of Antarctic environments and ecosystems so as to predict the ecological changes that are likely to result. A series of carefully prepared expert seminars or workshops bringing together appropriate specialists may well provide the most effective forum for this dialogue.

69. More research will unquestionably be required before satisfactory predictions can be made of the nature and scale of the impact of possible

alternative mineral exploration and exploitation technologies in the Antarctic. Opinions expressed in the Report (e.g. in paragraphs 12, 13 and 26 of the Guidelines and paragraphs 39, 40 and 50 of the Record of the Group's discussions should be regarded as provisional, pending such research). The Group did not attempt to specify all the subjects needing attention, but did identify the following areas: .

(i) basic bathymetric, geological, geophysical and geochemical studies leading to a more realistic definition of those areas in the Antarctic where exploration for minerals may be considered, and where surveys consequently need to be undertaken to define environmental and ecological features;

(ii) research leading to improved weather forecasting, and data on current directions and velocities and on the distribution and frequency of occurrence of various sea states, ice conditions and icebergs of various dimensions;

(iii) definition of the fundamental structure and functioning of those types of Antarctic ecosystem most likely to be affected by mineral exploration and exploitation, including the flow of nutrients and energy through the system and primary and secondary biological production (and the factors influencing them). Simulation modelling of the essential processes within these ecosystems could assist the prediction of how they are likely to respond to various impacts;

(iv) surveys to determine baseline levels in the environment (including ice caps) and in plants and animals of hydrocarbons and other substances whose environmental concentrations may be raised as a consequence of mineral exploration and exploitation;

(v) research to establish quantitatively the effect on Antarctic organisms which are particularly important ecologically or economically (e.g. krill) of a range of concentrations of hydrocarbons and other possible pollutants;

(vi) research on the mechanism and rate of biodegradation of oils of various kinds under Antarctic conditions (it being emphasised that this research should not involve the deliberate liberation of oil in the Antarctic).

Ecologists who were members of the Group stressed the need for selection, based on a critical analysis of existing knowledge, in the development of this research programme. It would be quite impossible to measure all environmental variables, or describe all Antarctic ecosystems in detail. The dialogue between technological and ecological experts described in paragraph 68 should have as a major objective the selection of key factors and organisms for detailed study.

70. The first of these areas of research is equally important if the potential of the Antarctic as a source of minerals is to be evaluated. The Group recorded its view that the estimate* published in the Oil and Gas Journal

* The Group of Experts was informed that this figure originated from an unpublished, highly provisional calculation, using methodology which has since been revised, in an internal document within the United States Geological Survey.

for November 1976 and quoted in the Report of the SCAR EAMREA Group that 45 billion barrels of oil and 115 trillion cubic feet of gas "may" occur on parts of the Antarctic continental margin, even with the qualifications attached to it by the EAMREA Group, was only a speculation and should not be cited unless supported by much firmer evidence.

71. There are other fields of research which the Group noted as essential if exploration for minerals in the Antarctic was to be properly directed, and its impact predicted and controlled. The studies mentioned in paragraph 69 (ii) above, fall into this category and form part of the data base that the Group considered was essential before exploration for hydrocarbons could safely begin on the Antarctic margin. The following other topics were mentioned:

(i) detailed site investigations in areas that might possibly be considered for exploration;

(ii) research on methods for the containment, recovery or safe dispersal of spilled oil (the Group emphasised that this was a topic of the highest priority);

(iii) studies on the likely physical condition of oil spilled on the cold Antarctic seas, and on mathematical models for the prediction of the movements of oil slicks under Antarctic conditions (there are numerous existing models, developed in other regions, which could provide a starting point);

(iv) techniques for the safe disposal of wastes arising from mineral exploration and exploitation in the Antarctic.

72. If mineral exploration or exploitation were to occur in the Antarctic it would be essential to monitor both the operations themselves and consequential changes in the environment. There would need to be a system providing immediate warning of an accident leading to significant pollution and monitoring of the dispersion and effects of the pollutants released, and of the effectiveness of any measures for containment or recovery. This would be particularly difficult under Antarctic conditions.

C. Measures for the Prevention or Restoration of Damage to the Environment

(i) *Prevention of Pollution by Oil*

73. Problems of oil pollution can arise during drilling (whether for exploration or production), extraction, processing, storage or transportation under both normal operations and in the event of accident. Some delegations considered that these problems may be especially acute in the very cold Antarctic seas where the natural degradation of oil is likely to be extremely slow.

74. Thorough surveys in advance of drilling are essential for the prevention of pollution. High resolution seismic studies can detect layers where gas pockets may be encountered near the surface. Pressure measurement is

also desirable during drilling. In a permafrost environment frozen hydrates (or hydrates and oil) may sometimes be encountered and present an added hazard.

75. At any time during drilling, fluid under pressure (gas, oil or water) may be encountered. It is therefore important to maintain at all times all the equipment and materials necessary to control unexpected pressure. This equipment includes blow-out preventers, communications and remote control equipment, reserves of mud, and additives and degasification equipment. It should be noted that these muds may contain special additives to make them suitable for use in the Antarctic and these have a potential to cause some local pollution if released in the environment. When the well has reached a certain depth casing is carried out. Casing of a well is a very important safety factor, and it will be necessary to determine the length of each casing appropriate to the nature of the rock formation and the pressures that may be encountered. Cementing practices must be good enough to ensure that oil cannot escape laterally through the casing into flanking rocks and ultimately to the surface. Over-design is essential in exploration wells in new areas.

76. Additional pollution prevention measures should include proper procedures for well work-over (including the cleaning of operating systems, and replacement of components). These are naturally vulnerable operations because some control equipment is often itself taken out of use, and precautions must be especially strict in extreme environments.

77. Accidents on oil rigs, leading to environmental hazard, commonly involve human error and no technology can eliminate this, but it can reduce its probability and the scale of the consequences. Generally speaking human errors are commonest in routine operations involving less qualified personnel. In opening up a new region, in an exploratory phase, highly skilled staff are likely to be employed and the risk of error reduced. Because the Antarctic is a peculiarly hostile environment, more than normal care is likely to be taken during the early stages. The risks from human error are likely to increase once there is a transition from exploration to exploitation, with a strong element of routine. But there is no reason to predict a higher likelihood of human error in the Antarctic than elsewhere (the reverse is more likely) because operating conditions are never likely to be easy. Therefore, the training of personnel is an essential element in these safety precautions, and this must include "refresher" courses bringing staff up to date with new methods.

78. On drilling platforms at sea the prevention of pollution is of the first importance because opportunities for rehabilitation if spillage occurs are few or non-existent under the exacting conditions of the Antarctic. It is essential to undertake exploration cautiously, to prevent blow-outs. It is essential to be able to stop and re-start drilling, and to abandon and re-enter wells without risk of pollution: wherever possible equipment should be recovered before the link with a well is severed but in emergency a platform can move off station in under a minute without risk of pollution. With sound technology, training and vigilance the risk of blow-outs would be very small.

79. The maintenance and repair of Antarctic installations and anti-corrosion measures (for example the use of sacrificial anodes) may also have some environmental impact.

80. Where drilling takes place on land it is important that minimal damage is done to permafrost soils (wells being sealed as to avoid this), that reservoirs of fuel used to power drilling are located on an insulated bed, that all fuel tanks are surrounded by bunds to contain spillage, that care is taken to minimise contamination with oil, muds, chemicals and micro-organisms, that all debris is incinerated or removed, and that the land area is afterwards rehabilitated as far as possible. It is particularly important to ensure that water does not penetrate and freeze between the casing strings of wells, since the resulting expansion could cause bursting and pollution.

81. The techniques of risk analysis, covering fire as well as the other hazards identified above should be applied in the design of all equipment for use in oil exploration or exploitation in the Antarctic, and a substantial safety margin provided. Fire is equally a hazard on land, where its threat is increased by the generally unavailability of liquid water for fire-fighting except in limited areas near freshwater lakes and the sea.

82. Oil storage below the sea depends on the displacement of sea water from the tanks. The interface is always kept within the tank, and there are reliable ways of preventing hydrocarbons being discharged, but when water is drawn off it is necessary to separate the oil. Special techniques and standards will need to be drawn up for seabed storage systems in the Antarctic.

83. A major risk of oil spillage probably lies in the transfer from production wells to storage and thence to tankers. If seabed pipelines are used, it will be because technology allows their burial below the depth of iceberg scour, in stable areas not liable to substantial movements.

84. Tankers to be used in the Antarctic will almost certainly be specially built. In addition to being ice strengthened and having greater power such tankers will presumably operate within the guidelines of the safety and marine pollution prevention conventions to which the Antarctic Treaty nations are signatory. The ship design, construction and equipment features may include segregated ballast, double hulls or double bottoms, crude washing, inert gas systems, and discharge monitoring and control devices or some combination of these. The adoption of such features would prevent pollution through the discharge of oily ballast water, which remains a significant source of marine pollution in other areas. It is anticipated that Treaty Countries would operate their ships in an environmentally safe manner with special regard for the fragile nature of the Antarctic environment.

85. There are few suitable sites for tanker terminals on land in the Antarctic. If oil were brought ashore and then exported in tankers, bilge and ballast handling and treatment facilities might be needed (depending on ship design, discussed in paragraph 84), and the scale and nature of these must be geared to local needs. A standard for the permissible

maximum oil concentration in process water discharged to the sea should be set, together with standards for volatile hydrocarbons released to air: both must depend on assessments of the environmental quality to be sustained. It is important to note that if tankers arrived in the Antarctic in ballast, from ports elsewhere, the ballast water could contain a range of dissolved industrial effluents, and these could bring low concentrations of new contaminants to the Antarctic even if oil levels in the emissions were satisfactorily controlled.

(ii) *Prevention of pollution from mining and processing of minerals on land*

86. Major local pollution could be caused by mining, quarrying and processing of coal or hard rock mineral resources on land in the Antarctic, especially for elements like iron, where large volumes of spoil would be produced. Such mining or the quarrying of construction materials on land could release large amounts of dust, contaminate drainage with metal salts, and produce tailings or waste heaps with high concentrations of toxic metals. Not only could these have a deleterious effect on land, freshwater and inshore marine biota in the vicinity, but they could also be a hazard to human health, especially if water supplies were contaminated.

(iii) *Rehabilitation*

87. Areas of Antarctic land damaged by mineral exploration and exploitation cannot be rehabilitated in the fashion adopted in the Arctic, involving the fertilisation of the soil and the sowing of the seeds of vascular plants. The two vascular plant species native to the region are unlikely to be suited to cultivation in this way, the introduction of alien species would contravene conservation agreements (and be unlikely to succeed) and the bryophyte vegetation of coastal areas in the Maritime Antarctic is equally unsuited to propagation. It seems likely therefore that the most that could be done to restore land sites disturbed by man would be to remove all equipment and imported debris and shape any disturbed land so as to favour the slow process of natural colonisation. The rehabilitation of disturbed ice sites on land, or of areas of sea bed, (other than a clean-up procedure to remove extraneous debris) does not appear feasible except by slow natural processes.

88. Should oil be spilled at sea in the Antarctic, especially in periods of high wind and waves or among ice, its recovery or even containment does not appear possible using present technology. It is essential to take every precaution to prevent the spillage of oil in the Antarctic because of the risk of unacceptable impact on the environment, but in case such spillages occur, research into means of containment and recovery of oil, and perhaps the further development of non-toxic biodegradable dispersants should be pursued.

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EFFECTS OF TOURISM AND NON-GOVERNMENTAL EXPEDITIONS IN THE ANTARCTIC TREATY AREA

Draft Statement of Accepted Practices and the Relevant Provisions of the Antarctic Treaty, referred to the Tenth Consultative Meeting.

Introduction

The following statement is intended for the guidance of all those who visit the Antarctic.

The Antarctic Treaty was negotiated in Washington in 1959 by the states which had established scientific stations in the Antarctic during the International Geophysical Year (1957–58) in order to perpetuate the close scientific co-operation which had marked that period. It provides, *inter alia*, that the Antarctic shall be used for peaceful purposes only and that any measures of a military nature shall be prohibited; that there shall be freedom of scientific investigation and that the results of such investigation shall be made freely available; that nuclear explosions and the disposal of radioactive waste in the Antarctic is prohibited; that notification of an expedition to the Antarctic shall be provided in advance; and that each of the Antarctic Treaty Governments shall exert appropriate efforts to the end that no one engages in any activity in Antarctica contrary to the principles or purposes of the Antarctic Treaty.

Recommendations of Antarctic Treaty Consultative Meetings

The Treaty requires that meetings shall be held from time to time to consider and recommend measures in furtherance of its principles and objectives. Amongst these are measures of which all those who enter the Antarctic Treaty Area, both those sponsored by Governments and those not so sponsored, should be aware. The following notes indicate the nature of these measures and the reader is referred to the Recommendations of successive Consultative Meetings for the details.

Protection of the Antarctic Environment

The ecosystem of the Antarctic Treaty Area is particularly vulnerable to human interference and the Antarctic derives much of its importance from its uncontaminated and undisturbed condition and the effects it has on adjacent areas and the global environment. For these reasons the Consultative Parties have recognised their special responsibility for the protection of the environment and the wise use of the Treaty Area.

Conservation of Wildlife

Wildlife in the Antarctic is in almost all cases tame and is therefore peculiarly vulnerable to disturbance. Both animals and plants are living under extreme conditions and great care has to be taken to avoid upsetting

the natural ecological system. Wildlife and plants are protected by five mechanisms under the Agreed Measures for the Conservation of Antarctic Fauna and Flora.

Protection of Native Fauna

The killing, wounding, capturing or molesting of any native mammal or native bird is prohibited except in an emergency or in accordance with a permit issued under the authority of a Participating Government.

Harmful Interference

Every effort shall be made to minimise harmful interference with the normal living conditions of any native mammal or bird.

Specially Protected Species

Two species of seal, Fur Seals and the Ross Seal, have been designated as Specially Protected Species and permits may only be issued in relation to these species in accordance with certain restrictive criteria.

Specially Protected Areas

Representative areas of biologically outstanding scientific interest have been designated as Specially Protected Areas in order to preserve their unique natural ecological system (see Annex I). No person may enter such an Area except in accordance with a permit issued under the authority of a Participating Government. Such permits may only be issued in accordance with certain restrictive criteria.

Introduction of non-indigenous species, parasites and diseases

No species of animal or plant not indigenous to the Antarctic Treaty Area may be brought into the Area except in accordance with a permit issued under the authority of a Participating Government.

Pelagic Sealing

The Consultative Parties, having regard to the possibly damaging ecological consequences that might arise from the exploitation of Antarctic seals for commercial purposes, negotiated the 1972 Convention for the Conservation of Antarctic Seals. This is an instrument separate from the Antarctic Treaty.

Waste Disposal

In addition to the measures for the conservation of Antarctic wildlife outlined above, the Consultative Parties have prepared a Code of Conduct for Antarctic Expeditions and Station Activities including, *inter alia*, recommended procedures for waste disposal (see Annex II).

Protection of Historic Monuments

Every effort should be made to prevent damage or destruction to any historical remains or monuments. The Consultative Parties have listed a number of such monuments for special protection (see Annex III).

Facilitation of Scientific Research

Sites of Special Scientific Interest

There are many scientific investigations being carried out in the Antarctic which could suffer from accidental interference. For example, long term studies of the population dynamics of a penguin colony may require that visitors be kept to an absolute minimum; intensive scientific work in one may require that a nearby ecologically similar area be kept undisturbed and uncontaminated for reference purposes, or certain electromagnetically "quiet" areas where sensitive instruments have been installed for recording minute signals associated with upper atmosphere studies may require that visits to the site should be kept to a minimum.

For these and similar reasons the Consultative Parties have designated certain Sites of Special Scientific Interest in the Antarctic (see Annex IV). Each site is subject to a management plan designed to protect the particular scientific investigations being undertaken. Persons wishing to visit Sites of Special Scientific Interest should, well in advance, consult any national office responsible for the administration of a permanent Antarctic scientific expedition or, if this is not possible, should consult the station commander of the scientific station nearest the site which it is intended to visit.

Tourism and Expeditions not sponsored by an Antarctic Treaty Government

An important feature of the Antarctic Treaty is that co-operation under it is facilitated by the prior exchange of information about planned activities. The Treaty commitment covers any expedition organised in or proceeding to the Antarctic from the territory of any state which is a Contracting Party to the Antarctic Treaty. A consolidated list of the information to be exchanged is attached at Annex V.

It is a traditional Antarctic principle that expeditions render all assistance feasible in the event of an emergency. There are a number of unoccupied huts and refuges in the Antarctic which may be used by any expedition in an emergency, in which case the authorities who maintain the hut or refuge should be informed of what use has been made of it.

Special measures relating to tourist and other non-scientific expeditions

The number of non-governmental expeditions to the Antarctic is steadily increasing and there is a tendency for these expeditions to concentrate on the more easily accessible parts of the Antarctic. Frequent visits to scientific stations or undue dependence on the facilities of such stations can prejudice their scientific work. It is therefore required that the organisers of a tourist or other non-scientific expedition should furnish notice as soon as possible, through diplomatic channels, to any other Government whose station the expedition plans to visit. Any such Government may refuse to accept a visit or may lay down conditions upon which it would grant permission including, *inter alia*, that:

(i) reasonable assurance be given of compliance with the provision of the Antarctic Treaty, measures adopted under it and the conditions applicable at stations to be visited;

(ii) final arrangements to visit any station be made with that station between twenty-four and seventy-two hours in advance of the expected time of arrival;

(iii) all tourists and other visitors comply with any conditions or restrictions on their movements which the station commander may stipulate for their safety or to safeguard scientific programmes being undertaken at or near the station.

(iv) visitors must not enter Specially Protected Areas and must respect designated historic monuments;

(v) tour organisers should report to the Governments whose stations they have visited, after completion of the tour, the name and nationality of the ship, the name of the captain, the itinerary of each separate cruise, the number of tourists accompanying each cruise, and the places and dates at which landings were made in the Antarctic Treaty Area, with the number of persons landed on each occasion.

LIST OF ANNEXES

ANNEX I – Specially Protected Areas

ANNEX II – Extract from the Code of Conduct for Antarctic expeditions and station activities relating to waste disposal

ANNEX III – List of Historic Monuments

ANNEX IV – Sites of Special Scientific Interest

ANNEX V – Standard format for the annual exchanges of information

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GUIDANCE FOR VISITORS TO THE ANTARCTIC

Antarctica and its surrounding islands are one of the few places in the world which are still relatively unchanged by man's activities. Scientists still know very little about the ecological situation in the Antarctic. At the present early stage in research on these matters, some provisional restrictions and precautions may seem unnecessarily harsh, but preliminary studies indicate the need for great caution.

By following a few very simple requests, you can help preserve this region for future generations to enjoy.

1. Avoid disturbing wildlife any more than is necessary; especially do not:—

   walk on vegetation;

   touch or handle birds or seals;

   startle or chase any bird from its nest;

   wander indiscriminately through penguin or other bird colonies.

2. Litter of all types must be kept to a minimum. Retain all litter (film wrappers, tissue, food scraps, tins, lotion bottles, etc.) in a bag or pocket to be disposed of on board your ship. Avoid throwing tin cans and other trash off the ship near land.
3. Do not use sporting guns.
4. Do not introduce plants or animals into the Antarctic.
5. Do not collect eggs or fossils.
6. Do not enter any of the Specially Protected Areas and avoid Sites of Special Scientific Interest.
7. In the vicinity of scientific stations avoid interference with scientific work and do not enter unoccupied buildings or refuges except in an emergency.
8. Do not paint names or graffiti on rocks or buildings.
9. Take care of Antarctic historic monuments.
10. When ashore, keep together with your party.
