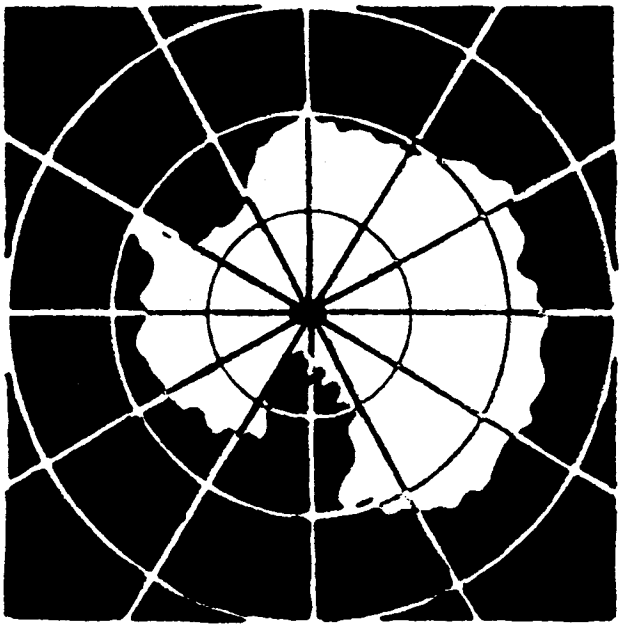
ANTARCTIC TREATY



REPORT
OF THE
TENTH CONSULTATIVE MEETING

WASHINGTON, D.C.
SEPTEMBER 17—OCTOBER 5, 1979

ANTARCTIC TREATY

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DEPARTMENT OF STATE
WASHINGTON, D.C.
1979

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I

FINAL REPORT

OF THE

TENTH 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 Washington from 17 September to 5 October, 1979, 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. John D. Negroponte, Representative of the United States, acted as Temporary Chairman of the Meeting pending the election of the Chairman.

3. The Meeting was formally opened by Mrs. Lucy Wilson Benson, Under Secretary of State for Security Assistance, Science and Technology.

4. Mr. Negroponte was then elected Chairman of the Tenth Antarctic Treaty Consultative Meeting. Mr. Carl Grip of the Department of State was appointed Secretary General of the Meeting.

5. The Opening Session was held in public. Opening statements were delivered by the Heads of Delegation. (The opening statements, along with the opening address delivered by Under Secretary Benson, are attached at 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
(6) Antarctic Marine Living Resources: Review of Recommendation IX-2, Parts I and III
(7) Improvement of Telecommunications in Antarctica and the Collection and Distribution of Meteorological Data
(8) Man's Impact on the Antarctic Environment, Including Review of Conservation Measures and Sites of Special Scientific Interest
(9) The Question of Oil Contamination of the Antarctic Marine Environment

(10) Effects of Tourism and Non-Government Expeditions in the Antarctic Treaty Area
(11) Activities in Antarctica by States that are not Consultative Parties Under the Antarctic Treaty
(12) Documents of the Consultative Meetings
(13) The Twentieth Anniversary of the Conclusion of the Antarctic Treaty
(14) Date and Place of Next Consultative Meeting
(15) Any Other Business
(16) Adoption of the Final Report
(17) Closing of Meeting

7. The Meeting considered in Plenary Session all the items on the Agenda and appointed six Working Groups, comprising members of all those Delegations wishing to participate, as well as a Drafting Committee, comprising members of Delegations representing the four working languages, to assist it in reaching conclusions on certain items of the Agenda. A Working Group on the Question of Mineral Exploration and Exploitation: Legal and Political Aspects (Agenda Item 5) was chaired by Mr. Norman A. Wulf of the United States. A Working Group on the Question of Mineral Exploration and Exploitation: Scientific and Environmental Aspects (Agenda Item 5) was chaired by Dr. Robert H. Rutford of the United States. A Working Group on Telecommunications (Agenda Item 7) was chaired by Mr. Robert B. Thomson of New Zealand. A Working Group on the Question of Man's Impact on the Antarctic Environment (Agenda Item 8) was chaired by Dr. V. K. Zilanov of the Union of Soviet Socialist Republics. A Working Group on the Question of Oil Contamination of the Antarctic Marine Environment (Agenda Item 9) was chaired by Professor Jean-Paul Bloch of France. A Working Group on Tourism (Agenda Item 10) was chaired by Dr. Ricardo Pedro Quadri of Argentina. The Drafting Committee was chaired by Mr. David Edwards of the United Kingdom.

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

X-1: Antarctic Mineral Resources
X-2: Antarctic Marine Living Resources
X-3: Improvement of Telecommunications in Antarctica and the Collection and Distribution of Antarctic Meteorological Data
X-4: Man's Impact on the Antarctic Environment: Collection of Geological Specimens
X-5: Man's Impact on the Antarctic Environment: Site of Special Scientific Interest - Interim Guidelines
X-6: Man's Impact on the Antarctic Environment: Sites of Special Scientific Interest
X-7: Oil Contamination of the Antarctic Marine Environment
X-8: Effects of Tourism and Non-Government Expeditions in the Antarctic Treaty Area
X-9: Twentieth Anniversary of the Antarctic Treaty

Mineral Resources

9. The Working Group on the Question of Mineral Resource Exploration and Exploitation: Legal and Political Aspects convened on 21 September and completed its work on 4 October. The Working Group had before it a report of the Preparatory Meeting on the Legal and Political Aspects of Antarctic Mineral Resource Issues held 2 July to 6 July, 1979, in Washington.

The Working Group started with an examination of the views expressed during the Preparatory Meeting and proceeded to a broad exchange of views among the participants. The Working Group drew upon these views in developing a draft recommendation on Antarctic mineral resources and in preparing its Report (Annex 5).

The Working Group on the Question of Mineral Resource Exploration and Exploitation: Scientific and Environmental Aspects convened on

26 September and completed its work on 4 October. The Working Group had before it the Report of the Group of Ecological, Technological and Other Related Experts on Mineral Exploration and Exploitation in Antarctica, established in accordance with operative paragraph 3 of Recommendation IX-1 and which met 25 June to 29 June, 1979, in Washington. The Report of the Group of Experts is annexed to this Final Report (Annex 6).

The Working Group on the Question of Mineral Resource Exploration and Exploitation: Scientific and Environmental Aspects prepared a draft recommendation on Antarctic mineral resources.

The Chairmen of the two Working Groups formed under Agenda Item 5 (Antarctic Resources: The Question of Mineral Exploration and Exploitation) reported to Plenary on 4 October. The two draft recommendations were combined into a single Recommendation (Recommendation X-1).

In connection with the meeting to consider the matter of an international regime for Antarctic mineral resources referred to in paragraph 2 (iii) of Recommendation X-1, the Representatives believed that the arrangements for the meeting should be completed through diplomatic channels.

Marine Living Resources

10. The Representatives recalled the emphasis that had been placed on this subject at the Ninth Consultative Meeting, and expressed their commitment to early conclusion of a Convention on the Conservation of Antarctic Marine Living Resources. A draft recommendation on this item was introduced and considered in Plenary on 5 October.

Telecommunications

11. The Working Group on Telecommunications convened on 18 September and completed its work on 21 September. It had before it the Final Report of the Third Antarctic Treaty Meeting on Telecommunications held in Washington, D.C., September 11-15, 1978 (Annex 7). The Group identified "areas of concern" which included:

(a) the need for increasing the rate of flow of meteorological data to data centers;
(b) making available weather information for use as a basis for operational needs, including the likely increasing requirements of commercial ship and aircraft operations;
(c) improving the means for exchanging data between West and East Antarctica;
(d) compatibility of equipment;
(e) the desirability of continuing the updating and exchange of information regarding telecommunication practices.

The Chairman of the Working Group presented a summary of its activities in Plenary on 26 September. The draft recommendation developed by the Working Group was presented in Plenary on 1 October.

Man's Impact on the Antarctic Environment*

12. The Working Group on Man's Impact on the Antarctic Environment convened on 24 September and completed its work on 1 October. The Working Group had before it the relevant sections of the Report of the Fifteenth Meeting of the Scientific Committee on Antarctic Research (SCAR) held in Chamonix, France, 22-27 May, 1978.

The Chairman of the Working Group presented a summary of its activities along with the draft recommendations developed by the Working Group, to Plenary on 1 October. The Working Group considered extension in the dates

*The Consultative Meeting does not approve or disapprove the place names appearing in this section or in any paper or Recommendation referred to in this Final Report.

for expiry of designations of seven Sites of Special Scientific Interest (SSSI's) and management plans for the two additional, proposed SSSI's: the first including two small benthic habitats in Chile Bay, Greenwich Island; and the second including both terrestrial and marine areas in Admiralty Bay, King George Island. It also considered questions concerning the collection of geological samples in Antarctica.

Three draft recommendations were submitted to Plenary by the Working Group on 4 October. These recommendations dealt with the extension of the designation of expiry dates of the seven existing SSSI's, the collection of geological samples and the management plan for covering terrestrial areas on the western shore of Admiralty Bay, King George Island. There was insufficient time for full consideration of concerns relating to the designation of SSSI's covering marine areas. The Working Group felt that further discussion of the proposed management plans for the SSSI's for Chile Bay and the marine areas of Admiralty Bay should be undertaken prior to and during the Eleventh Antarctic Treaty Consultative Meeting.

Oil Contamination of the Antarctic Marine Environment

13. The Working Group on the Question of Oil Contamination of the Antarctic Marine Environment convened on 24 September and completed its work on 1 October. The Group had before it Recommendation IX-6, Section III of the Report of the Group of Ecological, Technological and Other Related Experts on Mineral Exploration and Exploitation in Antarctica (Annex 6), as well as other material provided by some delegations relating to the general subject of pollution of the marine environment by oil. The Chairman of the Working Group presented a summary of its activities, along with the draft recommendation developed by the Working Group, to Plenary on 4 October.

Tourism

14. The Working Group on Tourism convened on 19 September and completed its work on 21 September. The Working Group had before it a paper from the SCAR Working Group on Logistics entitled "Tourist and Private Expeditions to the Antarctic," a draft statement of accepted practices together with the relevant provisions of the Antarctic Treaty, and a draft containing practical guidance for visitors to Antarctica for inclusion in Annex A of Recommendation VIII-9. These materials had been forwarded to the Tenth Antarctic Treaty Consultative Meeting owing to lack of sufficient opportunity for their consideration at the Ninth Antarctic Treaty Consultative Meeting.

The Chairman of the Working Group presented a summary of its activities to Plenary on 26 September. The draft recommendation developed by the Working Group was presented on 4 October. The draft recommendation included a "Statement of Accepted Practices and the Relevant Provisions of the Antarctic Treaty" and "Guidance for Visitors to the Antarctic."

Three draft recommendations were submitted to Plenary by the Working Group on 4 October. These recommendations dealt with the extension of the designation of expiry dates of the seven existing SSSI's, the collection of geological samples and the management plan for covering terrestrial areas on the western shore of Admiralty Bay, King George Island. There was insufficient time for full consideration of concerns relating to the designation of SSSI's covering marine areas. The Working Group felt that further discussion of the proposed management plans for the SSSI's for Chile Bay and the marine areas of Admiralty Bay should be undertaken prior to and during the Eleventh Antarctic Treaty Consultative Meeting.

Activities in Antarctica by States That are not Consultative Parties Under the Antarctic Treaty

15. It was recognized that this agenda item included both the question of activities in Antarctica by States that have not acceded to the Antarctic Treaty, as well as the question of such activities by States which have

acceded to the Treaty but are not Consultative Parties. In light of the full discussion of this subject at the Ninth Antarctic Treaty Consultative Meeting, the Representatives did not consider it necessary to devote extended attention to Agenda Item 11. The Representatives agreed that widened adherence to the principles and purposes of the Antarctic Treaty, including through increased accession to the Treaty itself, is a desirable international objective.

Documents of the Consultative Meetings

16. The Representatives resumed discussion, begun at the Ninth Antarctic Treaty Consultative Meeting, on the availability to the public of documents regarding Consultative Meetings. In this regard, the importance was recognized of providing more information on the work of Consultative Meetings.

The Twentieth Anniversary of the Conclusion of the Antarctic Treaty

17. The Representatives drew attention, both in their opening addresses and during the course of the Meeting, to the fact that the Tenth Consultative Meeting marked the twentieth anniversary of the conclusion of the Antarctic Treaty which was signed in Washington in 1959. They welcomed the fact that several of the persons who originally signed the Antarctic Treaty were able to participate in sessions of the Consultative Meeting. They agreed that it was appropriate on this occasion for the Consultative Parties to commemorate the important achievements of the Antarctic Treaty system during its first two decades and to reaffirm their commitment to the Treaty and the Treaty system. In this regard, the Representatives also agreed that tribute should be paid to the accomplishments of the Antarctic scientific community and the Scientific Committee on Antarctic Research (SCAR) in advancing knowledge of Antarctica through promotion of cooperation and coordination of scientific programs there. They further believed that, in consultation with their National Committees, they should institute consideration of how SCAR can continue to respond effectively to requests directed to it by the Consultative Parties. This subject was considered, and a draft recommendation on it prepared, on 4 and 5 October.

The Eleventh Consultative Meeting

18. The Representatives accepted with pleasure the invitation of the Representative of Argentina to host the Eleventh Consultative Meeting.

Other Business

19. The United States Delegation submitted a document 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. The document is attached at Annex 3.

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

Representatives recalled that at the Ninth Antarctic Treaty Consultative Meeting there was consideration of the periodicity and nature of meetings within the framework of the Antarctic Treaty, including discussions of whether holding of Special Consultative Meetings for ad hoc purposes would be a response to the need expressed for more frequent meetings of Consultative Parties. The Representatives generally agreed that the special meetings of Consultative Parties, including Special Consultative Meetings, held in the past two years represented an adequate response to that need and was a practice that could be followed in the future.

A proposal was circulated to amend paragraph 24 of the Rules of Procedure to provide that the Final Reports of the Consultative Meeting be approved by all Representatives present at the Meetings. The Representatives did not make a decision on this point but the opinion was expressed that it should be discussed at the Eleventh Consultative Meeting.

II
RECOMMENDATIONS
ADOPTED AT THE
TENTH ANTARCTIC TREATY CONSULTATIVE MEETING

X-1
Antarctic Mineral Resources

The Representatives,

Convinced of the need to preserve and further strengthen the international regime established in Antarctica by the Antarctic Treaty, which has for nearly two decades guaranteed the use of Antarctica exclusively for peaceful purposes, and in the interest of the development of international cooperation;

Aware of the responsibilities of the Consultative Parties to ensure that any activities in Antarctica, including mineral exploration and exploitation, should they occur, should be consistent with all the principles and purposes of the Antarctic Treaty system, including its objectives that activities in Antarctica should not become the cause of international discord, endanger the unique Antarctic environment, or disrupt scientific investigations;

Concerned that unregulated mineral resource activities could significantly harm the fragile Antarctic ecosystem;

Noting that decisions on possible mineral resource activities must take due account of the unique ecological and scientific value of Antarctica and the importance of Antarctica to the world environment;

Recognizing that available information is insufficient reliably to assess the possible environmental effects of many activities in the area of exploration and exploitation of mineral resources in Antarctica, and conscious of the need for developing research programs aimed at improving predictions of the possible impact of such activities in Antarctica and for promoting the development of monitoring programs aimed at detecting the impact of such activities on the Antarctic environment should such activities occur;

Convinced that informed decision-making on questions of mineral resource activities will usually require the availability of information from such programs;

Aware also of the necessity to obtain additional scientific information with a view to facilitating the development of measures related to the protection

of the Antarctic environment from possible harmful impacts of mineral resource exploration and exploitation, should such activities occur;

Noting that a meeting of ecological, technological, and other related experts was held in Washington, D.C., 25 June to 29 June, 1979, as part of the Preparatory Meeting to the Tenth Consultative Meeting with a view to developing scientific programs aimed at improving predictions of the impact of possible technologies for mineral exploration and exploitation in the Antarctic, and developing measures for the prevention of damage to the environment or for its rehabilitation;

Recalling the provisions of Recommendations VIII-14 and IX-1;

Recognizing the necessity for progress towards the timely adoption of an agreed regime concerning Antarctic mineral resources;

Recommend to their Governments that:

1. They take note of the progress made toward the timely adoption of a regime for Antarctic mineral resources at the Tenth Antarctic Treaty Consultative Meeting and related meetings, and of the importance of this progress.

2. They continue consultations proceeding from the provisions of Recommendation IX-1 and from the provisions of the present Recommendation.

To this end, they should:

(i) Continue to develop a common understanding of the general purposes of the regime and to identify the specific elements of the regime needed to ensure achievement of those purposes;

(ii) Continue to give thorough examination to all of the elements necessary to ensure that the future regime will achieve its general purposes;

(iii) Hold a meeting before the Eleventh Consultative Meeting, preferably in the first half of 1980, to consider a regime for Antarctic mineral resources in its ecological, political, technological, legal and other aspects; and

(iv) in this regard, make the best possible use of the report of the Tenth Consultative Working Group on Antarctic Resources - The Question of Mineral Exploration and Exploitation: Legal and Political Aspects (which is annexed to the Final Report of the Tenth Consultative Meeting) and of the section of this Final Report which refers to the work of the Working Group on Antarctic Resources - The Question of Mineral Exploration and Exploitation: Scientific and Environmental Aspects.

3. The agreed regime for Antarctic mineral resources should be based upon provisions of paragraphs 1, 3, 4, and 5 of Recommendation IX-1 and on such further principles, rules and arrangements as may be subsequently agreed.

4. An agreed regime on Antarctic mineral resources should include inter alia means for:

(i) assessing the possible impact of mineral resource activities on the Antarctic environment in order to provide for informed decision-making;

(ii) determining whether mineral resource activities will be acceptable;

(iii) governing the ecological, technological, political, legal, and economic aspects of those activities in cases where they would be determined acceptable; including:

a) establishing, as an important part of the regime, rules relating to the protection of the Antarctic environment; and

b) requiring that mineral resource activities undertaken pursuant to the regime be undertaken in compliance with such rules.

5. Taking account of the Report of Ecological, Technological, and Other Related Experts on Mineral Exploration and Exploitation in Antarctica (Washington, June 1979), attached as an annex to the Report of the Tenth Consultative Meeting, they facilitate their research activities which would contribute to an improved understanding of relevant aspects of the Antarctic and its environment.

6. With a view to improving predictions of the environmental impacts of activities, events, and technologies associated with mineral resource exploration and exploitation in the Antarctic should such occur, they, through their respective National Antarctic Committees, encourage the Scientific Committee on Antarctic Research to define programs, taking account of the Experts Report (Washington, June 1979), with the objectives of:

   a. retrieving and analyzing relevant information from past observations and research programs;

   b. ensuring in relation to the needs for information identified by the Experts Report, that effective use is made of existing programs;

   c. identifying and developing new programs that should have priority, taking account of the length of time required for results to become available.

7. Insofar as is feasible they support, as appropriate, their respective National Antarctic Committees and the offices administering their Antarctic research programs in developments arising from the previous paragraph.

8. The subject "Antarctic Resources - The Question of Mineral Exploration and Exploitation" be placed in the Agenda of the Eleventh Antarctic Treaty Consultative Meeting.

X-2
Antarctic Marine Living Resources

The Representatives,

Recalling the responsibilities of the Consultative Parties regarding the conservation of Antarctic marine living resources;

Recalling further the history of action taken by Consultative Parties concerning protection of the Antarctic ecosystem, including, in particular, Recommendations III-VIII, VIII-10, VIII-13, IX-2 and IX-5;

Aware of the continuing need to compile more information and data with a view to develop an adequate scientific basis for the development of rational management policies and the taking of effective conservation measures for all Antarctic marine living resources;

Welcoming progress made toward the elaboration of a definitive regime for the conservation of Antarctic marine living resources;

Reaffirming their commitment to the early conclusion of a definitive regime for the conservation of Antarctic marine living resources;

Recommend to their Governments that:

1. They seek early conclusion and entry into force of a Convention on the Conservation of Antarctic Marine Living Resources;

2. They identify, emphasize and cooperate in those research activities which will facilitate the effective operation of such a Convention once it is in force;

3. They provide practical support to facilitate the carrying out of these needed research activities, including the mutual exchange of statistics relating to catch of Antarctic marine living resources.

X-3
Improvement of Telecommunications in Antarctica and the Collection and Distribution of Antarctic Meteorological Data

The Representatives,

Recalling Recommendations VI-1, VI-3, and VII-7;

Noting that the Third Antarctic Treaty Meeting on Telecommunications held in Washington in September 1978 had described the telecommunications network for the exchange of meteorological data both within the Antarctic and between the Antarctic and Global Telecommunications System (GTS) of the World Weather Watch (WWW) as it existed in September 1978 (see Annexes 1, 2 and 3).

Taking account of the importance of Antarctic meteorological data to the WWW and the diminished value of such data if it is not available to users within and outside the Antarctic in accordance with the World Meteorological Organization (WMO) schedules for the receipt of raw and processed data;

Reaffirming the importance of the GTS for purposes of transmitting Antarctic meteorological data between Antarctic stations in cases where direct transmission within Antarctic is inhibited by ionospheric conditions;

Noting, with appreciation, the response of the Scientific Committee on Antarctic Research (SCAR) to Recommendation IX-3 and the improvement in Antarctic telecommunications that would follow if operators and offices administering Antarctic programs had available to them statements of the current telecommunications practices within and between national networks;

Recognizing that changing national requirements for Antarctic telecommunications, changing technology or budgetary constraints may lead to significant incompatibilities arising between national networks;

Recognizing that possible future trans-polar commercial air traffic and the steadily increasing amount of shipping in the Antarctic region may give rise to a changing pattern of needs for raw and processed meteorological data;

Affirming that developments in the collection and distribution of meteorological data should be reviewed from time to time;

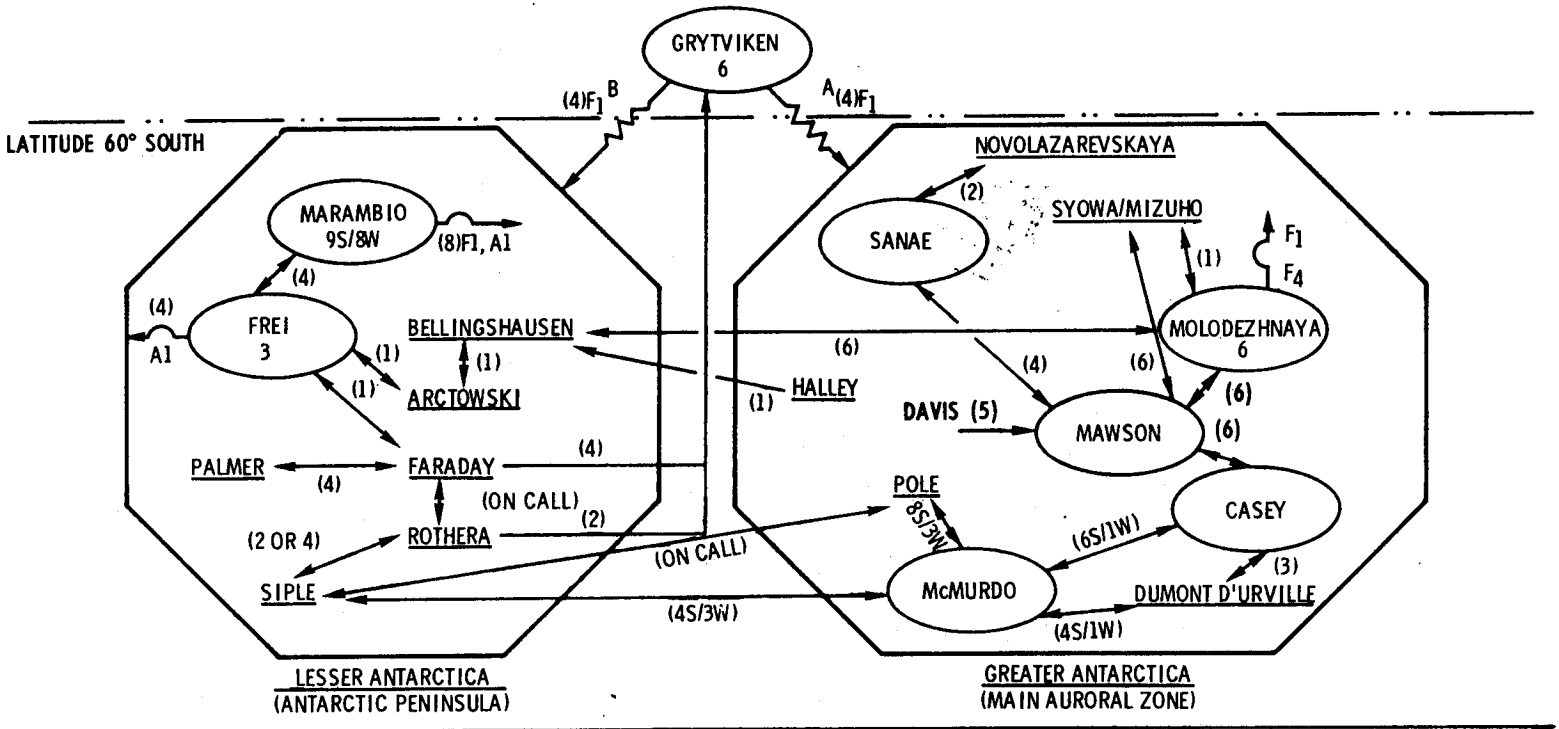
Recommend to their governments that:

1. Taking account of the final report of the Third Antarctic Treaty Meeting on Telecommunications, they should strive to improve the system for the collection and distribution of Antarctic meteorological data having regard particularly to increasing efficiency, reliability and economy of effort; taking into account opportunities offered by new technology;

2. Each station undertaking meteorological observations should ensure that data are transmitted as soon as practicable after the observation;

(Continued on page 18)

EXISTING LINKS FOR THE DAILY INTERNATIONAL EXCHANGE OF METEOROLOGICAL DATA WITHIN THE ANTARCTIC AS OF SEPTEMBER 1978 (CORRECTED)



NAME
(S/W)

MAIN CENTERS WITH THE NUMBER OF STATIONS FROM WHICH DATA ARE COLLECTED AND BROADCAST BY (CQ)

TELECOMMUNICATION METHOD
(CONTACTS PER DAY, S/W)

S = SUMMER
W = WINTER

(S/W) POINT TO POINT LINKS

(S/W) BROADCAST BULLETINS APPROXIMATELY OMNIDIRECTIONAL (NOMINALLY CQ)

(S/W) OMNIDIRECTIONAL (CQ) BROADCAST BULLETINS

BROADCAST TIMES
(MODE)

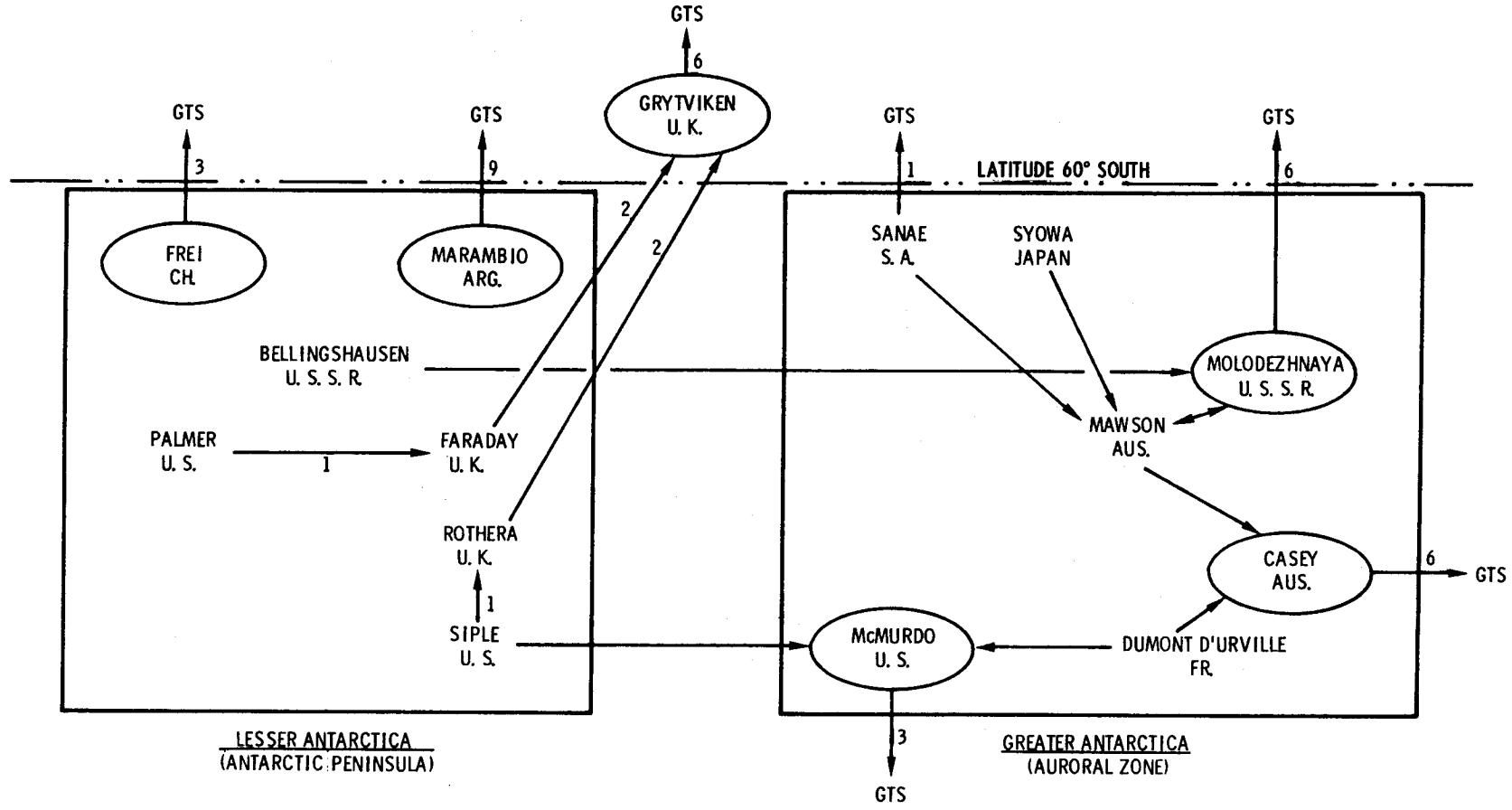
FREI
(CW) A1 : H + 05 (SYNOP)

MARAMBIO
(CW/FSK) A1, F1 : H + 30 (SYNOP), H + 160 (TEMP)

GRYTVIKEN
(FSK) F1 : (A) H + 30 (SYNOP), H + 180 (TEMP)
(B) H + 45 (SYNOP), H + 175 (TEMP)

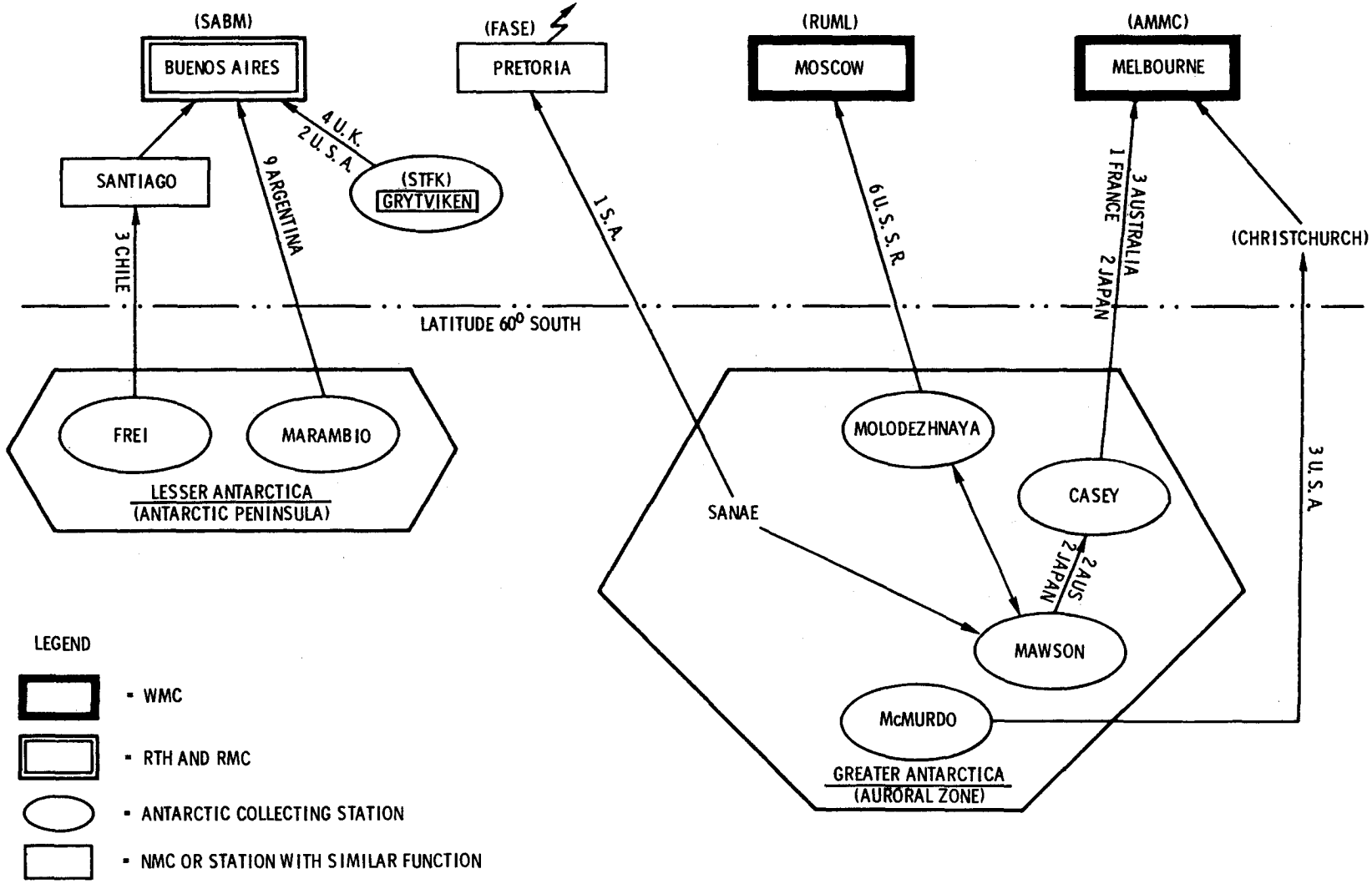
MOLODEZHNAYA
(FAX, FSK) F4, F1 : H + 45 (SYNOP), H + 180 (TEMP)

PRINCIPAL INTRA-ANTARCTIC INTERNATIONAL ROUTES BY WHICH ANTARCTIC METEOROLOGICAL DATA LEAVES THE ANTARCTIC AS OF SEPTEMBER 1978 (CORRECTED)



- STATIONS TRANSMITTING DATA COLLECTED FROM MORE THAN ONE STATION DIRECTLY TO THE GTS

PRINCIPAL ROUTES BY WHICH ANTARCTIC DATA ENTERS THE GLOBAL TELECOMMUNICATION SYSTEM AS OF SEPTEMBER 1978 (CORRECTED)



3. Stations receiving these data for onward transmission to other Antarctic stations or to the GTS should forward such data with minimum delay;

4. In cooperation with other Antarctic stations and World Meteorological Centers, they continue regularly to monitor receipt of Antarctic data by, and its transmission within, the GTS;

5. In cooperation with the WWW, they seek to ensure that the transmission of these data from the GTS to Antarctic stations is facilitated in cases where this method is likely to be more reliable or cost-effective than trans-Antarctic transmissions;

6. Through their National Antarctic Committees, they invite SCAR to prepare a brief handbook of the telecommunications practices within and between national networks in a format which allows it to be amended periodically in the light of changes in national practices;

7. For the purposes of the previous paragraph, they ensure that their offices administering Antarctic programs inform SCAR in June and December each year of changes in their telecommunications practices;

8. Subject to overriding scientific, administrative or budgetary reasons, they seek to ensure, by means of appropriate contacts with the offices administering Antarctic programs, that transmission of meteorological data between Antarctic stations is not prejudiced by changes in their telecommunications practices;

9. They invite WMO, through their Permanent Representatives to that Organization, to review Annexes 1 and 2 of Recommendation VI-3 with a view to advising Consultative Parties about current, and probable future, requirements for both raw and processed data in the Antarctic region;

10. Not later than at the Twelfth Antarctic Treaty Consultative Meeting they review developments in Antarctic telecommunications for meteorological purposes, having sought in the interim period to resolve any international difficulties that may arise with regard to the system by appropriate discussion.

X-4
Man's Impact on the Antarctic Environment: Collection of Geological Specimens

The Representatives,

Recalling Article II of the Antarctic Treaty;

Recognising that an essential element in geological investigations is the collection and removal of specimens but that the removal of specimens from areas which are of exceptional geological interest needs, as far as is practicable, to be kept to a minimum in order to avoid prejudicing subsequent geological investigations in such areas·

Noting that:

(i) this problem is presented in a more acute form in areas where more than one expedition is undertaking geological investigations;

(ii) a similar problem has already been recognised with regard to the collection of meteorites;

(iii) it might be appropriate to designate small areas which are of exceptional geological interest as Sites of Special Scientific Interest.

Recommend to their Governments that, through their National Committees, they refer the matter to the Scientific Committee on Antarctic Research (SCAR) for further study.

X-5
Man's Impact on the Antarctic Environment: Site of Special Scientific Interest - Interim Guidelines

The Representatives,

Recalling Recommendations VII-3, VIII-3 and VIII-4;

Noting that a management plan has been prepared for a Site of Special Scientific Interest on the western shore of Admiralty Bay, King George Island;

Considering that it would be advantageous to gather experience of the practical effect of the management plan prepared for this Site;

Recommend to their Governments that they voluntarily take account of the management plan, annexed to this recommendation, for Site No. 8 western shore of Admiralty Bay, King George Island.

Annex

Site of Special Scientific Interest No. 8
Western Shore of Admiralty Bay, King George Island

Management Plan

(i) Description of Site

All that area on the western shore of Admiralty Bay, south of Ezcurra Inlet, south of a line connecting Jardine Peak and the shoreline immediately to the north of a prominent group of rocks characterized by a covering of orange lichens bearing approximately 068° from Jardine Peak, and east of a line joining Jardine Peak, The Tower and a point on shore line bearing 180° from The Tower.

(ii) Reason for Designation

This area is one of exceptional scientific interest close to a reasearch station frequently visited by tourist ships. It supports an exceptional assemblage of Antarctic birds and mammals. Long-term research programs could be jeopardised by accidental interference, especially during the breeding season of these animals.

(iii) Outline of Research

The area supports a breeding colony of Elephant seals and the three species of pygoscelid penguins in association with eight species of flighted birds. The purpose of the investigations is to gain insight into the dynamics of a typical, but particularly rich, Antarctic coastal ecocystem. Studies of the functioning of the inshore and coastal zone in relation to the ecosystem will include quantitative studies of the circulation of matter and energy between the coastal and marine environments.

(iv) Date of Expiry of Designation

31 March 1985.

(v) Access Points

The site should be entered only from the vicinity of Point Thomas.

(vi) Pedestrians and Vehicular Routes

Vehicles should not enter the site. Pedestrians should not move through the populated areas, especially during the breeding season, except as necessary in the course of scientific investigations.

(vii) Other Kinds of Scientific Investigations Which Would Not Cause Harmful Interference

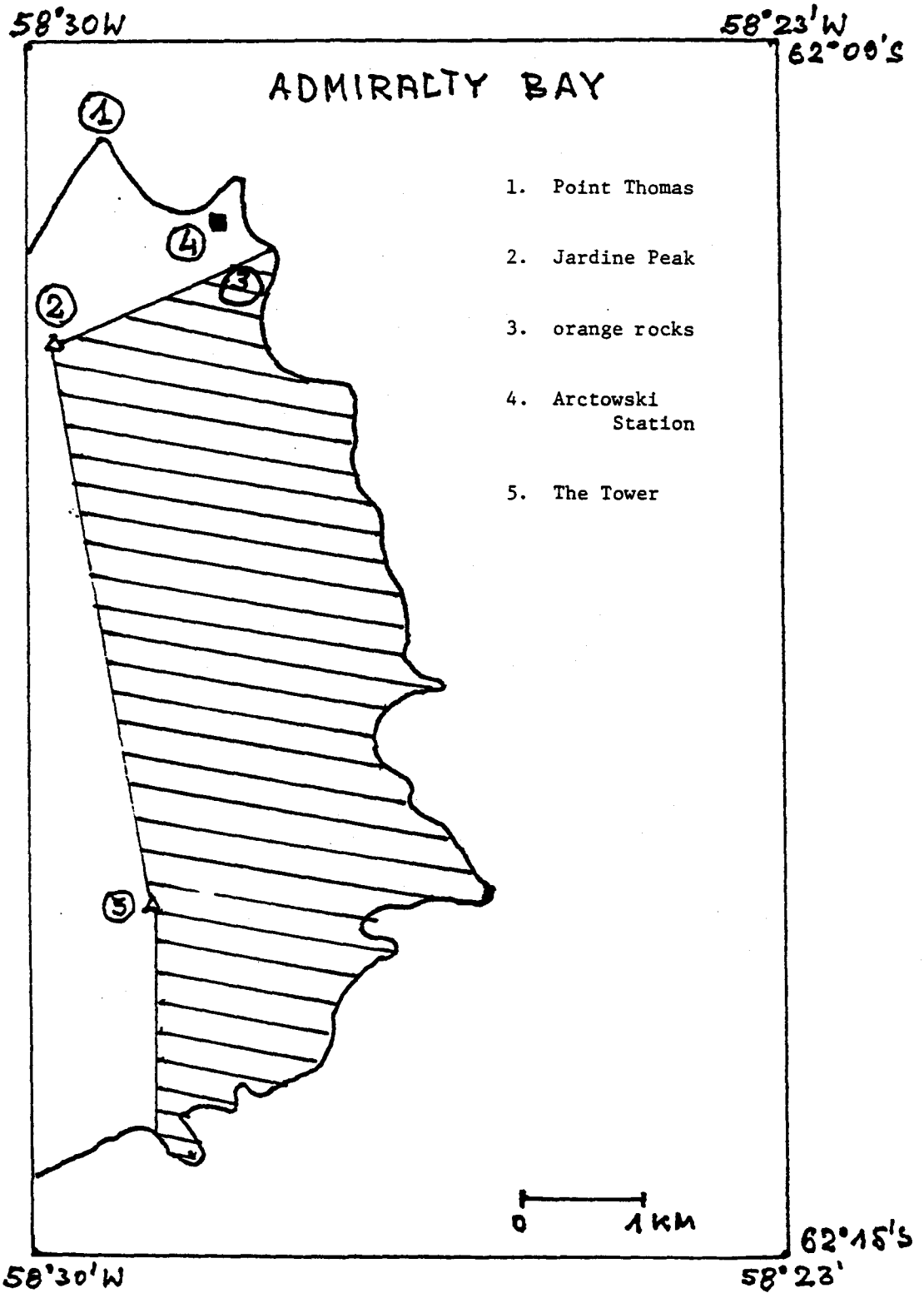
Scientific investigation which will not cause significant disturbance to the biological programmes mentioned in section (iii) above.

(viii) Scientific Sampling

Scientific sampling, other than that associated with the research programme described above, should be kept to a minimum and in accordance with the Agreed Measures for the Conservation of Antarctic Fauna and Flora.

(ix) Other Restraints

Helicopters and low-flying aircraft should avoid the breeding colonies of birds in accordance with the Agreed Measures for the Conservation of Antarctic Fauna and Flora.



X-6
Man's Impact on the Antarctic Environment: Sites of Special Scientific Interest

The Representatives,

Recalling Recommendations VIII-3 and VIII-4;

Noting that:

(i) in accordance with paragraph 2 of Recommendation VIII-3 the Scientific Committee on Antarctic Research (SCAR), at its Fifteenth Meeting at Chamonix in May 1978, had reviewed the seven sites of Special Scientific Interest designated in Recommendation VIII-4;

(ii) experience of the practical effect of the management plans for these sites had shown them to be an effective means of reducing the risk of harmful interference in areas of exceptional scientific interest;

(iii) no change to these management plans had been proposed by SCAR;

Recommend to their Governments that:

1. The date of expiry of designation of the following sites should be extended from 30 June 1981 to 30 June 1985:

   Site No. 1: Cape Royds, Ross Island

   Site No. 2: Arrival Heights, Hut Point Peninsula, Ross Island

   Site No. 3: Barwick Valley, Victoria Land

   Site No. 4: Cape Crozier, Ross Island

   Site No. 5: Fildes Peninsula, King George Island, South Shetland Islands

   Site No. 6: Byers Peninsula, Livingston Island, South Shetland Islands.

2. The date of expiry of designation of Site No. 7: Haswell Island, should be extended from 30 June 1981 to 30 June 1983.

3. They use their best endeavors to ensure, in accordance with paragraphs 3 and 4 of Recommendation VIII-3, that the management plans of these sites are observed.

X-7
Oil Contamination of the Antarctic Marine Environment

The Representatives,

Recalling that paragraph 4 of Recommendation IX-6 called for such reports as might have been prepared on the matters set out in the first three paragraphs of that Recommendation to be considered at the Meeting of Experts recommended in paragraph 3 of Recommendation IX-1;

Noting that three reports were submitted to that meeting (Washington, June 1979) which, between them:

(i) outlined the probable pathways by which oil might reach the Antarctic marine environment;

(ii) concentrated on the question of baseline measurements of the hydrocarbon content of the Antarctic marine

environment and on programs for further study of this question;

(iii) devoted less attention to proposals relating to practicable means by which oil contamination of the Antarctic marine environment might be reduced;

(iv) noted the need for further studies relating to the problem of oil contamination of the Antarctic marine environment;

Recognizing that methods for analysing dissolved hydrocarbons have not yet reached the stage where they can be used on a routine basis and that the results of such measurements have given rise to differing interpretations as to their environmental significance, especially regarding very low levels of hydrocarbon content in water samples from the open ocean;

Recognizing that determination of baseline measurements of the hydrocarbon content in representative components of the Antarctic marine ecosystem (including birds and mammals) would probably, in the medium term, provide a more cost-effective insight into levels of oil contamination of the Antarctic marine environment;

Noting that up to now the most significant introduction of oil in the Antarctic marine environment has appeared to be from the operation of ships and that there are international agreements aimed at reducing the levels of oil contamination of the marine environment generally;

Recognizing that the presence of ice in Antarctic waters gives rise to particular hazards for the operation of ships; and

Noting that in many instances it may not be feasible to adapt existing ships to more stringent standards for the prevention of the contamination of the sea by oil than those which existed at the time these ships were built;

Recommend to their Governments that:

1. They take note of Section III of the Report of Ecological, Technological, and other Related Experts on Mineral Exploration and Exploitation in Antarctica (Washington, 1979), annexed to the Final Report of the Tenth Consultative Meeting;

I

Baseline Levels of Hydrocarbon Content

2. While coordinating programs through their National Committees and the Scientific Committee on Antarctic Research (SCAR), they encourage studies of:

(a) baseline measurements of hydrocarbon content in representative components of the Antarctic marine ecosystem (including birds and mammals);

(b) the effects of various kinds and concentrations of hydrocarbons (and other pollutants) on key components of the Antarctic marine ecosystem;

(c) the methodology of analysing low levels of dissolved hydrocarbon content of the marine environment and the development of this methodology for purposes of routine measurements;

3. Through their National Committees, they invite SCAR in consultation with other appropriate international organizations, to keep under review the possibility of developing a program for the determination of baseline measurements of hydrocarbon content relevant to the needs for such determinations in the Antarctic marine environment.

II

Reduction of the Risk of Contamination

4. They review their respective obligations under existing international agreements to which they are parties which relate to the reduction of contamination of the sea by oil and, in the light of the particularly hazardous nature of the Antarctic for ship operations, consider whether their compliance with these obligations adequately minimizes the risk of oil contamination of the Antarctic marine environment;

5. They be prepared to discuss this matter further at the Eleventh Consultative Meeting.

X-8
Effects of Tourists and Non-Government Expeditions in the Antarctic Treaty Area

The Representatives,

Recalling that Annex A to Recommendation VIII-9 was to be discussed at the Ninth Consultative Meeting and that a draft text of a Statement of Accepted Practices and the Relevant Provisions of the Antarctic Treaty was referred from the Ninth to the Tenth Consultative Meeting;

Recognizing that, in addition to the statement referred to in the previous paragraph which is primarily intended for the organizers of tourist expeditions, it would be helpful to the organizers of such expeditions to be able to provide to individual visitors a brief guide to good conduct in the Antarctic;

Noting that adventurous individuals organizing non-governmental expeditions to Antarctica may seek help or advice from offices administering Antarctic programs;

Recognizing, also, that in considering responses to requests for help from such expeditions, an important concern is the possibility that such expeditions may, in cases of emergency, involve the offices administering Antarctic programs in financial or material loss;

Recognizing that suitably qualified guides accompanying commercially organized Antarctic tours would both benefit the tourists and help to ensure that the conservation and environmental measures adopted by the Consultative Parties were observed;

Reaffirming the traditional principle in the Antarctic of rendering all assistance feasible in the event of an emergency request for help, but noting that commercial overflights of Antarctica are operating in a particularly hazardous environment, where aircraft operation systems normally available elsewhere in the world are at a minimum, and where emergencies could arise which are beyond the capacity of permanent Antarctic expeditions to respond adequately;

Recommend to their governments that:

I

STATEMENT OF ACCEPTED PRACTICES AND THE RELEVANT PROVISIONS OF THE ANTARCTIC TREATY

They insert the attached statement of Accepted Practices and the Relevant Provisions of the Antarctic Treaty into Annex A to Recommendation VIII-9 for the purposes set out in operative paragraph 1 of that Recommendation.

II

NON-GOVERNMENTAL EXPEDITIONS

If a non-governmental expedition approaches a Consultative Party for help or advice, that Consultative Party should inform the Contracting Party where the expedition to Antarctica is being organized and may request all relevant information about the expedition.

They urge non-governmental expeditions to carry adequate insurance cover against the risk of their incurring financial charges or material losses in the Antarctic Treaty Area.

III

TOUR GUIDES

To the extent practicable, they encourage commercial tour operators to carry tour guides with experience of Antarctic conditions, who are aware of the considerations which underlie the Agreed Measures for the Conservation of Antarctic Fauna and Flora and for the protection of the Antarctic environment.

IV

COMMERCIAL OVERFLIGHTS IN ANTARCTICA

They notify commercial aircraft operators that the present level of tourist overflight activity:

(i) exceeds existing capabilities for air traffic control, communications and search and rescue in the Antarctic;

(ii) may interfere with normal operational flights in support of expeditions engaged in ongoing scientific programs in the Antarctic;

(iii) exceeds the capacity of their Antarctic operations to respond adequately to an unplanned emergency landing.

STATEMENT OF ACCEPTED PRINCIPLES AND THE RELEVANT PROVISIONS OF THE ANTARCTIC TREATY

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 cooperation 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 any nuclear explosions and the disposal of radioactive waste material 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 Contracting Parties shall exert appropriate efforts to the end that no one engages in any activity in the Antarctic 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 recognise their special responsibility for the protection of the environment and the wise use of the Treaty Area.

Conservation of Wildlife

Animals in the Antarctic are in almost all cases tame and are therefore peculiarly vulnerable. Both animals and plants are living under extreme conditions and great care has to be taken to avoid upsetting the natural ecological system. They are protected by the following five mechanisms under the Agreed Measures for the Conservation of Antarctic Fauna and Flora:

(i) 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. Any attempt to do any of these things is also prohibited under the same conditions.

(ii) Harmful Interference

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

(iii) 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.

(iv) Specially Protected Areas

Certain areas of 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.

(v) 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. Special precautions have to be taken to prevent the accidental introduction of parasites and diseases into the Treaty Area.

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 Convention for the Conservation of Antarctic Seals. This Convention entered into force on 11 March 1978.

Waste Disposal

In addition to the measures for the conservation of Antarctic Fauna and Flora 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 historic 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 area may require that a nearby ecologically similar area be kept undisturbed and uncontaminated for reference purposes. Again, 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 the 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 Non-Governmental Expeditions to the Antarctic Treaty Area

An important feature of the Antarctic Treaty is that cooperation 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 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 principle that expeditions render all assistance feasible in the event of an emergency. There is in the Antarctic a number of unoccupied huts and refuges 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 Non-Governmental Expeditions

The number of non-governmental expeditons 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 organizers of a tourist or non-governmental 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 to a station which it maintains or may lay down conditions upon which it would grant permission including inter alia, that:

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

(ii) tour organizers should ensure that prior to the commencement of the tour or expedition, procedures and systems for adequate telecommunications have been confirmed with the offices administering the Antarctic stations to be visited;

(iii) 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;

(iv) 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;

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

(vi) tour organizers 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 B to Recommendation III-8.)

ANNEX II Extract From the Code of Conduct for Antarctic Expeditions and Station Activities Relating to Waste Disposal.
(Annex to Recommendation VIII-11.)

ANNEX III List of Historic Monuments.
(Annex to Recommendation VII-9.)

ANNEX IV Sites of Special Scientific Interest.
(Management Plans annexed to Recommendation VIII-4.)

ANNEX V Standard Format for the Annual Exchanges of Information.
(Annex to Recommendation VIII-6.)

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 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 the unique environment of this region.

1. Avoid disturbing wildlife, in particular 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.

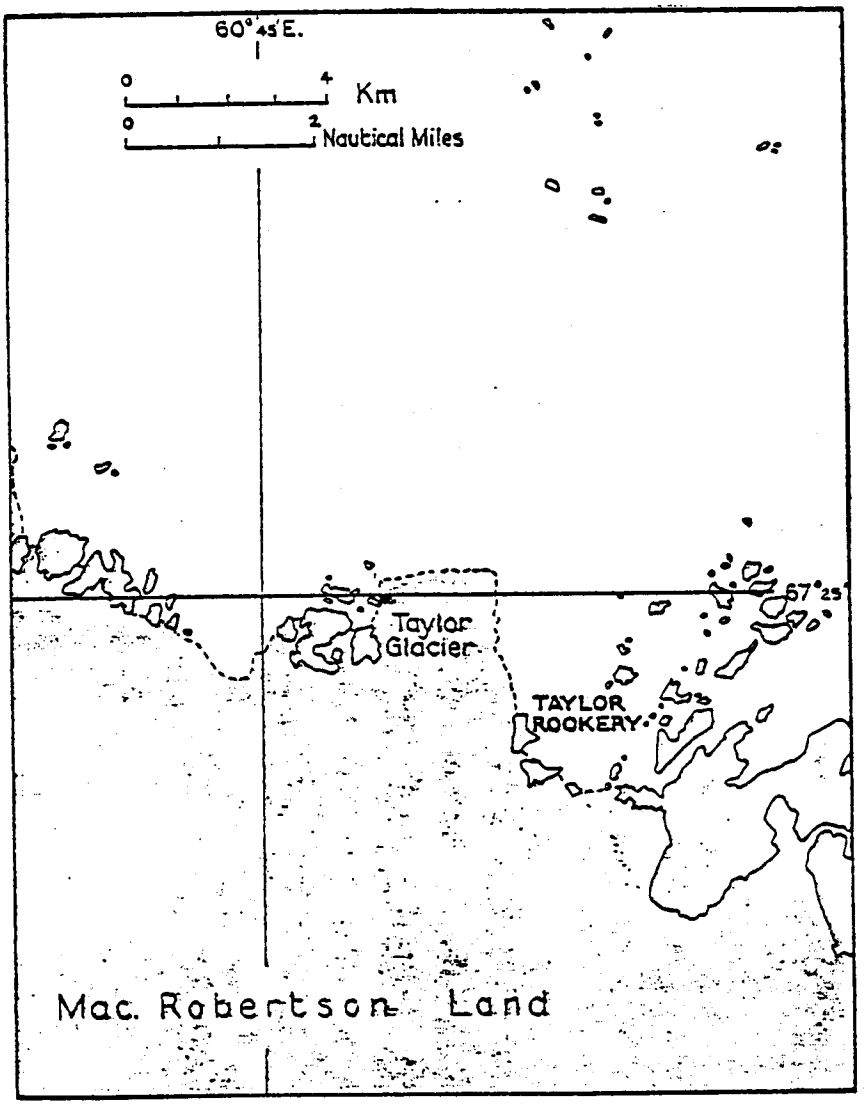
10. When ashore, keep together with your party.

SPECIALLY PROTECTED AREA No 1

Taylor Rookery, Mac.Robertson Land

Lat 67° 26′ S, long 60° 50′ E

DESCRIPTION: The area consists of the whole of the northernmost rock exposure on the eastern side of Taylor Glacier. The area is shown on the attached map.



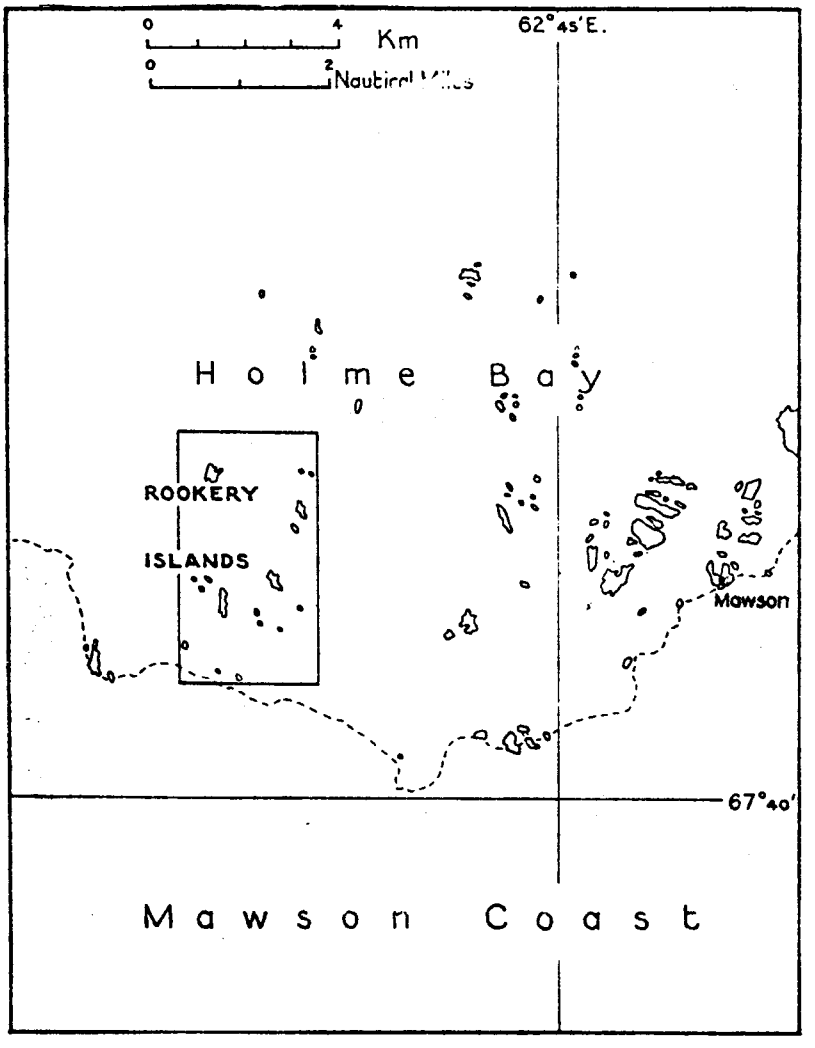
Created by Recommendation IV–1 on the grounds that Taylor Rookery contains a colony of Emperor Penguins *(Aptenodytes forsteri)* which is one of the few, and probably the largest, of the known colonies of this species located wholly on land.

SPECIALLY PROTECTED AREA No 2

Rookery Islands, Holme Bay

Lat 67° 37′ S, long 62° 33′ E.

DESCRIPTION: The area, 7 nautical miles west of Mawson, comprises the islands and rocks lying within the rectangle marked on the attached map.



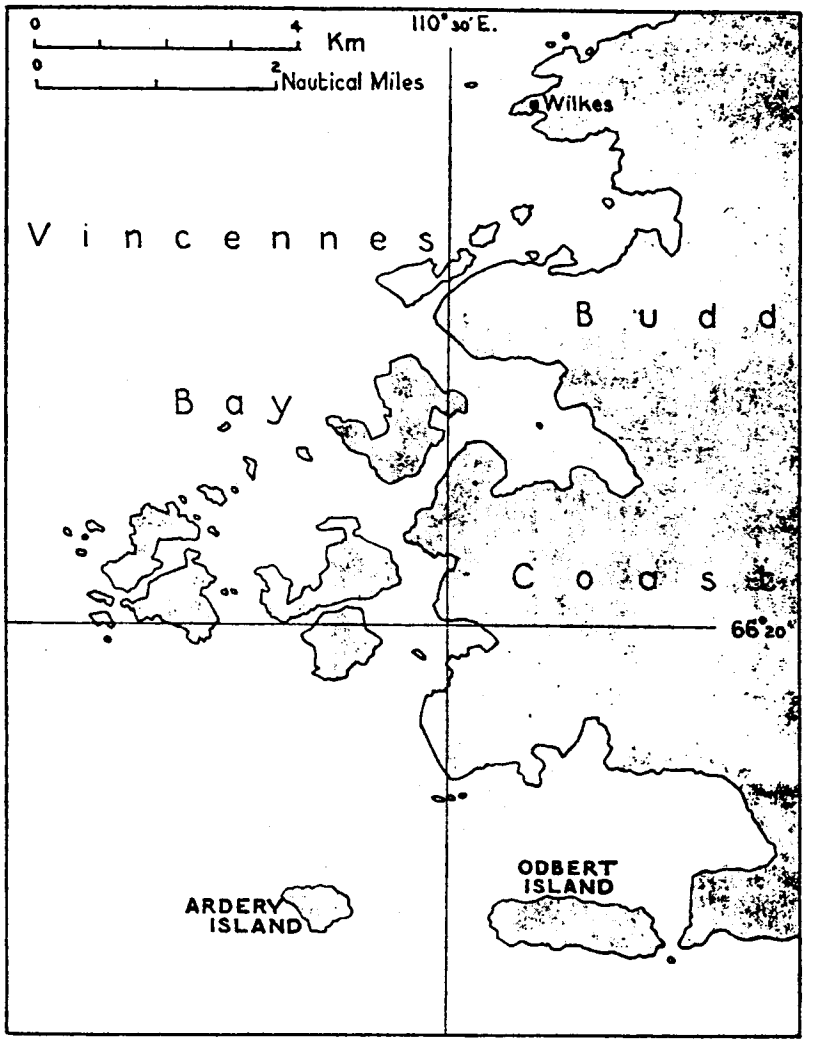
Created by Recommendation IV–2 on the grounds that Rookery Islands contain breeding colonies of six bird species resident in the Mawson area, two of which, the Giant Petrel *(Macronectes giganteu)* and the Cape Pigeon *(Daption capensis)*, occur nowhere else in the region and that it is of scientific importance to safeguard this unusual association of six species and to preserve a sample of their habitat.

SPECIALLY PROTECTED AREA No 3

Ardery Island and Odbert Island, Budd Coast

Lat 66° 22′ S, long 110° 28′ E and lat 66° 22′ S, long 110° 33′ E

DESCRIPTION: The area consists of Ardery Island and Odbert Island which lie off-shore in Vincennes Bay, 7 nautical miles south of Wilkes. The off-lying rocks are not included in the area. The area is shown on the attached map.



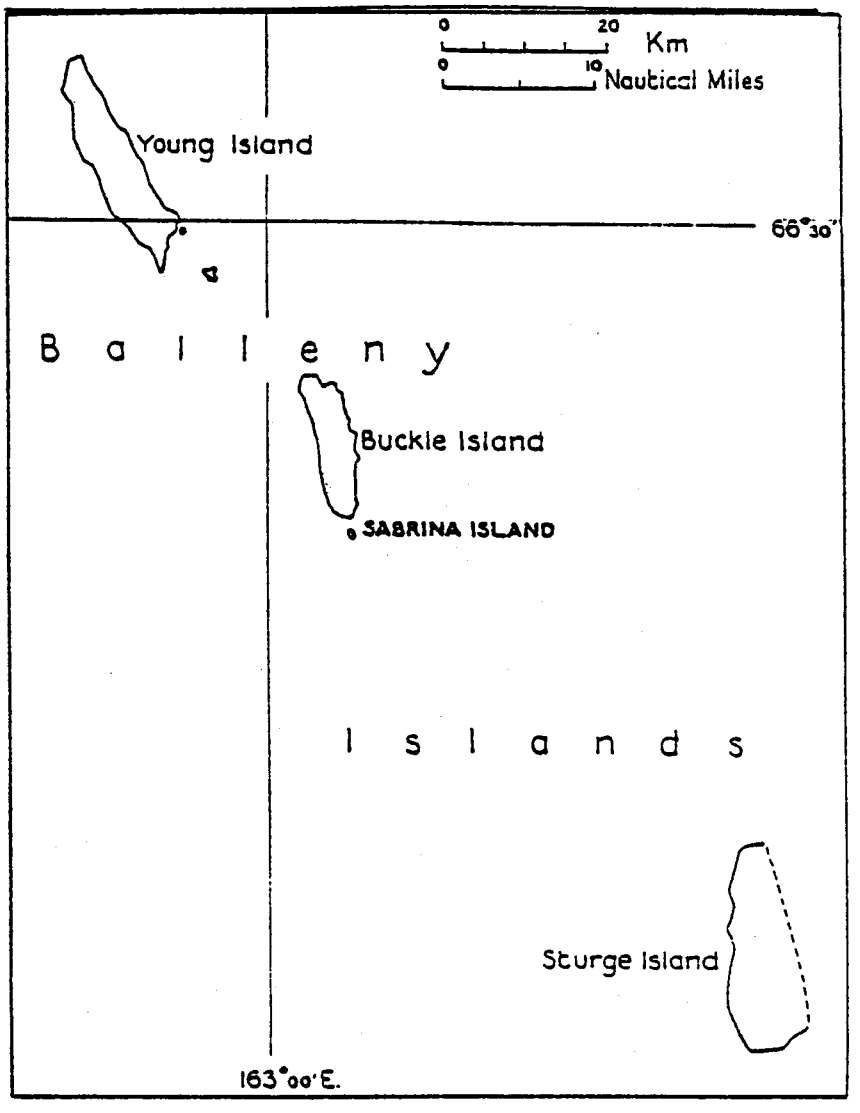
Created by Recommendation IV–3 on the grounds that Ardery Island and Odbert Island off the Budd Coast support several breeding species of petrel and provide a sample of their habitat and that two of these species, Antarctic Petrel *(Thalassoica antarctica)* and Antarctic Fulmer *(Fulmarus glacialoides)*, are of particular scientific interest.

SPECIALLY PROTECTED AREA No 4

Sabrina Island, Balleny Islands

Lat 66° 54′ S. long 163° 20′ E

DESCRIPTION: A small island some 2 kilometres south of Buckle Island in the Balleny Islands. The area is shown on the attached map.



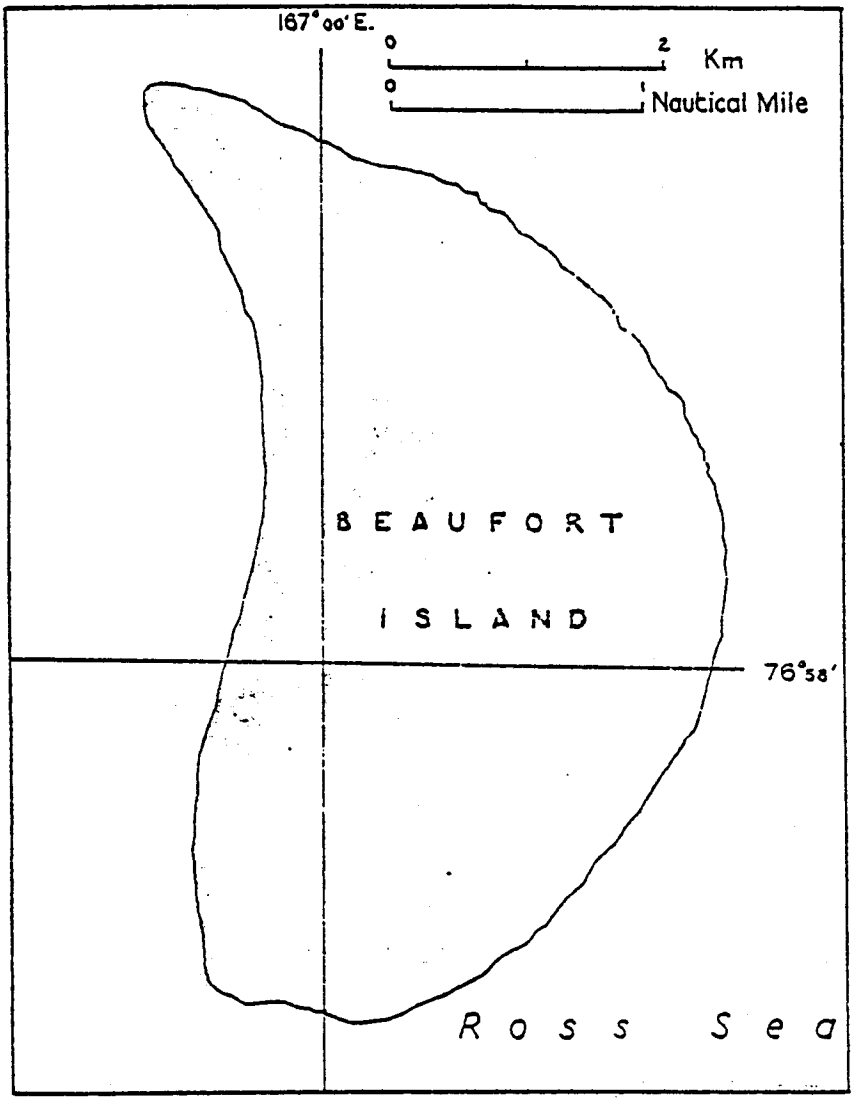
Created by Recommendation IV—4 on the grounds that the Balleny Islands, as the most northerly Antarctic land in the Ross Sea region, support fauna and flora which reflect many circumpolar distributions at this latitude and that Sabrina Island in particular provides a representative sample of such fauna and flora.

SPECIALLY PROTECTED AREA No 5

Beaufort Island, Ross Sea

Lat 76° 58′ S, long 167° 03′ E

DESCRIPTION: Beaufort Island measures 6 kilometres by 3 kilometres and is located 20 nautical miles north of Ross Island. The area is shown on the attached map.



Created by Recommendation IV–5 on the grounds that Beaufort Island contains substantial and varied avifauna, that it is one of the most important breeding grounds in the region, and that it should be protected to preserve the natural ecological system as a reference area.

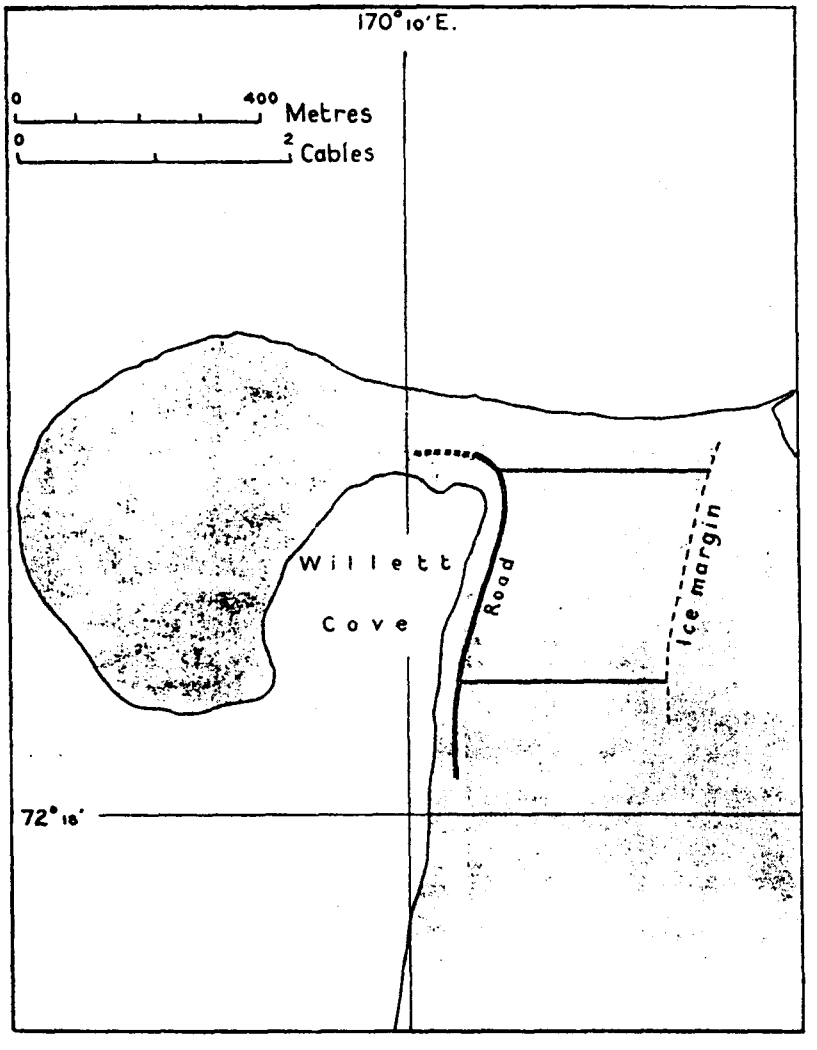
NOTE: Specially Protected Area No 6 was created by Recommendation IV–6 and terminated by VIII–12. Cape Crozier is now Site of Special Scientific Interest No 4 by virtue of VIII–4.

SPECIALLY PROTECTED AREA No 7

Cape Hallett, Victoria Land

Lat 72° 18′ S, long 170° 19′ E

DESCRIPTION: The area between the eastern side of the road, which runs along the eastern side of Willett Cove, and the western margin of the permanent ice sheet, to the south of a line from the road to the margin of the permanent ice sheet at the latitude of the head of Willett Cove, and to the north of a line from the road to the margin of the permanent ice sheet drawn 350 metres to the south of that latitude and parallel to it. The area is shown on the attached map.



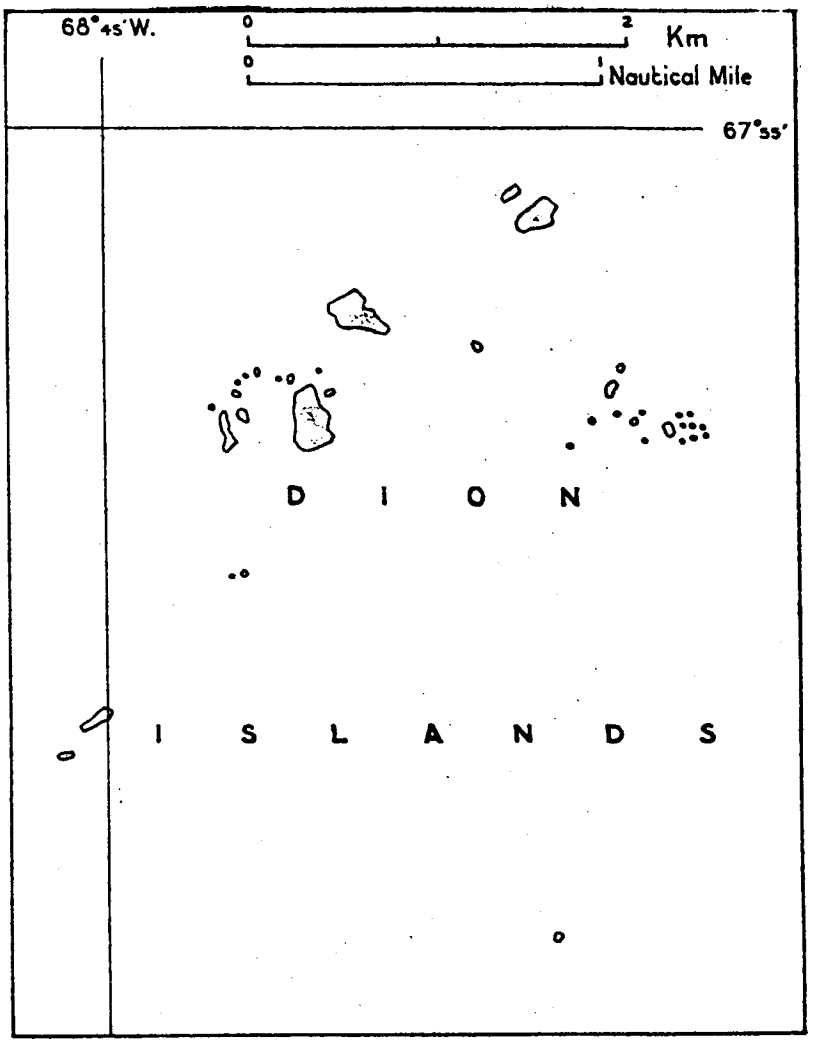
Created by Recommendation IV–7 on the grounds that Cape Hallett includes a small patch of particularly rich and diverse vegetation which supports a variety of terrestrial fauna and that the ecosystem, which includes a rich avifauna, is of outstanding scientific interest.

SPECIALLY PROTECTED AREA No 8

Dion Islands, Marguerite Bay, Antarctic Peninsula

Lat 67° 52′ S, long 68° 43′ W

DESCRIPTION: A group of small, rocky, low-lying islands in Marguerite Bay, about 15 kilometres south of Adelaide Island. The area is shown on the attached map.



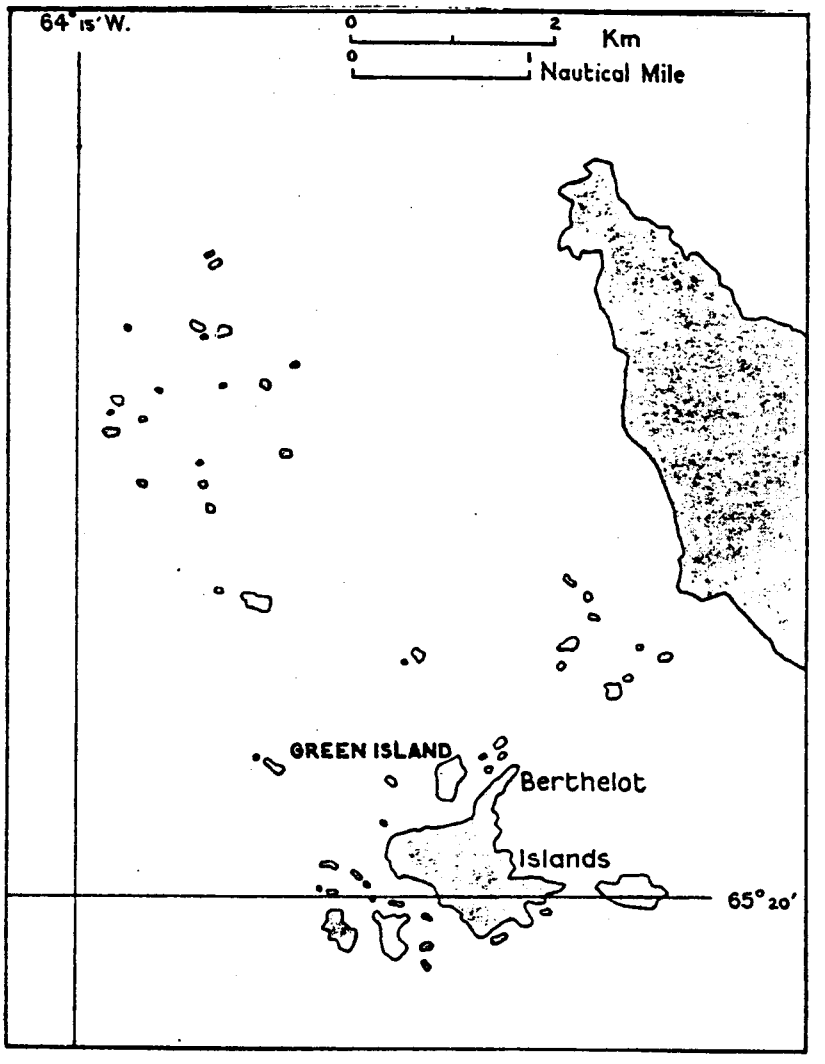
Created by Recommendation IV–8 on the grounds that amongst the Dion Islands is found the only colony of Emperor Penguins *(Aptenodytes forsteri)* known to exist on the west side of the Antarctic Peninsula and that the isolation of this colony from others of the same species makes it of outstanding scientific interest.

SPECIALLY PROTECTED AREA No 9

Green Island, Berthelot Islands, Antarctic Peninsula

Lat 65° 19′ S, long 64° 10′ W

DESCRIPTION: A small island, measuring about 600 metres by 400 metres, situated 150 metres to the north of the largest of the Berthelot Islands. The area is shown on the attached map.



Created by Recommendation IV–9 on the grounds that the vegetation on Green Island is exceptionally rich, that it is probably the most luxuriant anywhere on the west side of the Antarctic Peninsula, that in some places the humus is 2 metres thick and that this area, being of outstanding scientific interest, should be protected because it is probably one of the most diverse Antarctic ecosytems.

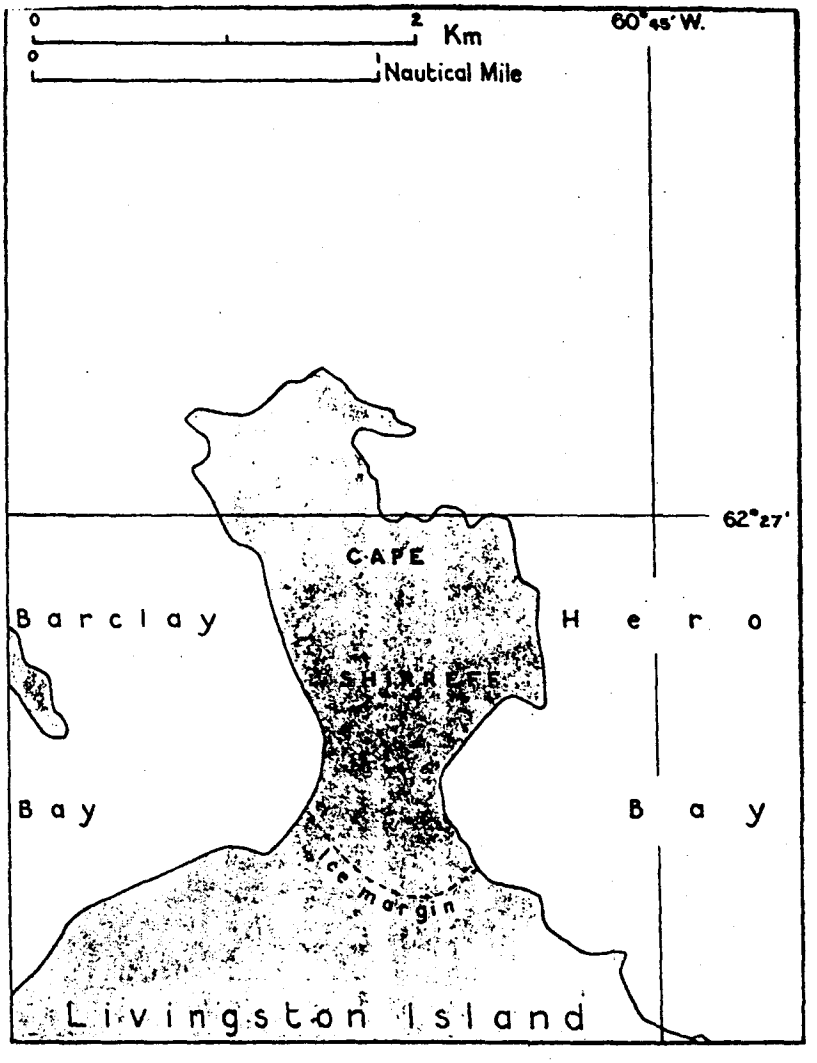
NOTE: Specially Protected Area No 10 was created by Recommendation IV–10 and terminated by VIII–12/2.2. Byers Peninsula is now Site of Special Scientific Interest No 6 by virtue of VIII–4/3.1.

SPECIALLY PROTECTED AREA No 11

Cape Shirreff, Livingston Island, South Shetland Islands

Lat 62° 28′ S, long 60° 48′ W

DESCRIPTION: The ice-free peninsula lying to the north of the northern margin of the permanent ice sheet on Livingston Island, between Barclay Bay and Hero Bay. The area is shown on the attached map.



Created by Recommendation IV–11 on the grounds that Cape Shirreff supports a considerable diversity of plant and animal life, including many invertebrates, that a substantial population of Elephant Seals *(Mirounga leonina)* and small colonies of Fur Seals *(Arctocephalus* sp) are found on the beaches and that the area is of outstanding scientific interest.

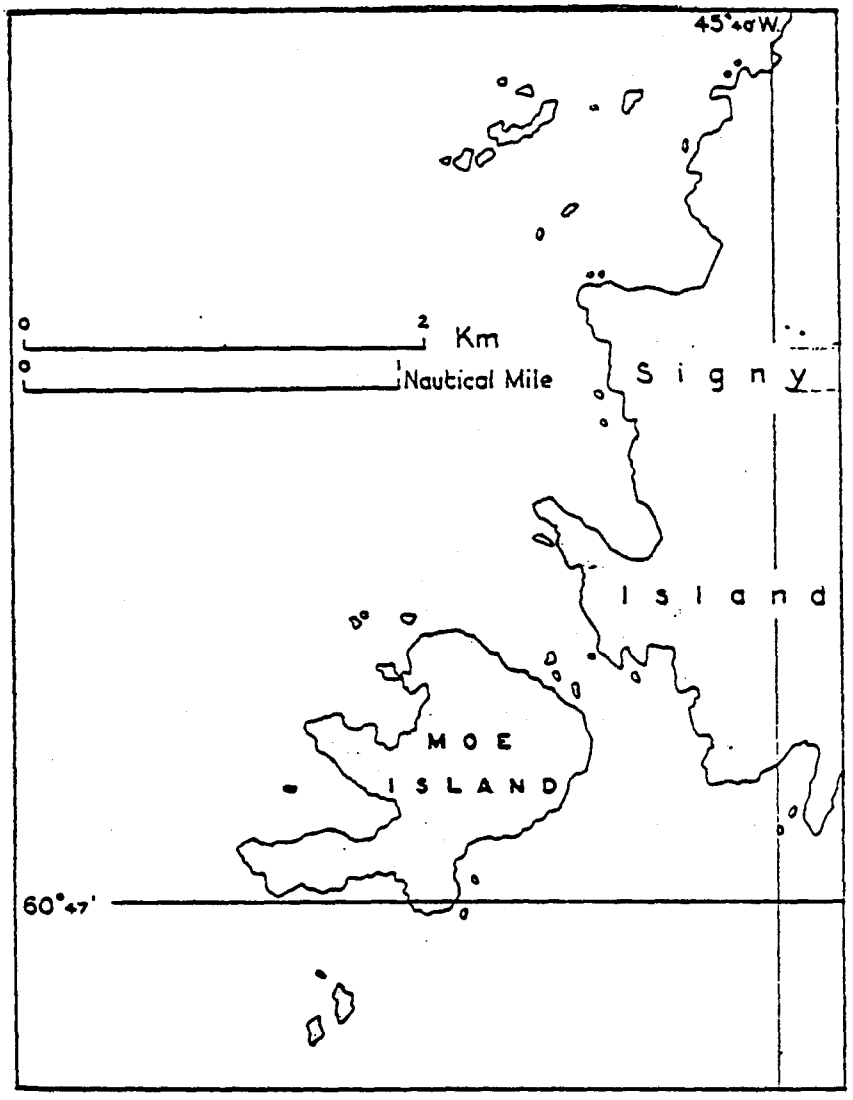
NOTE: Specially Protected Area No 12 was created by Recommendation IV–12, modified by Recommendation V–5 and terminated by VIII–2/2.2. Fildes Peninsula is now Site of Special Scientific Interest No 5 by virtue of VIII–4/3.1.

SPECIALLY PROTECTED AREA No 13

Moe Island, South Orkney Islands

Lat 60° 45′ S, long 45° 41′ W

DESCRIPTION: A small island, about 1 kilometre long and 1 kilometre across, lying about 500 metres south-west of Signy Island, South Orkney Islands. The off-lying rocks are not included in the area. The area is shown on the attached map.



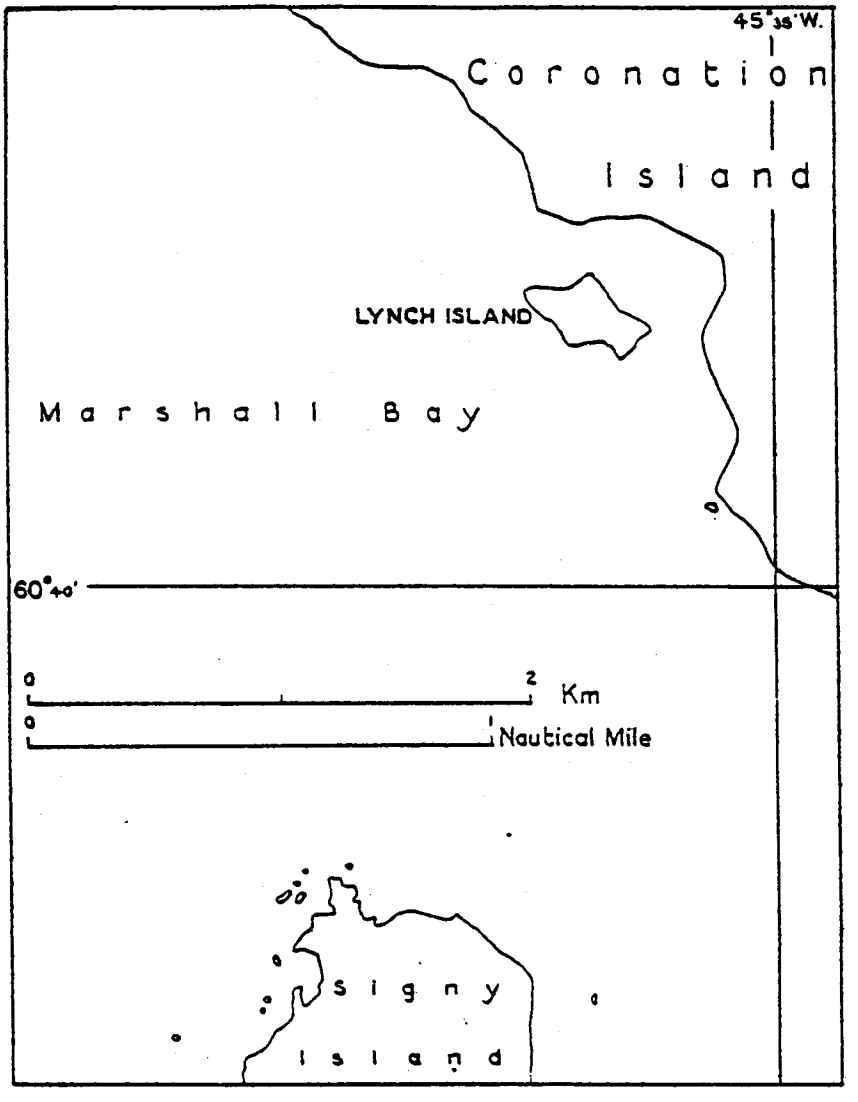
Created by Recommendation IV–13 on the grounds that Moe Island provides a representative sample of the maritime Antarctic ecosystem, that intensive experimental research on the neighbouring Signy Island may alter its ecosystem and that Moe Island should be specially protected as a control area for future comparison.

SPECIALLY PROTECTED AREA No 14

Lynch Island, South Orkney Islands

Lat 60° 40′ S, long 45° 38′ W

DESCRIPTION: A small island, measuring about 500 metres by 300 metres, in Marshall Bay, off the south coast of Coronation Island, South Orkney Islands. The area is shown on the attached map.



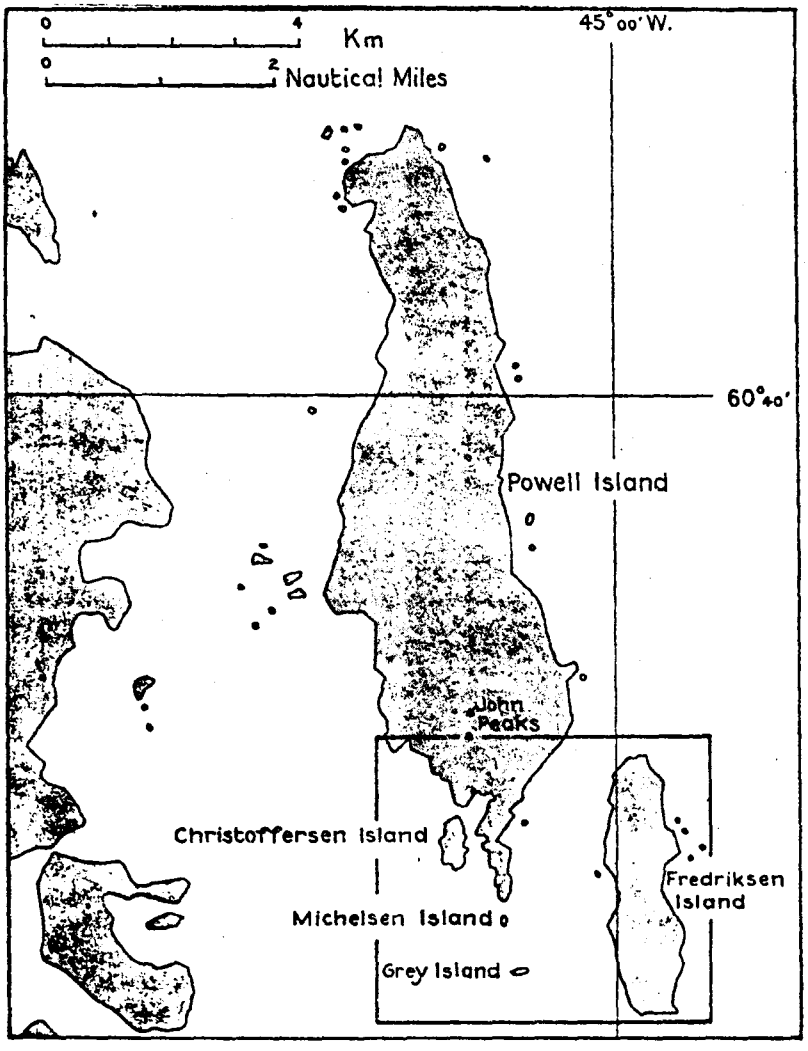
Created by Recommendation IV–14 on the grounds that Lynch Island supports one of the most extensive and dense areas of grass *(Deschampsia antarctica)* known in the Treaty Area and that it provides an outstanding example of a rare natural ecological system.

SPECIALLY PROTECTED AREA No 15

Southern Powell Island and adjacent islands, South Orkney Islands

Lat 60° 45′ S, long 45° 02′ W

DESCRIPTION: This area in the central South Orkney Islands includes that part of Powell Island which is south of the latitude of the southern summit of John Peaks, together with the whole of Fredriksen Island, Michelsen Island, Christoffersen Island, Grey Island and the unnamed islands lying within the rectangle marked on the attached map.

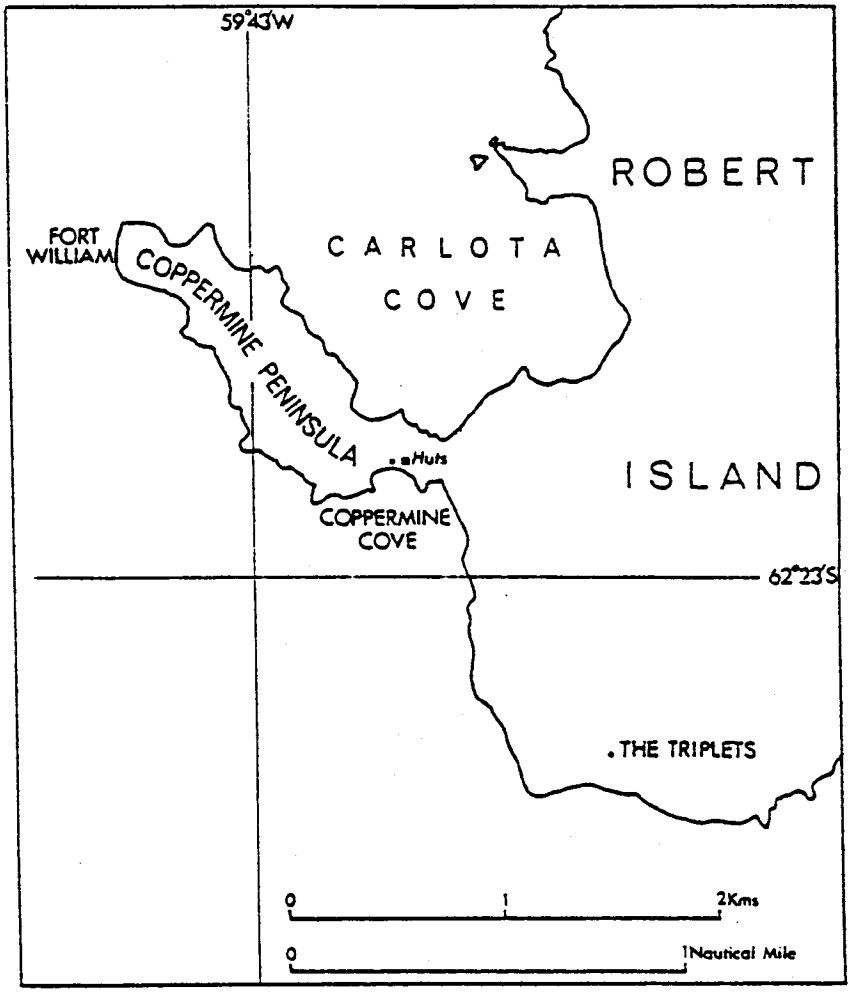


Created by Recommendation IV–15 on the grounds that southern Powell Island and the adjacent islands support substantial vegetation and a considerable bird and mammal fauna, which is representative of the natural ecology of the South Orkney Islands, and which is rendered more important by the presence of the nucleus of an expanding colony of Fur Seals *(Arctocephalus tropicalis gazella)*.

SPECIALLY PROTECTED AREA No. 16
COPPERMINE PENINSULA, ROBERT ISLAND

Lat. 62° 23′ S., Long. 59° 42′ W.

Description: The area comprises all the land west of a line drawn from north to south across the Peninsula, 100 metres west of the two shelters found on the isthmus. The area is shown on the attached map.

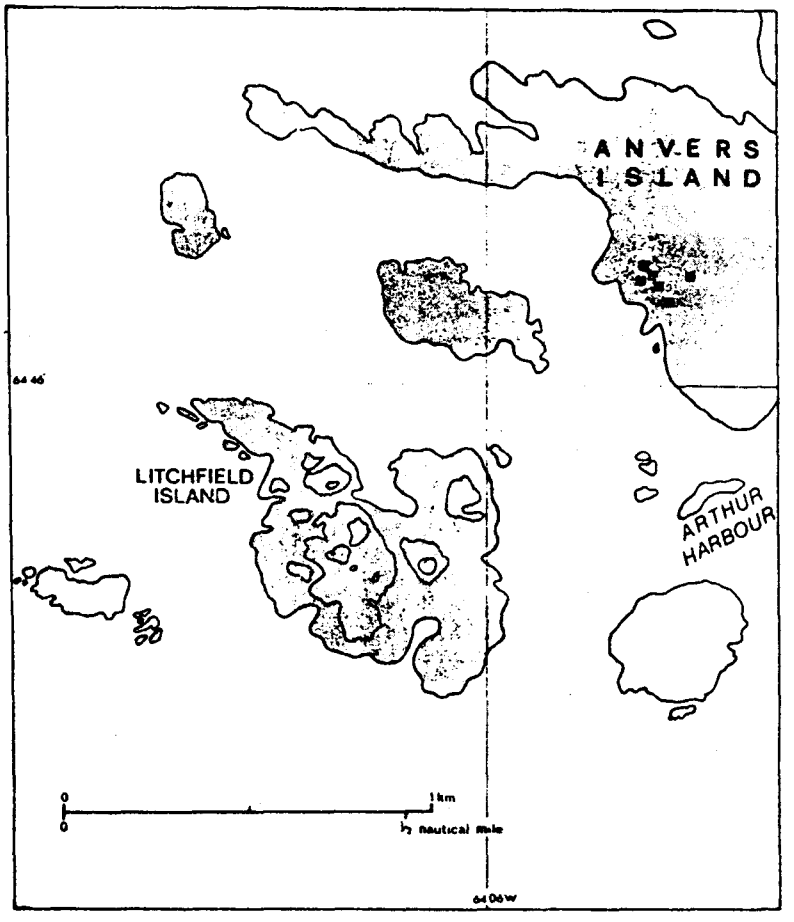


Created by Recommendation VI -10 on the grounds that Coppermine Peninsula is a biologically diverse area, supporting rich vegetation, together with a variety of terrestrial fauna, and that the ecosystem, which includes a rich avifauna, is of outstanding scientific interest.

SPECIALLY PROTECTED AREA NO. 17

Litchfield Island, Arthur Harbor, Palmer Archipelago
Lat. 66° 16′ S, Long. 64° 06′ W.

Description: **A small island, about 2.5 km² in area. The Area is shown on the attached map.**



Created by Recommendation VIII–1 on the grounds that Litchfield Island, together with its littoral, possesses an unusually rich collection of marine and terrestrial life, is unique amongst the neighbouring islands as a breeding place for six species of native birds and provides an outstanding example of the natural ecological system of the Antarctic Peninsula area.

Annex II
Code of Conduct for Antarctic Expeditions and Station Activities

Waste disposal

The following are recommended procedures:

(a) Solid Waste

(i) Non-combustible, including chemicals (except batteries); These materials may be disposed of at sea either in deep water or, if this is not possible, at specified sites in shallow water.

(ii) Batteries should be removed from the Antarctic Treaty Area.

(iii) Combustibles
- Wood, wood products and paper should be incinerated, the ash being disposed of at sea.
- Lubricating oils may be burnt except those containing harmful additives which should be removed from the Antarctic Treaty Area.
- Carcasses and materials associated with imported experimental animals should be incinerated.
- All plastics and rubber products should be removed from the Antarctic Treaty Area.

(b) Liquid Waste

(i) Human waste, garbage and laundry effluents should, where possible, be macerated and be flushed into the sea.

(ii) Large quantities of photographic liquids should be treated for the recovery of silver and the residue should be flushed into the sea.

(c) The above procedures are recommended for coastal stations. Field sites supported from coastal stations should, where feasible, use the facilities of their supporting station. Inland stations should concentrate all waste in deep pits. Except as stated for inland stations, waste should not be buried.

(d) Waste containing radio-isotopes should be removed from the Antarctic Treaty Area.

(e) Every effort should be made to reduce the plastic packaging of products imported into the Antarctic Treaty Area.

(f) If possible the use of leaded fuels or fuels containing ethylene bromide and ethylene chloride should be avoided.

(g) When incinerators are used it is desirable to monitor the effluents.

Annex III
List of Historic Monuments Identified and Described By the Proposing Government or Governments*

1. Flag mast erected in December 1965 at the South Geographical Pole by the First Argentine Overland Polar Expedition.

2. Rock cairn and plaques at Syowa Station (Lat. 69° 00' S., Long. 39° 35' E.) in memory of Shin Fukushima, a member of the 4th Japanese Antarctic Research Expedition, who died in October 1960 while performing official duties. The cairn was erected on 11 January, 1961, by his colleagues. Some of his ashes repose in the cairn.

*The Consultative Meeting does not approve or disapprove the place names appearing in the texts of this List in the different languages.

3. Rock cairn and plaque on Proclamation Island, Enderby Land, erected in January 1930 by Sir Douglas Mawson. (Lat. 65° 51' S., Long. 53° 41' E.) The cairn and plaque commemorate the landing on Proclamation Island of Sir Douglas Mawson with a party from the British, Australian and New Zealand Antarctic Research Expedition of 1929-31.

4. Station building to which a bust of V.I. Lenin is fixed, together with a plaque in memory of the conquest of the Pole of Inaccessibility by Soviet Antarctic explorers in 1958. (Lat. 83° 06' S., Long. 54° 58' E.)

5. Rock cairn and plaque at Cape Bruce, Mac. Robertson Land, erected in February 1931 by Sir Douglas Mawson. (Lat. 67° 25' S., Long. 60° 47' E.) The cairn and plaque commemorate the landing on Cape Bruce of Sir Douglas Mawson with a party from the British, Australian and New Zealand Antarctic Research Expedition of 1929-31.

6. Rock cairn at Walkabout Rocks, Vestfold Hills, Princess Elizabeth Land, erected in 1939 by Sir Hubert Wilkins. (Lat. 68° 22' S., Long. 78° 33' E.) The cairn houses a canister containing a record of his visit.

7. Stone with inscribed plaque, erected at Mirny Observatory, Mabus Point, in memory of driver-mechanic Ivan Khmara who perished on fast ice in the performance of official duties in 1956. (Lat. 66° 33' S., Long. 93° 01' E.)

8. Metal monument-sledge at Mirny Observatory, Mabus Point, with plaque in memory of driver-mechanic Anatoly Shcheglov who perished in the performance of official duties. (Lat. 66° 33' S., Long. 93° 01' E.)

9. Cemetery on Buromskiy Island, near Mirny Observatory, in which are buried Soviet, Czechoslovakian and GDR citizens, members of Soviet Antarctic Expeditions, who perished in the performance of official duties on 3 August, 1960. (Lat. 66° 32' S., Long. 93° 01' E.)

10. Building (magnetic observatory) at Dobrowolsky Station, Bunger Hills, with plaque in memory of the opening of Oasis Station in 1956. (Lat. 66° 16' S. Long. 100° 45' E.)

11. Heavy tractor at Vostok Station with plaque in memory of the opening of the Station in 1957. (Lat. 78° 28' S., Long. 106° 48' E.)

12. Cross and plaque at Cape Denison, George V Land, erected in 1913 by Sir Douglas Mawson on a hill situated 300 metres west by south from the main hut of the Australasian Antarctic Expedition of 1911-14. (Lat. 67° 00' S., Long. 142° 42' E.) The cross and plaque commemorate Lieutenant B.E.S. Ninnis and Dr. X. Mertz, members of the expedition, who died in 1913 while engaged in the work of the expedition.

13. Hut at Cape Denison, George V Land, built in January 1912 by Sir Douglas Mawson for the Australasian Antarctic Expedition of 1911-14. (Lat. 67° 00' S., Long 142° 42' E.) This was the main base of the expedition.

14. Remains of rock shelter at Inexpressible Island, Terra Nova Bay, constructed in March 1912 by Victor Campbell's Northern Party, British Antarctic Expedition, 1910-13. (Lat. 74° 54' S., Long. 163° 43' E.) The party spent the winter of 1912 in this shelter and a nearby ice cave.

15. Hut at Cape Royds, Ross Island, built in February 1908 by Ernest Shackleton. (Lat. 77° 38' S., Long. 166° 07' E.) Restored in January 1961 by Antarctic Division of New Zealand Department of Scientific and Industrial Research.

16. Hut at Cape Evans, Ross Island, built in January 1911 by Captain Robert Falcon Scott. (Lat. 77° 38' S., Long. 166° 24' E.) Restored in January 1961 by Antarctic Division of New Zealand Department of Scientific and Industrial Research.

17. Cross on Wind Vane Hill, Cape Evans, Ross Island, erected by the Ross Sea Party of Ernest Shackleton's Trans-Antarctic Expedition, 1914-16, in

memory of three members of the party who died in the vicinity in 1916. (Lat. 77° 38' S., Long. 166° 24' E.)

18. Hut at Hut Point, Ross Island, built in February 1902 by Captain Robert Falcon Scott (Lat. 77° 51' S., Long. 166° 37' E.) Partially restored in January 1964 by the New Zealand Antarctic Society, with assistance from the United States Government.

19. Cross at Hut Point, Ross Island, erected in February 1904 by the British Antarctic Expedition, 1901-04, in memory of T. Vince, a member of that expedition who died in the vicinity. (Lat. 77° 51' S., Long. 166° 37' E.)

20. Cross on Observation Hill, Ross Island, erected in January 1913 by the British Antarctic Expedition, 1910-13, in memory of Captain Robert Falcon Scott's party which perished on the return journey from the South Pole, March 1912. (Lat. 77° 51' S., Long. 166° 40' E.)

21. Stone hut at Cape Crozier, Ross Island, constructed in July 1911 by Edward Wilson's party (British Antarctic Expedition, 1910-13) during the winter journey to collect Emperor penguin eggs. (Lat 77° 32' S., Long. 169° 18' E.)

22. Hut at Cape Adare built in February 1899 during "Southern Cross" Expedition led by C.E. Borchgrevink. (Lat. 71° 17' S., Long. 170° 15' E.) There are three huts at Cape Adare: two date from Borchgrevink's expedition, and one from Scott's Northern Party, 1910-11. Only the southernmost Borchgrevink hut survives in a reasonable state of repair.

23. Grave at Cape Adare of Norwegian biologist, Nicolai Hanson, a member of C.E. Borchgrevink's "Southern Cross" Expedition, 1899-1900. (Lat. 71° S., Long 170° 15' E.) This is the first known grave in the Antarctic.

24. Rock cairn, known as "Amundsen's Cairn", on Mount Betty Queen Maud Range (Lat. 85° 11' S., Long. 163° 45' W.) erected by Roald Amundsen on 6 January 1912, on his way back to "Framheim" from the South Pole.

25. Hut and plaque on Peter I Øy, built by the Norwegian Captain Nils Larsen in February 1929 at Framnaesodden (Lat. 68° 47' S., Long. 90° 42' W.) The plaque is inscribed "Norvegia-ckspedisjonen 2/2 1929".

26. Abandoned installations of Argentine Station "General San Martin" on Barry Island, Debenham Islands, Marguerite Bay, with cross, flag mast, and monolith built in 1951. (Lat. 68° 08' S., Long. 67° 08' W.)

27. Cairn with plaque on Megalestris Hill, Petermann Island, erected in 1909 by the second French expedition led by J.-B. Charcot. (Lat. 65° 10' S., Long. 64° 10' W.) Restored by the British Antarctic Survey in 1958.

28. Rock Cairn at Port Charcot, Booth Island, with wooden pillar and plaque inscribed with the names of the first French expedition led by J.-B. Charcot which wintered here in 1904 abroad "Le Francais". (Lat. 65° 03' S., Long. 64° 01' W.)

29. Lighthouse named "Primero de Mayo" erected on Lambda Island, Melchoir Islands, by Argentina in 1942. (Lat. 64° 18' S., Long. 62° 59' W.) This was the first Argentine lighthouse in the Antarctic.

30. Shelter at Paradise Harbour erected in 1950 near the Chilean Base "Gabriel Gonzales Videla" to honour Gabriel Gonzales Videla, the first Head of State to visit the Antarctic. (Lat. 64° 49' S., Long. 62° 51' W.)

31. Memorial plaque marking the position of a cemetery on Deception Island (Lat. 62° 59' S., Long. 60° 34' W.) where some 40 Norwegian whalers were buried in the first half of the twentieth century. The cemetery was swept away by a volcanic eruption in February 1969.

32. Concrete monolith erected in 1947, near Arturo Prat Base on Greenwich Island. Point of reference for Chilean Antarctic hydrographic work. (Lat. 62° 29' S., Long. 59° 40' W.)

33. Shelter and cross with plaque near Arturo Prat Base, Greenwich Island. (Lat. 62° 30' S., Long. 59° 41' W.) Named in memory of Lieutenant-Commander Gonzalez Pacheco, who died tragically while in charge of the station in 1960.

34. Bust of the Chilean naval hero Arturo Prat erected in 1947 at the base of the same name on Greenwich Island. (Lat. 62° 30' S., Long 59° 41' W.)

35. Wooden cross and statue of the Virgin of Carmen erected in 1947 near Arturo Prat Base on Greenwich Island. (Lat. 62° 30' S., Long. 59° 41' W.) There is also nearby a metal plaque of Lions International Club.

36. Metal plaque at Potter Cove, King George Island, erected by Eduard Dallmann to commemorate the visit of his German expedition on 1 March, 1874. (Lat 62° 13' S., Long. 58° 42' W.)

37. Statue of Bernardo O'Higgins, erected in 1948 in front of the station of the same name. (Lat. 63° 19' S., Long. 57° 54' W.) To honour the first ruler of Chile to envision the importance of Antarctica.

38. Hut on Snow Hill Island built in February 1902 by the main party of the Swedish South Polar Expedition, led by Otto Nordenskjold. (Lat. 64° 24' S., Long. 57° 00' W.)

39. Stone hut at Hope Bay built in January 1903 by a party of the Swedish South Polar Expedition. (Lat. 63° 24' S., Long. 56° 59' W.)

40. Bust of General San Martin, grotto with a statue of the Virgin of Lujan, and a flag mast at Base "Esperanza", Hope Bay, erected by Argentina in 1955; together with a graveyard with stele in memory of members of Argentine expeditions who died in the area. (Lat. 63° 24' S., Long 56° 59' W.)

41. Stone hut on Paulet Island built in February 1903 by C.A. Larsen, Norwegian captain of the wrecked vessel "Antarctic" of the Swedish South Polar Expedition led by Otto Nordenskjold, together with the grave of a member of that expedition. (Lat. 63° 35' S., Long. 55° 47' W.)

42. Area at Scotia Bay, Laurie Island, South Orkney Islands, in which are found: stone hut built in 1903 by the Scottish Expedition led by W.S. Bruce; the Argentine Meteorological and Magnetic Observatory, built in 1905; and a graveyard with seven tombs (dating from 1903). (Lat. 60° 46' S., Long. 44° 40' W.)

43. Cross erected in 1955, at a distance of 1,300 metres north-east of the Argentine Base "General Belgrano" at Piedrabuena Bay, Filchner Ice Shelf. (Lat. 77° 49' S., Long. 38° 02' W.)

Annex IV
Sites of Special Scientific Interest

Site of Special Scientific Interest No. 1
Cape Royds, Ross Island

Management Plan

(i) *Description of Site*

All that area of Cape Royds west of a line drawn from the south coast of the Cape through Flagstaff Hill to the south eastern tip of Pony Lake, and the west shoreline of this lake; and south of a line drawn from the western extremity of Pony Lake 280° True to the coast. The boundaries, which are demarcated, are shown on the attached map.

(ii) *Reason for designation*

This area supports the most southerly Adélie Penguin *(Pygoscelis adeliae)* colony known, the survival of which is marginal. The population declined rapidly from 1956 following interference by man until 1963 when United States and New Zealand authorities agreed to restrict activities and develop a management plan for the area. It is considered important to continue study of this colony under controlled conditions, at least until the penguin population has recovered to its estimated normal pre-1956 (pre-man) level.

(iii) *Outline of research*

A long-term study of the population dynamics began in 1969 and is expected to continue.

(iv) *Date of expiry of designation*

30 June 1981.

(v) *Access points*

The Site should not be entered during the period of penguin occupation (approximately mid-October to March) except by the marked tracks. Only scientists engaged in the population studies should enter the Site during this period. Visitors to Cape Royds should not enter the Site. Photographs of the colony, except for scientific purposes, should be taken from the boundaries of the Site.

(vi) *Pedestrian and vehicular routes*

Vehicles should not enter the Site. Pedestrians should keep to the marked tracks and not move through the populated areas except as necessary in the course of scientific investigations. Helicopters and low-flying aircraft should avoid the penguin colony in accordance with the Agreed Measures for the Conservation of Antarctic Fauna and Flora.

(vii) *Other kinds of scientific investigations which would not cause harmful interference*

Other kinds of scientific investigations should not be undertaken while penguins occupy the Site.

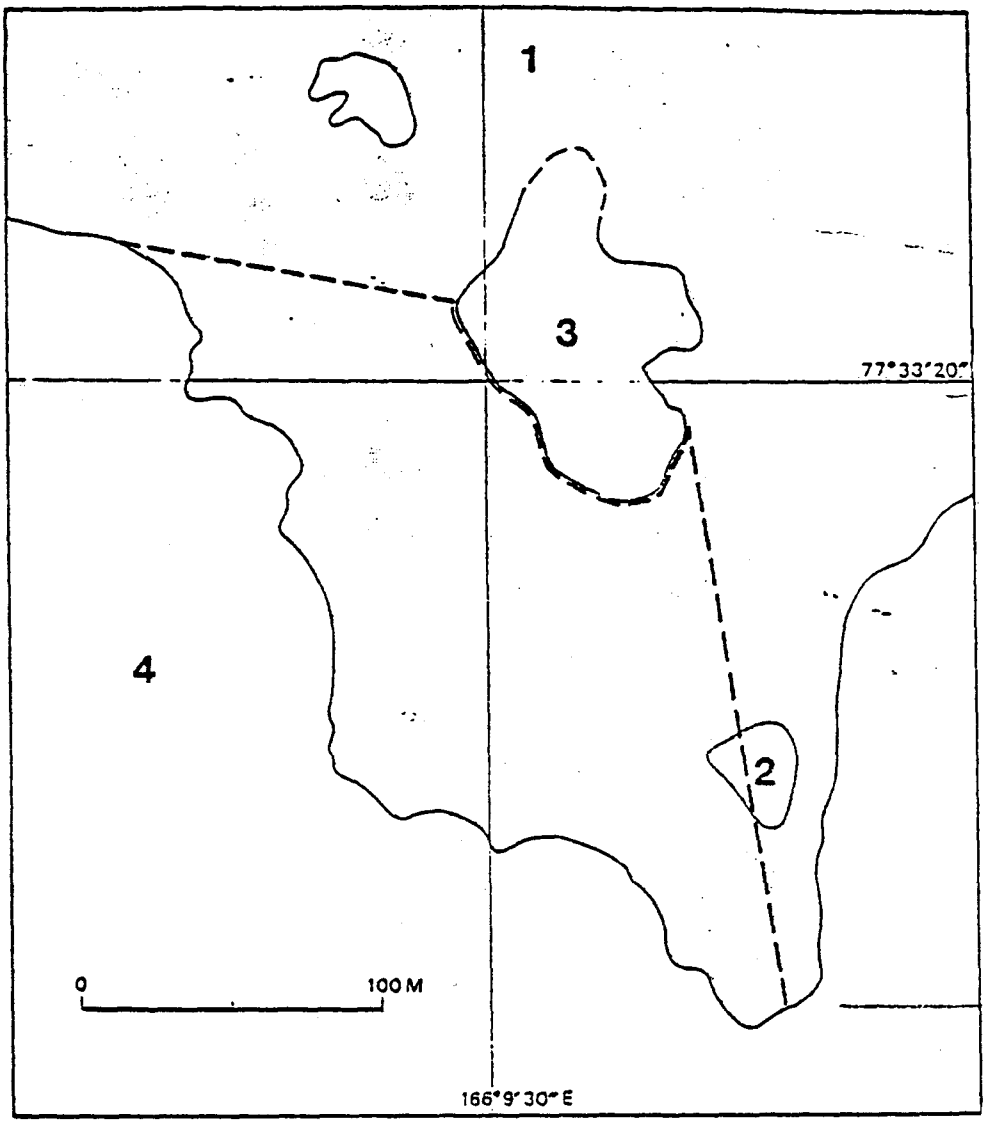
(viii) *Scientific sampling*

Taking samples of the bird population by killing, capture, or taking of eggs should be done only for a compelling scientific purpose and in accordance with the Agreed Measures for the Conservation of Antarctic Fauna and Flora.

(ix) *Other restraints*

The following activities should be avoided:

1. Landscaping and removing surface material;
2. Construction of huts or buildings;
3. The depositing of any pieces of equipment or material that would in any way hinder re-occupation of nests by penguins.



No. 1

1. Cape Royds
   Cap Royds
   Мыс Ройдс
   Cabo Royds
2. Flagstaff Hill
   Colline Mât de Drapeau
   Гора Флагстафф
   Colina Asta de Bandera
3. Pony Lake
   Lac Poney
   Озеро Пони
   Lago Haco
4. McMurdo Sound
   Détroit McMurdo
   Залив Мак-Мердо
   Estrecho McMurdo

Site of Special Scientific Interest No. 2
Arrival Heights, Hut Points Peninsula, Ross Island

Management Plan

(i) *Description of Site*

All that area of Arrival Heights enclosed within a line drawn from Trig T510 north-west over First crater to the 500 foot contour, then north along this contour to a point immediately west of Second Crater, then around the lip of this crater and south to Trig T510. The boundary, which is demarcated, is shown on the attached map.

(ii) *Reason for designation*

This area is an electromagnetically and natural "quiet site" offering ideal conditions for the installation of sensitive instruments for recording minute signals associated with upper atmosphere programmes.

(iii) *Outline of research*

Upper atmosphere investigations associated with auroral and geomagnetic studies.

(iv) *Date of expiry of designation*

30 June 1981.

(v) *Access points*

None are defined but movement within the area by vehicles or personnel other than those directly concerned with the investigations should be kept to the minimum necessary for implementing the programme.

(vi) *Pedestrian and vehicular routes*

Vehicles and pedestrians should keep to the tracks shown on the attached map.

(vii) *Other kinds of scientific investigations which would not cause harmful interference*

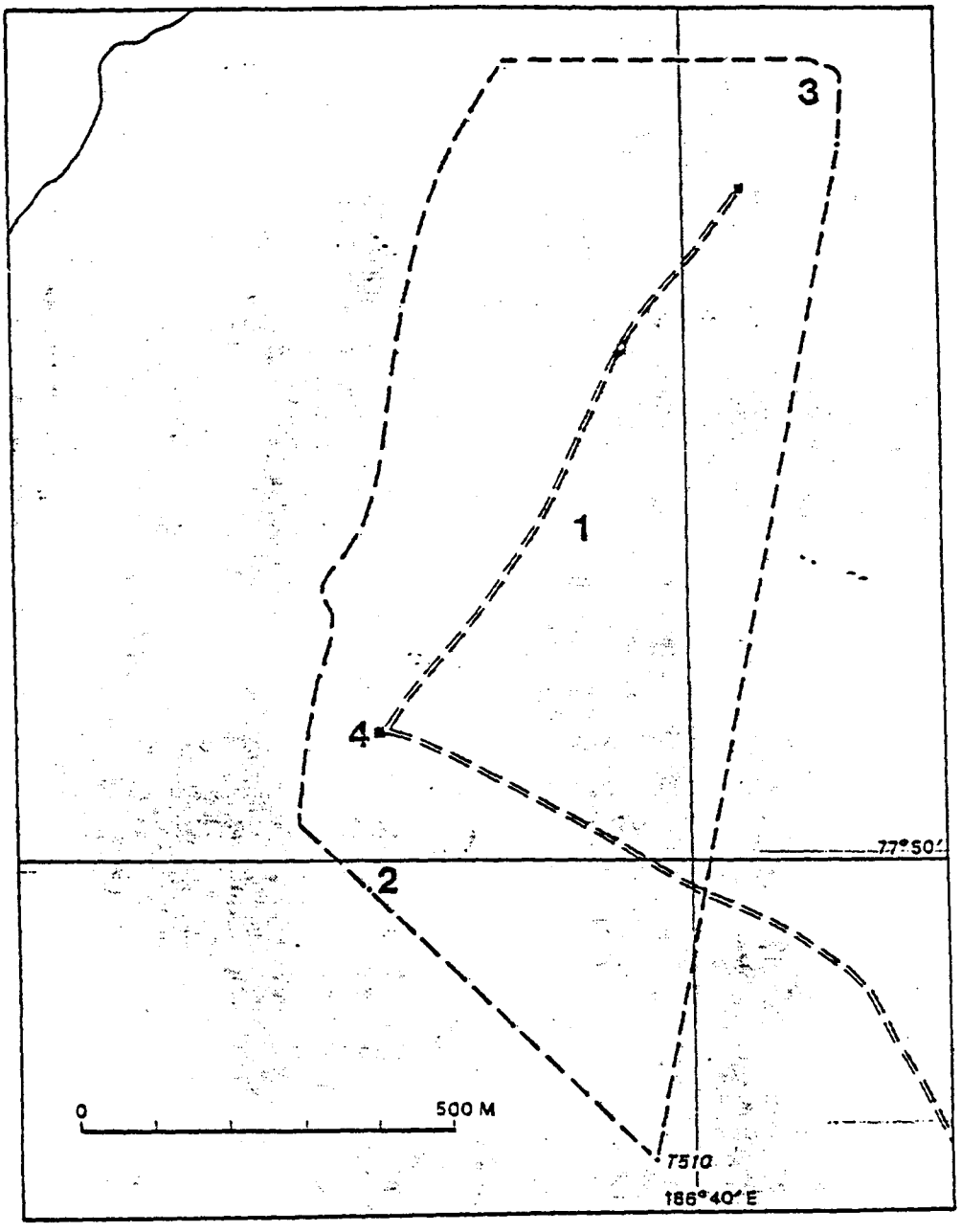
Scientific investigations other than those associated with the upper atmosphere programme should be kept to a minimum.

(viii) *Scientific sampling*

Not applicable.

(ix) *Other restraints*

No R. F. transmitting equipment other than low power transceivers for local essential communication may be installed within this Site. Every precaution should be taken to ensure that electrical equipment is adequately suppressed and correctly installed to keep man-made electrical noise to an absolute minimum.



No. 2

1. Arrival Heights
   Colline de l'Arrivée
   Гора Аррайвал
   Alturas Arribo
2. First Crater
   Premier Cratère
   Первый Кратер
   Crater Primero
3. Second Crater
   Deuxième Cratère
   Второй Кратер
   Crater Segundo
4. Radar Station
   Station Radar
   Радарная Станция
   Estación Radar

Site of Special Scientific Interest No. 3
Barwick Valley, Victoria Land

Management Plan

(i) *Description of Site*

The Site includes the greater part of Barwick Valley, Victoria Land, and contains parts of several glaciers, exposed soils, a lake about 3 km wide and 16 km long and a connecting stream about 5 km long leading to Lake Vashka. It is bordered on the south, west and north by the Olympus, Willett, and Clare Ranges respectively. The boundary of the Site approximates to an irregular pentagon enclosing about 325 km². The Site is defined by lines joining Skew Peak (77° 13′ S, 160° 43′ E), Sponsors Peak (77 18 S, 161 24 E), a point on the Insel Range (77° 24′ S, 161° 26′ E), a point in the Apocalypse Peaks (77° 24′ S, 160° 46′ E), Mount Bastion (77° 19′ S, 160° 34′ E) and Skew Peak. The boundaries are shown on the attached map.

(ii) *Reason for Designation*

Barwick Valley is one of the least disturbed and contaminated of the Dry Valleys of Victoria Land, which are environmentally unique and possess extreme polar desert ecosystems. The Site is important as a reference base against which to measure changes in comparable ecosystems of the other Dry Valleys where a considerable variety of scientific investigations have been conducted regularly over the past decade. It is also expected to be of use in connection with global environmental monitoring.

(iii) *Outline of research*

Investigations are proposed of the microbiology, bacteriology, mycology (especially of yeasts and moulds), and of the terrestrial and aquatic ecosystems, with special programmes to establish baseline measurements for biological and environmental monitoring.

(iv) *Date of expiry of designation*

30 June 1981.

(v) *Access points*

Access should be by helicopter to Wright Valley, thence into the Barwick Valley Site on foot past Lake Vashka.

(vi) *Pedestrian and vehicular routes*

Vehicles should not be used. Pedestrian routes should keep to well-drained ground avoiding streams and the lake margins as much as possible.

(vii) *Other kinds of scientific investigations which would not cause harmful interference*

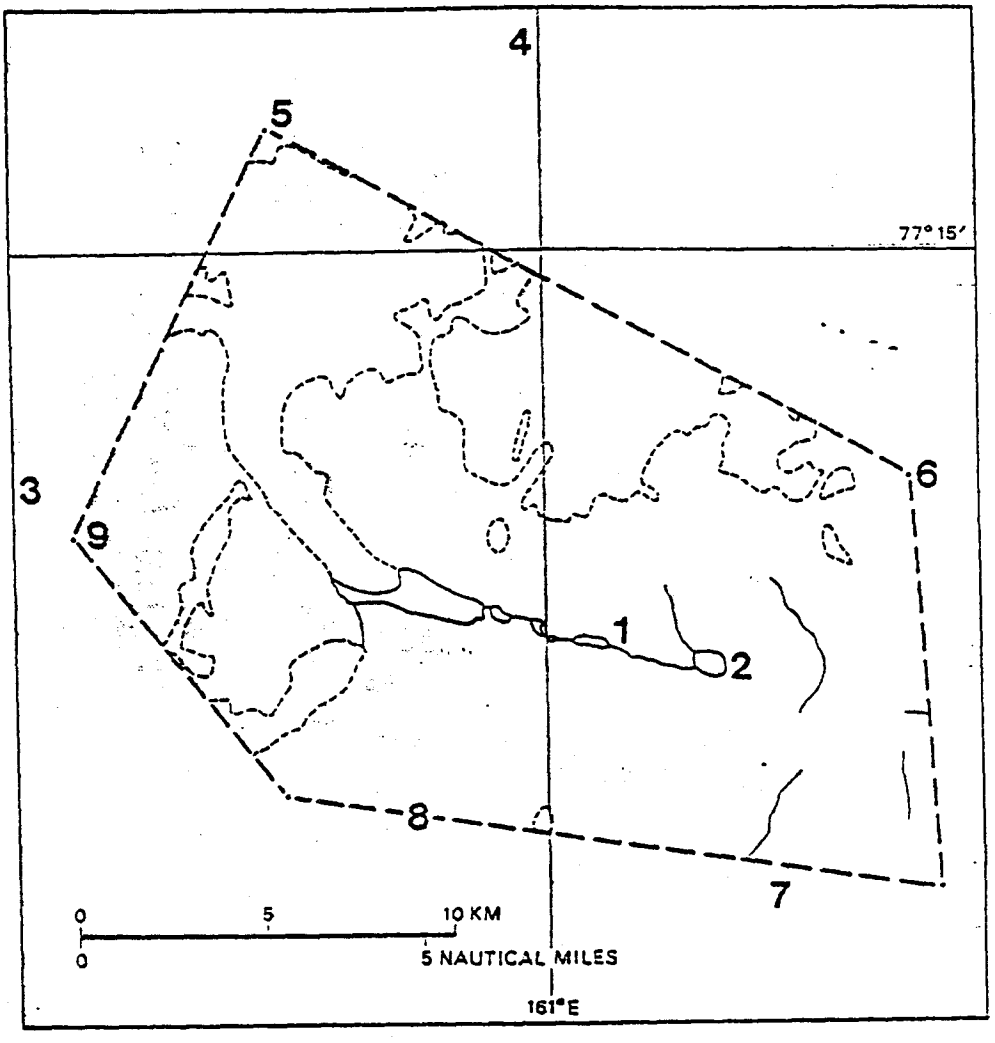
Geological, pedological, and glaciological studies except those which would introduce exotic species and those which would disrupt or damage the existing ecosystems.

(viii) *Scientific sampling*

Scientific sampling in the Site should be restricted to that which can be accomplished without introducing new organisms, including micro-organisms, and without disturbing the environment.

(ix) *Other restraints*

Overflight of the Site should be avoided. Aircraft landing and vehicle parking should be kept well outside the boundaries of the Site. Field activities should be kept to a minimum. Permanent field camps, landfill disposal, and other activities which would introduce new materials or organisms, including micro-organisms, into the Site should be avoided. All materials carried into the Site should be removed.



No. 3

1. Barwick Valley
   Vallée Barwick
   Долина Барик
   Valle Barwick
2. Lake Vashka
   Lac Vashka
   Озеро Вашка
   Lago Vashka
3. Willett Range
   Chaine Willett
   Хребет Виллет
   Cordillera Willett
4. Clare Range
   Chaine Clare
   Хребет Клэр
   Cordillera Clare
5. Skew Peak
   Pic Oblique
   Гора Скью
   Pico Oblicuo
6. Sponsors Peak
   Pic Garants
   Пик Спонсорс
   Pico Fiadores
7. Insel Range
   Chaine Insel
   Пики Инзель
   Cordillera Insel
8. Apocalypse Peak
   Pic Apocalypse
   Пик Апокалипс
   Pico Apocalipsis
9. Mount Bastion
   Mont Bastion
   Гора Бастион
   Monte Bastion

Site of Special Scientific Interest No. 4
Cape Crozier, Ross Island
Management Plan

(i) *Description of Site*

The Site comprises 40 km² and includes the land areas where the Adélie Penguins *(Pygoscelis adeliae)* nest and the adjacent fast ice where the Emperor Penguins *(Aptenodytes forsteri)* annually breed. It is bounded by lines joining 77° 28′ S, 169° 20′ E, 77° 28′ S, 169° 28′ E, 77° 31′ S, 169° 28′ E, 77° 31′ S, 169° 20′ E; and also includes the land area lying north of a line from 169° 20′ E, 77° 28′ S to the summit of Post Office Hill and north-east of a line which bears 315° True from the summit of Post Office Hill to the coast. The boundaries of the Site, the access track and road, the helicopter landing place and refuge hut are indicated on the attached map.

(ii) *Reason for designation*

The penguin colonies are the subject of long-term studies of population dynamics and social behaviour, and are relatively accessible by air from McMurdo Station and Scott Base. Acess to the Site should be restricted to scientists engaged in investigations within the Site.

(iii) *Outline of research*

Studies of the Emperor and Adélie Penguin populations and their ethology, life cycles, physiological adaptation and natural population fluctations. Detection of possible changes in their biological characteristics which may be due to man-induced changes in the environment.

(iv) *Date of expiry of designation*

30 June 1981.

(v) *Access points*

Access should be at points on the boundary closest to the refuge hut and the helicopter landing place.

(vi) *Pedestrian and vehicular routes*

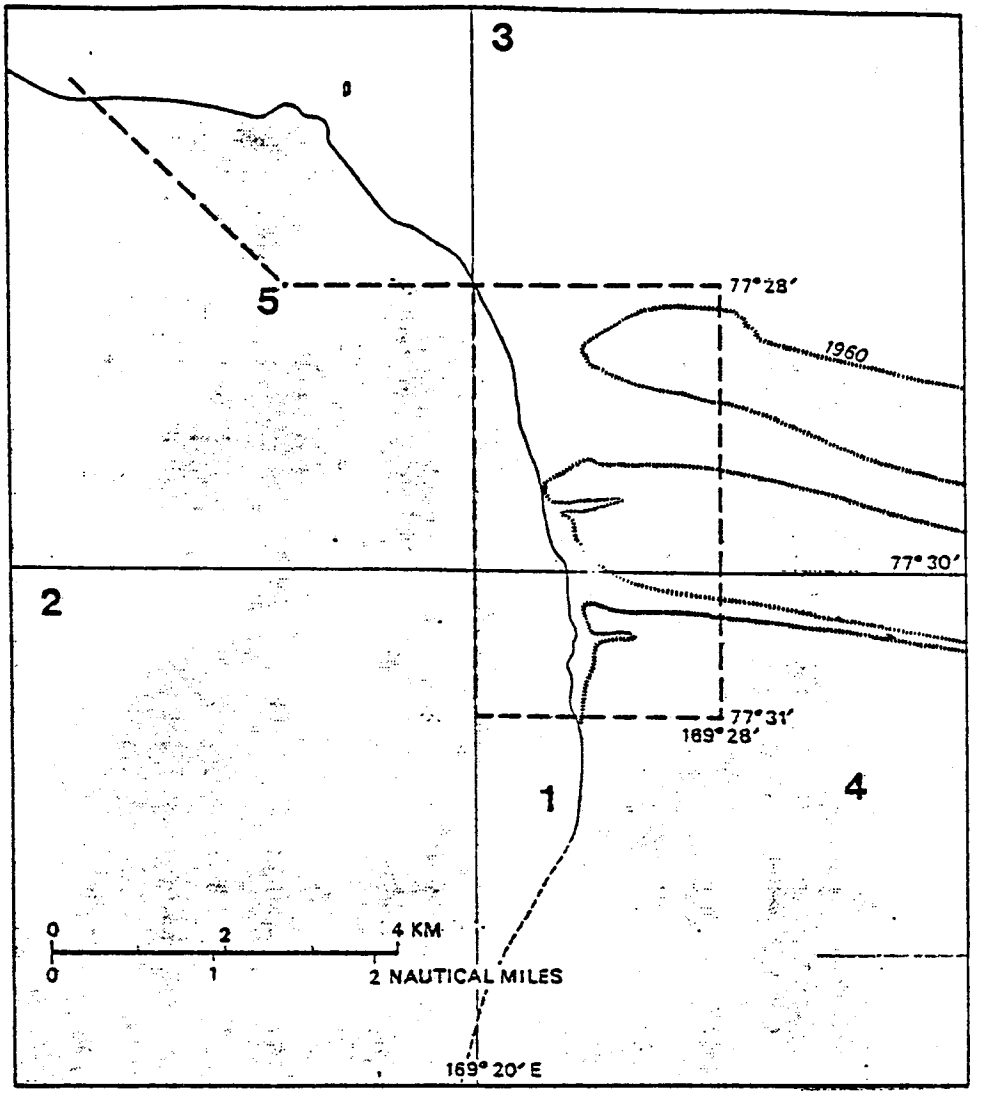
Helicopters and low-flying aircraft should avoid the Site. Vehicles should not enter the Site and should approach the Site boundary, when serving authorised activities, on courses at right angles to the boundary orientation. Pedestrian movement within the Site should be limited to the shortest routes consistent with the scientific activity.

(vii) *Other kinds of scientific investigations which would not cause harmful interference*

Biological, pedological, and geological observations except those which would cause harm to the birds or interfere with the breeding success of the penguin colonies. As far as possible such studies should be made at times when the Adélie Penguin colony is absent or when the Emperor Penguin colony is at least 1 km from the locality under scientific consideration.

(viii) *Scientific sampling*

Taking samples of the bird populations by killing, capture, or taking of eggs should be done only for a compelling scientific purpose and in accordance with the Agreed Measures for the Conservation of Antarctic Fauna and Flora. Close inspection of birds, including photography, or taking blood or other biological samples, should be kept to a minimum.



No. 4

1. Cape Crozier
   Cap Crozier
   Мыс Крозир
   Cabo Crozier

2. Ross Island
   Ile Ross
   Полуостров Росса
   Isla Ross

3. Ross Sea
   Mer de Ross
   Море Росса
   Mar de Ross

4. Ross Ice Shelf
   Plateforme de Glace Ross
   Шельфовый ледник Росса
   Barrera de Hielo Ross

5. Post Office Hill
   Colline Bureau de Poste
   г. Пост-Оффис
   Colina Casa de Correos

Site of Special Scientific Interest No. 5
Fildes Peninsula, King George Island,
South Shetland Islands

Management Plan

(i) *Description of Site*

The two areas on Fildes Peninsula shown on the attached map will be demarcated.

(ii) *Reason for designation*

The unique fossil ichnolites found in these areas are located close to two permanent scientific stations which have been visited frequently by tourist groups. The areas also contain representative sequences of Tertiary strata.

(iii) *Outline of research*

The main object of the research programme is to describe the Tertiary stratigraphic sequences and to understand the geological evolution of this part of the Antarctic Peninsula.

(iv) *Date of expiry of designation*

30 June 1981.

(v) *Access points*

None are defined.

(vi) *Pedestrian and vehicular routes*

Vehicles and helicopters should not enter the Site except in an emergency.

(vii) *Other kinds of scientific investigations which would not cause harmful interference*

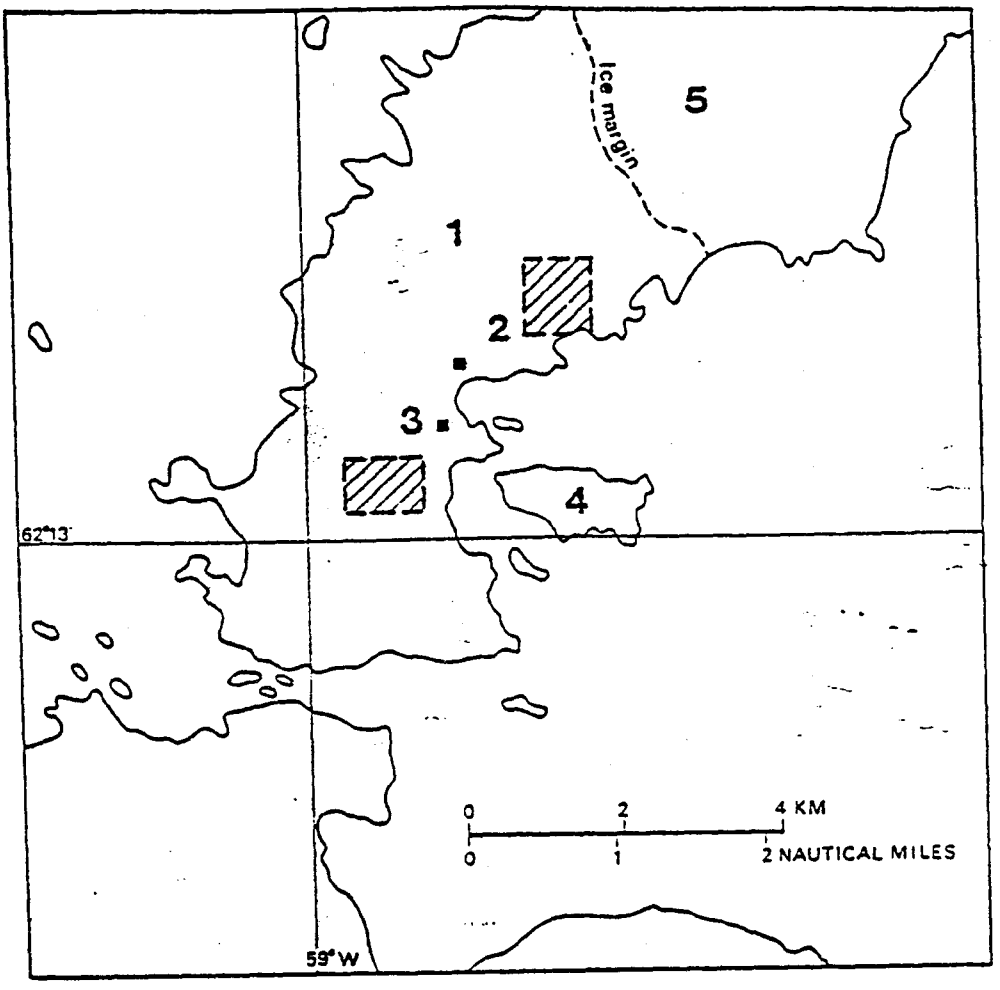
Scientific research other than geological should be kept to a minimum.

(viii) *Scientific sampling*

Samples of rocks should only be taken for compelling scientific purposes.

(ix) *Other restraints*

Buildings and other facilities should not be erected in the Site.



No. 5

1. Fildes Peninsula
   Presqu'île Fildes
   Полуостров Файлдс
   Peninsula Fildes

2. Base Bellingshausen
   Base Bellingshausen
   Научная станция Беллинсгаузен
   Base Bellingshausen

3. Base P. Frei
   Base P. Frei
   Научная станция Президент Фрей
   Base P. Frei

4. Ardley Island
   Ile Ardley
   Остров Ардлей
   Isla Ardley

5. King George Island
   Ile du Roi George
   Остров Кинг-Джордж (Ватерлоо)
   Isla Veinticinco de Mayo
   Isla Rey Jorge

Site of Special Scientific Interest No. 6
Byers Peninsula, Livingston Island
South Shetland Islands

Management Plan

(i) *Description of Site*

The Site comprises three areas of sedimentary and fossiliferous strata on Byers Peninsula. These areas are shown on the attached map.

(ii) *Reason for designation*

The fossils found in this area provide evidence of the former link between Antarctica and the other Southern Continents. A long-term paleontological research programme is in progress. It is important to protect these Jurassic and Cretaceous rocks from being used as building materials or as souvenirs.

(iii) *Outline of research*

A long-term research programme was established in 1964. The main objectives are the description of sediments and fossils found in this area.

(iv) *Date of expiry of designation*

30 June 1981.

(v) *Access points*

None are defined.

(vi) *Pedestrian and vehicular routes*

Vehicles should not enter the Site except in an emergency.

(vii) *Other kinds of scientific investigations which would not cause harmful interference*

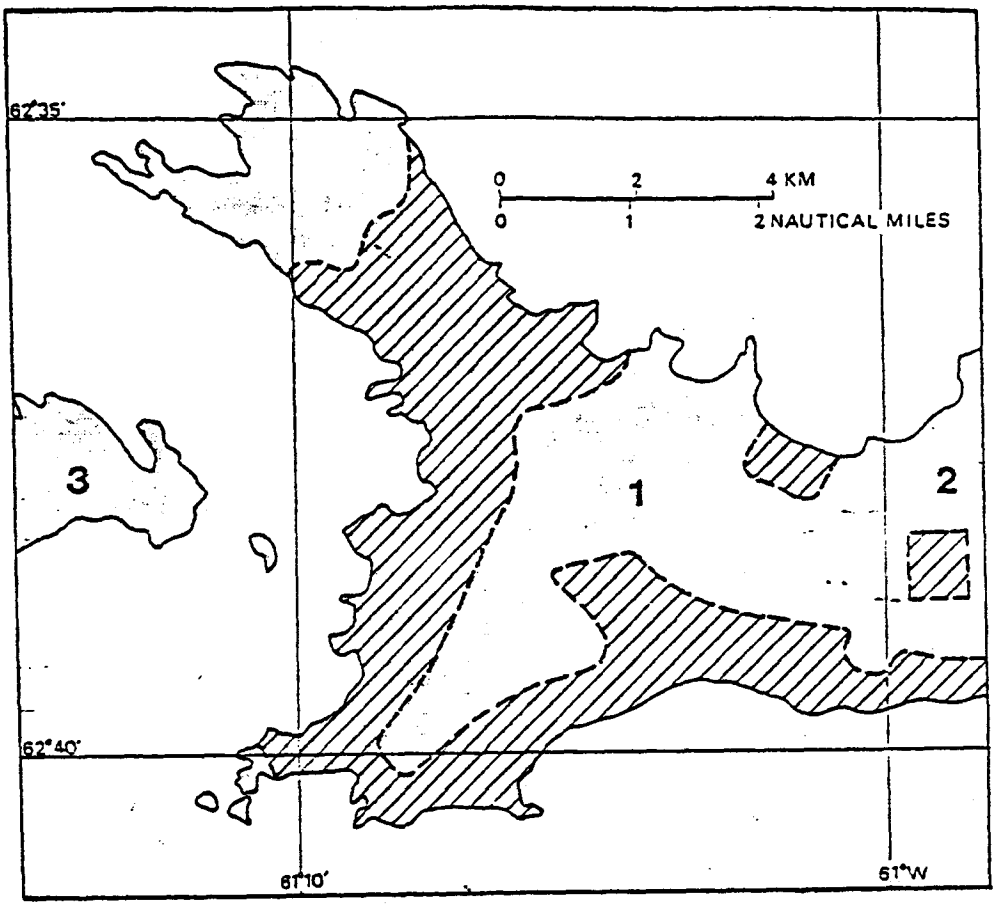
Scientific research other than geological should be kept to a minimum.

(viii) *Scientific sampling*

Samples of rocks or biological specimens should only be taken for compelling scientific purposes.

(ix) *Other restraints*

Buildings and other facilities should not be erected in the Site.



No. 6

1. Byers Peninsula
   Presqu'île Byers
   Полуостров Байерс
   Peninsula Byers

2. Livingston Island
   Ile Livingston
   Остров Ливингстон (Смоленск)
   Isla Livingston

3. Rugged Island
   Ile Rugged
   Остров Раггед
   Isla Rugosa

Site of Special Scientific Interest No. 7
Haswell Island

Management Plan

(i) *Description of Site*

The Site consists of Haswell Island (66° 31′ S, 93° 00′ E), about 1 km² in area, the largest of a group of islands lying close to Mirny station, together with its littoral zone and the area of fast ice, when present, lying within the delimination shown on the attached map.

(ii) *Reason for designation*

The Site is an exceptionally prolific and representative breeding locality for all the species of birds which occur in this part of the Antarctic (five species of petrel *(Procellariiformes)*, one species of skua *(Catharacta skua)*, and one species of penguin *(Pygoscelis adeliae)*). The Site provides exceptional opportunities for research and needs protection in view of its close proximity to a large Antarctic station.

(iii) *Outline of research*

A long-term biological programme associated with the bird colonies and studies of the inshore marine biology are expected to continue in the Site.

(iv) *Date of expiry of designation*

30 June 1981.

(v) *Access points*

The Site may be entered from any direction but access should cause minimum disturbance to the bird colonies.

(vi) *Pedestrian and vehicular routes*

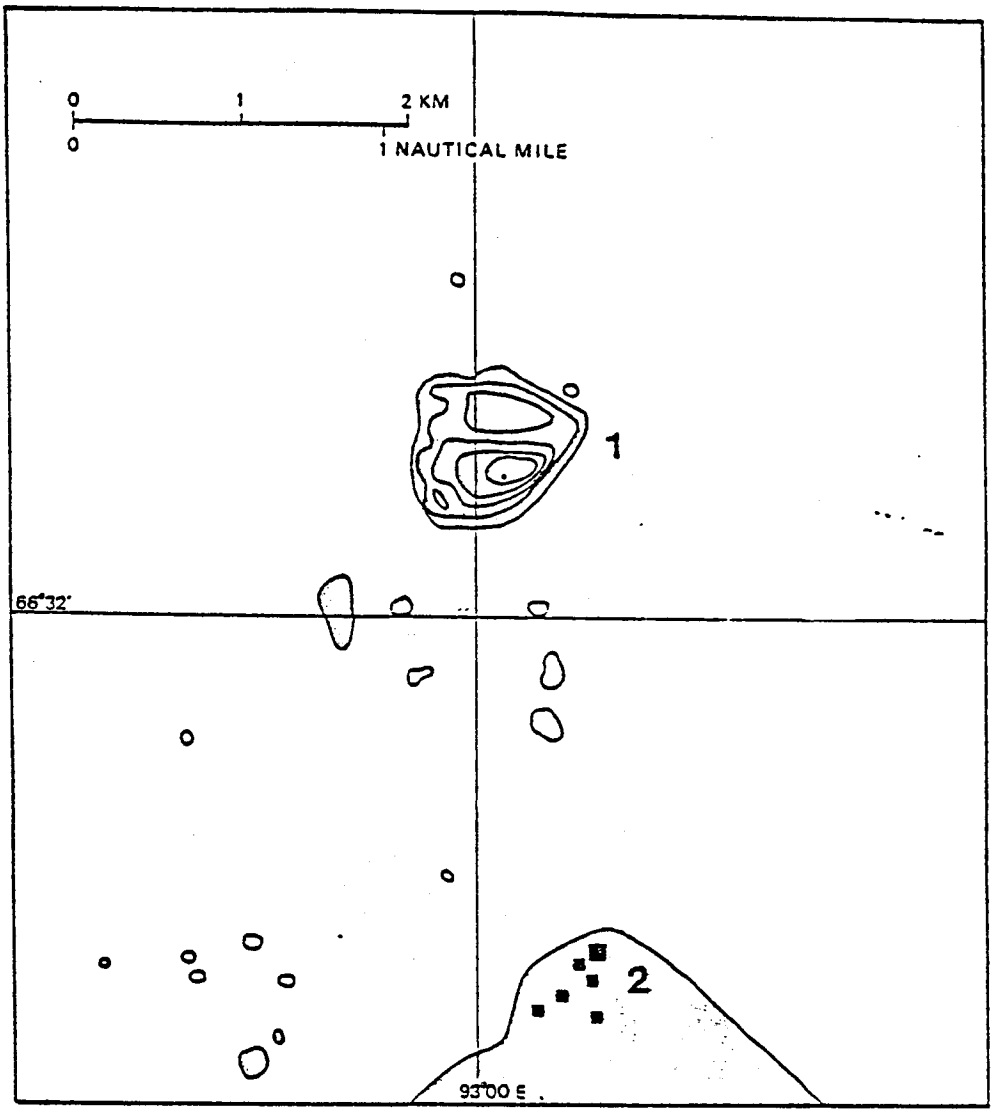
Vehicles should not enter the Site. Pedestrians should not move through the populated areas except as necessary in the course of scientific investigations. Helicopters and low-flying aircraft should avoid the bird colonies in accordance with the Agreed Measures for the Conservation of Antarctic Fauna and Flora.

(vii) *Other kinds of scientific investigations which would not cause harmful interference*

Any scientific investigation which will not cause significant disturbance to the biological programmes for which the Site has been designated.

(viii) *Scientific sampling*

Taking samples of the bird population by killing, capture, or taking of eggs should be done only for a compelling scientific purpose and in accordance with the Agreed Measures for the Conservation of Antarctic Fauna and Flora.



No. 7

1. Haswell Island
   Isle Haswell
   Остров Хасуэлл
   Isla Haswell

2. Mirny Station
   Station Mirny
   Научная станция Мирный
   Estacion Mirny

Annex V
Standard Format for the Annual Exchanges of Information

1. Information in as complete a form as possible under the categories listed below is to be exchanged as early as possible but in no case later than 30 November each year.

2. Under Recommendation II-VI any extensions, reductions or other modifications of activities (in the categories marked below with an asterisk (*)) previously reported are to be furnished as soon as possible and in any case prior to 30 June following the season of activity.

3. If a category is not applicable to the activities of a particular country (for example, it has no airfields or does not intend to use research rockets) this fact should be stated.

I.* The names, types, numbers, descriptions, and armament of ships, aircraft, and other vehicles, introduced, or to be introduced, into the Antarctic Treaty Area, and information on military equipment, if any, and its location in the Area. (List only vehicles used for transport to and from Antarctica. Vehicles at individual stations are described under category VIII below.)

II.* Dates of expeditions leaving for, and arriving in, the Antarctic Treaty Area, duration of stay, itinerary to and from the Area and routes followed within the Area.

III.* The names, locations and dates of opening of the Party's bases and subsidiary stations established or planned to be established in the Antarctic Treaty Area, listed according to whether they are for summer and/or winter operations.

IV.* The names of the officers in charge of each of these bases, subsidiary stations, ships and aircraft; the number, occupations and specialisations of personnel (including any designated by other Governments), who are or will be stationed at each of these bases and subsidiary stations and on board these ships and aircraft, including the number of personnel who are members of the military services, together with the rank of any officers and the names and professional affiliations of personnel engaged in scientific activities:

A.* Officers in charge of bases.
B.* Officers in charge of ships.
C.* Officers in charge of aircraft.
D.* Number, occupations and specialisations of personnel;

1.* Summer personnel (listed according to base or ship at which working);

2.* Winter personnel (listed according to base at which working).

E.* Number of personnel who are members of the military services together with rank of any officers.

F.* Names and professional affiliation of personnel engaged in scientific activities (listed according to base or ship at which working. It would be useful to list each person's scientific disciplines as well as his affiliation).

V.* The number and types of armaments possessed by personnel.

VI.* The programme of work, including scientific investigation, being done and planned at each of these bases and subsidiary stations and on board those ships and aircraft; and also the area or areas

of operation to be covered by such programme (this may be included as an Annex).

VII.* Principal scientific equipment, which may be listed according to the base at which it is customarily used (this may be included as an Annex).

VIII. Transportation facilities and communication equipment for use within the Antarctic Treaty Area:

A.* Surface, marine, and air transport vehicles at each base.
B.* Description of communications facilities using the standard form in accordance with Recommendation VI-2.
C. Description of airfields in accordance with Recommendation III-I, including particulars of location, operating conditions and limitations, radio aids to navigation, facilities for radio communications and instrument landing (this may be included as an Annex).

IX.* Facilities for rendering assistance (medical and transport services and shelter available in emergencies).

X.* Notice of any expeditions to Antarctica not organised by the Party but organised in, calling at, or proceeding from the Party's territory (including tourism in accordance with Recommendations IV-27 and VI-7).

XI.* Description of unoccupied refuges in accordance with Recommendation III-II, including name, position, description of location, date established, date last examined and estimate of available accommodation, facilities, food, fuel, and supplies of other kinds (this may be included as an Annex).

XII. Annual return of the numbers of each species killed or captured in the Antarctic Treaty Area in accordance with Article XII of the Agreed Measures for the Conservation of Antarctic Fauna and Flora, using the format annexed to Recommendation IV-19 (this may be included as an Annex).

XIII. Notice of the intended use of radio-isotopes in scientific investigations in the Antarctic Treaty Area. (Note: under Recommendation VI-6 this information is to be provided by Consultative Parties as early as possible, preferably six months in advance, but in any case annually.)

XIV. Notice of intended use of scientific research rockets in the Antarctic Treaty Area in accordance with Recommendation VI-12 including inter alia geographical coordinates of the place of launching; the time and date of launching or, alternatively, the approximate period of time during which it is planned to carry out the launchings; the direction of launching; the planned maximum altitude; the planned impact area; the type and other specifications of the rockets to be launched, including possible residual hazards; the purpose and research programme of the rocket.

XV.* Notice of ships which are carrying out substantial oceanographic research programmes in the Antarctic Treaty Area, in accordance with Recommendation VI-13 including information required under categories I, II, IV, VI, and VII above.

X-9
Twentieth Anniversary of the Antarctic Treaty

The Representatives,

Noting that the Tenth Antarctic Treaty Consultative Meeting marks the twentieth anniversary of the signature in Washington of the Antarctic Treaty and that the Eleventh Consultative Meeting in Argentina will mark the twentieth anniversary of its entry into force;

Recalling the second preambular paragraph of the Antarctic Treaty in which it is recognized that it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord;

Conscious of:

(a) the responsibility assumed by the Consultative Parties for the protection of the environment and the wise use of the Treaty area;

(b) the increased understanding of the Antarctic and of its relationship to the world as a whole that has resulted from the endeavors of the Antarctic scientific community;

(c) the benefits derived from the co-ordination of Antarctic scientific research through the Scientific Committee on Antarctic Research (SCAR), its subsidiary institutions and from its co-operation with other international organizations having a scientific or technical interest in the Antarctic; and

(d) the value of the scientific advice from SCAR, requested by their Governments through their respective National Antarctic Committees, in connection with the development of the Antarctic Treaty system;

Recommend to their Governments that:

I.

Scientific Research

Through their respective National Antarctic Committees, or the offices administering their Antarctic research programs, as appropriate, they express their gratitude to the members of the Antarctic scientific community, past and present, and to SCAR for the devoted service which they have given to the achievement of a better understanding of the Antarctic and to the development of the Antarctic Treaty System:

II.

Commemoration of the Twentieth Anniversary
of the Entry Into Force of the Antarctic Treaty

1. They consider suitable ways of commemorating the twentieth anniversary of the entry into force of the Antarctic Treaty, including the possibility of issuing a commemorative postage stamp during 1981 on the lines indicated in Recommendation V-1;

2. Any commemorative event should be consonant with the provisions and spirit of the Antarctic Treaty.

III
ANNEXES

Annex 1

Addresses and Statements at the Opening Session

- Opening address by the Honorable Lucy Wilson Benson, Under Secretary of State for Security Assistance, Science and Technology, United States of America

- Statement by His Excellency Dr. Angel Maria Oliveri Lopez, Representative of Argentina

- Statement by His Excellency Mr. K. G. Brennan, Representative of Australia

- Statement by His Excellency Mr. Alfred van der Essen, Representative of Belgium

- Statement by His Excellency Mr. Nicolas Novoa, Representative of Chile

- Statement by His Excellency Mr. René Lustig, Representative of France

- Statement by Mr. Chusei Yamada, Representative of Japan

- Statement by His Excellency Merwyn Norrish, Representative of New Zealand

- Statement by Mr. Per Tresselt, Representative of Norway

- Statement by His Excellency Mr. Romuald Spasowski, Representative of Poland

- Statement by Mr. P. D. Oelofsen, Representative of South Africa

- Statement by Professor Y. I. Tolstikov, Representative of the Union of Soviet Socialist Republics

- Statement by Mr. George Hall, Representative of the United Kingdom

- Statement by Mr. R. Tucker Scully, Alternate Representative of the United States of America

OPENING ADDRESS BY
THE HONORABLE LUCY WILSON BENSON, UNDER SECRETARY OF STATE
FOR SECURITY ASSISTANCE, SCIENCE AND TECHNOLOGY

It is a pleasure for me on behalf of my Government to welcome you to Washington for the Tenth Meeting of Antarctic Treaty Consultative Parties.

This Consultative Meeting marks a significant milestone. It is the twentieth anniversary of the signing of the Antarctic Treaty. Twenty years ago in this city, delegates representing countries on six continents completed work on a Treaty concerning the seventh continent--the southernmost, and least known, part of our planet. Those delegates pledged to reserve this area for peaceful purposes only and to cooperate in investigation of this unique scientific frontier.

The world of 1959--not unlike today--was one in which the divisions among nations too often seemed to predominate. In such circumstances, it was no small task for a diverse group of nations to recognize that they shared a common concern for Antarctica. Yet the authors of the Treaty were able to set aside the problems which divided them in order to affirm the interests which bound them.

It was during the International Geophysical Year of 1957-1958 that scientists from the Antarctic Treaty nations first worked together across the vast southern continent to begin unlocking its secrets. The realization that their efforts during the IGY had just begun to bear fruit stimulated the development of a more enduring agreement among interested parties.

Those who gathered here twenty years ago to work on that international agreement realized that to reach that common objective, Antarctica must be treated in a special fashion. As the words of the Treaty attest, they recognized "that it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord."

This was an impressive commitment, indeed. It was not simply an expression of common purpose, but the basis of the operative provisions of the Treaty.

-- It underlies the provisions for freedom of scientific research in Antarctica;

-- It underlies the imaginative juridical formulation ensuring international cooperation among the parties on Antarctica; and

-- It underlies provisions for the non-militarization and non-nuclearization of Antarctica and for inspection of stations.

The basic principles and purposes of the Antarctic Treaty remain as valid and cogent today as in 1959. The framers of the Treaty understood that to give concrete effect to these principles and purposes required a mechanism through which the Treaty could evolve to meet new circumstances and developments. That mechanism is the regular consultative meetings which have contributed importantly to the continued dynamism and responsiveness of the Antarctic Treaty system.

The accomplishments of the Treaty and the consultative mechanism established pursuant to it are impressive. Antarctica remains an area reserved exclusively for peaceful purposes. International cooperation in scientific research in Antarctica has made major contributions to the understanding of our planet, its oceans and its atmosphere. An impressive collection of recommendations have been developed to ensure the protection of the Antarctic environment from harmful impacts of human activity. Consultative Parties created a responsive system for controlling the effects of man's presence in Antarctica through the Agreed Measures for the Conservation of Antarctica Fauna and Flora. The Convention on the Conservation of Antarctic Seals, which entered into force two years ago resulted from other initiatives undertaken within the consultative system.

From the perspective of this Meeting, it is clear to me that the Treaty parties can look back over the past twenty years with a sense of accomplishment and pride. The Antarctic Treaty has served as a model for important international initiatives in other areas of the globe. The nuclear free zone and inspection of facilities and activities by observers designated by the Consultative Parties are provisions that have contributed to the field of arms control. The pattern of scientific cooperation established under the Treaty has served as a model for other regional and multidisciplinary programs of scientific investigation.

The Antarctic Treaty has proven vital and dynamic in a time of rapid global change. For these reasons, I believe it appropriate that we pay tribute to those farsighted scientists and diplomats who met here twenty years ago and whose work and spirit continue to infuse international cooperation in Antarctica. We are honored that some of these distinguished individuals are with us today.

In commemorating these accomplishments, we must not lose sight of the future. We stand at an important point in the history of the Antarctic Treaty system. New issues and new challenges have emerged to engage the attention of the Consultative Parties. In large part these new issues stem from the potential of new forms of human activity in Antarctica, particularly, resource development activities.

At the Ninth Consultative Meeting in London, major attention was devoted to the subjects of marine living resources and mineral resources. This is the proper forum for such considerations, because satisfactory resolution of these issues is key to the continued vitality of the Antarctic Treaty system.

Our priority interest is in the development of a regime for Antarctic marine living resources. Over the past two years the Consultative Parties have devoted intense effort to the development of a draft convention on the Conservation of Antarctic Marine Living Resources. Indeed, this gathering offers the opportunity to reach understandings necessary to convene the final diplomatic conference to conclude that convention. I can think of no more effective action to reconfirm our commitment to the Antarctic Treaty system and its principles and purposes than the conclusion of the Antarctic Marine Living Resource Convention.

In the marine living resource negotiations we have sought to provide the basis for wise decisions on resource activities before events force ill-considered decisions upon us. The same objective should be sought in our negotiations relating to mineral resources. The nature of mineral resource issues--their complexity and sensitivity--will require measured and thorough examination. However, if we are to meet the commitments we have collectively made to ensure the health of the Antarctic environment--in the ecological and the political sense--it is imperative that we achieve continued and timely progress toward an agreed regime concerning Antarctic mineral resources.

While matters relating to Antarctic resources are prominent on our Consultative Meeting agenda, we should not lose sight of other important matters traditionally on the agenda of Consultative Meetings. Telecommunications, exchange of meteorological data, the impact of man's activity on the Antarctic environment, tourism, and other subjects have continuing importance and merit our concerted attention.

The modern world offers many examples in which our scientific and technological creativity has outpaced our political and institutional responsiveness. The international cooperation symbolized in the Antarctic Treaty stands as a welcome exception.

We have the chance, I believe, to preserve and enrich this example. This is a challenge and the opportunity is inherent in today's issues regarding the Antarctic environment. We have taken major steps toward dealing with these issues. We must continue to do so, without shortchanging those areas of cooperation in Antarctica traditionally dealt with at all Consultative Meetings. If we persevere, in the pragmatic and imaginative spirit of the authors of the Treaty, we will have many more occasions to commemorate our cooperation in Antarctica.

STATEMENT BY HIS EXCELLENCY DR. ANGEL MARIA OLIVERI LOPEZ

Mr. Chairman,

First, may I express the satisfaction which my delegation feels at being once again on American soil, with its tradition of hospitality and its values, which are those of the West, and which are shared by the government and people of Argentina. Likewise, we pay tribute to the major contributions by the United States to scientific activities in Antarctica, which have earned it a high reputation among the other Consultative Parties.

It is no secret that in our time the problem of Antarctica is becoming increasingly complex, because together we are entering a stage oriented toward the exploitation of its natural resources. It is undeniably a challenge to attempt to reconcile positions which are not always in agreement even on basic matters on terms satisfactory to all parties concerned. It would be pointless for us to undertake such a project without continually bearing in mind that it is essential to recognize the political realities of this area.

The Antarctic Treaty is an outstanding example of the way that nations with different interests, including the interests of all mankind, can work together toward a common objective. I am confident that we can maintain this spirit, in spite of the major difficulties which lie ahead of us.

Although it has been mentioned previously, it is not inappropriate to point out the special significance which the Republic of Argentina attaches to the preservation of the Antarctic environment. Our geographic proximity and the resultant dependency of the contiguous ecosystems on the biological equilibrium of Antarctica make our position clearly one of fundamental concern about the preservation of the environment in that area. Our continuous concern, which was clearly evident during the negotiations about a regime for preserving Antarctic marine living resources, will also determine our attitude toward other activities involving hazards to the Antarctic ecosystem that cannot be disguised.

Therefore the government of Argentina has added its efforts to those of the other Consultative Parties in drawing up an Agreement which would preserve the living resources in the area, and it can only regret that circumstances over which it has no control have delayed the achievement of the necessary understanding, so that the text, which is under negotiation, would become a reality. We have stressed the conservationist aspect of this instrument, endeavoring to have it set standards in order to avoid activities which, as in the past, have ravaged certain species, threatening to break the tropic chain of Antarctica. The principle of rational utilization; equitably assigned quotas; the establishment of maximum limits by region and species; appropriate rotation to prevent overconcentration of catch activities, are all measures leading to the ultimate purpose of protecting the Antarctic species and ecosystem without overlooking the political realities of the area.

Our concern about this matter led us to make a formal proposal at the meeting held in Buenos Aires in July, 1978, for establishing a "reserved, ecological zone" which would be a belt to protect the reproductive cycle of living resources in Antarctica. We believe that the seriousness of our intentions in raising this subject should not be minimized, and on the contrary, should be examined carefully in the context of the regime which is to be established.

The first item on our agenda brings us face to face with another activity which is even more complex. The matter of exploration for and exploitation of Antarctic mineral resources is there for two basic reasons:

- first, because the damage to the ecosystem due to normal activities or, worse, to disasters, may be irreparable because of the unique vulnerability of the environment;

- second, because we have no alternative but to confront the need

to find appropriate solutions to the problem of national jurisdiction in the Antarctic Treaty zone.

The regime structured around Article IV of this instrument, which all parties have honored for twenty years, should become operative now that we are dealing with the non-renewable resources of the area. Argentina, whose continuing activities in Antarctica extend back several decades before the International Geophysical Year - its first base was established 75 years ago - cannot give its sovereign consent to any agreement which does not take this political reality into consideration.

Therefore we shall add our determined efforts to those of the delegations here present in order to develop together a regime for the exploration for and exploitation of the Antarctic mineral resources and, if such activities prove acceptable, once the environmental variables are given full consideration, we are prepared to undertake the difficult task of setting standards which will be satisfactory to everyone and which will offer the necessary guarantees for the countries claiming sovereignty.

We believe that it is not impossible. For the time being, Recommendation IX-1, which was adopted in London, offers us an acceptable framework for such a task. We believe that this Tenth Consultative Meeting essentially should ratify its concepts at the political level, without detriment to the promotion of the necessary programs at the scientific, technological, and environmental level.

Notwithstanding the commitment to voluntary abstention from activities which is included in the Recommendation and which we are willing to renew until this regime goes into effect, the Government of Argentina, which since 1946 has claimed the continental shelf corresponding to its entire national territory and in 1966 extended its maritime jurisdiction to 200 miles outside its territory, considers applicable its national legislation in the sector of Antarctica over which it has reserved sovereign rights. For this reason, to supplement the information provided on other occasions to the other Consultative Parties, our delegation has taken the liberty of distributing the recently approved legislation on the subject of exploration for and exploitation of hydrocarbons (Law 21.778). We trust that the system which someday may be adopted will be compatible with this legislation.

Once again, we express a vote of confidence that the spirit of the Antarctic Treaty, which has united us for two decades and which gives us primary responsibility in the area before the rest of the community of nations, will inspire our work, and that the understanding, wisdom and cooperation which has characterized these meetings will be strengthened by this Tenth Consultative Meeting.

AUSTRALIA

STATEMENT BY HIS EXCELLENCY MR. K. G. BRENNAN

My first task, Mr. Chairman, is to congratulate you very warmly on your election to the position of Chairman of this very important, and even historic, Tenth Antarctic Treaty Consultative Meeting. Your very valuable contributions to the work we are about to undertake at this meeting have already become evident from your chairmanship of the informal consultations we held on Antarctic marine living resources in this city 12 months ago and, more recently, from the preparatory meetings which took place here just 2 months ago. My delegation, Mr. Chairman, feels very optimistic that your chairmanship of this meeting will lead us to the much sought after goals we have set ourselves.

I should make mention, Mr. Chairman, of another important position with regard to this meeting and that is the position of Secretary-General. From our own recent experience at holding a Consultative Meeting we realize that much of the success of the meeting can turn on the role of the Secretary-General. I congratulate Mr. Carl Grip on his appointment as Secretary-General and offer him all the cooperation of the Australian delegation.

I mentioned, Mr. Chairman, in my introductory comment that this Tenth Antarctic Treaty Consultative Meeting was an historic one. Indeed, it is, and I think, Mr. Chairman, that its historic nature comes from two sources. Firstly, I should make mention of the work that is being done at this Antarctic Treaty Consultative Meeting on that vital question of Antarctica's natural resources. Delegations will be aware that resource questions have been tackled by Antarctic Treaty Consultative Meetings before. Indeed, under Article IX of the Treaty itself, the Consultative Parties are tasked with making recommendations on the preservation of Antarctica's living resources. Questions relating to these resources, Mr. Chairman, were taken up as far back as the First Consultative Meeting which Australia had the pleasure of hosting in 1961. We are all familiar with the achievements that have been attained in this area through the various Consultative Meetings. We have a set of agreed measures on the preservation of Antarctic flora and fauna and we have a Convention on the conservation of Antarctic seals. But I believe this Tenth Meeting, Mr. Chairman, is historic because it is the first Antarctic Treaty Consultative Meeting where the Consultative Parties can point to very substantial achievement in the creation of a resource regime, whose objective is to ensure the conservation and rational use of resources currently being exploited. I refer, of course, to the negotiatons we have undertaken since the Ninth Consultative Meeting on a Convention for the conservation of Antarctic Marine Living Resources. Although, Mr. Chairman, we have not finally completed that Convention, we should not regard this in any negative way. Just two years ago we set ourselves a task of concluding such a Convention. We met at a special Consultative Meeting in Canberra in February 1978 and had before us some six or seven draft conventions submitted by various delegations. I believe, Mr. Chairman, that it has been an extra-ordinary achievement that in the short time which has elapsed since that day, those six drafts have been negotiated into one draft which commands substantial agreement amongst the 13 delegations attending this Meeting and I believe, Mr. Chairman, that if those negotiations can be brought to a stage where we can proceed to a final diplomatic conference at which such a Convention can be adopted, then that will only serve to underline the historic nature of this Meeting.

The second reason, Mr. Chairman, which makes this Meeting an historic one has to do with both the place at which the Meeting is being held and the year in which it is being held. Just 20 years ago this year in this very city the Antarctic Treaty was signed. That was an event, Mr. Chairman, which is very much worth noting at this meeting. The conclusion of that Treaty in 1959 was in itself a remarkable achievement. It grew out of a tremendous spirit of cooperation which existed among those countries which participated in the International Geophysical Year of 1957-58 and it did so at a time when political tensions elsewhere in the world might have otherwise made it seem an unlikely achievement. On this 20th anniversary of the signing of the Antarctic Treaty it is appropriate that we should remind ourselves of what the Treaty has given us. There has been much emphasis in recent times, Mr. Chairman, on the resource issues in Antarctica, but the most important aspect of the Antarctic Treaty, perhaps its most basic principle, is that Antarctica should be used for peaceful purposes only. This principle is supported by provisions in the Treaty which prohibit any measures of a military nature and which prohibit nuclear explosions in Antarctica and the disposal there of radioactive waste material. The Antarctic Treaty, therefore, has ensured that the growing international interest in Antarctica which became evident in the 50's and which has continued through the 60's and the 70's would never allow Antarctica to become the scene or object of international discord. That principle has governed activities in Antarctica since its adoption in the Antarctic Treaty. Those aspects alone, Mr. Chairman, would be sufficient to make the Antarctic Treaty one of the most important international agreements of its time.

The practical workings of the Treaty, however, are built around its provision to guarantee freedom of scientific investigation in Antarctica and cooperation towards that end. This freedom of scientific investigation is what has made possible the accomplishments of nine Antarctic Treaty Consultative Meetings. Most of the tasks we will undertake at this Meeting stem from those provisions of the Treaty which elaborate that principle of scientific investigation in Antarctica and cooperation towards that end, as well as the other important principles of the Treaty. There is no need for me, Mr. Chairman, to expand

on what the previous nine Consultative Meetings have achieved. We are all familiar with the many recommendations we have made to our governments with respect to cooperative arrangements in telecommunications and the collection of meteorological data and in various aspects relating to the protection of the Antarctic environment. No doubt, Mr. Chairman, this Tenth Consultative Meeting will also advance further our achievements in these and other fields.

In conclusion, Mr. Chairman, might I just say that undoubtedly the next twenty years will provide far more challenges for the Antarctic Treaty than the twenty years that have just elapsed. International interest in the continent and its future is growing and has already expressed itself in several international forums. We have noted that some nations not currently represented at this Conference have demonstrated their considerable interest in Antarctica. Some of these are already members of the Treaty itself but some as yet are not. I think it should be one of our objectives, Mr. Chairman, to ensure that countries which have a genuine interest in Antarctica should be persuaded to accede to the Treaty, thereby undertaking the obligations we have all undertaken relating to the use of Antarctica for peaceful purposes only and ensuring freedom of scientific research. Those countries which have undertaken those responsibilities and have demonstrated their interest in Antarctica by conducting substantial scientific research activity there such as the establishment of a scientific station or the despatch of a scientific expedition should be invited to join us at Antarctic Treaty Consultative Meetings and to contribute to their work.

BELGIUM

STATEMENT BY HIS EXCELLENCY MR. ALFRED VAN DER ESSEN

Mr. Chairman:

First, the Belgian delegation wishes to congratulate you on your unanimous election as chairman of our conference. The many people here who have been able to follow your efforts during the unofficial consultations held this past year know that there could be no better choice.

Belgium takes special satisfaction in participating in the Tenth Consultative Meeting on Antarctica in Washington. Indeed, our meeting coincides with the twentieth anniversary of the conference which concluded the Antarctic Treaty in this very city. The conference met on the initiative of President Eisenhower for the purpose of according some kind of international status to the vast polar continent while sparing it the unproductive and undesirable effects of political rivalries and eliminating any possibility of misunderstanding among nations.

Since I had the privilege of taking part in this work, I still remember the deep impression which this memorable conference made on me when it was opened on October 15, 1959, by Secretary of State Herter, his kind face filled with idealism.

The Washington Treaty of December 1, 1959 is a diplomatic instrument of real importance, both because of the newness of some of the principles which it affirms and because of its steady development over twenty years. It is the first international agreement dedicated to non-militarization of a vast territory and to supervised application of this principle; it is the first to prohibit nuclear explosions and disposal of radioactive waste in a region; and it is the first to proclaim unimpeded freedom of scientific research.

It is not enough to affirm these principles; it is also necessary to apply them. For this reason one of the most relevant provisions calls for regular consultative meetings of the parties concerned so that they can recommend measures to their governments which ensure that these principles are respected.

To date, this Treaty, which some people call fragile, has had an amazing history. First, because of the speed with which it was concluded. President Eisenhower's invitation was dated May 2, 1958. The Treaty, which was remarkably well drafted by Ambassador Paul Daniels' unofficial group and masterfully refined by Senator Phleger during the conference, was signed on December 1, 1959. It required ratification by twelve Signatory States in order to enter into force,

and such ratification was obtained by July, 1961. All this was quite extraordinary. Yet, once their task was completed, the 1959 negotiators, slightly amazed by their success, became somewhat alarmed: what would become of their work of art?

Then the importance of the provision in the Treaty for regular consultative meetings became especially apparent. As they took place, the so-called "spirit of the Antarctic Treaty" rapidly evolved. No doubt guided from afar by the scientists and explorers from the participating countries, who had been persuaded by the special obstacles of the polar continent that there was an urgent need for close cooperation, the diplomats and legal experts felt the same need. The rest was accomplished by mutual friendships strengthened by regular meetings, and the governments followed suit.

Once again there was some alarm. I remember a conversation I had during a consultative meeting in Tokyo in 1970 with an old friend, the delegate of Argentina, Roberto Guyer. As we discussed the spirit of the Treaty, we asked ourselves whether it was not generated by a small group of friends. Would it survive when we were no longer present? Would the governments even know that there was an Antarctic Treaty?

By chance I am the last delegate to have been present at the conclusion of the Treaty and at all of the regular and special consultative meetings held during the last twenty years. Perhaps it qualifies me to state that, although delegations may be replaced and new and sensitive problems may arise, the spirit of the Antarctic Treaty still endures. I even believe that it is strengthened by these difficulties. The recommendations adopted by the consultative meetings have never been put to a vote, which indicates the degree of cooperation and accommodation which occurred immediately. I find it very reassuring.

Mr. Chairman,

The Belgian delegation is delighted that the Tenth Consultative Meeting coincides with the twentieth anniversary of the Washington Treaty. It is well that these two diplomatic meetings should be held in the country which, as everyone knows, has made the greatest contribution to our knowledge of the polar continent. The exceptional merit of the accomplishments of the United States is so apparent that it seems too obvious to review them in detail.

The Belgian delegation gives you its assurances that it will participate in the Tenth Consultative Meeting with its customary spirit of good will.

CHILE

STATEMENT BY HIS EXCELLENCY MR. NICOLAS NOVOA

The Chilean Delegation is very pleased that this meeting is being held in Washington, a beautiful city, which, exactly twenty years ago, was the setting for the signing of the Antarctic Treaty.

We are also pleased because Washington is the capital of a country that has always cooperated fully in scientific and technological fields and in other matters, in conducting negotiations that we hope will enable us to reach an agreement soon on conservation of Antarctic marine living resources.

The Chilean Government considers it imperative to design parameters for activities that will lead to the discovery of new resources within the solid framework of our Antarctic Regime.

The fact that this regime has been fully operative for two decades is mainly due to the principles unanimously agreed upon by the Consultative Parties. The Washington Treaty is actually an example for the world because of its goals, and it has become a symbol of international peace and the legal equality of all nations.

Because of the unconditional need to protect the Antarctic environment and to conserve its original species, whether mammals, fish, or birds, on the one hand, and increased scientific research through the technological developments of

our age--a time that saw man land on the moon and begin to travel inconceivable distances in outer space--on the other hand, our joint efforts have advanced us into the twenty-first century.

The Chilean delegation is ready to cooperate fully with the rest of the Consultative Parties so that negotiations on the conservation of the marine living resources will be concluded satisfactorily and our Governments will be able to sign this agreement in the near future.

The need to find new sources of production for minerals and other nonrenewable elements presents problems that, in principle, the Chilean Government is ready to confront. My delegation is ready to begin talks on this problem.

To solve this problem we must begin negotiations by dealing with the possibility of establishing a system that will enable the Consultative Parties of the Antarctic Treaty to establish regulatory standards of procedure for the exploration for and exploitation of the aforementioned resources.

This will be a task that, without a doubt, will stimulate the imagination of our diplomats, lawyers, scientists, and technicians.

We should not be dismayed if it takes some time to coordinate the different positions of the Consultative Parties. Major decisions require study, reflection, and maturation before a satisfactory conclusion can be reached. Then, as a perfect symbiosis, these decisions can become part of the clear, perfect standards of our Antarctic Treaty.

My Government will have a very special interest in this matter because of its claims of sovereignty through its deeds and because of its proximity to the Antarctic. We are certain that this interest will be shared by the rest of the Consultative Parties.

Our situation as the country nearest to the Antarctic places us in an advantageous geographical position at the same time that it makes us very vulnerable to any changes in the Antarctic environment caused by uncontrolled activities.

Chile has adopted several measures to provide its President Frei base with the most suitable communication installations possible in order to fully meet our international commitments. We would like to offer the other parties to the Treaty, and generally all of mankind, any information they need in the most timely and efficient manner possible.

The large investment made by the Chilean Government should be considered one more contribution to international cooperation and the development of Antarctica for peaceful purposes. Thus, we can avoid possible duplication of transmissions that are meaningless in the operation of the Antarctic regime.

I would like to take this opportunity to extend a cordial welcome to the Federal Republic of Germany to our regional agreement that covers all of the Seventh Continent. Its well-known plan to set up a base and contribute through its great scientific and technical knowledge to research in this region is a decision which gives us even greater encouragement in our search for international cooperation.

Since the commemoration of the twentieth anniversary of the signing of the Antarctic Treaty is so near, the Chilean Government wishes to reaffirm its staunch adherence to the standards and principles of this Treaty.

The presence in our Delegation of Ambassador Enrique Gajardo Villarroel, a signatory of the original text, more fully confirms our historic position.

Looking back over the first twenty years of the treaty, or in other words, at the time that it begins its adult life, we would like to pay tribute to the individuals who conceived it and shaped it. We feel that we will not be mistaken if we say that the Antarctic Treaty was the beginning of a new age of

intergovernmental cooperation that went beyond political difficulties on behalf of mankind. Demilitarization and denuclearization are two factors that have made our achievements possible and that make us look confidently towards the future. Antarctica, the last continent to be explored, was the first continent to enter the twenty-first century.

FRANCE

STATEMENT BY HIS EXCELLENCY MR. RENE LUSTIG

Mr. Chairman:

I should like first of all to express to you the congratulations of the French Delegation on your election to preside over our work and likewise to congratulate the Secretary-General.

All the delegations that have spoken this morning have emphasized the importance of this Tenth Meeting.

Indeed, the Treaty, after having, in the course of these last 20 years, completely fulfilled its function in the spirit intended by those who presided over its drafting, is now in the period of its life when the question of exploitation of the resources of Antarctica is beginning to be stated concretely. It is therefore truly a new challenge for the men of good will who created the Treaty.

I believe that the initiative taken by the Consultative Parties in seeking to establish an agreement for the protection of living resources is proof in itself of the will to face the responsibilities that they accepted by becoming signatories to the Treaty.

It is now extremely important that that agreement be concluded as soon as possible.

The fact that the field of application of the proposed agreement greatly exceeds the scope of the Treaty clearly presents certain problems that we should not underestimate. A certain amount of progress has been made in seeking a solution to these problems, and we sincerely hope that the last remaining difficulties may be overcome during this meeting.

Another challenge we face concerns the mineral resources of Antarctica. Many are the experts who have already studied the scientific, political and legal questions posed by these resources.

Those experts, who worked within the framework of SCAR of the Treaty or in private meetings, helped to clarify this complex matter.

Their studies show that the petroleum of the Antarctic continental shelf is certainly the resource to which attention is most clearly directed. What we must undertake is, therefore, an examination of the broad lines of an agreement organizing exploration and, at a later stage, exploitation.

We must not delude ourselves by thinking that we will within a short time be able to regulate all the complex problems involved in this matter. This seems all the more true since the Agreement on Marine Living Resources cannot serve us as a model, though we should be guided by the spirit which imbues it.

That spirit is the same as that which has always inspired us in the past and which gives us the right today to be demanding. It is inspired by concern for preserving Antarctica from the hazards which have so severely affected our industrial hemisphere.

The Antarctic must remain "land of science, land of peace." Its environment, a unique laboratory for future generations, must remain as intact as possible.

My Delegation will not spare any effort to seek solutions in line with the goals of all of us, and we express our sincere best wishes for this Meeting.

I should not wish to conclude, Mr. Chairman, without paying tribute to the creators of this Treaty who are present here, or without telling them of our desire, in spite of the obstacles which stand in our way, to follow in their path.

JAPAN

STATEMENT BY MR. CHUSEI YAMADA

Mr. Chairman:

On behalf of the Japanese delegation, may I also join the distinguished representatives who preceded me in expressing our warm congratulations to you on your unanimous election as Chairman of our meeting. My congratulations also to Mr. Carl Grip, our Secretary General.

It is indeed a pleasure for my delegation to participate in this meeting here in Washington where the Antarctic Treaty was signed twenty years ago. I wish to convey through you the sincere appreciation of my delegation to the Government of the United States for hosting this twentieth anniversary commemorative meeting as well as the various preparative meetings already held here.

Antarctica is a far land from Japan and yet it is felt very close in the mind of the Japanese people through our activities there for years. In January this year, our national broadcasting corporation had a series of special programs which lasted for a week under the title of "Future Continent, Antarctica." It was the first attempt of live telecast from Japanese Showa Station in Antarctica via Intelsat communication satellite.

Millions of Japanese watched, on their TV sets at home, the activities of our expedition team and wonders and miracles of nature. The Japanese people are well aware of the importance of the international cooperation to protect and preserve the unique environment in Antarctica.

For the last two decades, the Consultative Meeting has proved to be a very efficient body in promoting the freedom and international cooperation of scientific research. It has ensured the peaceful use and safeguarded the environment in Antarctica. I am confident that we will continue to succeed in our efforts on this score.

With the emerging problem of resource exploitation, this body is now faced with a new challenge. We have before us two main items on our agenda concerning Antarctic resources.

As to the marine living resources issue, we are behind the schedule of the mandate given at the time of the Ninth Consultative Meeting. Nevertheless, much progress has already been made and it is hoped that during the present meeting the remaining issues be solved and the way cleared for the early diplomatic conference in Canberra to finalize the Convention on the Conservation of Marine Living Resources.

Regarding the mineral resources issue, the previous discussions on the legal-political and technological-ecological aspects of the problem have been very useful. It is, of course, a difficult and complicated task to reach a final agreement satisfactory to all of us with regard to a regime on mineral exploration and exploitation because it relates, more than anything, to the hard-core question of jurisdiction. It is, however, getting more and more desirable, in the light of special responsibility of the Consultative Parties, to initiate a regime of some kind at the earliest date, so that we may be able to show to the rest of the world our firm intention to maintain the present Antarctic Treaty regime and to protect the Antarctic environment. For that regime to be viable, it must provide fairness and benefit to all those concerned. My delegation hopes that we will make further progress on the issue through frank exchange of views among ourselves during this session.

We have difficult tasks before us at the present meeting, but we are convinced

that under your guidance we will have a fruitful and successful meeting. On our part, I can assure you, Mr. Chairman, the full cooperation of my delegation.

I thank you, Mr. Chairman.

NEW ZEALAND

STATEMENT BY HIS EXCELLENCY MR. MERWYN NORRISH

Mr. Chairman,

I would like to offer to you our congratulations on your election to guide the proceedings of this Consultative Meeting. It is in our assessment a meeting of great significance. Not only is it of symbolic importance - the twentieth anniversary of the Antarctic Treaty - but also we have a number of challenging decisions to be taken upon which the future of international cooperation in Antarctica will be based.

We are most grateful for the facilities which the United States Government has put at our disposal and greatly appreciate the preparatory work, the special meetings in June and July and the numerous meetings of embassy representatives that the United States has organised.

Mr. Chairman, I would like to make a few general remarks about the history of man's involvement in Antarctica. The first hundred years, from the 1840s when the first landings in Antarctica were made, were years of exploration, adventure and discovery. This was the "heroic age." It was in this period that sovereignty was proclaimed in various parts of Antarctica. It was a period of competition rather than of cooperation.

The International Geophysical Year in 1957-58 brought a new spirit of cooperation of Antarctic affairs. This second era of man's involvement in Antarctica was an era of scientific endeavour. International cooperation for the advancement of science was the hallmark of this period. The Antarctic Treaty and the legal arrangement that it established are based on the political importance to the consultative parties and to the world of ensuring effective cooperation in science.

What then is the position today? First the sovereign claims continue as before. The Treaty specifically provides that they continue undiminished.

Secondly, we have a system of effective international cooperation in the scientific field, established by the Treaty which is now almost 20 years old. It is an impressive system - one which I believe is not matched in any other field of international cooperation and one which it is essential that we support and maintain.

There are, however, two new factors. The first is a determination on the part of the Treaty countries to exercise collective responsibility for the protection of the Antarctic environment. This determination finds its origin in the Antarctic Treaty, in the Agreed Measures for the Conservation of Flora and Fauna adopted in 1964, in the 1972 Convention for the Conservation of Antarctic Seals, and in the Draft Convention on the Conservation of Antarctic Marine Living Resources which has been prepared following the direction of the Ninth Consultative Meeting and is now virtually completed. This concern for the environment culminated in Recommendation IX-5 which we adopted at London in 1977. The recommendation is of great significance. It constitutes a declaration of the responsibilities of the Antarctic Treaty consultative parties for the protection of the Antarctic environment.

The second new development is a growing interest in resource utilisation in Antarctica. Commercial development of fishery resources is already at an advanced stage. The Draft Convention on Antarctic Marine Living Resources is therefore most timely and my Government wants to see it adopted as soon as possible.

Development of commercial interest in mineral resources is not so far advanced.

However, it must be recalled that the group of scientific and technological experts, which met in London in 1977, reported that some experts believed that the exploitation of offshore petroleum would be possible within five to ten years. Moreover the group indicated that the necessary techniques for exploration were already at hand.

It seems clear to us that the rapid rise in the price of petroleum products since that report was made and the increased uncertainties regarding supply have greatly increased the incentives for commercial exploration.

The Antarctic Treaty makes no provision regarding resources. It neither permits nor prohibits exploration for mineral resources. It does not provide for freedom of access for any purpose other than scientific research. In short, there is no mechanism for the international control and regulation of resource activity.

We believe that unless the Consultative Parties take steps urgently to establish such a system of control and regulation, unilateral commercial exploration will almost certainly take place. It almost goes without saying that uncontrolled exploration could create a very serious situation from the environmental standpoint.

The international community at large, international organisations and private groups interested in the environment are looking to the Consultative Parties to live up to the high ideals contained in the 1977 declaration which we made on the protection of the environment. My Government is firmly convinced that the Consultative Parties must move rapidly to extend the Antarctic Treaty regime so as to control and regulate all resource activity.

What could be the principal elements in such a regime?

> First the careful regulation of all exploration or exploitation in order to afford the widest possible protection to the fragile Antarctic environment.
>
> Secondly, we believe that an essential ingredient in the negotiation of such a regime will be an arrangement with those states, including New Zealand, which have sovereign territory in parts of Antarctica, regarding an appropriate economic return.
>
> Thirdly my Government believes that it is important to ensure that the regime offers some benefits to the international community at large.

Mr. Chairman, I think you will agree that the issues I have raised are highly complex. We would not want to convey the impression that they will all be resolved at this meeting. They will require patient and careful negotiation. What we are hoping for this meeting to achieve is a decision that the Consultative Parties intend to take concrete steps to fulfill their responsibilities for the protection of the Antarctic environment and to chart the course for future constructive negotiations.

NORWAY

STATEMENT BY MR. PER TRESSELT

Mr. Chairman,

The Norwegian Delegation welcomes your election as Chairman and looks forward to working under your guidance.

It is most fitting that the Tenth Consultative Meeting should take place here in Washington. No better setting could be imagined for the observation of the twentieth anniversary of the Antarctic Treaty. We will have the opportunity later to pay tribute to those who worked to accomplish this novel framework for international cooperation. But I think it is appropriate to note that the initiative for the Treaty originated in this city.

The Antarctic Treaty has served the whole international community by eliminating political strife from the Antarctic area, and by providing a practical working basis for an unprecedented experiment in international scientific collaboration.

As we are all aware, the scope for human activities in the Antarctic is steadily being broadened. The practical exploitation of the resources of the Antarctic is inexorably drawing closer. This raises new challenges for the Antarctic Treaty Consultative Parties.

New political and legal issues will present themselves, and we will have to provide solutions for them. Exploitation of resources must be adapted to the protection of the unique Antarctic environment.

My Delegation has been encouraged by the manner in which the Consultative Parties have undertaken to draw up a Convention on the conservation of Antarctic marine living resources. Even if our work has taken more time than we optimistically expected two years ago, the process of negotiation has proved that the Consultative Parties are capable of accommodating their diverse interests in a field which is at the same time highly complex and characterized by serious risk of political conflict. We are convinced that the remaining issues relating to the draft convention will be settled in that same spirit.

We must also go on to deal with exploration and exploitation of mineral resources, and to develop arrangements which will make it possible to avoid both environmentally unacceptable activities and political situations which might prove difficult to contain within the system of the Antarctic Treaty. There is still time to work out the necessary arrangements before exploration and exploitation activities are undertaken. But we will have to work with all deliberate speed, and with full consciousness of the implications for the Antarctic Treaty system if we do not succeed.

Mr. Chairman, our draft agenda refers to a number of other items which perhaps do not make the same dramatic appeal to our imagination. But they are of practical importance for all aspects of our concern for the Antarctic--for the protection of its environment, for scientific research and for the successful conduct of human activities in general on the continent.

We must deal equally seriously with all our tasks. My Delegation will be receptive to all proposals put forward, and will seek to work constructively with all other delegations in our search for agreed, effective solutions.

POLAND

STATEMENT BY HIS EXCELLENCY MR. ROMUALD SPASOWSKI

Mr. Chairman, Excellencies, Ladies and Gentlemen,

My Delegation wishes to join the previous speakers in congratulating you, Mr. Chairman, on your unanimous election. Under your able and experienced guidance - I am convinced - the Tenth Consultative Meeting in Washington will succeed in adding a new chapter to the considerable achievements in the field of promoting international cooperation concerning the Antarctic.

The excellent technical and other facilities and hospitality extended to us by the host country constitute a good augury in this respect.

I feel honoured to be here today. And in taking the floor for the first time I would like to use this opportunity to confirm the Polish Government's strong support for the activities of this international institution and our determination to contribute within our capacity to the works undertaken by other Consultative Parties of the Antarctic Treaty. The Polish scientists and explorers, including my distinguished colleagues present here, continue to play their part in many spheres of these activities in the Antarctic Treaty Area. Let me sum it up:

Firstly - since the last Consultative Meeting the Polish Academy of Sciences has despatched two expeditions to the Arctowski Antarctic Station.

Each of these expeditions consisted of some 70 participants during the summer season and about 20 wintering persons.

Secondly - Polish Academy of Sciences sponsored in the period of 1978-79 one more expedition to reactivate the Dobrowolski Antarctic Station, situated in the Bunger Hills area, Queen Mary Land. Fifteen persons took part in this expedition carrying out a research programme in glaciology, geology and astronomy.

Thirdly - in November this year we will see the departure of the No. 4 expedition to the Arctowski Station. At the same time Polish R/V vessel "Copernicus" will sail to the Antarctic waters with a view of obtaining geophysical and biological data. The main purpose of this expedition will be to trace sea geotraverses across the shelf and the continental slope in the Drake Passage and Bransfield Strait.

Fourthly - the scientific explorations concerning the Antarctic marine living resources were carried out by the R/V vessels "Professor Bogucki" and "Sagitta" in 1977-78. These wide-scale explorations aiming at the basic data on distribution and rational utilization of living resources, especially fish and krill, were sponsored by the Polish Sea Fisheries Institute in Gdynia.

The major Polish scientific project is linked up, however with the Arctowski Station and envisages the study of the Admiralty Bay on King George Island, South Shetlands and adjacent coastal area, both in respect of life and earth sciences. This project will involve survey of the geological structure and meteorological data as well as biological monitoring the ecosystem within the Admiralty Bay area. The ultimate goal is to elaborate comprehensive principles governing the protection of the environment and the living resources.

Some of these efforts have been taken within the framework of close international cooperation created also by the Antarctic Treaty system. Let me quote some examples:

The scientists from Australia, Federal Republic of Germany, New Zealand and the United States of America participated recently in our programmes. We are having permanent exchange of scientific data with the USSR and Argentina.

Our biological studies are carried out as part of the international research programme "BIOMASS." Poland will be the host country for the coming BIOMASS meeting in September this year while our scientists will participate as members of many working groups. My country will also participate in the First Biological Experiment /FIBEX/ arranged within the scope of BIOMASS programme by sending this time R/V vessel "Professor Siedlecki" to the Antarctic Waters.

I should add that these overseas activities of my country are complemented by intense research and organizational activities carried out at home and supervised by the Committee on Polar Research of the Polish Academy of Sciences.

I think, Mr. Chairman, that the above quoted activity proves how right was the decision taken two years ago on Poland's participation in the Antarctic Treaty Consultative Meetings.

Mr. Chairman, the task we are facing at the beginning of the Tenth Consultative Meeting is neither easy nor simple. I am sure that it will be carried out in a very prudent and patient but also effective way in line with good traditions of our meetings.

The Polish Delegation is ready to make its contribution, as far as it can, to the considerations of numerous issues which are on the agenda. At the future stages of our conference the Polish Delegation is going to suggest

certain ideas on the common strategy in approaching the issue of natural environment of the Antarctic.

During our Meeting, marked by the Twentieth Anniversary of the conclusion of the Antarctic Treaty, the Polish Delegation looks forward to cooperating closely with other delegations for the implementation of the Treaty which should be beneficial for mankind.

Thank you, Mr. Chairman.

SOUTH AFRICA

STATEMENT BY MR. P. D. OELOFSEN

Mr. Chairman:

It is indeed a great pleasure for my delegation to be in Washington for the Tenth Antarctic Treaty Meeting. This is, of course, a meeting of great historic importance to the Treaty Parties and for that reason we are particularly pleased that it could take place here in Washington, the city where the Treaty was negotiated and signed twenty years ago. The privilege to participate in this meeting is to all of us all the more meaningful because of the presence here today of some of our colleagues who, twenty years ago, participated in the negotiations and signature of the Antarctic Treaty. Mr. Chairman, to them we would like to say that the treaty they brought into being two decades ago can with all justification be described as a living monument to their vision and to the concern displayed for the future of the frozen continent. It may indeed be said that the success of the Antarctic Treaty system stands as a testimony to the wisdom and foresight of its creators. Mr. Chairman, we would like to express the hope that the results of this meeting will be true to the spirit of the occasion and will be such as to serve as a further tribute to the drafters of the Treaty of Washington.

Mr. Chairman, allow me to extend also to you my congratulations and those of my delegation on your election as Chairman of our meeting. Those of us who attended the preparatory meeting during July and the living resources consultations during the past eighteen months, have come to know your excellent qualities as a Chairman and we are therefore confident that you will guide us to the conclusion of a most successful meeting.

It is true that anyone who reads the Antarctic Treaty will immediately realize that the decision to conclude the Treaty must to a great extent have been prompted by a desire on the part of the contracting parties to protect that part of our globe from harmful and ill-considered human activities. These noble and praiseworthy sentiments of the drafters of the Treaty are clearly illustrated by the preamble and, in particular, by the provisions of Articles I and V in which it is stipulated that Antarctica shall forever be used exclusively for peaceful purposes and that all measures of a military nature, nuclear explosions and the disposal of radioactive waste materials in Antarctica shall be prohibited. What is, however, most important is the fact that the desire to protect the Antarctic and its environment, a desire which led to the conclusion of the Treaty, was also adopted as the central philosophy of the Antarctic Treaty system, which was based upon and evolved around the Antarctic Treaty. To prove this statement one need only note that out of a total of one hundred and eleven recommendations adopted during the past twenty years, no less than fifty-seven deal in one way or another with the protection of Antarctica or its environment. Of even more striking significance is the realization, when studying the Antarctic system, that the concern for the protection of Antarctica and its unique environment, is today probably an even stronger driving force behind all Antarctic activities than it was at any time during the past history of the Treaty.

Mr. Chairman, the central issue to be discussed by the tenth meeting relates to the question of mineral exploration and exploitation in Antarctica. This question was raised as early as 1972 during the meeting in Wellington and received thereafter the attention of the consultative parties at the Oslo meeting, as

well as at the Paris Special Consultative Meeting. Since the Paris Special Consultative Meeting the political and legal aspects of this question were unfortunately pushed into the background by the living resources issue. Mr. Chairman, the renewed energy crisis of 1978-1979 has indeed clearly demonstrated that the legal and political aspects of the question must receive immediate and urgent attention, the consultative parties can no longer ignore these issues. I think there can be no doubt that unless the treaty nations reach agreement amongst themselves within the foreseeable future on these issues the possibility or likelihood of uncontrolled mineral activities will increase dramatically. The disastrous effects which such a possibility may have not only for the Antarctic Treaty as such, but even more so for the Antarctic environment, need not be spelled out. If we want to avoid this possibility it is, as has already been stated, essential that this meeting demonstrates, not only to itself but may be more important to the rest of the world, its determination and its willingness to deal in a positive and constructive manner with the problem.

Mr. Chairman, the Tenth Consultative Meeting is faced by the most serious and difficult issue in the history of the Antarctic Treaty. To solve this issue it may well be that the spirit of cooperation between our nations and the mutual concern we have for that part of the globe in respect of which our nations have accepted responsibility, will be put to the test more so than at any time during the past twenty years. If we, as the responsible nations, are indeed concerned with the future of Antarctica, if we are serious in our stated objectives, namely that Antarctica should not become the scene of international discord, if we really care for the unique and wonderful environment of that continent, it is imperative that we reach an understanding on this critical issue. This is not to say that we must open Antarctica for full-scale exploration and exploitation, far from it. What it does mean is that a legal framework must be devised and accepted which would regulate any future minerals activity in Antarctica including the question whether mineral exploration and exploitation should be permitted to occur. This task is not an impossible one if only we remain loyal to accepted Treaty principles and if we could avoid national self-interest from overruling and destroying Antarctic Treaty principles of cooperation and mutual concern for the interest of that continent and its environment.

My delegation believes, Mr. Chairman, that the basic ground rules for a future regime are already in existence and are to be found in the Antarctic Treaty itself. It is for us to build upon and develop that system to meet the demands of this issue. Let us do it with the same sense of responsibility and spirit of cooperation that have guided us during the past twenty years.

Thank you.

UNION OF SOVIET SOCIALIST REPUBLICS

STATEMENT BY PROFESSOR Y. I. TOLSTIKOV

Mr. Chairman, Ladies and Gentlemen:

The Tenth Consultative Meeting starts its work at a significant moment. It coincides with the anniversary of the Antarctic Treaty. Exactly 20 years ago, having signed the Antarctic Treaty in Washington, twelve countries laid the foundations for the development of peaceful cooperation among countries in one of the unique and most severe areas on the earth.

For the first time in history, a whole continent was declared a zone of peace and international cooperation among countries. These principles, constituting the basis of the Treaty, to a great extent predetermined its vitality. The Treaty has been functioning successfully for two decades, and it has become a clear example of how it is possible to solve complex international issues.

The function and significance of the Antarctic Treaty are generally recognized all over the world. During the past 20 years, membership in the Treaty has grown considerably. In 1977, after the People's Republic of Poland opened its scientific station in Antarctica,the family of participants in the Consultative Meetings had a new member.

Owing to the international cooperation within the framework of the 1959 Treaty, tremendous progress has been made for the last twenty years in scientific studies of Antarctica. We obtained and processed a great amount of scientific information in meteorology, oceanography, the physics of atmospheric phenomena, etc., which has been extremely important for the understanding of global climatic processes and practical forecasting. Substantial contributions have been made in biology, glaciology, geography, geology and other natural sciences, which are important not only for understanding natural phenomena in Antarctica, but also understanding the evolution of our whole planet.

Attainment of the goals and principles of the Antarctic Treaty was considerably assisted by decisions adopted by the Consultative Meetings called within the framework of the Treaty. During the 20 years of the Treaty the Consultative Parties adopted over 100 recommendations, primarily devoted to the protection of the Antarctic environment. We hope that, considering the special vulnerability of the environment in Antarctica and also taking into account our special responsibility for its preservation, the participants in the Consultative Meetings will constantly pay attention to this issue, especially while considering issues relating to Antarctic mineral resources. As Comrade L. Brezhnev, Secretary General of the Central Committee of the Communist Party of the Soviet Union and Chairman of the USSR Supreme Soviet Presidium, underlined in his address to the XXIV Congress of the Communist Party of the USSR, "our country is ready to participate, along with other interested countries in solving such problems as the preservation of the environment."

The participants in the Consultative Meetings, being responsible for the preservation of living resources under the 1959 Treaty, were initiators of the preparation and adoption of the 1972 Convention on the preservation of Antarctic seals. We have good reason to believe that, very soon, an even more important international agreement will be worked out--a convention on the preservation of Antarctic marine living resources.

In spite of the undoubted success and achievements connected with the Antarctic Treaty, it would be a delusion to close our eyes to some certain differences of opinion among the participants. However, 20 years of existence of the Treaty, as well as the activities of the Consultative Meetings, allow us to hope that good will and the sincere desire to cooperate will result in solving controversial matters.

The Soviet Delegation congratulates all participants in the Tenth Consultative Meeting on the 20th anniversary of the Antarctic Treaty. We believe that this meeting and its decisions will be a new and significant contribution toward the realization of the goals and principles of the Antarctic Treaty and the development of peaceful cooperation.

Thank you.

UNITED KINGDOM

STATEMENT BY MR. GEORGE HALL

Thank you Mr. Chairman.

Congratulations on your election to the Chair of this Consultative Meeting, if such an election really is a matter on which you feel that congratulations rather than commiserations are appropriate. On behalf of my government, through you, I also thank the Government of the United States for inviting us to be here today and for providing us with all the facilities that we have here with us and which are so necessary for our work. I would also like to thank Mrs. Benson for having come and talked to us this morning. Her words were those which I personally, and I am sure my government also, find extremely acceptable in introducing this Tenth Antarctic Consultative Meeting.

We are here on the 20th anniversary of the signing of the Antarctic Treaty - the negotiation of which I think should be regarded as an historic effort

of constructive imagination and intelligence. The same effort of constructive imagination and intelligence is required of us at this meeting to carry forward the purposes of the Treaty and of its founders. The United Kingdom Delegation will certainly be here to make such an effort within its power.

The United Kingdom Delegation will maintain and uphold United Kingdom's rights in Antarctica. It will also fulfill all of its obligations. In upholding these rights, and fulfilling these obligations, it will also, as in the past, do so within the context of the Antarctic Treaty and in accordance with its principles. These concepts and these principles are ones which to us are matters of fundamental and enduring importance.

Thank you, Mr. Chairman.

UNITED STATES OF AMERICA

STATEMENT BY MR. R. TUCKER SCULLY

Mr. Chairman:

I also extend congratulations to you on your election as Chairman of this Tenth Meeting of Antarctic Treaty Consultative Parties. On behalf of the United States Delegation, I would like to add a warm welcome to the participants in the Consultative Meeting. We have much appreciated the cooperation of all our colleagues in preparing for the deliberations upon which we embark today and in this regard, mention should be made of the important contributions made by the representatives of the Consultative Party Embassies here in Washington who have had regular meetings over the preceding months to discuss and make arrangements for this meeting.

Mr. Chairman, one of the basic strengths of the Antarctic Treaty System has been its emphasis upon the collective definition of concrete goals and the collective elaboration of imaginative yet pragmatic courses of action to achieve those goals. And it is in this spirit that we approach the work before us.

At the Ninth Consultative Meeting, we dedicated ourselves to the conclusion of a regime for the conservation of Antarctic marine living resources. Since that time we have elaborated a draft Convention on the Conservation of Antarctic marine living resources - a draft which reflects innovative features including commitment to managing resources on an ecosystem-wide basis. We are now within sight of the diplomatic conference necessary to conclude that convention. It is the belief of the U.S. Delegation that informal discussions here can result in progress sufficient to see specific arrangements for that diplomatic conference go forward. The conclusion of this convention would represent an important step toward achieving out common objective of effective conservation of Antarctic marine living resources. It represents, however, only the first step. The effective operation of that convention will require sustained and concerted effort on all our parts and we believe that it is not too early to begin organizing ourselves for that long-term effort.

Turning to the question of mineral resources, we are in a far more preliminary stage on this subject than in our consideration of Antarctic marine living resources. However, we have an important foundation upon which to build in the results of prior Consultative Meetings and of the preparatory meetings earlier this summer as well, of course, as in the provisions and spirit of the Antarctic Treaty itself. It is the general view of the U. S. Delegation that we should direct ourselves toward the goal of ensuring that informed and environmentally sound decisions on Antarctic mineral resource issues are made whenever such decisions may become necessary. Achievement of this goal, in turn, entails fulfilling two requirements -- first, establishment of a body of scientific data and understanding, an information base, sufficient to make informed and environmentally sound decisions and -- secondly, establishment of a system for making these decisions -- specifically a system for determining whether mineral resource activities in Antarctica may be acceptable in the future and for governing those activities if they were to prove acceptable.

Fulfillment of these requirements will require thorough and structured consideration. It is our hope to see progress - concrete progress - on both fronts in the days ahead. Mr. Chairman, we also look to specific progress on other agenda items before us. We look to a recommendation on telecommunications in Antarctica and the collection of and distribution of meteorological data - a recommendation which will reflect the work of the Third Antarctic Treaty Meeting on Telecommunications held also here in Washington in September, 1978. We look toward a recommendation on the effects of tourism and non-governmental expeditions in the Antarctic Treaty Area, which will complete the work initiated at the Eighth Consultative Meeting. We look toward a recommendation which will provide for continued study of the question of oil contamination of the Antarctic marine environment. We look toward examination of ways to provide more publicly available information on the work of Consultative Meetings. And we look toward a recommendation on man's impact on the Antarctic environment, including a review of existing conservation measures and sites of special scientific interest. On this latter point, I am pleased to report that the United States has now formally implemented all of the Consultative Meeting recommendations which embody the Agreed Measures for the Conservation of Antarctic Fauna and Flora. With that action the U.S. has now completed implementation of all recommendations of the previous nine Consultative Meetings.

Mr. Chairman, Under-Secretary Benson this morning drew attention to the commemorative aspects of this Tenth Consultative Meeting which takes place twenty years after the signing of the Antarctic Treaty here in Washington. With this in mind, the U. S. Delegation would join in extending its welcome to the distinguished visitors with us today including those original signers of the Antarctic Treaty whom you mentioned before our lunch break, as well as others who have made important contributions to our cooperation in and understanding of Antarctica.

In conclusion, Mr. Chairman, our delegation looks forward to working with all delegations here assembled. We will strive to see that the results of the Tenth Consultative Meeting will appropriately reflect the continued resilience and relevance of the Antarctic Treaty System as it enters its third decade. Thank you.

List of Participants

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Annex 3

Approval of Consultative Meeting Recommendations (As of November 1, 1979)

The following document shows 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 November 1, 1979. Delegations are requested to examine the document and inform the U. S. Delegation and the Drafting Committee of the Final Report prior to the annexation of the document to the Final Report of any errors or omissions.

Approval, as notified to the Government of the United States of America, of Measures Relating to the Furtherance of the Principles and Objectives of the Antarctic Treaty

	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	6 Recommendations adopted at Ninth Meeting
	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved	Approved
Argentina	All	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	All
Belgium	All	All	All	All	All	All	All	All	All
Chile	All	All	All	All	All	All	All except 4 & 9	All	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	All except 1,2,5, & 9	
New Zealand	All	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	All
U.S.S.R.	All	All	All	All	All	All	All	All	All
U.K.	All	All	All	All except 12	All	All except 8 & 10 1/	All except 5 2/	All	All
U.S.A.	All	All	All	All	All	All	All	All	All

1/ 8 and 10 accepted as interim guidelines.
2/ 5 accepted as interim guideline.

Message From the Tenth Consultative Meeting to Stations in Antarctica

Representatives of the thirteen Antarctic Treaty Consultative Parties have just completed three weeks of discussion at the Tenth Consultative Meeting, held in Washington and hosted by the Government of the Unites States.

The Tenth Consultative Meeting took place during the twentieth anniversary of the signing of the Antarctic Treaty, and throughout their deliberations, the Representatives of the Consultative Parties were mindful that the conclusion of the Antarctic Treaty resulted in large part from the pattern of peaceful international scientific cooperation in Antarctica established during the International Geophysical Year. The continuing development of scientific research activities in Antarctica has made a substantial contribution to human knowledge and has been an essential factor in the success of the Antarctic Treaty system.

As the Antarctic winter comes to a close, all delegations participating in the Tenth Consultative Meeting extend warmest congratulations to you whose scientific activities have been conducted under the most arduous circumstances, and they extend best wishes for a successful austral summer of research to all those preparing to go south.

Annex 5

Report of the Working Group on the Question of Mineral Resource Exploration and Exploitation: Legal and Political Aspects

1. The Meeting of the Working Group on the Question of Antarctic Mineral Resource Issues: Legal and Political Aspects met between 21 September and October 4, 1979.

2. The Chairman of the Working Group was Norman A. Wulf (United States).

3. The discussion was informal and in large part reflected the preliminary views of the individual representatives.

4. The discussions demonstrated the continuing validity of the four principles identified in the Report of the Paris Special Preparatory Meeting and endorsed in paragraph 4 of Recommendation IX-1 as follows:

(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. In this connection, representatives were mindful of developments likely to result from the Third United Nations Conference on the Law of the Sea.

6. The discussion of the various elements to be included in a regime were wide-ranging. The representatives noted the regime to be created should be consistent with the principles and purposes of the Antarctic Treaty and the system created under that Treaty including the objective that Antarctica not become the scene or object of international discord.

7. Protection of the unique Antarctic environment was a major concern of the Working Group. In this connection, the Working Group noted the particular importance of scientific aspects being dealt with by the Working Group on the Question of Mineral Exploration and Exploitation: Scientific and Environmental Aspects.

8. There was an exchange of views on the differing positions on sovereignty in Antarctica. While these differences are fundamental, all participants believed that accommodation of these differences could be found, considering the positive experience of nearly two decades under the Antarctic Treaty. All believed that an accommodation on mineral resource issues should be in keeping with this spirit and should not alter the provisions of Article IV of the Antarctic Treaty.

9. There was general agreement that the Consultative Parties should accelerate their efforts to establish jointly a regime for Antarctic mineral resources.

10. Based on these discussions, the Working Group prepared a draft recommendation.

The Report of the Group of Ecological, Technological and Other Related Experts on Mineral Exploration and Exploitation in Antarctica

Washington, D.C., June 29, 1979

1. The Group of Experts was established in accordance with Recommendation IX-1, operative paragraph 3. The Group met in Washington, D.C., between 25 and 29 June 1979, "with a view to developing scientific programs aimed at:

> "(i) improving predictions of the impact of possible technologies for mineral exploration and exploitation in the Antarctic, as 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."

2. The Group at its first session elected Dr. Robert Rutford (United States) as its Chairman.

3. The Group adopted the revised agenda (Annex A).

1. Outline of Scientific Programs on Environmental Impacts

4. It was the understanding of the Group that the unique Antarctic ecosystem is closely related to neighboring ecosystems and that gross perturbation in one area of the Antarctic may have effects, however attenuated, both in the Antarctic and in other areas. The Group recognized that a better understanding of the Antarctic ecosystem as a whole was an important objective. The Group of Experts considered that the purpose of the scientific programs with which it was concerned was to obtain information critical to decisions concerning the possibility of the exploration for and exploitation of mineral resources in Antarctica, should these activities occur.

5. The Group agreed that scientific, technological, and economic factors indicate little likelihood of the commercial exploitation of Antarctic mineral resources other than offshore hydrocarbons in the foreseeable future. Accordingly, scientific programs to deal with the impacts of mineral activity should be concerned primarily with that resource.

6. The Group considered that the Report of the Group of Experts to the Ninth Consultative Meeting and the SCAR/EAMREA report identified information needs and gaps in knowledge that are little changed since those reports were presented. The Group noted that the question of geologic hazards is referred to in the Report by the Group of Experts to the Ninth in other sections but is not specifically cited in Section IIB. No major technological advances were noted that would negate or alter the areas of concern identified in those reports.

7. The Group, noting the three stages of mineral resource activity identified in paragraph 32 of the Report of the Group of Experts of the Ninth Consultative Meeting, considered the kinds of environmental risks and impacts directly associated with each of these stages:

a. Stage one, basic exploration was considered to involve negligible environmental risks except possibly those which might be associated with the operations of ships in Antarctic waters;

b. The second and third stages, exploratory drilling and full scale exploitation, involve greater environmental risks.

It was noted that the impacts from many of these activities might be more drastic in the Antarctic because of the severe environmental conditions, and strict regulation would be necessary were these activities to occur.

8. The Group suggested that basic and baseline information on the Antarctic environment is required in order to predict, mitigate, and monitor possible impacts resulting from mineral resource exploration and exploitation, should such activities occur.

9. It is possible that there is available, as a result of the research activities of the various nations during the past years, considerable information that through compilation and analysis, might satisfy part of this information requirement as well as more clearly identify those areas where further information is required. The Group acknowledged the admonition of the previous Group of Experts that it would be quite impossible to measure all of the environmental variables or describe all Antarctic ecosystems in detail. The selection of key factors is critical to these studies.

10. Ongoing and planned research activities (inter alia, BIOMASS, ISOS, POLEX) that will concentrate on the Antarctic marine and coastal ecosystems should take account of the requirements for information outlined in this report in order to avoid unnecessary duplication of effort.

11. In attempting to fulfill the mandate set forth in the first part of its terms of reference, the Group agreed that more time and expertise than was available at the meeting would be necessary for the preparation of detailed research proposals. In this connection, however, the Group concluded that in relation to the possible exploitation of hydrocarbons (see para. 5) it would be more cost effective to contribute towards an improved understanding of the Antarctic ecosystem by means of sharply focused programs primarily devoted to the marine environment.

12. The Group also concluded that the following four specific areas were particularly deserving of attention:

a. Identification of the structure and dynamics of principal marine, acquatic, and terrestrial ecosystems that might be impacted by activities associated with mineral development.

b. Identification of key components of the ecosystem and components that might be the most sensitive indicators of the effects of mineral resource development and especially of the impact of either catastrophic or gradual pollution of the Antarctic environment.

c. Identification of those areas in Antarctica where mineral exploration and exploitation activities are more likely to occur.

d. Identification of areas of special ecological significance, and areas that might be particularly vulnerable to disturbance, taking account of the areas defined pursuant to the previous subparagraph.

13. In the light of these conclusions, the Group felt that it could take a significant step towards the development of appropriate research programs by concentrating on the "subjects needing attention" set out in paragraph 69 of the Report of the Group of Experts in order to distinguish between the various sources from which relevant information might be derived, viz:

a. information that may already exist but which needs to be retrieved and appropriately analyzed;

b. information that is or might be expected to be available without the initiation of new research programs;

c. information that requires the initiation of new research programs or additional work on lines already underway in national programs and programs coordinated by SCAR; and

d. information that requires the initiation of new or additional research when prospective regions have been identified with greater precision than has been done at present.

14. The approach adopted was to consider each of the major "subjects needing

attention" and to tabulate them in four columns (see Table on opposite page). The Group did not attempt to differentiate between programs that would be undertaken by governments and programs that could be undertaken in the course of exploration and exploitation, should this occur.

15. While the Group was conscious that a great deal of relevant information could have been listed in columns I and II, it was taken as being self-evident that new or additional research would take account of relevant earlier work and of information that might be expected to become available from national programs and programs coordinated under the auspices of SCAR. Absence of an entry into columns I and II was not to be interpreted to imply irrelevance. It was to be taken, rather, that an entry implies either that a special contribution towards an improved understanding in that field could be made by analysis of past observations and research programs or that a special effort should be made to bear in mind the relevance of results derived from existing programs.

16. In drawing up the table the Group had in mind additional purposes which might not be immediately apparent. These were:

a. to help in arriving at an appreciation of the sequential component in research that would need to be incorporated in any integrated research plan (e.g., broad-scale marine geological and geophysical research would be needed before prospective regions could be identified; knowledge of the biological significance of pack ice would be needed before characterization of regional biota could be of relevance in defining certain areas of special biological significance);

b. to begin to distinguish between those requirements that were oriented towards a better understanding of dynamic processes in the Antarctic and others that were oriented towards a better understanding of particular regions.

17. The Group recognized that this tabulation could be considerably refined by bringing to bear on it additional relevant scientific and technological expertise, including the discipline of systems analysis.

18. Bearing in mind that the tabulation represented only a framework within which appropriate research programs might be developed, the Group believed that the detailed development of research programs might best be remitted to SCAR which would profitably involve its Working Groups, Groups of Specialists and other expert opinion (see Section 5 of the SCAR/EAMREA Group Report). It was also noted that this consideration was in accord with the advice given in para. 68 of the Report of the Group of Experts to the Ninth Consultative Meeting.

19. The Group, noting the need for the development of research programs aimed at improving predictions of the possible impact of hydrocarbon exploration and exploitation in Antarctica, proposed that the Representatives at the Tenth Consultative Meeting should recommend to their governments that they encourage SCAR, through their National Antarctic Committees, to define programs, taking account of the report of this meeting, with the objectives of:

a. retrieving and analyzing relevant information from past observations and research programs;

b. ensuring in relation to the needs for information identified by the Group that effective use is made of existing programs;

c. identifying and developing new programs that should have priority, taking account of the length of time required for results to become available.

20. The Group was conscious that SCAR had already indicated that costs would be involved in responding to initiatives on this subject, and it was agreed to draw this to the attention of the Consultative Parties prior to the Tenth Consultative Meeting.

TABLE. SUGGESTED FRAMEWORK FOR THE DEVELOPMENT OF RESEARCH PROGRAMS AIMED AT IMPROVING PREDICTIONS OF THE POSSIBLE IMPACT OF HYDROCARBON EXPLORATION AND EXPLOITATION IN THE ANTARTIC.

I	II	III	IV
Information retrievable from analysis of past observations and research programs	Information obtainable from existing or planned research programs	Basic information requiring new or additional research that is not obtainable from ongoing programs or analysis of past work	Information requiring new or additional research when prospective regions have been identified
Physical Oceanography		Marine geological, geophysical and geochemical research on a regional basis	Definition in relevant detail of the physical oceanographic environment: (i) Water movements (currents and tides) (ii) Sea surface state (waves and over-icing) (iii) Floating ice regime (pack ice and icebergs) Sea bottom studies: (i) Morphology/bathymetry (ii) Sediment dynamics (iii) Stability
Antarctic climatology		Methodology of dating iceberg scours	(iv) Evidence of iceberg scour (including age assessments) Regional meteorology
Definition of the structure of those types of marine ecosystems, within the Antarctic ecosystem as a whole, likely to be affected by hydrocarbon exploration and exploitation.	Further definition of the structure of those types of communities and ecosystems likely to be affected by hydrocarbon exploration and exploitation; improved general understanding of population, community and ecosystem dynamics in pelagic and local inshore areas.	Influence of pack ice on the structure and dynamics of marine biological communities.	Characterization of regional biota and definition of areas of special biological significance.
	Atmosphere and ice cap pollutant levels.	Determination of baseline levels of hydrocarbon contamination in representative components of the marine ecosystem (including birds and mammals).	Determination of baseline levels of hydrocarbons in the water column and bottom sediments.
		First and second order effects of various kinds and concentrations of hydrocarbons and other pollutants on key components of the marine ecosystems.	
		The fate of various hydrocarbons under Antarctic environmental conditions (biodegradation, biological uptake and physical dispersal).	
		Design of monitoring programs based on indicator species sensitive to environmental pollution.	

II. Outline of Scientific Programs on Prevention and Rehabilitation

21. The Group of Experts considered Section IIC of the London Report as an excellent summary of the possible ways that pollutants might be introduced into the Antarctic environment by mineral resource exploration and exploitation. They acknowledge that the prevention of damage to the environment is largely dependent on the establishment of safeguards to prevent the introduction of pollutants and on the establishment of safeg
to protect areas of special significance, both terrestrial and marine. The problem of prevention of such damage is not restricted to the Antarctic although the unique environmental conditions found there require the development of special safeguards. The application of results from ongoing scientific and technological research in other areas, combined with research specifically related to the impacts of the Antarctic environment on exploration and exploitation activities, will assist in the development of measures for the prevention of damage to the Antarctic environment.

22. The development of Science programs related to the restoration and/or rehabilitation of damage resulting from mineral resource activities will depend on the acquisition of an understanding of the Antarctic ecosystem and an assessment of the possible impacts on that ecosystem. It was deemed premature by the Group to attempt to outline scientific programs dealing with these matters at this time. Further consideration should be given to these subjects at a later time by the Consultative Parties.

III. Oil Contamination of the Antarctic Marine Environment

23. As suggested by Recommendation IX-6, reports were submitted by Japan (Annex B) (ANT (79)PM ET/2 dated June 22, 1979) and by the Union of Soviet Socialist Republics (Annex C)(ANT(79)PM ET/6 dated June 26, 1979) on oil contamination of the Antarctic marine environment. In addition, Argentina submitted a suggestion for the study of pollution in the Antarctic (Annex D)(ANT(79)PM ET/4, Rev. 1 dated June 28, 1979). These documents are annexed to this report.

24. The Group particularly noted the following pathways of man-made oil contamination identified in the Japanese report:

a. from scientific stations in the Antarctic;

b. from ships supporting scientific stations, conducting fishing operations or engaging in marine scientific research in Antarctic waters;

c. from water masses contaminated elsewhere and carried by natural forces into the Antarctic;

d. from possible future petroleum exploration and exploitation in Antarctica.

25. The Group particularly noted the following from the Soviet Report:

"From 1974 to 1978, as part of the Soviet Polar Experiment Southern Group Program, ships of the Soviet Arctic and Antarctic Scientific Research Institute (AANII) selected samples and examined them for petroleum product content at 161 points in the Southern Ocean, the Drake Straits, the Scotia Sea, along a line from Africa to Antarctica (20° east longtitude), and along a line from Antarctica to Australia (132° east longitude). At the end of each trip the samples were delivered to the AANII, where they were examined by infrared spectrophotometry.

"The results showed that the petroleum product level in the samples taken at the indicated points in the Southern Ocean was in most cases less than 0.03 mg/liter. Some of the concentrations fell within the 0.03-0.08 mg/liter range, which approaches the sensitivity limit of the method (0.03 mg/liter).

"Most of the values for petroleum product content which were in excess of 0.03 mg/liter were for the frontal zone of the Scotia Sea, where there is a high level of biological activity. It is possible that the increase in the

level of substances identified as petroleum products is due in some degree to hydrocarbons of biogenic origin.

"No oil films or patches were observed visually from aboard ship.

"Thus, the results show that in the areas inspected, the Southern Ocean is virtually free of contamination by petroleum products."

26. The Group noted with interest the data presented in the Soviet Report concerning the low levels of hydrocarbons detected in the areas where observations were made. The Group urged the Consultative Parties and others operating ships or conducting activities that might introduce oil into the environment to continue their efforts to reduce possible oil contamination.

27. The determination of baseline levels of contamination of the Antarctic marine environment by oil has been included as a part of the suggested scientific programs aimed at improving the prediction of the impacts of possible mineral exploration and exploitation in the Antarctic.

28. The Group noted that up to now the most significant introduction of oil into the Antarctic marine environment appeared to be from the operation of ships. They further noted that both national and international groups were conducting research on oil contamination of marine areas by ships, and on means for its reduction, and that some of this research would be applicable to the Antarctic environment. They also noted that current research on the effects of oil in the Arctic marine environment resulting from offshore oil development would be useful in appraising effects of such activity in the Antarctic, should it occur. The results of these programs should be taken into account before similar programs are drawn up for the Antarctic.

29. There was inadequate time to consider the Argentine and Japanese suggestions for the study of pollution in the Antarctic. The Group suggests that the Tenth Consultative Meeting direct the attention of SCAR to these proposals and to the other documents submitted to the Group as listed below:

-- ANT(79)PM ET/3, June 25, 1979, by Poland (Annex E).

-- ANT(79)PM ET/5, June 25, 1979, by Poland (Annex F).

-- ANT(79)PM ET/8, June 27, 1979, by Poland (Annex G).

Annex A

Agenda

Meeting of Ecological, Technological and Other Related Experts on Mineral Exploration and Exploitation in Antarctica

June 25-29, 1979
Washington, D.C.

A. Organization

B. Adoption of Meeting Agenda

C. Consideration of the Terms of Reference of the Group of Experts Meeting (reference Report of the Ninth Consultative Meeting)

D. Consideration of any documents or working papers that may be presented by members of the Group of Experts

E. Development of an outline of scientific programs aimed at improving predictions of the impact of possible technologies for mineral exploration and exploitation in the Antarctic (reference Section II.B. of the Report of the Group of Experts, Annex 5 of the Report of the Ninth Consultative Meeting, and Section 5 of the SCAR/EAMREA Group Report)

F. Development of an outline of scientific programs aimed at developing measures for the prevention of damage to the environment or for its rehabilitation (reference Section II.C. of the Report of the Group of Experts, Annex 5 of the Report of the Ninth Consultative Meeting)

G. Receive report and further consider the matter of oil contamination of the Antarctic marine environment (Ref: Recommendation IX-6)

H. Preparation of Statement to the Tenth Antarctic Treaty Consultative Meeting

Annex B

Report With Reference to Recommendation IX-6 (Oil Contamination of the Antarctic Marine Environment) of the Ninth Antarctic Treaty Consultative Meeting (Submitted by the Delegation of Japan)

The following are the results of study of the oil contamination of the Antarctic marine environment by concerned agencies of the Japanese government.

1. Concerning the pathways by which oil may reach the Antarctic Ocean (in relation to Recommendation IX-6, Paragraph 1):

(1) Possible causes of oil contamination in the Antarctic marine environment

The main causes of oil contamination in the Antarctic marine environment are thought to be as stated below. It is remarked, however, that oils are also produced by living organisms which inhabit the Antarctic. These animal and vegetable oils would better be distinguished from mineral oils of subterranean origin, so that they have been omitted from this study in view of the need to focus attention primarily on the discharge of petroleum aromatic hydrocarbons, which form the oil content of petroleum origin, rather than on aliphatic hydrocarbons of biological origin.

a. Oil contamination from scientific stations in the Antarctic

Discharge of oil due to mishandling during operations and disposal of waste oil used at the scientific stations (light oil, kerosene, gasoline, etc.).

b. Oil contamination produced during transport operations for support of scientific stations, fishing operations, and ship movements for marine observations

Mainly due to discharge of oil contained in cooling water, etc., from ships' engines; negligence in operations; rupture of tanks, pipes, etc.; and shipwrecks.

c. Oil contamination resulting from movement of contaminated water masses, etc., from mid-latitude regions

Oil discharged or disposed of at a certain rate during its use in industrial and densely populated areas in mid-latitude regions, where human activities are concentrated, and also oil discharged from oil tankers in those regions are carried into the Antarctic marine environment by water circulation and atmospheric movements.

d. Oil contamination likely to result from future petroleum exploration and exploitation on the Antarctic continent and in the surrounding seas

Discharge of oil resulting from drilling operations in oil fields on the Antarctic continent and the surrounding seabed and from accidents, etc., occurring during these operations.

(2) Pathways by which oil reaches the Antarctic marine environment

a. Oil contamination from scientific stations

Most of the scientific stations have their headquarters on the coast of the continent or on adjoining islands. Therefore, except in the case of stations situated further inland, any release of oil can be expected to reach the marine environment in the vicinity of the station relatively quickly, via ice-free areas around the coast or the islands. Since the decomposition of oil in the Antarctic is slow due to the low temperature, dispersion of oil contamination is influenced by the snow conditions, topography and geology between the point of discharge at the station and the adjacent sea, and by movements of seawater and sea ice due to tidal currents and wind on reaching the sea. Under Recommendation VIII-11, certain measures have been implemented with regard to the disposal of wastes from the scientific stations, including the disposal of lubricating oil.

b. Oil contamination from ships

This poses the greatest threat as a source of oil pollution of the Antarctic marine environment. Since the number of vessels traveling in Antarctic waters is inevitably expected to rise with the increasing activity related to Antarctic observations and resources, there will be increasing risk of oil contamination due to discharge of bilge and ballast water and to shipwrecks and other accidents.

If the resulting oil contamination is assumed to occur along the shipping routes, it can be expected to move away from these areas carried by currents such as the Antarctic circumpolar current, or by the wind. Further, if oil contamination spreads in the vicinity of pack ice region, serious damage to living organisms can be expected when the wind and currents are weak, since the oil will remain stationary over a long period.

c. Oil contamination from mid-latitude regions

While there has been little oil contamination occurring in the Antarctic marine environment itself, it is possible that water contaminated by oil discharges from urban and industrial regions at mid-latitude regions and from oil tankers will reach the Antarctic seas through dispersion by wind and currents.

d. Oil contamination due to mineral resource exploration and exploitation

In the event of petroleum exploration and exploitation being carried out on land or on the offshore seabed of the continental coast, oil contamination can be expected to reach the marine environment from the exploration and exploitation sites by the same pathway as discussed in (2)a. above. In the case of drilling in seabed oil fields, there is a risk of greater damage due to direct flows of oil into the sea.

2. Concerning an effective program for the determination of baseline levels of contamination of the Antarctic marine environment by oil (in relation to Recommendation IX-6, Paragraph 3):

(1) Studies considered relatively practicable

a. Use of the supply ships supporting scientific stations to conduct

(i) Sampling of seawater for analysis of oil content

(ii) Visual observation of oil slicks

b. Comparison with data from other sea areas

(2) Studies meriting future consideration

a. Sea areas to be covered by monitoring

(i) Sea areas adjacent to scientific stations in the Antarctic

(ii) In the event of future exploitation of seabed oil fields, etc., the sea areas surrounding the exploitation site

(iii) The Antarctic Ocean

(iv) Areas of the Indian, Atlantic and Pacific Oceans, etc., contiguous with the Antarctic Ocean (sea areas of the Southern Hemisphere).

b. Items to be monitored

To be selected as appropriate for each sea area from the following

(i) Tar balls

(ii) Visual observation of oil slicks

(iii) Dissolved and dispersed oil in seawater.

c. Monitoring methods

(i) Coastal surveys from land

Surveys of the coastal areas in the vicinity of stations would be conducted using snow cars, light aircraft, etc. They would consist mainly of visual observation of tar balls and oil slicks.

(ii) Aerial and satellite surveys

For surveys of extensive sea areas, aerial remote sensing technology would be employed in the study of oil slicks.

(iii) Surveys from vessels

In addition to sampling by the supply ships supporting the scientific stations and by oceangraphic observation vessels, vessels engaged in future exploration and exploitation of Antarctic resources, fishing vessels, etc., would be requested to cooperate in collecting data by visual observation of oil slicks.

d. Principles of implementation of monitoring

Monitoring would be conducted on the basis of the principles of implementation of the Marine Pollution Monitoring Pilot Project (MAPMOPP) of the Integrated Global Ocean Station System (IGOSS).

e. Use of monitoring results

The Scientific Committee on Antarctic Research (SCAR) and the Intergovernmental Oceanographic Commission (IOC) would be requested to study methods of collecting and using the data obtained in the Antarctic Ocean.

f. Organization for implementation of monitoring

As for the monitoring items, methods, principles of implementation, etc., the MAPMOPP instituted under the IGOSS program which is being

jointly promoted by IOC and the World Meteorological Organization (WMO) would probably serve as a model. It is desirable that the Consultative Parties cooperate with appropriate organization to promote these activities.

Annex C

On the State of Pollution in the Antarctic Region Submitted by the Delegation of the Union of Soviet Socialist Republics

The rapid development of industrial production in recent years has confronted mankind with the threat of exhaustion of the Earth's resources and contamination of the biosphere with the products resulting from the activities of human society. The adverse consequences of contaminating man's natural environment are now becoming apparent not only on a regional but also a global scale.

Consequently, the development of programs for monitoring and reducing the harmful effects of pollution on the environment is at present a most urgent problem.

In this regard a special role is played by the Antarctic, a vast region of the earth with unique and exceptionally vulnerable natural systems (ecosystems) that are probably the only ones on Earth to remain relatively untouched and to have suffered relatively little (as yet) from contamination of the atmosphere, land, and ocean.

The Antarctic is a suitable region of the Earth in which to study, first, the background state of the biosphere as a whole, and second, the local contamination resulting from the ever-increasing activities of man in the Antarctic itself.

The Antarctic, or its separate ecosystems, can serve as a model for a general theory of the development of life under extreme conditions and for various problems in the field of ecology as well. Antarctic ecosystems can serve as natural scientific laboratories for the study of the habitat. And, finally, the Antarctic can become a huge laboratory for monitoring the state of the environment and studying its contamination.

Your attention is invited to several preliminary results of the research on the state of individual components of the natural environment performed over the past few years by Soviet Antarctic expeditions.

During the last few years the contamination of the atmosphere and the evaluation of its possible effects on fluctuations in the Earth's climate have become the subject of greatly increased interest. Many distinguishing features of the composition and circulation of the atmosphere over the polar regions and the remoteness of these regions from centers of human activity give them a special role in a system for global monitoring of the environment. As we know, the Southern Hemisphere, and especially the Antarctic region, are less affected at present by anthropogenic factors than the Northern Hemisphere, where most industrial production is concentrated.

One effective way to study the composition of the atmosphere is to use spectral methods, which make it possible to determine the total amount of impurities in a column of atmosphere based on the weakening of the sun's rays. In 1958, at the Mirny Station in Antarctica, regular measurements of total ozone content were begun and have continued with brief interruptions to the present time. During the past few years regular measurements of total ozone content have also been made at the Vostok Station.

During the 23d SAE (Soviet Antarctic Expedition) personnel of the IFA (Institute of Atmospheric Physics) of the USSR Academy of Sciences and the AANII (Arctic and Antarctic Scientific Research Institute) in Molodezhnaya carried out experiments to investigate gases present in small amounts in the

Antarctic atmosphere and also the transparency of an entire layer of the atmosphere in the infrared part of the spectrum. For the first time the spectral method was used to measure the content, throughout an entire layer of Antarctic atmosphere, of such impurities as carbon monoxide (CO), methane (CH_4), and nitrous oxide (N_2O). During the 24th SAE a group was formed at the Mirny Station to monitor the state of the environment and to measure total ozone content, atmospheric opacity, and the amount of carbonic acid gas in the surface layer of the atmosphere. During the 24th SAE measurements were made in Antarctic coastal waters of the total carbon dioxide (CO_2) gas content in a column of atmosphere.

The main results of these studies are as follows:

1. Many years of measurements of the ozone content at Mirny have made it possible to establish the distinctive characteristics of a periodic increase in total ozone content in the spring. This kind of change is most pronounced in early spring and is evident until completion of the spring warming of the stratosphere over this region. The absolute maximum of total ozone content in spring here is 585×10^{-3}cm and the absolute minimum is 180×10^{-3}cm. The variations in total ozone content over Antarctica are closely related to atmospheric circulation. A combined analysis of data on total ozone content and from separate releases of ozone probes, which make it possible to determine the ozone concentration at different levels, showed that in the Antarctic troposphere the amount of ozone present constitutes 2-5% of the total amount in the atmosphere. As in other regions of the globe, most of the ozone is concentrated in the layer of the stratosphere between the 100 and 50 mb levels.

2. The carbon monoxide content in a vertical column of Antarctic atmosphere during the period of observation has a tendency to be lower in January (up to 0.03×10^{-3}cm) than in March and April (up to 0.05×10^{-3}cm). It is interesting to note that in the middle latitudes of the Northern Hemisphere the summer minimum of CO (0.07×10^{-3}cm) is greater than the maximum levels in Antarctica.

3. No regular variations were found in either total methane (CH_4) content and its surface concentration or total nitrous oxide (N_2O) content in the Antarctic atmosphere during the period of observation. The amounts of these gases were found to be 1.28×10^{-3}cm for total methane content and 1.32 ppm for surface methane concentration. The data on N_2O for the Antarctic proved to be close to those obtained in the Northern Hemisphere by various authors. Total CH_4 content and surface concentration are lower in Antarctica than in the Northern Hemisphere.

4. Study of the weakening of radiation at different wavelengths reveals a very low aerosol content in the Antarctic atmosphere.

5. The Schupp B_{500} power factor, one of the criteria recommended by the WMO for measuring atmospheric opacity, averaged 0.025 in regular observations in Antarctica. This figure agrees with that obtained during intermittent observations made earlier at the Mirny and Plato stations, an indication of the stability over time of Antarctic aerosol opacity during the past ten years.

6. The apparatus and methodology used for making measurements in Antarctica are completely suitable for making measurements under difficult conditions.

7. Similar research will be continued in Antarctica in order to evaluate the trend in the level of possible changes in basic indicators of pollution and also to make a more detailed analysis of space-time variations.

Prior to 1974 practically no study was made of pollution in the Southern Ocean in areas away from heavily traveled shipping lanes because of the inadequacy of the methods used to select and process samples. After reliable methods were developed, systematic study and monitoring began of pollution of the Southern Ocean by petroleum and petroleum products, which are among the most common contaminants found at sea.

From 1974 to 1978, as part of the POLEX-Southern Group program, ships of the AANII selected samples and examined them for petroleum product content at 161 points in the Southern Ocean, the Drake Straits, the Scotia Sea, along a line from Africa to Antarctica (20° east longitude), and along a line from

Antarctica to Australia (132° east longitude). At the end of each trip the samples were delivered to the AANII, where they were examined by infrared spectrophotometry.

The results showed that the petroleum product level in the samples taken at the indicated points in the Southern Ocean was in most cases less than 0.03 mg/liter. Some of the concentrations fell within the 0.03-0.08 mg/liter range, which approaches the sensitivity limit of the method (0.03 mg/liter).

Most of the values for petroleum product content which were in excess of 0.03 mg/liter were for the frontal zone of the Scotia Sea, where there is a high level of biological activity. It is possible that the increase in the level of substances identified as petroleum products is due in some degree to hydrocarbons of biogenic origin.

No oil films or patches were observed visually from aboard ship.

Thus, the results show that in the areas inspected, the Southern Ocean is virtually free of contamination by petroleum products.

Despite the low level of contamination of natural systems on the Antarctic continent, in areas around scientific stations, bases, and outlying camps local anthropogenic contamination may have adverse effects on some local ecosystems, especially if these effects are of long duration.

All activities of Soviet Antarctic expeditions are carried out in keeping with the decisions and recommendations of the Antarctic Treaty consultative conferences.

Inspections performed by medical and biological personnel at Soviet Antarctic stations have shown that lately a great deal of work has been done to improve living conditions and sanitation in residential and working quarters at the stations.

Problems of solid and liquid waste disposal are being satisfactorily handled at most stations. For example, all stations now burn solid wastes and garbage that do not contain harmful substances and dispose of housecleaning waste water and sewage in special tanks containing disinfectants.

Certain as yet unresolved problems involving subsequent purification, utilization, and removal of wastes at a number of stations (Novolazarevskaya and Bellingshausen) will be solved in the next few years.

Naturally this is only the start of a great deal of work that needs to be done to make a comprehensive study of the state of the Antarctic environment within the framework of a "Global System for Monitoring the Environment."

Now, during the 24th SAE, a baseline background station has already started work in the vicinity of the Mirny observatory. In addition to studying long-term trends in the change in concentrations of contaminants and the transparency and aerosol opacity of the Antarctic atmosphere, it has undertaken to "monitor the past" by measuring the background levels of contaminants in different layers of the Antarctic ice cover.

In the future it will apparently be advisable to undertake a comprehensive study of local and global anthropogenic contaminants in this region in stations especially set aside for this purpose (land and marine ecosystems).

Next year, during the 25th SAE, plans have been made to use AANII research vessels and one of the Antarctic stations to study total CO_2 content in the atmosphere (Mirny) and technogenic pollution of the environment by toxic substances, including carcinogens (Mirny, Molodezhnaya).

It goes without saying that the problem of carrying out a comprehensive study of the state of the environment and of "protecting" the natural environment of such an enormous region can only be solved through the close cooperation of many countries of the world.

In our opinion, every effort must be made to encourage the creation (within the framework of national programs) of comprehensive stations for monitoring the state of the environment and the establishment of a system for simulating the effect of contaminants and other harmful substances on various ecosystems (biogeocenoses), and to encourage as well the comprehensive study of various cenoses.

Naturally, all of this should be done using uniform and similar methods. Apparently it is necessary to recommend criteria for selecting the most important pollutants and related environmental factors to be monitored in the Antarctic and to recommend a list of the most important pollutants and related environmental factors in this region of the globe.

It is necessary to continue the comprehensive study of the structure and dynamics of Antarctic ecosystems, biogeocenoses, groups, species, and so forth. It is also necessary to conduct studies to determine the sensitivity of various Antarctic ecosystems, as well as the "key species" to various forms of infractions such as irrational use of resources, pollution, and so forth. It is necessary to obtain more accurate information on marine ecosystems, as well as the species that need special protection, and to create the conditions for effectively protecting them.

It is extremely necessary to develop uniform criteria, mandatory for all parties to the Treaty, limiting the impact on the natural environment of the Antarctic. These problems should form the basis for international scientific cooperation on the Antarctic.

Only such an approach can, in our opinion, solve the complex problems involved in studying and "optimizing" the natural environment of the south polar region.

Annex D

Group of Technological, Environmental and Related Experts on Antarctic Mineral Resources Submitted by the Delegation of Argentina

Suggestion for the Study of Pollution in the Antarctic

Introduction: Recognizing the need to evaluate the current state of the pollution of the Antarctic, and its nature and scale in the future, it is clear that there is an urgent need to establish a program of the appropriate basic studies for detecting discharges and human acts that may endanger the delicate Antarctic ecosystem;

Recognizing as well the need for SCAR to coordinate the studies and all matters relating to sampling techniques, methods of analysis and interpretation and evaluation of data:

In the formulation of a study of pollution in the Antarctic the following points should be considered:

1) Parameters to be evaluated:

   a) Petroleum hydrocarbons in sea water, in marine sediments and at different trophic levels.

   b) Trace metals, both in water and in sediments and at different trophic levels.

   c) Halogenated hydrocarbons (DDT, PCBs, etc.) from the same sample units.

   These parameters will be evaluated to ascertain the horizontal distribution and, if possible, in the whole water column to the bottom.

2) For evaluation of the data in point 1, it is also necessary to know:

   a) Position, date and time of the sample.

   b) Oceanographic data such as temperature, salinity, dissolved oxygen, penetration of radiant energy, nutrients, phytoplanktonic pigments, primary production, etc.

   c) Supplementary meteorological information.

3) Areas of study:

   The study covers those Antarctic regions whose features make them most susceptible to being affected by the discharge or transport of pollutants, e.g.:

   a) Areas of high primary production.

   b) Areas of heaviest maritime traffic.

   c) Areas where ice may automatically act as an agent of concentration.

   d) Areas close to sites of intensive scientific exploration.

   e) Areas in the vicinity of fixed, permanent or temporary stations.

4) Means of sample procurement:

   Given present known concentrations and the enormous difficulties that must be overcome in order to make an adequate sampling, some of the platforms mentioned below should be available:

   a) Oceanographic research ships.

   b) Fishing boats, auxiliary vessels or vessels in transit through the area.

   c) Aircraft.

5) Analysis of samples:

   To facilitate comparison of the data obtained, given the specific features of the techniques to be used, the recommendations are:

   a) For evaluation of petroleum hydrocarbons:

      Fluorescence spectrophotometry.

      Gas-phase chromatography.

   b) For evaluation of trace metals:

      Neutronic activation analysis.

      Nuclear absorption spectrophotometry.

   c) For evaluation of chlorinated hydrocarbons:

      Gas-phase chromatography.

The following reference materials are mentioned as a guide for the preparation and evaluation of samples:

Manuals and Guides No. 7, UNESCO, 1976
Intergovernmental Oceanographic Commission
World Meteorological Organization
"Guide to Operational Procedures for the IGOSS Pilot Project on Marine Pollution (Petroleum) Monitoring"

"Baseline Studies of Pollutants in the Marine Environment and Research Recommendations"
Deliberations of the International Decade of Ocean Exploration (IDOE) Baseline Conference, May 24-26, 1972.

"Marine Pollution Monitoring: Strategies for a National Program"
Deliberations of a workshop held at Santa Catalina Marine Biological Laboratory of the University of Southern California, October 25-28, 1972.

"The Health of the Oceans" by Edward D. Goldberg, Scripps Institution of Oceanography, La Jolla, California. Paris: UNESCO Press, 1976.

Annex E

The Role of Near-Shore Research in Antarctica

Submitted by S. Rakusa-Suszczewski
Delegate of Poland

In modern oceanology increasingly greater attention is being paid to the coastal regions. Most of the processes decisive for oceanic production take place in the immediate vicinity of land.

Shelf waters of both Americas and Africa give more than 50% of world fisheries. It is difficult to express this by numbers, at the present stage of our knowledge about Antarctic ecosystems. A similar situation may be expected in the Southern Ocean. Spatial distribution, patchiness, more or less periodical concentration of all organisms with a very high biomass of the food web is characteristic for this ecosystem. This occurs mainly in the inshore areas. Particularly abundant growth of phytoplankton may be observed at the lee side of islands, above the elevations of the bottom. In the same places great concentrations of krill in swarms may be observed. Coastal regions are places of spawning, and feeding of fish most of which are nonmigratory and demersal species. We have observed that the biomass of larval and juvenile stages of fish is about 5% of total krill biomass in swarms. The biomass of krill in swarms may approach 30 kg/m^3 and on the average it is about 2 kg/m^3 . On the other hand, the mean biomass of zooplankton in the open waters of the Southern Ocean is estimated to be 50-60 mg/m^3. Appreciable quantities of birds, seals and whales concentrate in the near shore areas to feed on krill. It is known that the presence of a large number of birds and whales is a good indicator of the presence of krill swarm. For the ecologists the aggregation of the representatives of all trophic levels in a relatively small space creates a number of consequences which we do not appreciate fully yet.

A different situation exists in waters of the open ocean. Many species of fishes, birds and seals connected by their breeding places with the inshore areas are absent from the web of trophic relations. There has to be an equilibrium between the numbers of consumers and the amount of available food, as well as between the distance of the breeding sites and feeding areas. Since birds and seals get their food from the ocean, there is an intensive accumulation of organic matter of sea origin on land and fertilization in the areas of rookeries and breeding sites.

My aim is to call attention to the significance of investigations in the near-shore area and the necessity of long-term biological observations important especially for the understanding of the changes and trends occurring in this part of the Antarctic ecosystem. The area of the Antarctic Ocean south from the Antarctic Convergence may be divided zoogeographically and phytogeographically into provinces, regions and subregions. In the Antarctic ecosystem there is a natural division both longitudinal and latitudinal. This area differs, not only in the environmental conditions but also in the composition of species entering into food chains. This provides another evidence for the conception of patchy distribution of biomass and trophic relations in the Antarctic. As we know, shelves of the Antarctic continent and of some islands are potential regions for mineral exploitation, gas and oil especially. For example EAMREA-report 1977 gave some calculations showing that a spill of oil covering say 300 km^2 at the average density of about 50 tons of krill per km^2 may put at risk about 15,000 tons of krill. It is 0.00015% of the assumed standing stock. I agree that, it is not dangerous for the total krill stock in

Antarctica, but at the same time we are worrying about the "Area of Special Protection" with the surface area of 1:500,000 of all Antarctic ecosystems. Is it consequential? Let me give you another example.

Region of Admiralty Bay, King George S. Shetland is a place of our complex investigations. Accordingly our proposition for the Tenth Treaty Meeting is also a place recommended as a Site of Special Scientific Interest. I don't believe that in the near future we can start exploitation of oil or gas in Admiralty Bay, but it is more likely that another unlucky disaster like the sinking of a ship may happen.

Do you remember what happened to "Lindblad Explorer" some years ago? Besides tourists and Polish population at Arctowski station what else would be at risk in this case? The area of Admiralty Bay is 131 km^2. Last summer we have noted in this region 23,661 pairs of Adeli penquins, 10,550 pairs of P. antarctica, 3,117 pairs of P. papua, so all together 74,656 specimens of penquins will be at risk. All these penquins ate 50,181 tons of krill per day in December and transported on to the land about 6,348 tons of dry weight of faeces per day. We have in Admiralty Bay 600-960 elephant seals, about 110 Weddell seals, and 220 fur seals, 25 species of fish were recorded in water of Admiralty Bay, one more than in the Scotia Sea because one new species of Raja was described by our ichtiologist as the Raja rakusai.

Hitherto we have no exact data on krill stock in this region, but it is clear that standing stock in this place is too low for the maintainence of all penquins, seals and fishes. They must get food off Admiralty Bay. Admiralty Bay as a part of inshore ecosystem is not self-supporting in its geographical boundaries in summer season. I think that some of the presented data, together with the earlier comments are sufficiently convincing for the appreciation of the significance of neritic zone investigations for the understanding of the whole Antarctic ecosystem.

The Ninth Treaty Consultative Meeting suggestion about gas and oil drilling moratorium is fully in accordance with our conviction about the negative influence of this on the inshore part of the Antarctic ecosystem.

Fig. 1 (on the following page) shows conceptual model of major trophic relations conditioning the circulation of matter and energy flow in the inshore and off-shore parts of the Antarctic ecosystem.

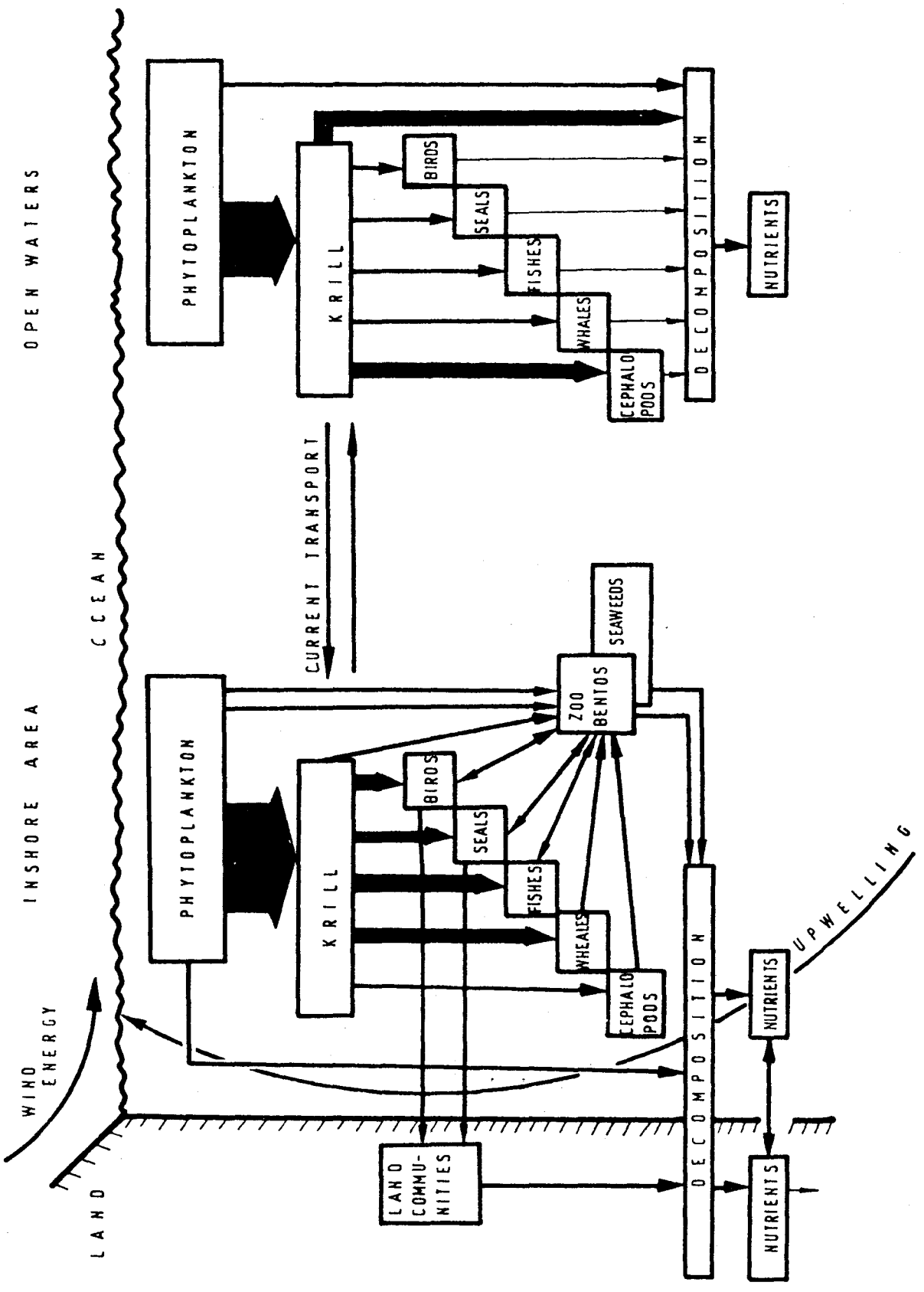

OPEN WATERS
OCEAN
INSHORE AREA
LAND
WIND ENERGY
PHYTOPLANKTON
KRILL
BIRDS
SEALS
FISHES
WHALES
CEPHALO PODS
DECOMPOSITION
NUTRIENTS
CURRENT TRANSPORT
PHYTOPLANKTON
KRILL
BIRDS
SEALS
FISHES
WHALES
CEPHALO PODS
ZOO BENTOS
SEAWEEDS
LAND COMMU-NITIES
DECOMPOSITION
NUTRIENTS
UPWELLING
NUTRIENTS

Fig. 1

Annex F

Polish Proposal for an Antarctic Geophysical Geotraverse
Drake Passage - Antarctic Peninsula Geotraverse

Submitted by Professor K. Birkenmajer
Delegate of Poland

Outline of the program for geophysical marine expedition to South Shetland Islands, West Antarctica, in 1979/80.

Organizers: Polish Academy of Sciences, Institute of Geophysics (Warsaw)

Vessel: O.R.P. "Kopernik", 1600 BRT.

Area: Between Antarctic Peninsula and Drake Passage, including Bransfield Strait and the shelf area surrounding South Shetland Islands. Based on H. Arctowski Station, Admiralty Bay, King George Island (South Shetland Islands). Area of investigations about 150 x 500 km.

Scientific Tasks:

(1) Geophysical measurements (seismic, magnetic) on geotraverses across shelf, continental slope and rise and oceanic bottom, with particular stress upon tectonically active areas such as Bransfield Rift and Bridgeman Island - Penguin Island - Deception Island volcanic zone;

(2) An attempt at constructing geodynamic models for this part of West Antarctica.

Methods: Reflection seismology (air-gun system) down to 3-5 thousand meters on shelf geotraverses, altogether 1500-2000 km of profiling:

(1) Shallow refraction seismology (air-gun system) along short profiles 50-60 km long each, altogether ca 500 km;

(2) Magnetic profiling along seismic profiles.

The above methods are harmless to Antarctic marine environment and are generally approved techniques for investigation of shallow parts of the Earth's crust.

(3) It is also considered a program of deep refraction-seismic sounding for recognition of structure of Earth's crust and the Upper Mantle, and the depth of Moho. This would be done on point geotraverses 150-300 km long. This method needs some shooting in open ocean outside shelf area to obtain good results. It is necessary to use small explosives of 25-50 kg of dynamite. A special technical project is being elaborated and will be consulted with SCAR.

It should be noted that such technique using small explosives has been used with good results by the same scientific team of ORP "Kopernik" and Institute of Geophysics of the Polish Academy of Sciences in a joint Polish-American-Norwegian project (Polish Academy of Sciences - St. Louis University - University of Bergen) for deep seismic sounding of the shelf and shelf-margin area of Svalbard (Spitsbergen) in the Arctic, and proved to be of minimum negative impact on polar biota.

Further Proposals: The Drake Passage-Antarctic Peninsula Geotraverse could be a starting point for similar geotraverses of other shelf and shelf-margin areas of Antarctica done on international cooperation basis. An informal working group could be established to delineate and supervise such programs.

Annex G

Some Problems in Antarctic Ecosystem Protection

Submitted by K. Birkenmajer
and S. Rakusa-Suszczewski
Delegates of Poland

International programs coordnated by SCAR should be elaborated and carried out to determine zones and areas of necessary protection of major ecologic elements of Antarctic ecosystem (in relation to Recommendation IX-1, Ninth Consultative Meeting, London 1977, Report of the Group of Experts on Mineral Exploration and Exploitation).

As an example, we would like to stress the need for closer investigation of the following elements of Antarctic ecosystem:

(1) Location and problem of stability of larger krill accumulations with respect to oceanographic, climatic and other parameters, as a basic element of Antarctic ecosystem;

(2) Location and problem of stability of principal breeding grounds of penguins and other birds, and determination of feeding grounds of larger bird colonies at the time of breeding;

(3) Location and problem of stability of main breeding grounds of pinnipeds, such as Sea Elephant (Mirounga leonina) and Kerguelen Fur Seal (Arctocephalus gazella), and determination of feeding grounds of larger colonies at the time of breeding.

The research should be directed towards determination of minimum, maximum and optimum zones and areas of necessary protection of such breeding-and-feeding grounds.

It is suggested that such breeding-and-feeding grounds determined as the result of special investigations should be registered by SCAR as Antarctic Breeding and Feeding Grounds (ABFG) which would include breeding grounds on land and/or ice and related feeding grounds at sea.

Recommendations should be elaborated as to the types of activity allowed in the ABFGs. It is believed that no exploratory drilling (phase 2) and no full-scale exploitation (phase 3) of minerals either at sea or on land should be allowed in the areas designated and registered as ABFG, and that the basic exploration (phase 1) within the ABFGs should be kept at minimum.

Annex 7

Final Report of the Third Antarctic Treaty Meeting on Telecommunications Washington, D.C., September 11-15, 1978

1. In accordance with Recommendation IX-3 adopted at the Ninth Antarctic Treaty Consultative Meeting, experts from Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, 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 Washington on 11 September 1978 for the purpose of discussing the matters included in the Agenda transcribed below. The Meeting was attended by an observer of the World Meteorological Organization (WMO).

2. The Meeting was opened by Dr. Edward P. Todd, Director of the Division of Polar Programs (and of the U.S. Antarctic Program) of the National Science Foundation, as the temporary Chairman. Mr. Alfred N. Fowler, Deputy Director of the Division of Polar Programs was unanimously elected to chair the Meeting. Mr. Fowler announced that Miss Nadene Kennedy and Mrs. Helen Gerasimou would provide administrative support for the Chairman and were available to assist representatives.

3. Following discussion of a provisional draft the Meeting adopted the following Agenda:

A. Opening of the Meeting

B. Election of Chairman

C. Adoption of Agenda

D. Description of telecommunication operations and analysis of information exchanged pursuant to Recommendation IX-3 of the Ninth Consultative Meeting

E. Identification of Problems

F. Discussion of Possible Solutions

G. Proposals for Improvements

H. Findings and Conclusions

I. Adoption of Final Report

J. Closing of the Meeting

4. The Meeting considered in Plenary Session all the items on the Agenda. A Working Group chaired by Mr. I. H. Lloyd was appointed to study the transmission of antarctic meteorological data to the Global Telecommunication System (GTS) of the World Weather Watch (WWW).

5. The proceedings and conclusions of the Meeting were as set out below.

Agenda Item D

6. While it was recognized that Antarctic telecommunications are required for operational, administrative and scientific purposes, in addition to the transmission of meteorological data, the analysis of information provided by governments was carried out on the understanding that its objective was primarily to describe telecommunication operations as they were used for the international transmission of meteorological data.

7. It was considered desirable to set out such a description in diagrammatic form and Annexes 1, 2 and 3 (pages 124, 125 and 126) to this report were prepared by the Working Group. These Annexes set out:

ANNEX 1 - the existing links for the daily international exchange of meteorological data within the Antarctic;

ANNEX 2 - the principal intra-Antarctic international routes by which Antarctic meteorological data leaves the Antarctic;

ANNEX 3 - the principal routes by which Antarctic data enters the Global Telecommunication System.

These diagrams represent the links and routes existing in September 1978.

8. Since the Second Antarctic Treaty Meeting on Telecommunications held in Buenos Aires in 1969, all nations have undertaken extensive programs of equipment replacement and organization with a view to improving the circuit efficiencies of their telecommunication systems.

Agenda Item E

9. Informal discussion of various aspects of Antarctic telecommunications identified problems and difficulties in a number of areas. In recent years changes in meteorological observation, data collection, processing and dissemination techniques had given rise to special problems for Antarctic stations which depended on the timely receipt of all available relevant data for the preparation of forecasts. Some of these problems were of a temporary nature but others were more persistent. It was recognized that some of these difficulties arose from differing national perceptions of their requirements and scientific priorities, and these were best addressed in bilateral discussions, and useful progress was made in this respect.

10. The Meeting also identified other allied difficulties of more general significance. These were:

(i) Difficulties of radio wave propagation across the auroral belt;

(ii) Difficulties of circulating Antarctic meteorological data to, and possibly within, the GTS;

(iii) Difficulties of assuring compatibility of systems for intra-Antarctic communications while taking advantage of new technological developments;

(iv) Difficulties in providing radio links between stations having different capabilities at different times of the year.

11. With respect to radio wave propagation problems, a useful exchange of information on ways and means of predicting propagation path disturbance was held, with South Africa, Chile and the United States describing systems presently in use or planned. It was agreed that these problems would benefit from the exchange of research results and the operational use of frequency prediction techniques.

12. With respect to difficulties of circulating Antarctic meteorological data to, and possibly within the GTS, the Working Group noted that some deficiencies exist in injection and switching of Antarctic data in some GTS centers as a result of the duplication of allocation of the CLLLL group. The report of the Working Group is at Annex 4 (page 129). The Meeting recognized that resolution of these difficulties within the GTS will ultimately require some action by the WMO in consultation with the affected Member countries.

Agenda Item F

13. With respect to the potential problems associated with the adoption of new technology, the representatives outlined their future plans for improvement. It appears that a number of advances in HF equipment and error-correction devices operating on a standard received signal, planned for installation by various nations, will be totally compatible with existing systems and will serve to improve intra-Antarctic communications.

Agenda Item G

14. It appeared that possibilities associated with use of geostationary and polar-orbiting communication satellites offer a real potential for communication improve-

ments without detriment to the intra-Antarctic network. Other alternative means of communications within Antarctica, such as the meteor-burst system, appeared to be very promising for use during periods of HF blackouts resulting from increased solar flare activity. Such alternative systems would depend upon the acquisition of the necessary equipment.

Agenda Item H

15. The Meeting recognized that technological developments in telecommunications are likely to lead in the future to greater diversity in the methods adopted by national Antarctic activities for their telecommunications purposes. These developments will be stimulated by differing requirements but may offer possibilities of improved cost-effectiveness in international Antarctic communications. There is no reason to discourage such developments away from conventional HF systems. It should be borne in mind, however, that there will remain a need for a common system for operational, scientific, administrative and emergency purposes.

Agenda Item I

16. The Meeting reviewed items 1 through 15 of this text together with Annexes 1 through 4 hereto and unanimously adopted these as the Meeting Final Report.

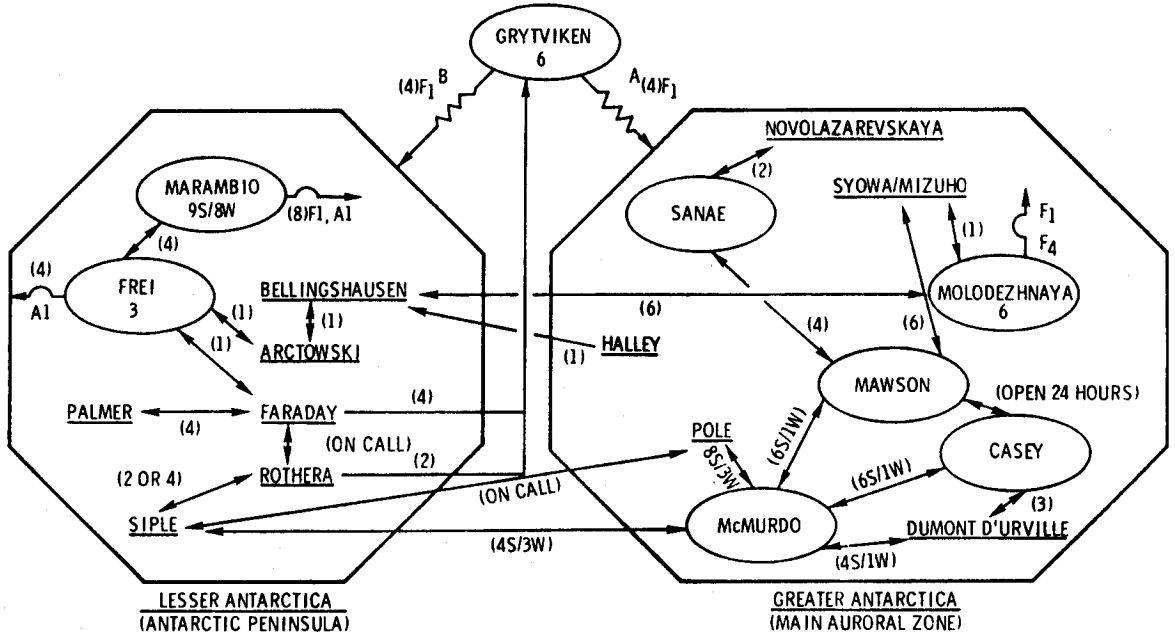
17. Participants in the Meeting expressed their appreciation to the Chairman, to Mrs. Gerasimou and to Miss Kennedy, and their thanks to Dr. Todd, to the United States National Science Foundation and to the United States Government for the facilities and support made available for the Meeting. The Chairman and Dr. Todd reciprocated for the United States and presented to each delegation a copy of the film "Antarctic Sea Ice Growth and Decay 1973-1974."

18. The Meeting unanimously supported a proposal, and the Chairman agreed to transmit a suitable message to all Antarctic stations. A copy of that message is shown at Annex 6 (page 134).

19. There being no further business on the Agenda, the Chairman closed the Meeting at 1700 on September 15, 1978.

20. A list of participants is shown at Annex 5 (page 130). A list of documents submitted is shown at Annex 7 (page 137).

EXISTING LINKS FOR THE DAILY INTERNATIONAL EXCHANGE OF METEOROLOGICAL DATA WITHIN THE ANTARCTIC AS OF SEPTEMBER 1978



NAME
(S/W)

MAIN CENTERS WITH THE NUMBER OF STATIONS FROM WHICH DATA ARE COLLECTED AND BROADCAST BY (CQ)

TELECOMMUNICATION METHOD
(CONTACTS PER DAY, S/W)

S = SUMMER
W = WINTER

(S/W) — POINT TO POINT LINKS

(S/W) — BROADCAST BULLETINS APPROXIMATELY OMNIDIRECTIONAL (NOMINALLY CQ)

(S/W) — OMNIDIRECTIONAL (CQ) BROADCAST BULLETINS

BROADCAST TIMES
(MODE)

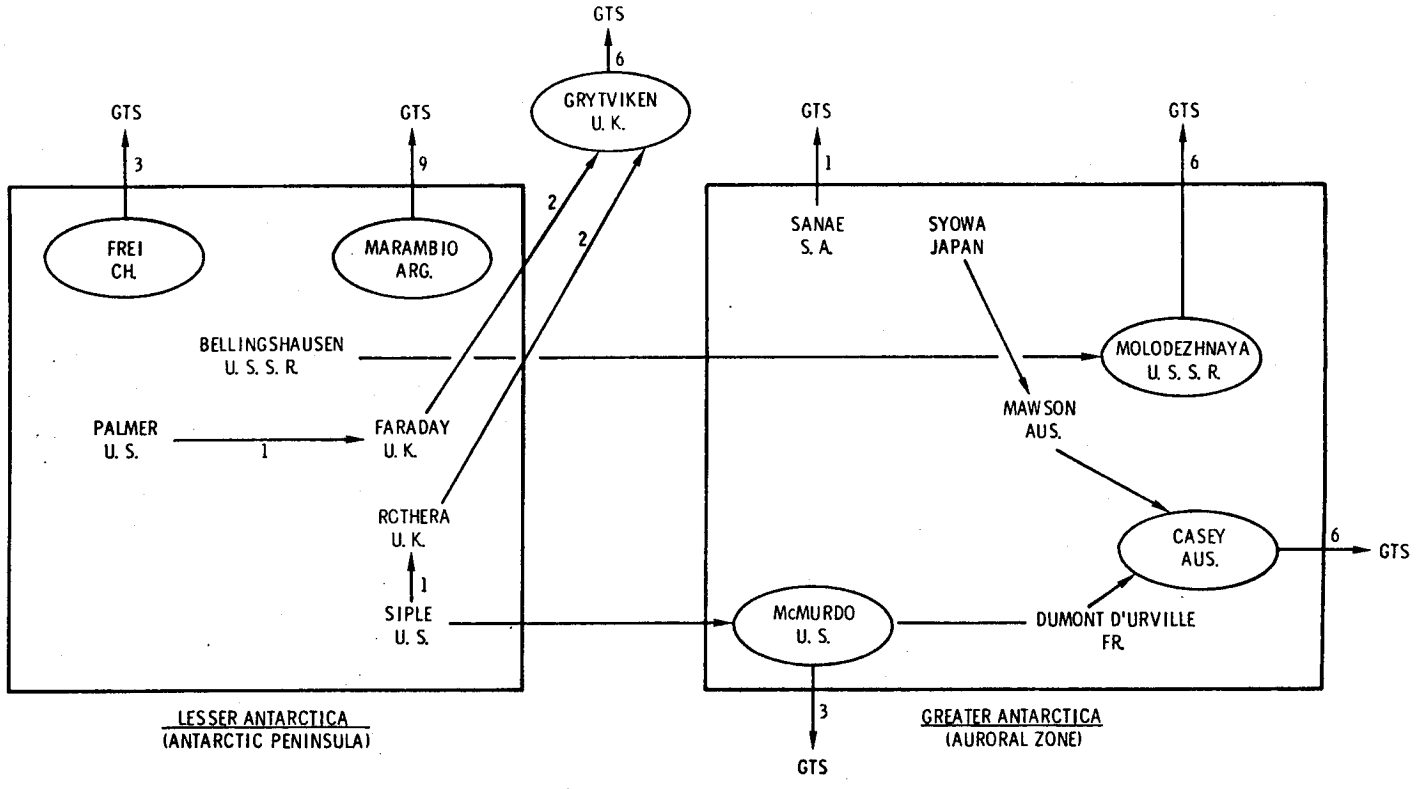
FREI
(CW) A1 : H + 05 (SYNOP)

MARAMBIO
(CW/FSK) A1, F1 : H + 30 (SYNOP), H + 160 (TEMP)

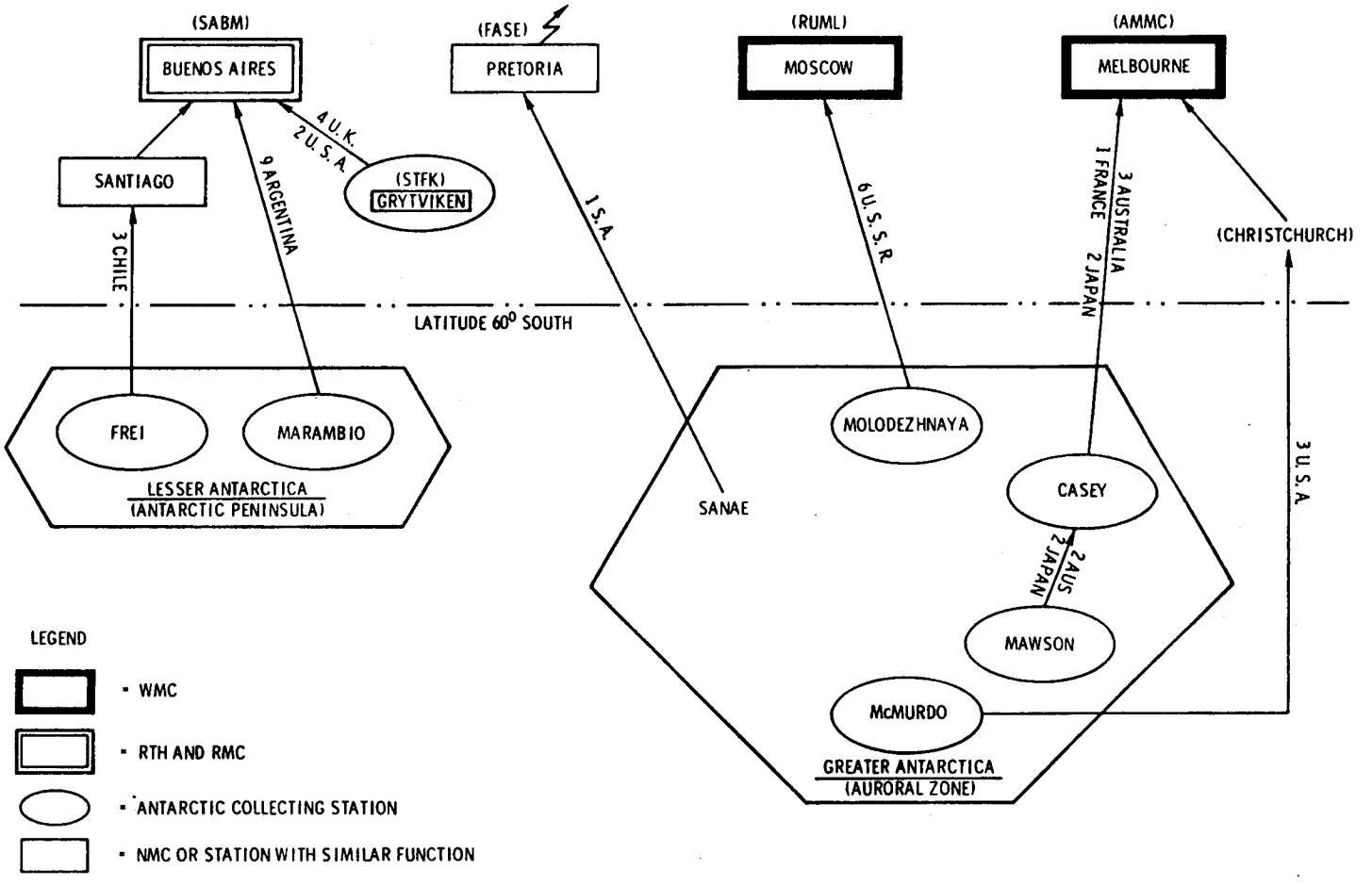
GRYTVIKEN
(FSK) F1 : (A) H + 30 (SYNOP), H + 180 (TEMP)
(B) H + 45 (SYNOP), H + 175 (TEMP)

MOLODEZHNAYA
(FAX, FSK) F4, F1 : H + 45 (SYNOP), H + 180 (TEMP)

PRINCIPAL INTRA-ANTARCTIC INTERNATIONAL ROUTES BY WHICH ANTARCTIC METEOROLOGICAL DATA LEAVES THE ANTARCTIC AS OF SEPTEMBER 1978



PRINCIPAL ROUTES BY WHICH ANTARCTIC DATA ENTERS THE GLOBAL TELECOMMUNICATION SYSTEM AS OF SEPTEMBER 1978



Attachment to Annex 3
List of Antarctic Stations and the Routing of Their Meteorological Data to the GTS

CHILE

85984 Pdte. Eduardo Frei
85986 Arturo Prat
85988 Bernardo O'Higgins
→ Frei → Santiago → Buenos Aires

ARGENTINA

88946 Corbeta Uruguay
88963 Esperanza
88907 Belgrano
88968 Orcadas
88971 Almirante Brown
89055 Marambio
89060 Primavera
89066 San Martin
89404 Sobral (temp. out of order)
88970 Matienzo (Summer only)
→ Marambio → Buenos Aires

UNITED KINGDOM

88903 Grytviken
88952 Faraday
89022 Halley
89062 Rothera
→ Grytviken → Buenos Aires

UNITED STATES

89061 Palmer
89083 Siple
→ Grytviken → Buenos Aires

89009 Amundsen-Scott
89564 McMurdo
→ McMurdo → Melbourne

SOUTH AFRICA

89001 Sanae → Pretoria → Broadcast

POLAND

----- Arctowski *

* inclusion of Arctowski data in the GTS is under consideration

SOVIET UNION

89050 Bellingshausen
89512 Novolazarevskaya
89542 Molodezhnaya
89592 Mirny
89606 Vostok
89657 Leningradskaya

→ Molodezhnaya → Moscow

FRANCE

95502 Dumont D'Urville

JAPAN

89532 Syowa
89544 Mizuho

AUSTRALIA

89571 Davis
94985 Mawson
89611 Casey

→ Mawson

→ Casey → Melbourne

Annex 4
Report of the G.T.S. Working Group

In discussion it became apparent that problems existed in both the intra- and inter-Antarctic telecommunication circuits. On more detailed researching of this problem, it was found that from data monitoring studies conducted, not all the Antarctic data placed on the GTS arrived at designated centers.

The unfortunate loss of this data had caused concern to Antarctic Treaty members as it forms part of a continuing bank of recorded information for necessary long term climate study. It was concluded that the data could become lost if its switching format could not be recognized by centers on the GTS.

Reference to the WMO Catalogue of Meteorological Bulletins, dated July 1978, showed in the Antarctic section (ANT 1) a duplication of Catalogue numbers being shared by Moscow, Melbourne, Buenos Aires and Pretoria. The sharing of these numbers appears to have come about as an unforeseen consequence of agreed WMO procedures (Manual on the Global Telecommunication System, Volume 1). This duplication of Catalogue numbers only appears to be a problem if messages are switched using these numbers.

In some cases, the arrival of the first Bulletin is recorded by the switching circuit after it is allowed to pass. On the arrival of a second Bulletin with the same number, from a different source, the second Bulletin is rejected.

Without prejudice to a final solution to this problem, the Working Group asked and the Soviet delegate agreed that his authorities should examine the possibility of changing certain Catalogue numbers as the simplest way of achieving the desired result.

The Working Group suggested that a possible temporary solution of this problem pending a final consideration by WMO, might lie in the amending of the Catalogue numbers as set out below:

BULLETIN HEADING	PRESENT CATALOGUE NUMBER ASSIGNMENT	PROPOSED CATALOGUE NUMBER
SMAA10 RUML	19900	19906
SMVJ10 RUML	19902	19907
CSAA10 RUML	19990	19991
SIAA10 RUML	29910	29912
USAA10 RUML	39900	39901
UKAA10 RUML	39910	39911
ULAA10 RUML	39920	39921
UEAA10 RUML	39930	39931
CUAA10 RUML	39990	39999

For the Bulletins containing data from ships in the southern parts of WMO Regions I, III, and V (SMVA10, SMVC10, SMVE10, USVA10, USVC10, USVE10, etc.) it was proposed that catalogue numbers be assigned using a L_1L_2 designator of the Moscow center rather than (99) of Antarctica.

Annex 5

Telecommunications Meeting of International Experts
September 11-15, 1978

List of Attendees

Temporary Chairman - E. Todd, Director, Division of Polar Programs
Chairman - Alfred Fowler
Recording Secretary - Mrs. Helen Gerasimou
Receptionist - Miss Nadene Kennedy

ARGENTINA

(1) Vicecomodoro Salvador Alaimo
Servicio Meteorológico Nacional
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(2) Mayor (R) René J. Romero-Cajal
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(3) Counsellor Ricardo Pedro Quadri
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(3) Mr. L. Filippi
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(1) Prof. Jakeo Yoshino
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(1) Mr. I. R. Gamayunov
Head, Technical Department
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(2) Mr. V. V. Golitsyn
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Moscow, U.S.S.R.

(3) Mr. Sergei Gurov
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Silver Spring, Maryland 20910

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Polar Affairs Officer
Bureau of Oceans, International Environmental,
and Scientific Affairs
Department of State
Washington, D.C. 20520

(9) Mr. Walter R. Seelig
International Coordinator
Division of Polar Programs
National Science Foundation
Washington, D.C. 20550

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ZNR UUUZZ//////////////////

NSFW

R 212004Z SEP 78 ZDK

FM NSF POLAR WASHINGTON DC

TO RZYXXZE/SOUTH POLE ANTARCTICA

RZYXXZC/PALMER STATION ANTARCTICA

RZYXXZD/SIPLE STATION ANTARCTICA

RZYXXZB/NAVSUPPFORANTARCTICA DET MCMURDO STATION ANTARCTICA

RZYXXZB/BASE SAN MARTIN ANTARCTICA

RZYXXZB/BASE PRIMAVERA ANTARCTICA

RZYXXZB/BASE ORDADAS ANTARCTICA

RZYXXZB/BASE ESPERANZA ANTARCTICA

RZYXXZB/BASE MATIENZO ANTARCTICA

RZYXXZB/BASE GENERAL VELGRANO ANTARCTICA

RZYXXZB/ESTACION CIENTIFICA ALMIRANTE BROWN ANTARCTICA

RZYXXZB/BASE VICECOMODORO MARAMBIO ANTARCTICA

RZYXXZB/CASEY STATION ANTARCTICA

RZYXXZB/FARADAY STATION ANTARCTICA

RZYXXZB/DAVIS STATION ANTARCTICA

RZYXXZB/DURZHNAYA STATION ANTARCTICA

RZYXXZB/BASE GENERAL BERNARDO O'HIGGINS ANTARCTICA

RZYXXZB/BASE PRESIDENTE FREI ANTARCTICA

RZYXXZB/BASE CAPITAN ARTURO PRAT ANTARCTICA

RZYXXZB/BASE DUMONT D'URVILLE ANTARCTICA

RZYXXZB/SYOWA STATION ANTARCTICA

RYZXXZB/SCOTT BASE ANTARCTICA

RZYXXZB/MIZUHO STATION ANTARCTICA

RZYXXZB/ARCTOWSKI STATION ANTARCTICA

RZYXXZB/SANAE STATION ANTARCTICA

RZYXXZB/MIRNYY STATION ANTARCTICA

RZYXXZB/MOLODEZHNAYA STATION ANTARCTICA

RZYXXZB/NAVOLAZAREVSKAYA STATION ANTARCTICA

RZYXXZB/VOSTOK STATION ANTARCTICA

RZYXXZB/BELLINGSHAUSEN STATION ANTARCTICA

RZYXXZB/LININGRADSKAYA STATION ANTARCTICA

RZYXXZB/ROTHERA STATION ANTARCTICA

RZYXXZB/HALLEY STATION ANTARCTICA

RZYXXZB/SIGNY ISLAND STATION ANTARCTICA

INFO RUEBPAA/NSF POLAR WASHINGTON DC

RUEHC/SECSTATE WASHINGTON DC

RUEHC/OES/APT/RMP DEPT OF STATE WASHINGTON DC

RUESBA/AMEMBASSY BUENOS AIRES ARG

RUEHBAC/AMEMBASSY CANBERRA AUS

RUESNA/AMEMBASSY SANTIAGO CHILE

RUFNPS/AMEMBASSY PARIS

RUEHKY/AMEMBASSY TOKYO

RUEHBAZ/AMEMBASSY WELLINGTON

RUDKRW/AMEMBASSY WARSAW

RUENTN/AMEMBASSY CAPETOWN

RUDTC/AMEMBASSY LONDON

RUEHMY/AMEMBASSY MOSCOW

RUEKJCS/SECDEF WASHINGTON DC

RUEKJCS/ASST SECDEF (ISA) WASHINGTON DC

RUENAAA/SECNAV WASHINGTON DC

RUENAAA/ASST SECNAV (R&D) WASHINGTON DC

RUENAAA/CNO WASHINGTON DC

RHHMBRA/CINPACFLT PEARL HARBOR HI

RHHPRAP/COMTHIRDFLT

RUWDSAA/COMNAVAIRPAC SAN DIEGO CA

RUWFAAA/COMASWINGPAC SAN DIEGOCA

RULSSAA/CNR WASHINGTON DC

RULSSAA/OCEANAV WASHINGTON DC

RUWDPAA/COMNAVSUPPFORANTARCTICA

RUWDPAA/ANTARCTICDEVRON SIX

RZYXXZA/NAVSUPPFORANTARCTICA DET CHRICHCHURCH NZ

RZYXXZA/ANTARCTICDEVRONSIX DET CHRISTCHURCH NZ

RZYXXZA/NSF REP NEW ZEALAND CHRISTCHURCH NZ

RZYXXZB/R/V HERO

685515/HOLMES AND NARVER INC ORANGE CA

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UNCLAS 20

SUBJ: GREETINGS FROM ANTARCTIC TREATY MEETING OF GROUP OF EXPERTS

A GROUP OF EXPERTS FROM THE CONSULTATIVE PARTIES TO THE ANTARCTIC TRI HAVE JUST CONCLUDED THE THIRD MEETING ON TELECOMMUNICATIONS IN ANTARCTICA. IN THE COURSE OF DISCUSSIONS DURING THE MEETING HELD IN WASHINGTON IT WAS AGAIN MADE CLEAR THAT THE SUCCESSFUL FLOW OF OPERATIONAL ADMINISTRATIVE, SCIENTIFIC AND OBSERVATIONAL INFORMATION REQUIRES DEDICATED EFFORT BY ANTARCTIC STATION PERSONNEL UNDER MOST DIFFICULT AND TRYING CONDITIONS. ACCORDINGLY, THE EXPERTS HAVE RESOLVED THAT TH CHAIRMAN OF THIS MEETING SHOULD COMMUNICATE THEIR ADMIRATION AND SINCERE APPRECIATION TO THE PERSONNEL AT STATIONS IN ANTARCTICA RESPONSIBLE FOR CARRYING OUT THESE IMPORTANT TASKS. AS CHAIRMAN OF THE MEETING, I SEND THESE GREETINGS AND APPRECIATION FOR A JOB WELL DONE ESPECIALLY TO ALL ANTARCTIC WEATHER OBSERVERS, RADIO OPERATORS AND TO THOSE WHO ASSIST AND SUPPORT THEM. A.N. FOWLER.

BT

NNNN

/ REPLACES CHAR(S) ON SENDERS KEYBD UNAVAIL ON YOURS

0933 EST

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N S F WSH

Annex 7
List of Documents Presented at the Antarctic Telecommunications Meeting
September 11-15, 1978

Document No.	Submitted By	Title
1	Argentina Australia Chile France Japan New Zealand South Africa U.S.S.R. U.K. U.S.	Information Exchanged in Addordance With Recommendation IX-3
2	South Africa	Report on Ham Satellite Communications
3	U.S.	U.S. Summary Statement
4	U.K.	A Reassessment of the Effectiveness of the Global Telecommunication System (GTS) as a Means for Communicating Antarctic Data
5	Poland	Information on Telecommunications Equipment and Schedules for the Year 1978
6	Chile	Study Suggested by the Chilean Delegation for the Meeting of Experts for Antarctic Telecommunications
7	Chile	Main Aspects on Chilean Project To Establish Meteorological Data Collection in the Antarctic by Employing Earth Orbiting Satellites
8	U.K.	United Kingdom Antarctic Telecommunications (Description of Telecommunication Operations)
9	Japan	Mobile Antenna for Low HF Band
10	Chile	A New Method for Predicting the Auroral Absorption of HF Sky Waves
11	U.S.	Information Package