

INDEX

(Place names and expedition titles in Appendix I, pp. 142-54, are not indexed.
The figures refer to pages and not to paragraphs of the Handbook.)

- Aagaard, Bjarne, 106, 122.
Active, 145.
 Adelaide Island, 43, 45.
 Adélie Land: boundaries, 169; discovery and exploration, 96-101, 183-84; French claims, 31, 32-33, 99-101; possession taken by D'Urville, 96, 158; possession taken by Mawson, 160; *see also* Protests and Reservations.
 Administration:
 British, 137, 184-87; Falkland Islands Dependencies, 51-53, 65-71; Ross Dependency, 82-83; South Georgia, 39; South Orkney Islands, 40-43; South Sandwich Islands, 50-51; South Shetland Islands and Graham Land, 48-50.
 French, Adélie Land, 99; Crozet Islands, 126; Kerguelin Islands, 127-28.
 See also Magistrates and Whaling Inspectors.
Admiralen, 49, 146.
 Admiralty Bay, 49. *See also* King George Island.
Adventure, 142.
Aigle, 119, 142.
 Air communications: general, 19-20, 101; Heard Island, 131; Macquarie Island, 132; Prince Edward Islands, 125.
Ajax, 152.
 Alexander I Land, 45, 76.
 "American Highland," possession taken by Ellsworth, 109, 166.
 Amsterdam Island, 133.
 Amundsen, Roald, 81, 83, 85, 117, 148, 160.
 Andersen, A. S., 150.
 Anderson, Charles F., 90-92.
Andromache, 157, 180.
 Andvord Bay, 46, 68; British occupation, 168.
Anglo-Norse, 50-51.
Annawan, 144.
 Anse du Gros-Ventre (Kerguelen Islands): possession taken by Kerguelen-Trémarec, 156-57.
Antarctic (ex Cap Nor), 38, 46, 80, 123, 125, 146, 168.
Antarctic (whale catcher), 105, 151.
 Antarctic: brief history of exploration, 23-25; list of expeditions, 142-54; geographical summary, 1-4.
 Antarctic Conference, suggestions for international: Argentine, 63, 73; Chilean, 73, 180; Norwegian, 106; attitude of H.M.G., 1.
 Antarctic Convergence, 1 (map).
Antarès, 126, 151, 164.
 Anvers Island, possession taken by Biscoe, 45, 158.
 Arbitration, British objections to in case of Antarctic, 176-77.
 Argentina: British claims to South Argentina, 35-36; collusion and rivalry with Chile over Antarctic claims, 63, 66-67, 71, 72-73.
 Argentina-Chile boundary, 67, 71, 177-78, 180.
 Argentine claims: Falkland Islands, 55, 57, 61, 62, 174-76; Falkland Islands Dependencies, 34, 53-71, 177-78; Graham Land, 60, 62, 64-65, 66, 67-68; South Georgia, 57, 60-61, 62, 66; South Orkney Islands, 53-60, 61-71, 176-77; South Shetland Islands, 60, 62, 64-65, 66, 67-68; inheritance of rights from Spain, 66, 78; United States reactions, 63-64.
 Argentine Commission to study Antarctic questions, 62-63.
 Argentine Islands, British occupation, 48.
 Argentine National Antarctic Committee, 63, 73.
Arkona, 127, 129, 145.
Astrolabe, 45, 144, 158.
 Astrolabe Island, 77.
Aurora, 148, 149, 169, 183.
 Aurora Peak, possession taken by Mawson, 161.
Austral, 22, 149.
 Australasian Antarctic Expedition (1911-14), 97, 148.
Australia, 125, 154.
 Australian Antarctic Acceptance Act, 98.
 Australian Claims, *see* Australian Antarctic Territory.
 Australian Antarctic Territory: boundaries, 170; exploration and British claims, 96-99, 108, 110; French claims, *see under* Adélie Land; German claims, 108; Norwegian claims, 101-08; United States interests, 108-10; summary of claims, 32; *see also* component "lands" and "coasts" and Protests and Reservations.
 Aviation rights, Franco-British agreement concerning Antarctic, 19, 101; Argentine ban on foreign flights in Argentine Antarctic territory, 20.
 Bagshawe, T. W., 46, 149.
 Baie de l'Oiseau, *see* Port Christmas.
 Baie du Lion Marin, *see* Anse du Gros-Ventre.
Balaena, 146.
 Balleny, John, 96, 98, 144.
 Banzare Coast: boundaries, 170; possession taken by Mawson, 139, 164.
 Barlas, W., 42.
 Bases: "A," "B," "C," and "D," location of, 71; list of expedition huts, 168-69 (map).
 Bassin de la Gazelle, French claim to Kerguelen Islands reasserted, 127, 156-57, 159.
 Baty, *see* du Baty.
 Bay of Whales, 93, 173; *see also* "Little America" and "Framheim."
 Beagle Channel, disputes between Argentina and Chile, 67, 71, 180.
Bear of Oakland (later U.S.S. Bear), 80, 90, 94.
 Beardmore Glacier, 80.
Beaufoy, 38, 40, 143, 144.
 Beascochea Bay, 46.
 Beattie, K. A., 148.
 Belgian interests, Falkland Islands Dependencies, 78.
Belgica, 45-46, 118, 146, 169.
 Bellingshausen, Thaddeus von, 38, 48, 50, 77, 110, 114, 118, 143.
 Bellingshausen Sea: boundaries, 171; *Belgica* drift, 169.
 Bennett, A. G., 42, 49.
 Bennett, George, 49.
 Bertram, G. C. L., 48.
 Betsy Cove (Kerguelen Islands): German hut, 169.
 Binnie, E. B., 49.
 Birds, exploitation, 12-13.
 Biscoe Bay (Anvers Island, Palmer Archipelago): possession taken by Biscoe, 158.
 Biscoe Bay (King Edward VII Land), 95.
 Biscoe Islands, 43, 77.

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16. Many Antarctic place-names are of political significance as well as of historical and practical interest. The principle has already been agreed between His Majesty's Governments concerned with the Antarctic that an explorer should send to the appropriate administrative authority the names which he suggests, but no arrangements have so far been made for settling conflicts between old names. There would be considerable value in the publication of official lists of accepted place-names in British Antarctic Territories (*see* Appendix XVII, pp. 195-196).

Territorial Waters

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8. Marie Byrd Land and James W. Ellsworth Land (comprising the whole of the sector in the South Pacific between the Ross Dependency and the Falkland Islands Dependencies) have both been claimed by their discoverers for the United States. The United States Government have shown some disposition to support these claims and have given repeated unofficial indications of their intention to establish a formal claim to the whole of this Pacific Sector. His Majesty's Government have no reasonable grounds for disputing this claim if it should be advanced.

9. The United States Government have at various times also shown an interest in claiming other parts of the Antarctic. Confidential information is available that Mr. Cordell Hull himself suggested Mr. Ellsworth's claim to the hinterland of Princess Elizabeth Land in 1939, and that American "claim sheets" were deposited in at least three other localities within the Graham Land portion of the Falkland Islands Dependencies in 1940. The policy of the United States Government in these matters has undergone many changes. They have never, however, at any time recognised any of the British claims in the Antarctic. The United States Antarctic Service, formed in 1939 to establish permanent occupation parties in two British areas (in both cases without permission), is still in existence. Although the occupation parties had to return to the United States in 1941, the office organisation is maintained in the Department of the Interior, and its activities are likely to be continued and extended after the war. His Majesty's Governments have a sound case for resisting all United States claims except to the Pacific Sector and, perhaps, to the eastern margin of the Ross Shelf Ice.

MISCELLANEOUS PROBLEMS

Island Claims

10. The basis for the British claim to the Prince Edward Islands may be open to question in international law. While the British claim has not yet been contested, His Majesty's Government might find their position difficult to defend if another nation should occupy these islands. The Prince Edward Islands might become of importance as the site for a meteorological station and as a staging point in a future air route of great strategic value to the British Empire. At present these islands are not attached as a Dependency to any British territory; nor has any publicity been given to the limited British activities there. It is for consideration whether steps should be taken to strengthen the British title.

11. The basis for the British claim to Heard Island may also be open to question. The same arguments apply to its possible future value as to the Prince Edward Islands. It is for consideration whether an early opportunity should be taken to strengthen the British title before any dispute arises.

12. Since Macquarie Island, a Dependency of Tasmania, also has a potential value as a site for a meteorological station and as a staging point in a future strategic air route, it is for consideration whether active steps should be taken to exercise British sovereignty there.

The Importance of Publication of Information

13. Of the published literature dealing with Antarctic territorial claims, a large proportion deals very critically with British policy. Since much of this criticism is due to ignorance of the facts, it seems desirable to consider the publication of an authoritative statement containing as much information as can be released on the subject.

Antarctic Pilot

14. When the first edition of the *Antarctic Pilot* was published by the Admiralty in 1930 it was decided to omit all references to sovereignty and administration until the B.A.N.Z.A.R. Expedition

W1309/98/50
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Norway

5. Norwegian interests in the Antarctic are extensive and are primarily connected with the whaling industry. Queen Maud Land was formally annexed by Norway in 1939, and this claim has been recognised by His Majesty's Governments in the United Kingdom, Australia and New Zealand. At the same time the Norwegian Government recognised the boundaries of the Australian Antarctic Territory. The Norwegian claims to Bouvet and Peter I Islands have also been recognised by His Majesty's Government in the United Kingdom. The Norwegian Government have never protested against or formally recognised the British claim to the Falkland Islands Dependencies. The repeated applications of Norwegian companies for whaling leases and licences in all of the Dependencies may, however, be regarded as tacit recognition of British sovereignty.

6. There are thus no important points outstanding between His Majesty's Governments and the Norwegian Government, but a suitable opportunity might be taken to clear up certain matters which are now in doubt:—

(a) The Norwegian Government has never formally recognised British sovereignty over the Ross Dependency, and was the only foreign government to protest against the Order in Council of 1923 which created the Dependency. They have since stated that while they do not themselves lay claim to the regions discovered by Captain Amundsen in 1911, they consider that his explorations provide a valid basis for a Norwegian claim to these regions, which were defined as the sector between longs. 120° W. and 175° E., south of lat. 85° S. The question has not been raised since 1930. It was then evident that while the Norwegian Government did not wish to pursue this claim, public opinion in Norway was still sufficiently strong to preclude the Norwegian Government from recognising either the British Ross Dependency or possible United States claims in this area.

(b) When the western boundary of the Norwegian sector (Queen Maud Land) was recognised by His Majesty's Government in 1939 there was no mention of Norwegian recognition of the co-incident eastern boundary of the Falkland Islands Dependencies. It is desirable, but in no way urgent, to obtain formal Norwegian recognition of all the boundaries of the Falkland Islands Dependencies.

(c) His Majesty's Government have left open the recognition of any northern (ocean) boundary to the Norwegian sector. This omission is related to the whole question of the limit of territorial waters in the Antarctic and the exercise of control over whaling vessels operating outside territorial waters but within the ocean boundaries of the claim.

(d) The only outstanding German claim in the Antarctic lies within the Norwegian sector. If the Norwegian Government wish the German claim to be formally renounced, it is presumed that His Majesty's Government would give their support.

United States

7. United States Antarctic interests are based primarily on the three expeditions led by Admiral Byrd in 1928-30, 1933-35 and 1939-41. All three expeditions had bases in British territory at "Little America" in the Ross Dependency; and the third and last expedition also established a second base in south-west Graham Land in the Falkland Islands Dependencies. Further claims could be based on the discoveries made during Mr. Lincoln Ellsworth's trans-Antarctic flight in 1935 and during his shorter flight to "American Highland" in Princess Elizabeth Land in 1939. The only other important American discoveries in the Antarctic were made by N.B. Palmer in 1820 and by Charles Wilkes in 1840. The extent and position of the lands discovered by Palmer, Wilkes and Ellsworth have been the subject of acute controversy.

APPENDIX XVIII

SUMMARY

The following notes summarize the most important problems that may require consideration:—

The Suggested International Antarctic Conference

1. If any International Antarctic Conference is held, the participants would presumably be the United Kingdom, Australia, New Zealand, France and Norway, as countries already responsible for the administration of Antarctic territory. The United States, Argentina and Chile would have a case for representation as countries which have made territorial claims in the Antarctic. Belgium, Portugal, Spain, Sweden and the U.S.S.R. might claim to be interested as having discovered parts of the area. South Africa might similarly claim to be interested as an adjacent country. There are also disputes (mainly connected with whaling) which require settlement with Germany and Japan. The following notes summarise the position of the five foreign countries most directly concerned.

Argentina

2. It has for some time been evident that Argentina intends to assert title to the whole of the Falkland Islands Dependencies east of long. 68° 34' W. (with the exception of a small part of the Caird Coast), and that she has been pursuing an increasingly active policy to re-enforce this title. An Argentine party has been resident at Laurie Island in the South Orkneys since 1904, and the Argentine Government have consistently regarded this island group as theirs. His Majesty's Government have a sound case for resisting all Argentine claims in the Antarctic except to the South Orkneys, where there are some weak features to the British title.

Chile

3. Chilean claims in the Antarctic include all of the Falkland Islands Dependencies west of long. 53° W. They thus conflict with Argentine as well as British claims. The basis for the Chilean claims is extremely weak. Recent Chilean aspirations in the Antarctic may be ascribed to rivalry with Argentina, ignorance of British interests, and opportunism. The Chilean desire to resist Argentine expansion may probably have been the chief motive. The Chilean Government would certainly wish to participate in any Antarctic Conference, but there are no reasons whatever why His Majesty's Government should make any territorial concessions; to initiate discussions of the points in dispute would only raise new complications connected with the "sector principle."

France

4. French Antarctic territories comprise Adélie Land, the Crozet Islands and the Kerguelen Islands. French claims to Adélie Land and to the Crozet Islands have been recognised by His Majesty's Government. Although His Majesty's Government have never formally recognised the French claim to the Kerguelen Islands, Foreign Office correspondence between 1919 and 1930 shows clearly that French sovereignty is in no way disputed. The French Government have never protested against any of the British claims in the Antarctic and have no possible grounds for doing so, or for further claims of their own, except in the case of Graham Land, where French discoveries were made by Dumont D'Urville in 1838 and by Dr. Charcot in 1904-05 and 1908-10. The French Government have never advanced any claim to Graham Land and are unlikely to do so. They have never had any whaling interests in the Falkland Islands Dependencies. His Majesty's Government are thus free from any dispute on any Antarctic matter with the French Government. It may be mentioned, however, that His Majesty's Government in Australia would welcome any possibility of a transfer of the Adélie Land enclave to the Australian Antarctic Territory and would wish this to be borne in mind in any general settlement in which a suitable exchange of territory could be discussed.

Australasian Antarctic Expedition of 1911-14 made a thorough investigation of the reports of land in this vicinity, and, while erasing almost all of Wilkes' reported discoveries, gave the name "Wilkes Land" to a region lying westward of and in the same latitude as D'Urville's Adélie Land. This coast (longs. 130° E. to 136° E.) was not seen by Wilkes. It was in this way that the doubt arose as to the precise meaning which the French Government later attached to "Adélie or Wilkes Land" (paragraph 358). In January 1939 the Australian Department of External Affairs assigned the name "Wilkes Land" to the whole stretch of coast between longs. 102° E. and 136° E., and the name "Wilkes Coast" to the smaller stretch which had been discovered by the Australasian Antarctic Expedition (longs. 130° E. to 136° E.). In all United States publications, however, "Wilkes Land" is still used in the sense defined by the United States Geographic Board.

Norwegian Place-names in the Antarctic.—Special care should also be taken in the use of certain names of Norwegian origin. Since 1939 the name "Queen Maud Land" has been applied to the whole Norwegian Sector in the Antarctic, but it was originally applied in 1930 to what has been called "Crown Prince Olaf Land" since 1937. The eastern part of Princess Elizabeth Land, discovered by Lars Christensen in January 1934, was originally named "Princess Astrid Land." Since May 1934, however, it has been called "King Leopold and Queen Astrid Coast." The name "Princess Astrid Land" was transferred in 1937 to the area between Princess Ragnhild Land and Crown Princess Märtha Land discovered by H. Halvorsen in 1931. It is hardly surprising that these changes have led to much confusion, and there has been a considerable time lag in their adoption. Throughout the text of this Handbook the names of the Norwegian possessions in the Antarctic are given in their most recent English forms, as published in the map of Antarctica published at Canberra in 1939. This treatment has been considered desirable owing to the numerous changes during the last 15 years and because Norwegian maps are not readily available. It is important to note, however, that, in accordance with the practice of the Admiralty and the Geographical Section of the General Staff, future British official publications should adopt the Norwegian forms of all names in Queen Maud Land now that His Majesty's Government have recognised Norwegian sovereignty. The Norwegian forms of the "lands" are listed below:—

Dronning Maud Land	Prinsesse Ragnhild Land.
Kronprinsesse Märtha Land	Prins Harald Land.
Prinsesse Astrid Land	Kronprins Olaf Land.

It is for consideration whether His Majesty's Governments should sponsor the publication of official lists of accepted place-names within the British Antarctic territories. Apart from the confusion resulting from overlapping and differing names, there can be no doubt that the partisan use of certain names is the commonest and certainly the easiest method of expressing non-recognition of administrative authority, and of prolonging controversies relating to sovereignty. At present no such list is available other than the comparatively small number of official names adopted on Admiralty charts and in the Australian map of Antarctica published at Canberra in 1939. A suitable list should include after each name a statement of the precise locality, a brief geographical and historical description of the place, notes on the origin and meaning of the name, their successive changes of form and application, different ways of spelling, linguistic equivalents, and an indication of the form finally adopted. This work would involve a large amount of careful research, but if it is not done within the next few years, while many of the explorers concerned are still living, it will become increasingly difficult in the future.

forecasting. It has been suggested that permanent stations will be required on some of the islands mentioned above and that others might be occupied for short periods to give a scatter of observations. There is also the possibility that the setting up of automatic radio stations might lead to some degree of permanence of the observation stations on these islands. Of the British possessions in the South Indian Ocean the Prince Edward Islands are probably more suitably located for a meteorological station than Heard Island. It may be added that there are no especially compelling scientific reasons for establishing a British meteorological station at the South Orkneys in preference to other islands; for their location is not particularly well suited for weather forecasting purposes, and it could only be argued that they provide one of the many localities in which fundamental research is desirable.

A general survey of some of the problems discussed in this Appendix is given by C. E. Palmer in *Synoptic Analysis over the Southern Oceans*. New Zealand Meteorological Office, Professional Note No. 1, Wellington, 1942. This work deals primarily with the Australasian region. A similar survey, dealing with the South Atlantic area, is being prepared by the Naval Meteorological Branch of the Admiralty.

APPENDIX XVII

ANTARCTIC PLACE-NAMES

Considerable confusion and international ill-feeling have been caused by the use of overlapping and differing names for the same geographical feature. The ultimate acceptance of any particular name rests with the administrative authority, if any, of a territory; the decision as to the names to be inserted on a map of an area not under administrative control rests rather with the cartographer. In either case, much depends on the explorer, who is usually responsible in the first place for suggesting a name. In 1934 "Notes for the guidance of explorers and cartographers" in the Antarctic were accordingly drawn up, with the approval of His Majesty's Government in the United Kingdom, which were accepted by the Royal Geographical Society, and were communicated to His Majesty's Governments in the Commonwealth of Australia and New Zealand, and to the Government of the Falkland Islands. The principle of these Notes is that an explorer should send to the appropriate administrative authority the names which he suggests, with the reasons for suggesting them, with a view to official adoption by the administrative authority.

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of 1934.

In view, however, of the non-recognition of British administrative authority by certain recent foreign expeditions, these principles have not been generally adopted, and in any event they do not aim to clear up past confusions. With the exception of Svalbard, it is probable that in no part of the world have so many names been given, forgotten, imperfectly remembered, mis-spelt and misapplied. Almost all controversies over priority of discovery, generally of a national character, are reflected in the continued use of competing place-names. It is of importance, in this connection, to note that the United States Board on Geographic Names has for three years held up publication of the scientific results of the United States Antarctic Service of 1939-41, pending a solution of the controversial issues involved in the place-names of the areas visited by that expedition.

It is sufficient here to mention only the most important names which must inevitably cause difficulties in any international discussions:—

"*Graham Land*" and "*Palmer Peninsula*."—The name "*Graham Land*" has been adopted for British official use to cover the whole peninsula between the Weddell and Bellingshausen Seas, while "*Palmer Peninsula*" is used for the same area in all official United States publications. "*Palmer's Land*" appears as such in a map of the world in Woodbridge's *School Atlas*, printed at Hartford, Connecticut, which bears the date September 28th 1821. It is not clear exactly how the name originated in this Atlas,* but it cannot have been given before Palmer sighted this part of the coast on November 17th 1820. Bransfield's name "*Trinity Land*" for the same coast, although given on January 30th, 1820, was first published in the London *Literary Gazette* of November 24th 1821. It is contended on the one hand that "*Trinity Land*" is supported by priority of naming, and on the other hand that "*Palmer's Land*" was published first. "*Trinity Land*" was retained on Admiralty charts from 1822 until 1925. In 1921 "*Trinity Land*" and "*Louis Philippe Land*" were merged into "*Trinity Peninsula*." Palmer's work is commemorated on Admiralty charts in the "*Palmer Archipelago*." The name "*Graham Land*" dates from 1833 and is due to Biscoe, who was the first undisputed discoverer, in 1832, of the main unnamed body of the continental coast between the South Shetland Islands and Alexander I Land.

"*Wilkes Land*" and "*Wilkes Coast*."—Wilkes' original charts show that he thought he had found land extending approximately from long. 158° E. to long. 95° E. In the *Sixth Report of the United States Geographic Board* (Washington, 1934) "*Wilkes Land*" is described as the region between longs. 155° E. and 96° E. The

* No evidence has yet been produced that Palmer's Land was added at a later date while the Atlas plate retained its original date. It is quite possible that this was done, for other contemporary examples of this practice are known.

THE FUTURE POSSIBILITIES OF METEOROLOGICAL RESEARCH IN THE ANTARCTIC

The efforts which have been made in the past to establish permanent meteorological stations in the Antarctic have been discussed in Chapter V. It remains to give some indication of possible future developments. The situation seems to comprise five main requirements:—

1. *The provision of adequate climatic data for statistical purposes.* Such data provide the basis of meteorology. Each year an increasing amount of information is being obtained from the land and to some extent from the sea; but there are still large areas in the world from which no reliable data are available, and the chief of these areas is the Antarctic.

2. *The establishment of strategic meteorological stations for defence purposes.* The present war has demonstrated conclusively the necessity for an adequate world network of meteorological stations, and also the importance of denying the use of such stations to the enemy. It is essential to provide forecasts of current weather for air and sea operations, based on synoptic data from a widespread network of stations.

3. *The importance of such stations for civil aviation in the post-war era.* Civil aviation is dependent on adequate synoptic data and forecasting, and will undoubtedly demand considerably extended meteorological services in the southern hemisphere. Until regularly reporting stations are established in the Southern Ocean and on the Antarctic continent, forecasting will generally be impracticable in the southern portion of parts of South Africa, South America and Australasia.

4. *Long-range forecasts mainly for commercial purposes, especially agriculture, in South America, South Africa, Australia and New Zealand.* The determination of seasonal variations of the general atmospheric circulation is dependent on (1). No one is at present in a position to say whether or not the Antarctic holds the key to the problem of seasonal forecasting, but it is clear that no further progress in this direction can be made until a long series of observations has been obtained. It should be clearly understood that there is no assurance that Antarctic meteorological stations will provide the information required to forecast droughts; all that can be said is that until the observations are made there will always remain the possibility that essential information for the solution of this problem is not being obtained.

5. *The acquisition of fundamental meteorological knowledge.* There are many problems connected with the meteorology of the globe for the solution of which information from high southern latitudes is necessary. The possession of this knowledge would contribute towards a more complete understanding, not merely of southern hemisphere problems, but of the processes and mechanism of world meteorology in general. The Director of the Meteorological Office is of the opinion that the fundamental knowledge likely to be derived from observations in high southern latitudes would be of at least equal importance to the results which may be expected under headings 1, 2, 3 and 4 above.

These problems, however, are only a selection of those which require information from the Antarctic. Until regular observations in the Antarctic are made, knowledge of the atmosphere must be incomplete. Other geophysical subjects equally require data from a long series of years; it is only necessary to mention the problems of terrestrial magnetism, the new studies of the high atmosphere which are of great importance in the development of wireless communications and radar, and the forecasting of swell which has recently become of much significance in connection with aircraft carriers, the refuelling of ships at sea and for combined landing operations. Not all of these studies require an extended network of stations; the observations from two or three stations in high latitudes would suffice, and the observations from even one station would be of great value.

The prospects of post-war research are now being considered by the Discovery Committee, and it is thought that the Committee might very usefully co-operate in any joint scheme for the development of meteorology in the Southern Ocean, especially in undertaking relevant oceanographical observations and perhaps in rendering services to observing stations. The proposals for future research would necessitate active participation by the Governments of the countries interested and detailed planning with the Directors of the Meteorological Services of Australia, New Zealand, South Africa, and also possibly Argentina, France and Norway. An essential part of these plans must involve the occupation of selected islands in the Southern Ocean which are at present unoccupied. It is presumed that observations from the Falkland Islands and Tristan da Cunha would continue to be available, and probably those from South Georgia and the South Orkneys also. In the South Atlantic, stations for recording the passage of depressions towards South Africa would be of great value on Bouvet and Gough Islands. In the South Indian Ocean, Prince Edward, Crozet, Kerguelen, Heard, St. Paul and Amsterdam Islands all offer scope for observation stations, which might throw light on the fluctuations of the Indian Ocean anticyclone and thus be of value to Mauritius, Madagascar and East Africa as well as to Australia. A station on Macquarie Island in the South Pacific Ocean would probably be of particular interest to Australia and New Zealand. From the practical point of view it appears that stations on the more northerly islands of the Southern Ocean would be of much greater immediate value than stations on the coast of the Antarctic continent, but stations on the continent itself may eventually be essential for studies of long-range

matter, some of it very soft, some exceedingly hard, some splitting easily, and some breaking vertically into blocks. In the cliffs the coal seams are arranged at irregular intervals, but making very regular bands. . . . As we travelled along the cliffs on the 9th, we saw one or two seams of very genuine and really black coal."

The coal beds at the Mackay Glacier were not actually visited *in situ*. The beds were only seen in inaccessible places as part of the Beacon Sandstone formation. Fragments of coal, however, were picked up on the central moraine of the Mackay Glacier. It is described as a hard, bright coal associated with a dark soft shale. Debenham states:—

"The coal consists almost entirely of fixed carbon with a high percentage of ash. In it are found charred fragments of stems which are unrecognizable. The specimens bear all the marks of having been subjected to high temperature, and the absence of any notable amount of volatile hydrocarbons supports this suggestion. The finding of sandstone impregnated with bitumen seems to complete the story. One or two of the smaller fragments appear to be of better quality, but one is forced to recognize that probably the dolerite has destroyed most of the coal beds in this area and reduced them to what is the equivalent of anthracite with an excessive amount of mineral ash."

The additional information which might have been expected from the Mawson and Scott expeditions is therefore scanty, and in particular satisfactory reports on the quality of the coal are lacking. Since Scott's time (1912) the only other expeditions which have been able to report further on Antarctic coal are the American Byrd expeditions of 1928-1930 and 1933-35.

During Byrd's 1928-30 expedition L. M. Gould was in charge of a sledging party to the Queen Maud Range, and he was able to prove the south-eastward extension of the Beacon Sandstone formation. The sandstone is prominently developed at Mt. Fridtjof Nansen, and collections were made at Webster's Peak, described as "a spur jutting out from the north flank of its parent, Mt. Nansen." The main formation consists of yellow sandstones with intrusive sheets of dolerite. On Webster Peak were found "shaly facies which contain considerable organic matter, sufficient in places to identify the rock as a low-grade coal . . . which burned reluctantly when a match was applied."

During Byrd's 1933-35 expedition, Siple's party found sediments at Mt. Rea in Marie Byrd Land. This site is east of King Edward VII Land in about lat. 77° S. No coal was reported, but the sediments would appear to be of Beacon Sandstone age, and coal is therefore possible. The more important discoveries of Byrd's second expedition were those of the Queen Maud Geological Party led by Blackburn to the region east of Gould's discoveries. Blackburn's party visited Thorne Glacier and on reaching the Polar Plateau, within 210 statute miles of the Pole, discovered broad bands of sedimentary rock on the mountains. Siple, who had not himself been with the party that had been in Marie Byrd Land, writes of Blackburn's discoveries as follows:—

"Below these sedimentary rocks, they found only coarse granite and schists like those we had found in northern Marie Byrd Land, but capping them were great thick layers of Beacon sandstone and limestones containing fossil beds of ancient trees. A coal bed nearly five feet thick exhibited evidence of a luxuriant vegetation that had once existed when the region had been sub-tropical, long before the ice age had come to scour off the existing vegetation. Some of the tree fossils were a foot across the trunks, too heavy to be transported back by dog team. But for a day or more the party searched among the talus slopes of the mountain for the most perfect fossils that nature had pried loose for them."

There is no record so far of the coal specimens, collected either by Gould or by Blackburn, having been analysed and described.

No records are yet available from the United States Antarctic Service, 1939-41. Of the two bases of this expedition the western was located at the Bay of Whales on the Ross Shelf Ice, and opportunities for further investigating the coal possibilities may have been available.

Knowledge of Antarctic coal is therefore not much further forward than it was in 1909, when Shackleton's specimens were collected and their discovery and nature written up by David and Priestley. The only new feature is that there are now known to be possibilities of coal in a more accessible locality near the coast in King George V Land, where coal is definitely reported, and at Marie Byrd Land, where so far sediments only, which may contain coal, have been discovered.

In summing up the value of the coal the conclusion has been reached (1) that nothing definite is known about the thickness of the seams; Wild's statement was made from memory and he might have confused carbonaceous shale with coal; and (2) that the value so far reported of the coal as a fuel is low; the Mt. Buckley analysis is below that of a good house coal. It can only be described as "low grade." It is noticeable that plant remains bulk largely in descriptions and this suggests carbonaceous shales rather than coal. Further, dolerite intrusions are almost invariably found at the coal horizons, and the probability is that much of the possible coal has been changed to charcoal. "Charred wood" is a term frequently used. The Beacon Sandstone formation compares in age with coal-bearing strata elsewhere in the southern hemisphere where coal of fairly good quality has been mined. Although the first Antarctic analyses suggest poor coal, it is reasonable to assume that proper investigation will yield seams of better coal and free from the influence of the dolerite sills.

F. Debenham :
*British Antarctic
(Terra Nova)
Expedition,
1910.
Natural History
Report.
Geology, No. 4,
London, 1921,
pp. 108-09.*

L. M. Gould :
*Geog. Review,
Vol. 21,
No. 2, 1931,
pp. 188-89.*

P. Siple :
*Scout to
Explorer,
New York,
1936,
pp. 178-82.*

loc. cit., p. 200.

"As regards information then, up to the present the total thickness of coal . . . at the great nunatak at the head of the Beardmore Glacier, inclusive of some clay bands, is about 25 feet. There can be no question, in our opinion, that there is a very large coalfield on the downthrow side of the great horst westwards. This coalfield has to be estimated by such amounts as 100,000, possibly several hundreds of thousands of square miles. For example, if it were 700 miles in length and 143 miles in width from east to west, it would have an area in round figures of 100,000 square miles. At the most conservative estimate of only 100,000 square miles, and if only a thickness of 12 feet of the coal be workable, about one billion and a quarter, say approximately one billion tons, of coal would be available, that is, about ten times as much as is roughly estimated to be available for output at present in the unworked coalfields of the whole of New South Wales."

Griffith Taylor :
*Antarctic
Adventure and
Research*,
New York, 1940,
p. 101.
*British Antarctic
Expedition,
1907-09 :
Reports on
Scientific Inves-
tigations*
(London, 1914),
pp. 249-50.

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David and Priestley also state :—

"The chemical composition of the coal obtained by F. Wild from one of the seams *in situ* is also of interest. The following is the analysis of this coal from latitude 85° S. by Mr. J. C. H. Mingaye, F.C.S., Government Analyst and Assayer to the Department of Mines, New South Wales :—

Hygroscopic moisture	..	..	..	3·16%
Volatile hydrocarbons	..	..	..	14·5%
Fixed carbon	..	..	..	68·84%
Ash	..	..	..	13·43%
Total	..	..	..	99·93%

No true coke formed.
Sulphur in coal 0·274.

"The fact that the coal is slightly hydrous is suggestive of its being not older than Newer Palaeozoic. In Australia it is exceptional to find coal seams as old as the Permo-Carboniferous period containing more than about 1% of hygroscopic moisture. The chemical composition of the coal therefore suggests an age not older than Late Palaeozoic. On the other hand, the degree of induration of this unfaulted plateau sandstone suggests a fairly high geological antiquity.

"We think, therefore, that our original suggestion that the Beacon Sandstone formation may be of Gondwana age may be provisionally accepted. Certainly a considerable induration of the rocks, in view of their comparatively undisturbed state, suggests an age for them wholly antedating the Tertiary and probably antedating the Cretaceous as well. It is, of course, possible that the actual coal-bearing formation which lies near the top of the Beacon Sandstone may be of distinctly newer age than the Beacon Sandstone proper underlying it, but as far as we were able to observe the whole series is perfectly conformable, and therefore to be referred probably to one and the same system."

The above notes were written by Priestley and David when the discovery of coal in the Antarctic had stirred popular interest. They represent an extremely optimistic view (a habit of David's which seems hardly justified by the limited information available).

The Shackleton discoveries stimulated further searches during the succeeding Antarctic expeditions. New finds of coal were made by Scott's Last Expedition, 1910-1913 ; the Australasian Antarctic Expedition under Mawson, 1911-1914 ; and still later by the United States Antarctic Expeditions under Byrd, 1928-30 and 1933-35.

D. Mawson :
*Home of the
Blizzard*,
London, 1915,
Vol. I, p. 336.

D. Mawson :
*Australasian
Antarctic
Expedition,
1911-14.
Scientific
Reports*,
Series A,
Vol. IV, Part XI,
Sydney, 1940,
pp. 354-57.

The Mawson expedition finds were made by Madigan's party at Horn Bluff on the coast of King George V Land in about long. 150° E. The rocks at this point consisted of 500 feet of sediments, chiefly sandstone with a minor amount of shale and some coal, underlying a cliff of dolerite 500 to 600 feet in height. No further particulars of the nature of the coal are apparently available. The specimens of coal collected were apparently unsuitable for analysis, as they had been subjected to heat due to intrusion of dolerite. The same formation could be traced for 30 miles to the west to the Organ Pipe Cliffs. The Mawson expedition also dredged some "small specimens of lignite with the general character of brown coal" from two places off the west side of the Mertz Glacier Tongue.

Leonard
Huxley (ed.) :
*Scott's Last
Expedition*,
Vol. I,
London, 1913,
p. 564.

In the case of the Scott Expedition a fresh investigation was made of the Mount Buckley coal, and a new find was made at Mt. Suess (Gondola Ridge) on the Mackay Glacier near Granite Harbour in lat. 77° S. Scott himself visited Shackleton's Mount Buckley outcrop. The Beacon Sandstone formation is developed at the head of the Beardmore Glacier in much the same way as at the original type locality on the Upper Ferrar Glacier. It consists of alternating light and dark bands intersected by the very dark dolerite. Scott visited Mount Buckley or Buckley Island on February 8th 1912 and describes in his diary how his party found themselves "under perpendicular walls of Beacon Sandstone, weathering rapidly and carrying veritable coal seams. From the last Wilson, with his sharp eyes, has picked several plant impressions, the last a piece of coal with beautifully traced leaves in layers, also some excellently preserved impressions of thick stems, showing cellular structure." The leaves turned out to be leaves of *Glossopteris indica*, one of the most widely distributed and characteristic members of the flora of Permo-Carboniferous times. Dr. Wilson made collections for Scott. Coal seams were abundant in the cliffs and Wilson writes : "none of them were deep or broad, a few feet of dark blackish slaty, shaly or coaly

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D. Mawson :
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Leonard
Huxley (ed.) :
*Scott's Last
Expedition*,
Vol. 1,
London, 1913,
p. 564.

The field relations of the seams were described by Edgeworth David and Priestley. The Mount Buckley section is there described as consisting of an upper 500 ft. of sandstone; a middle 300 ft. of sandstone with bands of shale and about seven seams of coal, or seams formed of black shale alternating with laminae of bright coal; and at the bottom 700 ft. of sandstones with numerous water-worn quartz pebbles 1-2 in. in diameter in the lower beds. The same authors went into more detail at a later date. The coal seams are stated to form part of the Beacon Sandstone Formation, regarded in age as Permo-Carboniferous to Jurassic, comparable with the coal-bearing Gondwana beds of South Africa. David and Priestley write:—

"As regards the details of the coal seams contained in the middle 300 feet of sandstone with bands of clay shale no detailed section was measured, but F. Wild suggests the following, reading from above downwards, as an approximation to the section:—

- 1 foot to 1½ feet, coal seam.
- Strata.
- 7 feet, coal seam with bands of grey shale.
- Strata.
- 5 feet, coal seam, apparently formed of clean coal.
- Strata.
- 3 feet (about), coal seam.
- Strata.
- 3 feet (about), coal seam.
- Strata.
- 3 feet (about), coal seam.
- Strata.
- 3 feet (about), coal seam.

"As regards its horizontal extent, the Beacon Sandstone has now been traced from 85° S. lat. up to Mount Nansen in 74° 35' S. lat., a distance of 625 geographical miles, or over 700 statute miles. While it has this extent from north to south, the Beacon Sandstone formation extends certainly for a distance of over 50 geographical miles from east to west, and to judge from the inclosures of sandstone in the material of the parasitic cones of Mount Erebus, it probably continues for a farther distance of about 30 miles east, that is, a total proved east and west extent of about 80 geographical miles, or 93 statute miles.

"It is premature to estimate the gross quantity of coal within this area even approximately. All that can be said in this relation is that the superficial area of the Beacon Sandstone formation has already been proved to be originally in round numbers over 60,000 square miles; but from this has to be deducted a strip of variable width on the upthrow side of the great horst, from which the Beacon Sandstone has been denuded away. This strip may have an average width of about 20 miles, which would give an area of 14,000 square miles to be deducted from the original 60,000; this leaves 46,000 square miles. From this again further deductions must be made to allow for the Beacon Sandstone having been completely denuded off the highest parts of the horst in places, as at Mount Larsen, Mount Gerlache, Mount Bellingshausen, Mount Newmeyer, etc. This would still further reduce the area by probably at least 6,000 square miles, thus leaving 40,000 square miles of this area. About 28,000 square miles would lie on the downthrow side of the great fault between the west coast of McMurdo Sound and Erebus, and would be considerably below sea level. This would leave only about 12,000 square miles of Beacon Sandstone actually now exposed above sea-level in the plateau of the great horst, which would represent the whole amount available for coal-mining at present if the coal-measures were developed over the whole of this area. It is improbable that such is the case. For example, the Ferrar Glacier Valley was carefully explored by Armitage, by Ferrar, and other members of the *Discovery* Expedition under Captain Scott, and yet, with the exception of some carbonaceous laminae in places in the sandstone, no seams of coal were met with either *in situ* or in the morainic material. As a matter of fact, the only portion of this 12,000 square miles of the Beacon Sandstone formation which has as yet proved to be actually coal-bearing is the Buckley-Bartlett Nunatak at the head of the Beardmore Glacier, the total area of which is about 100 square miles. There can, therefore, be no reasonable doubt that the exposed portions of the Beacon Sandstone with the occasional coal seams form but an insignificant selvage to a vast coalfield thrown down to the west of the great horst, and now buried to a depth of probably from 1,000 to 2,000 feet under ice. In order to reach the coal in this vast field it would at present be necessary to sink shafts through the ice for the full amount of the thickness of the ice, say about 1,500 feet, then if the over-lying cover of 500 feet of sandstone were present the shaft would have to be continued a farther depth equal to that amount, that is, a total depth of at least 2,000 feet, at which depth the first seam of coal might perhaps be reached. If the thickness of the productive coal-measures as observed at the Buckley-Bartlett Nunatak is maintained under the down-faulted plateau west of the great horst, in a farther depth of 300 feet, that is, a total depth of 2,300 feet below the surface, the whole of the productive coal-measures might be penetrated. The great difficulty of keeping open a workable shaft in slowly-moving glacier ice would be, of course, at present prohibitive, if attempts were made to reach this vast coalfield under this ice carapace. If metallic minerals of economic value are discovered in the rocks of the great horst in the near future, as is nearly certain, and attempts are made to convert the region into a second Alaska, probably a sufficiency of coal will be found in the rocks of the horst to last for all the needs of the region for a long time to come.

T. W. Edgeworth David and R. E. Priestley: Appendix 2 of E. H. Shackleton's *Heart of the Antarctic*, London, 1909, Vol. 2.

British Antarctic Expedition, 1907-09; Reports on Scientific Investigations, London, 1914, pp. 247-255, 298, 300, 315, 316; and Plate XXXII.

*Protocol on the
International
Regulation of
Whaling,
Misc. No. 1
(1944),
Cmd. 6510.*

participated in the Antarctic for the season 1939-40. In 1940-41 the whaling fleets felt the full effect of the war; by 1941 the factory ships and catchers of all nations except Japan had been either sunk, captured or transferred to other services.

In 1944 a fourth International Whaling Conference met in London. Representatives of the interested allied Governments recognised that the position of world supplies of oils and fats was a critical one and agreed that all possible measures should be taken to alleviate the situation. The Conference also recognised the unique opportunity for reaching agreement on effective regulations before new vested interests should arise in the post-war period. It was accordingly proposed that in view of the small number of expeditions which would be likely to take part in the first whaling season after the war that season should be extended to cover the period from November 24th to March 24th following, to give an opportunity for more oil to be obtained. At the same time, in order to emphasise the principle of limitation of catch to preserve the whale stocks, it was agreed that the catch in waters south of lat. 40° S. in that season should be limited to 16,000 blue whale units.* It was also considered necessary to continue the previous regulations protecting humpbacks in the waters south of lat. 40° S. It may be noted that weather conditions would normally preclude any long extension of the season after March 24th, and that the limit of 16,000 blue whale units (roughly two-thirds of the average pre-war catch) is extremely unlikely to be attained owing to the shortage of factory ships and catchers. The total limitation to 16,000 blue whale units nevertheless represents an important principle, since it corresponds with the estimated maximum annual catch that will not impair the existing stock of whales. The Conference recommended that some such limit should be continued by international agreement after "the first season."

It might be assumed that whaling activities could be limited to a reasonable extent by such international agreements. However, the practical results do not justify any such assumption, since the major difficulty lies not in the technicalities of surveillance and law enforcement but in the conflicting economic interests. Norway and Great Britain have defended their position as original representatives of the industry. They are not interested in much expansion, but would like to see some degree of stabilisation at or below the pre-war level. They want restriction on a historical quota basis.

In the years before 1939 Japan and Germany both sought to secure a large share in the world's whale oil output for themselves. Both Governments wished to utilise every opportunity to obtain raw materials without sacrificing foreign exchange, and both subsidised their whaling industries. Germany, however, was prepared to co-operate in international regulation.

A third group of nations with similar interests in whaling consists of countries such as Soviet Russia, Chile and Argentina. These countries have participated in whaling to a very limited extent, but consider it a source of wealth. For them to accept a quota would simply preclude the possibility of developing their business. Any effective restrictions by the other nations are to the advantage of these "outsiders."

Finally, there is a group of countries which have little direct concern with the economic future of the whaling industry. The United States and France are examples. Such countries could easily pursue a perfectly conservationist policy since they have had little or no economic interest.

There is obviously a conflict of interests between the groups of nations that favour international regulation of whaling and those that are reluctant to preclude themselves from developing an industry of their own. The experimental agreements that have been made represent limited progress in the right direction. They have reduced and perhaps practically stopped the pursuit of whales in their mating and nursing grounds, and the slaughter of lean whales soon after their arrival on the whaling grounds. In general, unnecessary waste has been reduced. But the ultimate purpose of international regulation, namely the prevention of over-fishing, has not been attained. Nevertheless, the spirit of co-operation at these conferences has been most encouraging.

APPENDIX XV

DISCOVERIES OF COAL IN THE ANTARCTIC

Coal was first discovered in Antarctica during Shackleton's 1907-09 expedition. The incident is described in the following entry in Shackleton's diary of the southern journey:—

"After dinner to-night [December 17th 1908] Wild went up the hillside in order to have a look at the plateau. He came down with the news that the plateau is in sight at last, and that to-morrow should see us at the end of our difficulties. He also brought down with him some very interesting geological specimens, some of which certainly look like coal. The quality may be poor, but I have little doubt that the stuff is coal. If that proves to be the case, the discovery will be most interesting to the scientific world. Wild tells me that there are about six seams of this dark stuff, mingled with sandstone, and that the seams are from 4 in. to 7 or 8 ft. in thickness. There are vast quantities of it lying on the hillside. . . ."

Some small specimens were collected about 2-3 in. long by about $\frac{1}{2}$ in. thickness. The site was in lat. 85° S., and was named Mount Buckley or Buckley Island.

* Blue whale units are calculated as follows: 1 blue-whale = 2 fin-whales = 2.5 humpbacks = 6 sei-whales.

*E. H.
Shackleton:
Heart of the
Antarctic,
London, 1909,
Vol. I, p. 327.*

Cartel Measures

Meanwhile, another approach went considerably further toward checking the boom in whaling. Until 1932 operations had been carried on outside the Falkland Islands Dependencies without restriction. Since 1932 pelagic whaling has been subject to restrictions, the initiative being taken by the companies by attempting to reduce the oil production to a reasonable limit through quota agreements. The restrictions which resulted, in the first place by voluntary assent between the whaling companies, and later through an agreement between the two major participants, the United Kingdom and Norway, mark the development during the period 1932-37.

After the whale oil crisis of 1931, all the Norwegian and all but one of the British whaling companies formed a production cartel for the season 1932-33. The aim of this consolidation was not to protect the stock of whales, but simply to prevent another flooding of the whale oil market and if possible to minimize competition. The cartel estimated the total quantity of whale oil which could be placed on the world market at a fair price, and distributed quotas among the members. The quotas were decided both in relation to the production of oil and the number and size of whales that each company might kill. Further, whaling could not be carried on before October 20th, except at South Georgia, where the season started on October 10th. The agreement was renewed, with a few alterations, for 1933-34.

For the season 1934-35 no agreement was made, but in June 1934 certain changes were made in the Norwegian whaling law. The new law restricted the whaling season south of lat. 50° S. to the period December 1st 1934—March 31st 1935. The foreign companies voluntarily adhered to this Norwegian restriction, with the exception of one British and one South African company.

For the season 1935-36 a production agreement was reached between 21 companies. Eight companies remained outside the circle. The Norwegian companies which stood aside were assigned quotas by the Norwegian Government in order to put them on an equal footing with the others. Three companies which were not signatories of the agreement adhered to the time limit from December 1st 1935 to March 15th 1936. In addition, one of these companies declared that it would not produce above a stated fixed quantity. One Japanese company remained outside and operated without any restrictions.

During the season 1936-37 the catch was restricted by agreement between Norway and the United Kingdom. The agreement restricted the whaling season south of lat. 40° S. to December 8th 1936—March 7th 1937. The number of catchers that could be employed by each expedition was also restricted. Special provisions were stipulated for three British pelagic expeditions and for the South Georgia shore stations. One German and two Japanese expeditions operated regardless of restrictions.

The International Conferences of 1937, 1938, 1939 and 1944

By the season 1936-37 it was clear that Germany and Japan intended to develop their industries on a large scale. Under these circumstances it became even more urgently necessary to achieve international regulations. In 1937, therefore, an International Whaling Conference was held in London. An agreement was ratified by the following countries:—Union of South Africa, Argentina, Commonwealth of Australia, Germany, Great Britain and Northern Ireland, Eire, Dominion of New Zealand, United States of America and Norway. The principal measures agreed upon included a minimum size limit for the various species, the restriction of the Antarctic whaling season to the period December 8th 1937—March 7th 1938, and the prohibition of pelagic whaling in temperate and tropical waters. These regulations offered some protection to immature and breeding whales, but did not succeed in checking the total number of whales killed. All the Antarctic expeditions participating in the 1937-38 season adhered to the international agreement except four Japanese expeditions, which operated without restrictions, and one South African expedition, which started work one month earlier than the others. Japan declined to sign the agreement on the ground that her whaling industry was still so inadequately developed that she could not bind herself to regulations affecting her freedom of operations.

In 1938 a second International Whaling Conference was held in London. The agreement of 1937 was renewed for 1938-39 with a few amendments. It added a one-year closed season for humpback whales in waters south of lat. 40° S., and somewhat changed the areas closed to pelagic whaling. The establishment of a sanctuary in the South Pacific marked a new approach, but this only covered an area in which no commercial whaling has yet been prosecuted.

The signatory governments assumed the obligation to enforce the provisions of the agreements. Thus, for the first time since the introduction of pelagic whaling, it became technically possible to control the activities of whaling. The agreement was signed by ten countries,* including all that had an active interest in whaling except Russia, Japan and Chile. However, the Japanese delegation asserted that their Government were prepared to observe the principles of the agreement "as nearly as possible."

At a third (informal) International Whaling Conference held in London in 1939 representatives of the United States, Germany, Japan, Norway and the United Kingdom recommended the renewal of the existing agreements with certain small alterations. Owing to the outbreak of war in September 1939, no German expeditions

Karl Brandt:
*Whale Oil, an
Economic
Analysis,*
Stanford
University
Press, 1940.
*International
Whaling
Statistics,*
No. 16, Oslo,
1942.

*International
Agreement for
the Regulation
of Whaling,*
Misc. No. 4
(1937),
Cmd. 5487.

*Protocol
amending
International
Agreement...*
Misc. No. 6
(1938),
Cmd. 5827.

*Report of the
Conference
(unpublished).*

* The signatories of the 1937 agreement with the addition of Canada.

THE INTERNATIONAL CONTROL OF WHALING

In the season 1925-26 68% of the world's whaling was done in Antarctic waters; by 1928-29 this proportion had risen to 86.5%. During this period there had been very far-reaching changes in whaling methods as a result of the increasing use of floating factories. These vessels, since they were not dependent on shore stations, were subject to no licensing restrictions, and Governments had no control over them. When first introduced they had been of comparatively small size, averaging about 8,000 tons, but the growth of the industry was so considerable that by 1929 it was normal for vessels of 22,000 tons to be built. There had, in consequence, been an enormous increase in the catch of whales. In the season 1925-26 the production of whale-oil, in this region, was about 780,000 barrels.* In 1928-29 it had increased to some 1,631,000 barrels; and in 1929-30 to more than 2,500,000 barrels. Of this last figure, 1,500,000 barrels had been taken by Norwegian ships. It seemed quite clear that the stock of whales was not sufficiently large to stand exploitation at this rate and that some measure of control would have to be evolved.

Early Efforts toward International Co-operation

W 3898/87/50
of 1927.

W 4771/51/50
W 9592/51/50
of 1929.

League of
Nations,
Assembly,
Second
Committee
(A 64, 1931,
IIB),
*Opening of a
Convention for
the Regulation
of Whaling,*
Geneva,
Sept. 19th 1931,
p. 1.

In 1927 the French Government submitted to His Majesty's Government a draft international whaling convention. This, however, was not adopted because of the obvious impossibility of reaching any general agreement on the subject. In 1929 the International Council for the Exploration of the Sea appointed a Whaling Committee to consider the effects of modern developments in the industry upon the world stock of whales. Their report gave a clear indication of the necessity for restrictive action and suggested certain temporary measures for dealing with the situation. The Committee also drew attention to the necessity for the more efficient collection of statistics upon which regulations could be based. In the same year the Economic Committee of the League of Nations concluded that international measures for the protection of whales were urgent.

Meanwhile, Norway and Great Britain, the two nations that were in 1929-30 responsible for 95% of the world's output of whale oil, began to prepare legislation of their own designed to protect the future of the industry. Modern pelagic whaling was first dealt with legislatively by the Norwegian Whaling Act of 1929, which repeated or extended most of the Falkland Islands Government regulations (paragraph 181). It became obligatory for Norwegian whalers to utilise the carcasses of whales as efficiently as possible. By a Royal Ordinance of 1930 the Norwegian law was supplemented by the prohibition of killing of undersized whales, and in the same year an International Bureau of Whaling Statistics was established at Oslo.

In 1930 experts from all the interested countries met in Berlin at the invitation of the Economic Committee of the League of Nations. As a result of the discussions in Berlin, a draft convention for the regulation of whaling had been approved for submission to the Economic Committee. This draft convention enunciated certain elementary principles and was to be welcomed as the first step in international action, but it was entirely useless from the point of view of the protection of whales. It had been quite clear from the discussions in Berlin that the delegates were not then prepared to consider any measures for the limitation of whaling. The British delegates had pressed for the universal adoption of the licensing system, the number of licences granted by each country to be determined by agreement. It was evident, however, that public opinion in Norway would not admit of this procedure, and the suggestion received no support from any of the other delegates. The possibility of establishing close seasons and reserved areas was also discussed, but there was the serious difficulty that little advantage would result from any agreement between the countries chiefly interested if the door were to be left open to other maritime powers to enter the whaling field without restriction.

Secret E(30) 38
of 1930.

The Committee on Polar Questions appointed by the Imperial Conference of 1930 was in full agreement that protective measures were urgently required, but recognised that since whaling had become largely pelagic, effective measures could only be introduced by international action. They further recognised that the adherence of the Norwegian Government was essential to the successful prosecution of any proposal for international action, but at this time the great bulk of the Norwegian whaling community was not only not convinced, but was sceptical of the necessity for restrictive measures.

*British and
Foreign State
Papers, 1932,*
Vol. 135,
London, 1937,
pp. 347-52.

British Whaling
Industry
(Regulation)
Act, 1934.

The economic situation at the time of the financial crash in 1930-31 was so serious that all the Norwegian and several of the other whaling companies took the drastic step of laying up their fleets for the season 1931-32. While 47 expeditions with 232 catchers took part in the 1930-31 Antarctic season, only 7 expeditions with 45 catchers participated in the 1931-32 season. These events facilitated a new approach to the problem of conservation. On September 24th 1931, an International Convention for the Regulation of Whaling was signed at Geneva by the representatives of 26 nations. Russia, Japan, Chile and Argentina did not sign. This convention, eventually ratified by the same 26 nations, finally became effective on June 17th 1932. The convention was based on the same principles as the Norwegian law. It was only a first experiment in international agreement and fell far short of establishing a satisfactory restriction of the practices that threatened to deplete and eventually destroy the whaling industry. However, it served the important purpose of demonstrating the necessity and feasibility of international co-operation.

* One barrel = $\frac{1}{4}$ -ton (1 ton = 1,016 kg.).

It may be added that the history of the discovery of Antarctic lands, especially in the Dependencies of the Falkland Islands, has been studied by members of the scientific staff, and that some work of a less authoritative kind has been done on geology and meteorology. The technique of oceanographical research has been much improved by the introduction and perfection of new instruments and methods.

The Committee has co-operated in and given assistance to the Antarctic explorations made by Sir Hubert Wilkins, Rear-Admiral R. E. Byrd, Mr. Lincoln Ellsworth and Mr. Rymill's British Graham Land Expedition.

The future activities of the Discovery Committee are not finally decided at the present time. Plans are being discussed, however, and it is hoped that comprehensive investigations will be resumed when conditions permit. It is probable that the work will be concerned with the subjects listed above, but that meteorology and the economic resources of the land will receive more attention than in the past.

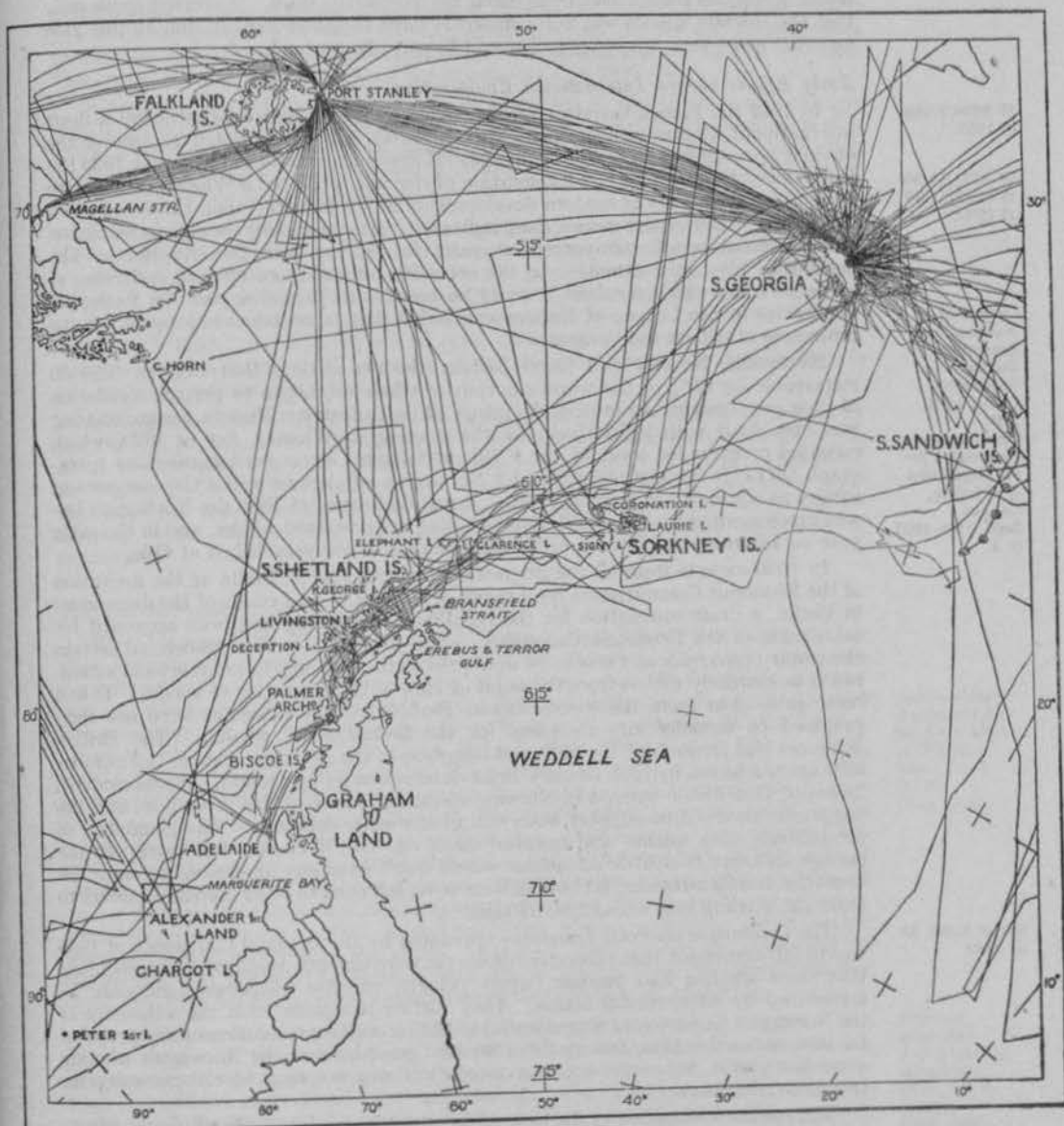


FIG. 13. Voyages of the Discovery Committee's ships in the Dependencies of the Falkland Islands, 1926-38. The majority of the tracks are those of the *Discovery II* between 1930 and 1938, but the movements in this region of the *Discovery*, 1926-27, and *William Scoresby*, 1926-38, are also included. The lines approximate fairly closely to the exact tracks followed, but those between South Georgia, the Falkland Islands and Magellan Strait have been spread a little so as to be distinguishable from one another. It is not possible to show complete details of the ship's movements. Much time has been spent, for example, on coastal surveys of South Georgia, the South Sandwich Islands, South Orkney Islands, South Shetland Islands and Graham Land, and a separate map of each group on a much larger scale would be needed to show the ship's local movements.

activities which are undertaken and the wide scope of the investigations. For example, to certain departments of the British and foreign governments concerned with the regulation of whaling, the Committee is the recognised authority on the natural history of whales, and the condition of the stock, but these departments have no concern with Antarctic navigation, or the potential supply of hake on the Falkland Islands plateau. The Admiralty has made much use of the Committee's surveys and soundings, and has sought information on ice conditions and other aspects of Antarctic geography and oceanography, but they are not concerned in the economic resources of the Antarctic, and have little interest in whales. The British Museum has acquired valuable biological collections, but will have no interest in, say, the surveying of harbours in the South Shetland Islands.

As a result of unrivalled opportunities extending over a period of fifteen years the Committee now has at its disposal very extensive information on the Antarctic regions and an experience in the conduct of Antarctic research which is certainly unique. A summary list of the subjects on which the Committee has undertaken research and can now claim to give an authoritative opinion would include the following:—

1. *Whaling*

(a) The natural history of whales: their specific identity, distribution, migrations, breeding seasons and habits, rate of growth, age at sexual and physical maturity, parasites and diseases.

(b) The stocks of whales and their inter-relations; effects of commercial exploitation and the measures necessary to ensure the permanence of the industry.

(c) The utilisation of whale products.

2. *The Oceanography of the Southern Ocean*

(a) Hydrography: the delineation of the main water masses and currents and of the abrupt boundaries (convergences or discontinuity layers) by which they are often separated; the direction and speed of their movement and their seasonal and annual fluctuations. Delineation of the distribution and seasonal and annual variations in temperature, salinity and density, and in the concentrations of oxygen, phosphate, nitrate, silica and hydrogen ions.

(b) Plankton: the distribution and quantity of the phytoplankton in correlation with the hydrological data; its constitution in different areas and the variation according to latitude of its seasons of maximum abundance. The natural history of the plants composing the phytoplankton, the effects of pack-ice, the distribution of diatom ooze, the significance of the diatom film on whales.

The zooplankton: its distribution and incidence in correlation with the hydrological data. The life histories, habits, seasonal variations and abundance of the commoner species, especially of the krill which form the staple food of southern whales.

3. *The marine fauna and flora of the Falkland Islands and their Dependencies*

Surveys of the organisms inhabiting the coastal areas to a depth of about 100 fathoms, with particular reference to:—

(a) The possibility of establishing a trawling industry on the plateau between the Falkland Islands and the South American continent.

(b) The sealing resources. The distribution of the fur seal and the conservation of the small colonies which now exist. The distribution and commercial utilisation of the stocks of elephant seal and sea lion, and the possible exploitation of crab-eater and other Antarctic seals.

(c) The birds of the Dependencies and Southern Ocean generally: their distribution, nesting and habits.

4. *Antarctic Ice*

(a) Pack-ice. Its distribution in different areas at all seasons of the year; the limits of its northward extent and its influence on whale movements, on the hydrology and on the plankton.

(b) Icebergs. Annual and seasonal variations in abundance and in northward extension. Occurrence of bergs of phenomenal size and with inclusions from land formations.

(c) Ice-navigation.

5. *Surveys and soundings*

(a) Charting of sub-Antarctic and Antarctic coasts by running surveys and echo-soundings, with triangulation and more detailed work in harbours and their approaches.

(b) Delineation of the bottom topography of the ocean basins throughout the Southern Ocean by deep-water echo-sounding.

Apart from the work in the Southern Ocean the Committee, at the request of the Admiralty, has made an extended oceanographic survey of the Peru current on the west coast of South America.

tons, 1926-38). A marine station was established at South Georgia near one of the shore whaling stations (1925-31), and detached parties have worked in factory ships and other stations.

The more direct investigations on whales have included the anatomical examination of many thousands of whales at whaling stations and in factory ships, principally for studying their breeding and growth; the marking by numbered darts of some thousands of living whales (mainly by the *William Scoresby*) for investigation of migrations and distribution; and observations at sea on their distribution and habits during the voyages of all three ships. In addition some extensive collections of ovaries have been acquired by the courtesy of the whaling companies, for these organs, which retain traces of previous pregnancies, give a clue to the age of a whale. It would be impossible to give in a few lines even the barest summary of the results of these investigations, but it may be said that the great whalebone whales breed slowly, but grow up comparatively quickly, that they spend the summer in the Antarctic where food is abundant, and migrate, sometimes thousands of miles, to warmer regions, where breeding takes place, and that they tend to return to the same part of the Antarctic in the following summer. Of the three important species, fin whales (*Balaenoptera physalus*) are still plentiful in the Southern Ocean, but the stocks of blue whales (*B. musculus*, the largest species) and humpbacks (*Megaptera nodosa*) were reduced as a result of hunting before the war.

The more comprehensive research was carried out during one commission of the *Discovery* and five subsequent commissions of the *Discovery II* with the co-operation from time to time of the *William Scoresby*. This amounted in effect to a hydrological and biological survey of the whole Southern Ocean, though the observations were more concentrated in the Falkland sector than elsewhere, and a period in nearly every commission was devoted to coastal surveys, and what might be termed scientific exploration, in the Falkland Islands Dependencies. The *Discovery II* is a specially efficient ship, with a maximum cruising range of about 10,000 miles and equipment for almost all forms of oceanographical research. The Southern Ocean has been covered with a network of voyages, including two circumpolar cruises, the ship stopping periodically "on station" to take a series of water samples and temperatures at all depths from surface to bottom, and to fish a variety of nets. Frequent echo soundings and meteorological observations were made, and continuous records were kept of sea temperatures, and of whales, birds, icebergs, etc. Many such voyages ran north and south between sub-tropical regions and the pack-ice, others were concentrated in the belt north of the ice which forms the summer habitat of whales, and sometimes the same tracks were followed at different times of year for the study of seasonal variations. Especially intensive observations were made on the whaling grounds of South Georgia and the South Shetland Islands.

When a research ship is constantly at work on such a variety of subjects the scientific data and collections accumulate much faster than they can be analysed and reported upon unless a very large staff is employed at home. The *Discovery* Committee's work at sea was suspended in 1939 and little could be done on the accumulated material in wartime. Thus the work cannot be completed until some years after the war is over. However, much has already been done. The principal water masses and water movements of the Southern Ocean and the seasonal advance and retreat of the pack-ice have been mapped out, and much is already known of the chain of nourishment which begins with the nutrient salts in the water upon which depend the minute vegetable organisms so abundant in the surface waters of the Antarctic. These vegetable organisms (mainly diatoms) form the pastures of the ocean and feed the shoals of small crustaceans which in turn are the staple food of whales and many fish, seals and birds. The crustaceans, known as krill, are confined to waters south of the Antarctic convergence (the line which marks the northern boundary of the cold Antarctic surface water) and their distribution, which nearly corresponds with the maximum area covered by the pack-ice, is closely connected with the summer distribution of the whales.

Many parts of the Falkland Islands Dependencies have been surveyed, and much information acquired on the physiography, geology and biology of these lands. The movements of the Committee's ships (Fig. 13) have constituted an effective patrol of the Dependencies.

In the course of the work very extensive collections of the marine fauna and flora have been made and reported upon by specialists, and a variety of minor problems have been investigated.

The scientific results of the work are published by the Committee in a quarto series of memoirs entitled the *Discovery Reports* (Cambridge University Press), of which twenty-two volumes have so far been issued. For the most part these are technical papers, but from time to time semi-popular accounts of the work of the ships have been given to the Royal Geographical Society and published in the *Geographical Journal*. As noted above, the work at sea could not be continued in wartime, and most of the Committee's staff are occupied in various forms of national service. Work at home has been continued, however, by a small nucleus of the staff and some further reports have been issued since the war began. The Committee's future activities in the post-war years are at present undecided.

Partly because the Committee's activities have been little advertised and partly because the work is many sided and often highly technical, the magnitude of what has been achieved is not often realised. Government departments, scientific bodies, commercial interests, foreign governments, etc., who are interested in, or affected by, one branch or other of the Committee's work are seldom fully aware of all the other

Geog. Journ.,
Sept. 1928,
March 1932,
May 1934,
Oct. 1936,
March 1939,
April 1942.

nature—and there is now no possibility of determining what extent of shelf-ice he may have seen—he undoubtedly located about 350 miles of the coastline of *terra firma*. The fact that he was convinced that he had seen and charted more than four times this extent of coast should in no way detract from the remarkably fine achievements of his pioneer voyage.

Controversy has centred not only on the extent of Wilkes's discoveries but also on the dates, for the French expedition under Dumont D'Urville was in Antarctic waters at the same time as the American squadron. It has generally been accepted that D'Urville sighted Adélie Land on the same day (January 19th 1840) that Wilkes discovered land 400 miles to the east which he named Cape Hudson, and also that D'Urville's Côte Clarie (shelf-ice in about long. 131° E.) was sighted by him the day before it was seen by Lieutenant Ringgold on board the *Porpoise*. In fact D'Urville first sighted Adélie Land the day after Wilkes reported the sighting of Cape Hudson, and he sighted Côte Clarie the same day that it was sighted by Ringgold, but at a later hour.

When D'Urville crossed the 180th meridian, from east to west, on his way to the Antarctic he failed to drop a day, as is clearly shown by his positions on the chart. Wilkes in his log records dropping a day when he crossed the 180th meridian, also from east to west. An instance of this discrepancy in dates appears in the records of the meeting of the two expeditions. The date in the log of the *Porpoise* is January 30th, which appears as January 29th in D'Urville's log. D'Urville, on his approach to Europe, records making the correction by dropping a day (June 23rd 1840). Thus in any comparison between the discoveries of the two expeditions all the dates in D'Urville's log (and his published narrative) are one day in advance of the true date.

Using the correct dates for both expeditions, events may be summarised as follows:—On January 16th 1840 Wilkes thought he saw land (Ringgold's Knoll, Eld's Peak and Reynold's Peak), but in his later consideration he concluded that this land was an island or islands surrounded by ice. Wilkes first became convinced that he saw a larger area of land (Cape Hudson) between 8 and 9 a.m. on January 19th. D'Urville first became convinced that he saw land at 10.50 p.m. on January 20th, but he had suspected its presence since 9 a.m. on the same day. He landed on January 22nd and named the coast Adélie Land. At 7.30 a.m. on January 31st the *Porpoise* of Wilkes's squadron was in the entrance of the great inlet on the south-east side of D'Urville's Côte Clarie and had sighted the edge of the shelf-ice, the northern part of which D'Urville reached about 10 a.m. on the same day.

However, as indicated above, it is impossible on the existing evidence to accept the validity of Wilkes's discovery of Ringgold's Knoll, Eld's Peak, Reynold's Peak and Cape Hudson. He may have seen Point Case, which was possibly the Mertz Glacier Tongue, on January 23rd and Lieut. Ringgold certainly saw part of Adélie Land on January 28th, eight days after D'Urville. Both the validity and priority of Wilkes's discoveries have been strongly urged by Lieut. Cdr. Yates Stirling, U.S.N., and by Professor W. H. Hobbs. The controversy is best followed on the map accompanying Professor Hobbs's first paper, in which he accurately reproduces Wilkes's chart with all the later discoveries superimposed. The matters in dispute are still of importance to-day in view of the wide measure of support accorded to Wilkes's claims in United States official publications.

APPENDIX XIII

THE DISCOVERY INVESTIGATIONS

In 1917 the attention of the Colonial Office was drawn to the importance of developing the resources of the Falkland Islands Dependencies, and in consequence an Interdepartmental Committee on Research and Development in the Dependencies of the Falkland Islands was appointed. The Committee reviewed all the available data relating to the Dependencies and their whaling industry, and recommended the despatch of a scientific expedition to investigate thoroughly the biology of the area concerned, and to carry on general scientific research and survey. This led to the formation of the Discovery Committee in 1923.

The principal function of the Discovery Committee is to conduct research into the economic resources of the Antarctic, with special reference to the Falkland Islands Dependencies. The Committee acts under the authority of the Secretary of State for the Colonies, and a scheme of research, planned on very broad lines, has been in progress since 1925. This research has been mainly focussed on the natural history of whales, for whales at present constitute the most important of the economic resources of the Antarctic; but the Committee's work also includes investigations on general oceanography, ice conditions, seals, fish and other aspects of the fauna and flora of the southern ocean, and with sounding and coastal surveying. These various subjects are included not only because they are in themselves important, but also because a study of the breeding, distribution and migrations of a wild population of animals such as whales must include the study of their environment and their place in the general economy of oceanic life.

During the years before the outbreak of war in 1939 the Committee's work was carried out by three ships, the Royal Research Ship *Discovery* (736 tons, 1925-27) the R.R.S. *Discovery II* (1,036 tons, 1929-39), and the R.R.S. *William Scoresby* (324

Charles Wilkes :
loc. cit., Vol. 2,
p. 159.

J. S. C. Dumont
D'Urville :
*Voyage au
Pôle Sud* . . .
Vol. 8, Paris,
1845.

Y. Sterling :
*Proc. U.S.
Naval Institute*
Vol. 36, 1910,
pp. 465-68.
W. H. Hobbs :
Geog. Review,
Vol. 22, 1932,
pp. 632-55 ;
Geog. Journal,
Vol. 81, 1933,
pp. 538-40 ;
Geog. Review,
Vol. 24,
pp. 113-17.
*Sailing
Directions for
Antarctic*, H.O.,
No. 138,
Washington,
1943, and
accompanying
Chart,
H.O. No. 2562.

*Report of the
Committee,
Cmd. 657,
London, 1920.*

of his squadron. It should be added, as it will make the subsequent history of his "discoveries" more comprehensible, that he and his men were absolute novices in polar work, and that the characteristic shelf-ice formations of the Antarctic were at that time quite unknown.

The validity of Wilkes's reports was almost immediately called in question. He sent a tracing showing all his "discoveries" to Sir James Ross, who subsequently sailed with the *Erebus* and *Terror* over a position where Wilkes's tracing depicted mountainous land. In 1850, Captain Tapsell, an English sealer, after leaving the Balleny Islands, sailed westwards as far as 143° E. in a considerably higher latitude than Wilkes without sighting any land. In 1874 H.M.S. *Challenger* reached a position within 15 miles of Wilkes's Termination Land and found no land in sight. In 1902 the *Gauss* made a sounding of 1,730 fathoms near the charted position of Termination Land. In 1904 Captain Scott, in the *Discovery*, found open sea where Wilkes had charted high land as Ringgold's Knoll, Eld's Peak and Cape Hudson.

Finally, the two expeditions headed by Sir Douglas Mawson in 1911-14 and 1929-31 obtained both confirmation and condemnation of the Wilkes landfalls. The first expedition disproved the existence of Totten's High Land and North's High Land, and partially disproved the existence of Budd's High Land. In addition Mawson sailed over the charted position of land east of Wilkes's Cape Carr in clear weather. In February 1912 the *Aurora* reached the charted position of Termination Land. Mawson found there a shelf-ice formation which he named Termination Ice Tongue, in honour of Wilkes. This would give an appearance of land "to anyone some miles off who has not learnt that such huge masses of ice are not necessarily on a solid foundation." In January 1931 Mawson found Termination Ice Tongue no longer in existence. "In its place there remained only a number of grounded bergs." The *Aurora's* soundings in 1912 had pointed to the probable existence of Wilkes's Knox Land. During the second expedition Mawson used an aeroplane. Looking south from the aeroplane towards Knox Land on January 27th 1931 he reported that "there the cloud canopy was absent and the sun was shining brightly on what appeared to be undulating land ice. What we observed was certainly a great distance to the south. The clouds obscured the southern limit of the pack-ice, and such coastline as may be there was hidden by the pall of cloud." Budd's High Land was not found in January 1931, but "a change appeared in the sky conditions in the south and south-east, strongly suggestive of the proximity of land."

Bearing in mind the common experience of expeditions operating in Antarctic seas to meet with ice masses either afloat or aground, which simulate land to a remarkable degree, and fully appreciating the rôle of mirage both in distorting and in lifting the image of distant objects, Sir Douglas Mawson has made a careful examination of all the evidences of land in this part of the Antarctic. He considered each of Wilkes's landfalls in an impartial endeavour to ascertain on what occasions land (a) was definitely sighted, (b) may have been sighted, (c) was unlikely to have been sighted, and (d) cannot have been sighted. The evidence available appears to indicate the following grouping:—

(a) Land definitely sighted:

1. Adélie Land (between longs. 136° E. and 142° E.).
2. Knox Land (between longs. 104° 30' E. and 108° 30' E.).

(b) Land that may have been sighted:

1. Budd's High Land (between longs. 110° 30' E. and 112° 30' E.).
2. North's High Land (part only in the vicinity of Cape Goodenough).

(c) Land unlikely to have been sighted:

1. Point Case (reported in long. 146° E., lat. 67° S.).

(d) Land that cannot have been sighted:

1. The appearance of something like distant land noted by Ringgold in long. 164° 40' E.
2. Ringgold's Knoll (reported in long. 158° E., lat. 67° S.).
3. Eld's Peak (reported in long. 157° E., lat. 67° S.).
4. Reynold's Peak (reported in long. 156° E., lat. 67° S.).
5. Cape Hudson (reported in long. 153° E., lat. 67° S.).
6. Point Emmons (reported in long. 149° E., lat. 67° S.).
7. Cape Carr and adjacent high land (reported in long. 132° E., lat. 65° S.).
8. The western part of North's High Land (reported in long. 125° E., lat. 66° S.).
9. Totten's High Land (reported in long. 120° E., lat. 66° S.).
10. Termination Land (reported in long. 96° E., lat. 64° S.).

In the light of the now very substantial knowledge gained of Antarctic ice formations and of the peculiar atmospheric effects at times prevailing, it is evident that Wilkes and his officers were at times misled, believing distant floating and grounded bergs or shelf-ice, and probably, also, low cloud banks, when distorted by mirage, to be land. There is ample evidence that during the last century very large areas of shelf-ice fringing various parts of the Antarctic continent have broken away as tabular icebergs and drifted northwards, some of these bergs being over 60 miles in length. The mirrored silhouette of giant bergs, of irregular form and size, viewed across stretches of pack-ice, may closely simulate low ice-covered land. Cloud banks of certain types may also be practically indistinguishable from white, smoothly undulating, ice-capped highlands. Although most of Wilkes's landfalls appear to be of this

D. Mawson:
The Home of the Blizzard,
Vol. I,
London, 1915
p. 72.

J. K. Davis:
With the Aurora in the Antarctic,
London, 1919,
pp. 164-65.

D. Mawson:
Geog. Journal,
Vol. 80, 1912,
pp. 117-20.

D. Mawson:
Proc. Roy. Geog. Soc. South Australian Branch, Vol. 34,
Session 1932-33
pp. 7-113.

Their contentions have been vigorously and convincingly refuted by Mr. A. R. Hinks in the *Geographical Journal*, Vol. 94, 1939, pp. 309-30; Vol. 96, 1940, pp. 419-30, and in the *Geographical Review*, Vol. 31, 1941, pp. 491-98, and by Lieut.-Commander R. T. Gould, R.N. (ret.) in the *Mariners' Mirror*, Vol. 27, 1941, pp. 206-42. It is necessary to consult all of these papers for a full understanding of this involved dispute.

It is important to note that since Graham Land can be seen in clear weather from Deception Island, and also from ships passing down the northern side of Bransfield Strait, it seems certain that the mainland must have been sighted from several sealing vessels early in 1820. The reticence of the early American whalers and sealers, regarding the places visited and the nature of their trade, was very marked. In order to prevent rival firms from obtaining information only the barest mention was made even of matters affecting the loss of ships and crews. There is always the possibility that further research on the large number of surviving log books preserved at New Bedford, Salem, Boston and Washington (and also, perhaps, Buenos Aires) might raise new problems of priority of discovery of Graham Land. Meanwhile the British claims made on behalf of the expedition under Bransfield may be regarded as substantiated, but they have received very little publicity or recognition in the United States.

APPENDIX XI

THE DISCOVERY OF THE SOUTH ORKNEY ISLANDS

The discovery of the South Orkney Islands was a direct result of the rapid rise and decline of the great southern sealing industry which followed William Smith's discovery of the South Shetlands in February 1819. In November 1821 the British sealing sloop *Dove* (George Powell, Master) was at Livingston Island where Powell carried out a survey of the north-west coast of the South Shetlands as far as Elephant Island. On November 30th he fell in with Captain Nathaniel Palmer, then commanding the American sealer *James Monroe*. The two agreed to join forces and sail eastward in search of new land. They sailed in company on December 3rd 1821, and on December 6th Powell's mast-headman reported land in sight, the *James Monroe* being then four miles astern. This proved to be the group now known as the South Orkneys. On the following day Powell landed on Coronation Island and took possession for King George IV (see p. 157).

In 1822 Powell published his *Notes on South Shetland, Etc.* (London, printed for R. H. Lawrie) and a chart of his discoveries in the South Orkneys. Palmer's account was reported verbally to Edmund Fanning, and was published by the latter in a highly embellished form in his *Voyages Round the World* (London, 1834). That Powell and Palmer were in company when the South Orkneys were first sighted is not in question. Controversy centres round their respective shares in the discovery and the records made of it. Professor W. H. Hobbs, in the *Transactions of the American Philosophical Society*, New Series, Vol. 31, Part I, 1939, claims that the chart, which he calls the Palmer-Powell map, was the work of Palmer, who handed it over to Powell at Yankee Harbour (where Powell never was) and that it was subsequently "suppressed" by the Admiralty (which was not the case) in order to conceal Palmer's share in the discovery. Professor Hobbs's arguments have been critically examined by Mr. A. R. Hinks in the *Geographical Journal*, Vol. 94, 1939, pp. 309-30, and by Lieut. Commander R. T. Gould in the *Mariner's Mirror*, Vol. 27, 1941, pp. 206-42. The evidence has also been critically examined by Dr. J. W. S. Marr in the *Discovery Reports*, Vol. X, pp. 283-382 (Cambridge, 1935). Palmer, though an intrepid sealer, was not a surveyor; and the evidence strongly favours the contention that the main initiative for the voyage of the *Dove* and the *James Monroe* came from Powell, that the bulk of the surveying was done by him and his officers, and that the chart subsequently produced was his own work.

APPENDIX XII

DISCOVERIES OF THE UNITED STATES EXPLORING EXPEDITION AND OF THE FRENCH NAVAL EXPEDITION IN 1840

The Antarctic discoveries of the United States Exploring Expedition in 1840, under Lieutenant (later Rear-Admiral) Charles Wilkes, U.S.N., have given rise to endless controversy, to recriminations of the most painful kind between British and American naval officers, to a court martial, and to accusations of professional incompetence and scandalous conduct. The time has now arrived, however, when a more definite judgment can be pronounced on the nature of the claims put forward by Wilkes.

Wilkes's original chart shows the tracks of his vessels (*Vincennes*, *Peacock*, *Porpoise* and *Flying Fish*), the general outline of the "icy-barrier" and the approximate positions where he had sighted land along the Antarctic Circle between longs. 95° E. and 155° E., a total extent of about 1,500 miles. He made no landing, but was convinced of the reality of his discoveries from the running survey conducted by the ships

Charles Wilkes:
*Narrative of the
United States
Exploring
Expedition
during the years
1838-42*, 5 Vols.
and *Atlas*,
Philadelphia,
1844.

were sighted. Here he turned southwards and on January 30th saw the Antarctic mainland, which he named Trinity Land. From here he steered eastwards, and after sighting and charting the north-west coast of what is now called Trinity Peninsula, and the western portion of D'Urville Island, followed the edge of the pack-ice to Elephant Island and thence eastward to Clarence Island. On February 4th a second landing was made at Cape Bowles on Clarence Island, and a second Union Jack hoisted (see p. 157). He then cruised southwards into the Weddell Sea before returning along the north side of the South Shetlands to Valparaiso.

Bransfield's work was published in the form of an Admiralty chart (unnumbered) dated November 30th 1822, while contemporary accounts of the voyage appeared in the *Edinburgh Philosophical Journal* for October 1821, and in the *Literary Gazette* for November 3rd, 10th and 24th of that year. The account in the *Edinburgh Philosophical Journal* was probably written by Adam Young, surgeon of H.M.S. *Staney*, who accompanied Bransfield, and is of a very vague character. The account in the *Literary Gazette* is far more complete and reliable. It is based on "an authentic copy" of a journal kept by one of Bransfield's officers, Thomas Bone, of H.M.S. *Andromache*. Bransfield's original charts are preserved at the Admiralty, but the log of the *Williams*, which Bransfield sent in with them and which was undoubtedly received at the Admiralty, has been lost.

In the absence of the log of the *Williams* it is difficult to plot her track accurately, and it is debatable whether on January 30th Bransfield sighted the north coast of Trinity Island, the pack-ice adorning to the mainland, or the mainland itself. There can be no possible doubt that during the succeeding days he saw the northern extremity of what is now called Trinity Peninsula in the vicinity of Mount Jacquinet, and also D'Urville Island.

Smith returned in the *Williams* on a sealing expedition to the South Shetlands for the season of 1820-21. He then came back to England and at the end of 1821 addressed a Memorial to the Lords Commissioners of the Admiralty, with a chart to show his discoveries. These are both preserved in the Admiralty collection of original documents (P.R.O. Adm., in letters, 5029; Pro. S. 498, 1821; and Hydrographic Department. Press Mark AE1, S 91).

Smith's discovery of the South Shetland Islands is well authenticated and is undisputed.* Bransfield's claim to the discovery of a portion of the Antarctic Continent is challenged from United States sources in favour of Nathaniel B. Palmer, Master of the sloop *Hero* of the Stonington sealing fleet. Palmer made no maps and published no account of his voyage. A diary said to have been kept by Palmer has disappeared, but the log of the *Hero*, the one surviving original document that might be expected to give some account of Palmer's discoveries, is preserved in the Library of Congress. The relevant extracts from this log have only recently been published for the first time in the *Geographical Journal*, Vol. 86, 1940, pp. 419-30, together with a discussion of all the later conflicting accounts of the voyage. The facts now established are set out below.

On Smith's return to Valparaiso in November 1819 news of his discovery reached a number of sealers who sailed southward and arrived at the South Shetlands in January 1820. Among these vessels was the Argentine polacre *San Juan Nepomuceno*, which was apparently the first to return to South America with a cargo of skins, the British brig *Espérito Santo*, and the American brig *Hersilia*.

The *Hersilia* (Captain James Sheffield) from Stonington, Connecticut, was the first American vessel to reach the South Shetlands, with Nathaniel B. Palmer as Second Mate. In the summer of 1820-21 there were at least 44 vessels—most of them American and British—working in the South Shetland Islands. Palmer commanded the sloop *Hero*, which acted as tender to the Stonington fleet during that season. On November 16th the *Hero* was sent south to examine some land which had been seen from Deception Island. The log gives a vague description without any positions, but provides fair evidence that on November 17th† 1820 the *Hero* was in the vicinity of lat. 63° 45' S, and that Palmer saw the mainland which appears on Powell's map of 1822 as Palmer's Land.

However, Bransfield and Smith in the *Williams* had already seen and charted part of the same land in January 1820. Palmer is also alleged to have made a cruise southwards along the coast in January 1821 and to have found land in lat. 68° S. No conclusive evidence of this cruise has yet been produced.

The contention of American writers is that no convincing evidence exists for Bransfield's earlier discovery and that Palmer first discovered Graham Land. The argument has been maintained in hostile terms, with forgery of charts and suppression of documents. The Admiralty and the Royal Geographical Society are accused of similar proceedings. The American case has been most forcibly set out by Professor W. H. Hobbs‡ in the *Transactions of the American Philosophical Society*, New Series, Vol. 31, Part 1, 1939, and by Colonel Lawrence Martin (Chief of the Department of Maps, Library of Congress) in *Science* for February 18th 1938, reprinted in the *Congressional Record* for March 1938; and in the *Geographical Review*, Vol. 30, 1940, pp. 529-52. Their contentions have been indirectly supported by the Hydrographic Office in Washington, and in more precise terms by many American geographers.

* Before the present century it was widely believed that Dirk Gerritsz, with the Dutch vessel *Blijde Boodschap*, had sighted the South Shetlands in 1599. Modern research, however, has proved this belief to be entirely erroneous (see also footnote on p. 78).

† Palmer almost certainly used ship's time. His sighting of land, recorded as 4 a.m. on the 18th, was therefore the 17th, civil date.

‡ There is no doubt that Professor Hobbs is a fraudulent writer.

(d) Attention is drawn to the error in the Letters Patent of 1908, by which His Majesty's Government claimed part of the Chilean mainland. This British error is considered "to be no greater than that of having laid claim to almost the whole of the South American Antarctic." [See paragraphs 131-133. The Chilean Government never protested against the Letters Patent of 1908 or 1917.]

(4) *Administrative and Diplomatic antecedents*

(a) Discussions between the Argentine and Chilean Governments in 1906-07 were concerned with the more accurate delineation of the boundary between the two countries in the islands to the south of Beagle Channel. These discussions clearly included parts of the Antarctic within their scope, and are taken as evidence that the Chilean Government then regarded the "South American Antarctic," although still unexplored, as belonging to Chile and Argentina. The fact that in 1906 the Chilean Government officially suggested to the Argentine Government an expedition to explore and delineate their respective territories in the Antarctic is quoted as an explicit affirmation of Chilean sovereignty which antedated the British Letters Patent of 1908. [The Argentine Government rejected this suggestion. See paragraph 258 and Appendix VIII, p. 178.]

(b) The Chilean Decrees of September 7th 1939 (appointing Professor Escudero to investigate Chilean Antarctic interests) and of November 6th 1940 (defining the Chilean Antarctic Territory) are quoted; together with a selection of diplomatic documents in which Chile reserved her rights in Antarctica. The expedition of the *Yelcho* in 1916 is described as an example of administration. [See paragraphs 258-269.]

(5) *Recommendations*

In a concluding chapter the author makes the following recommendations for an active Antarctic policy on Chile's part:—

(a) The despatch of a Chilean expedition to make geographical and meteorological studies and to set up fishing facilities, meteorological observatories, etc. The expenses could be covered by the next "O'Higgins Collection" and a special issue of postage stamps.

(b) The immediate formation of a powerful "Whaling Society" organised by the State, with the aid of the *Corporación de Fomento a la Producción*, the *Compañía Industrial*, the *Liga Marítima de Chile*, etc.

(c) Immediately after the war the Chilean Government should call a "Conference of Antarctic countries" in Santiago.

APPENDIX X

THE DISCOVERY OF THE SOUTH SHETLAND ISLANDS AND GRAHAM LAND

The South Shetland Islands were discovered by William Smith, Master of the brig *Williams* of Blyth, in February 1819. The *Williams* was then engaged in coastal trade between various South American ports. Sailing far to the south of Cape Horn while on a voyage from Buenos Aires to Valparaiso, Smith sighted land (in the neighbourhood of Williams Point, Livingston Island) on February 18th.* On this occasion he did not land, but, on his arrival at Valparaiso, reported his discovery to Captain William Shirreff, R.N., who was then in command of H.M.S. *Andromache* and Senior Naval Officer on the west coast of South America. He attempted, but failed, to sight his discovery again on his return voyage to Montevideo. At Montevideo and Buenos Aires the American sealers offered him large sums of money to disclose the position of the new land, but, not having taken possession for the King of England, he resisted all such offers. In the following October, sailing again for Chile, he was more successful, and sighted the South Shetlands on October 14th.

In the interval between Smith's two visits the newly discovered land was probably sighted, independently and involuntarily, by a Spanish warship, the *San Telmo*, not one of whose crew survived to describe their experiences. This ship was last seen on September 4th 1819, in about lat. 62° S.; parts of her booms and spars were later found and identified at Shirreff's Cove, Livingston Island.

On October 16th 1819 Smith landed near the North Foreland, King George Island, where he took formal possession for the British Crown (see p. 157). On his arrival at Valparaiso in November, Smith again reported his activities to Captain Shirreff. The British Naval authorities then chartered the *Williams*, with Smith as pilot, and sent her south with Edward Bransfield and a small naval staff in December 1819 to survey the new territory. During their absence on this duty an account by John Miers of the discovery, and a sketch-map by Henry Foster, both dated January 1820, were sent home and published in the *Edinburgh Philosophical Journal* for October 1820.

Bransfield sighted Livingston Island on January 16th 1820, and coasted along the northern side of the South Shetlands as far as King George Island. On January 22nd he landed in George's Bay on the south side of this island, planted the Union Jack, and again took possession for the Crown (see p. 157). Bransfield then sailed south-westwards along the southern side of the islands until the peaks of Livingston Island

* Smith used ship's time, starting each day at noon, 12 hours earlier than the civil date. His sighting of land, recorded as 7 a.m. on the 19th, was therefore the 18th, civil date.

(1) *Geographical Antecedents*

The close geological relationship between Graham Land and South America is taken as "proof" that Graham Land and the South Shetlands are "a natural prolongation of Chilean territory"; while the Falkland Islands are geologically related to Argentina, and not to the Antarctic. It is argued that Chile is the nearest country to the South Shetland Islands, which are "no more than fragments of the Andes". Chile's rights are said to be "confirmed" by the fact that she is a mountain and Pacific country with similar geographical features. Further "proofs" of her rights are adduced from the similarity of ice forms and of weather conditions in the Antarctic and South Chile, features which do not apply to the same extent to Argentina or to the Falkland Islands. [This extraordinary thesis is developed in great detail with a wealth of quotations from reputable geologists; see Note on the similar Argentine argument, p. 178.]

(2) *Historical Antecedents*

(a) It is argued that Chilean Antarctic rights date from the definition of Chilean territory in a series of Decrees of the King of Spain during the sixteenth century. [The argument is entirely unconvincing. These Decrees, even if considered relevant, only specified Chilean rights in the southern extremity of South America; hence the necessity for the geographical argument in (1) above. The King of Spain thought that the southern shores of the Straits of Magellan formed the northern part of a huge southern continent extending to the South Pole. In 1539 he appointed Pedro Sancho de Hoy as Governor of this land, but neither Hoy nor subsequent Governors crossed the Straits.]

(b) It is claimed that Chile has exercised exclusive dominion over America's southern extremity for more than 300 years, a fact which "conserved and guaranteed" Chilean rights to the Antarctic regions bordering on this extremity and which are "in perfect geophysical continuity" with the extremity.

(c) Bernardo O'Higgins, the first Dictator of Chile, is said to have written a letter, dated August 20th 1831, to Captain Coghlan of the British Navy, in which he stated that "Chile old and new stretches to the Pacific from Bahia de Mejillones to New South Shetland in latitude 65° S., and to the Atlantic from the Peninsula de San José in latitude 42° to New South Shetland . . ." [This document is considered to be of very great importance. It is not mentioned, however, that Bernardo O'Higgins was exiled in 1823, and remained in exile until his death in 1842. His letter can be considered as no more than a personal expression of opinion of a great Chilean patriot.]

(3) *Legal Antecedents*

(a) Chile is said to have fulfilled the two requisites of international law to confirm her Antarctic sovereignty—proximity to the area claimed and "fishing activities." [The first point is an appeal to the "Sector Principle" as applied to parts of the Arctic, and is one which His Majesty's Government would find difficult to refute. The "fishing activities" refer to the whaling operations of the Sociedad Ballenera de Magallanes in the territorial waters of the South Shetland Islands and Graham Land between 1905 and 1910 (paragraph 259). This company was formed in 1905, with British capital, and operated under the Chilean flag in the Falkland Islands Dependencies with a British licence between 1907 and 1910. In the latter year the company was liquidated and re-formed under another name. It survived in its new form until 1913, but the last British licence was issued to the company under its old name for the season 1914–15. Señor Pinochet de la Barra ignores the fact that these operations were conducted throughout under British licence. It is, moreover, uncertain whether the company did actually operate in the Falkland Islands Dependencies after 1910.]

Cmd. 657 of
1920, p. 58.

(b) It is claimed that before the end of the nineteenth century Chilean sealers were working in the South Shetland Islands as well as in the region near Cape Horn, and that these sealers desired protection from foreign competition. A Chilean Decree of December 31st 1902 (No. 3310) gave exclusive sealing and fishing rights to Señor Pedro Pablo Benavides in the "regiones marítimas australes del territorio nacional." This concession defined the northern limits of the region covered, but specifically permitted fishing to the southward without limitation. On February 27th 1906 another Chilean Decree (No. 260) authorised Señores Enrique Fabry and Domingo de Toro Herrera to occupy "Tierra del Fuego between the Darwin Mountains and Beagle Channel and the islands Guamblin, Gordon, Hoste, Wollaston, Diego Ramirez, Shetland and territories situated further to the south for a period of 25 years." The terms of this concession referred to these areas as Chilean national territory and leased the fishing and sealing rights within them. [No evidence is available of any Chilean sealing activities in the South Shetlands or Graham Land. There is, however, no reason to doubt that some Chilean ships did visit these regions. It is claimed that the Decrees of 1902 and 1906 invalidate the British Letters Patent of 1908. These Decrees, however, were never published in the *Diario Oficial*, in which Decrees have to be published to become law, and they appear to have been published for the first time in Señor Pinochet de la Barra's book in 1944. No evidence is produced that the concessionaires ever made use of their concessions to the southward of Diego Ramirez, and it is extremely doubtful whether they ever did so.]

AS 586/586/51 ;
AS 2500/586/51
of 1945.

(c) It is claimed that since the Falkland Islands are Argentine territory, England cannot compete with Chile in proximity to the Antarctic; nor, for the same reason, is the "Sector Principle" applicable to British claims. British priority of discovery is admitted, but is considered invalid as a basis for territorial claims since it was not followed up by effective occupation. Priority of discovery is stated to be the sole basis for British claims. British whaling activities are only mentioned incidentally as being of no greater importance than those of Chile.

west of Tierra del Fuego." In 1907 the Chilean Government offered to sign a "complementary treaty of boundary delimitation" in order to divide between the two countries "the islands and American Antarctic continents." Long. 68° W. was to serve as the dividing line. [The Argentine Government refused to take any action in the matter. The quotation from the treaty of 1881 is not correct. The relevant section reads as follows:—

British and Foreign State Papers, Vol. 72, 1888, p. 1104.

"Tierra del Fuego is divided by a line starting from Cape Esperitu Santo at latitude 52° 40' south and following longitude 68° 34' west (Greenwich) to Beagle Channel. Divided thus, Tierra del Fuego is Chilean to the west and Argentine to the east. In regard to the other islands, Isla de los Estados belongs to the Argentine Republic, with the islets next it, and the other islands in the Atlantic and east of Tierra del Fuego and the coasts of Patagonia; while to Chile belong all the islands south of Beagle Channel down to Cape Horn, and those west of Tierra del Fuego."

These claims cannot be interpreted as implying any interests to the south of Cape Horn. There is a striking telegram from the Argentine Minister for Foreign Affairs, Dr. Estanislao S. Zeballos, despatched in the course of the 1907 negotiations. On August 31 1907 he informed the Argentine Minister at Santiago, Dr. Anadón, that "Chile ought to know that England claimed all these lands and that we should have to defend them by joint action."

A 5787/3582/2
of 1939.

(3) So-called geophysical rights based on the allegation that the Andean range continues beyond Cape Horn and Drake Passage to the Antarctic continent, which is therefore a "prolongation" of South America and is therefore "inherited" by Argentina and Chile. This has been called the "principle of contiguity," which, even in Argentina, has not generally been considered as sufficient of itself to confer sovereignty. [There is evidence of a former land connection between the main Antarctic land mass and Australia, South Africa, and the eastern part of South America, but at a very remote date in geological time. There was also, in all probability, an extension of the South American Andes into Graham Land, though not quite at such an early date.]

(4) Reference is made to the "sector principle" by which it is claimed that the arguments which have been held by the British Government to apply in the Canadian Arctic are equally valid in the Antarctic; that the Falkland Islands Dependencies are "geographically dependent upon" and are a "hinterland" of Argentina. [See paragraphs 216, 221, 224, 225 and 227.]

(5) It is argued that discovery "in the sixteenth century" conferred inchoate rights; that later a formal landing and taking possession was required, and that the formation of a special Commission to take possession strengthened the Argentine legal position. [There have been no Argentine discoveries in the Antarctic and this claim is based on rights which are said to have been inherited from Spain (paragraph 238). If there is any substance to the claim of inheritance of title from Spain, South Georgia and the South Sandwich Islands are the only part of the Falkland Islands Dependencies to which such a claim could, with any colour of reason, be established. They are the only parts of the Dependencies definitely known to have been discovered while Argentina formed a part of the Spanish dominions. Even so the British claim to the discovery of the South Sandwich Islands is indisputable, while the Spanish title to discovery of South Georgia is uncertain, and both groups lie outside the area included in the most recent Argentine claims (paragraph 248). Title based on inheritance has, however, been specifically asserted in respect of the South Shetlands (paragraph 238). Presumably the formal landing and taking possession refers to events at Laurie Island in 1904 (paragraph 188), at Deception Island in 1942 and 1943 (paragraphs 231 and 240), and at Port Lockroy in 1943 (paragraphs 240 and 242). The Commission mentioned was appointed in 1940 (paragraph 226).]

(6) Great importance is attached to the establishment of a Post Office at Laurie Island and to the issue of specially franked Argentine stamps. [See paragraphs 188 and 229.]

(7) British formal claims in the Antarctic are said to have lapsed since the taking of possession was not followed by effective occupation and administration. [This is certainly a strong argument in the case of the South Orkney Islands. It is to be noted, however, that, without exception, all Argentine publications dealing with the Antarctic display a remarkable (and quite possibly genuine) ignorance of British activities there.]

APPENDIX IX

THE CASE FOR CHILEAN TERRITORIAL CLAIMS IN THE ANTARCTIC

Oscar Pinochet de la Barra: *La Antártida Chilena*. Santiago, 1944.

Chilean Decree No. 1541 of Sept. 7th 1939.

In 1944 a book stating the case for the Chilean claims to territorial rights in the Antarctic was published by Oscar Pinochet de la Barra, with a preface by Professor don Julio Escudero. The latter is Professor of Public International Law in the University of Chile, and was appointed by the Chilean Government in 1939 to study Antarctic problems and their repercussions on Chilean interests. For this purpose he was given access to the official archives. The case which is put forward is summarised below, with some additional notes appended in square brackets.

Chilean rights in the Antarctic are said to be founded on geographical, historical, legal, administrative and diplomatic antecedents.

Government, it is doubtful whether any material improvement would result. In fact, a submission to arbitration might end by having exactly the opposite effect. If the Argentine Government failed in their claim to the South Orkneys popular resentment might be aroused, leading to an even stronger insistence on the claim to the Falkland Islands. On the other hand success would undoubtedly encourage the Argentine Government to persist in their claim to the Falkland Islands. So long, therefore, as the issue of the Falkland Islands remains an outstanding question between the two countries, it seems clear that the only result of arbitrating the South Orkneys case would be to bring the question of the Falkland Islands into still sharper relief.

There remains, however, another, and from the imperial point of view far more serious, objection to taking the case of the South Orkneys to arbitration. The Permanent Court or whatever other tribunal might be agreed upon for the purpose, could scarcely fail, in giving its decision, to enunciate principles of the most far-reaching consequence. The decision itself would tend to become a precedent for this class of case, and although it might be favourable in the particular case of the South Orkneys, it is likely or, at any rate, very possible that portions of it would be embarrassing in connection with British claims in other parts of the world, especially in the Arctic and Antarctic. These claims are founded on a variety of titles and the grounds of title are sometimes rather indefinite. Most of these claims have not as yet received any formal recognition from other countries, and some are likely to be disputed in the future, especially in the Antarctic. For these reasons His Majesty's Government in the United Kingdom, although they do not anticipate that all British claims would be adversely affected by any decision which might be given, consider it preferable that any authoritative decision in this class of case should, if possible, be avoided. It is recognised that, although the maintenance of friendly relations with Argentina is important, the matter is one which affects the Empire as a whole, and in which imperial interests and the general Arctic and Antarctic position must be the decisive factors.

His Majesty's Government in the United Kingdom do not in any event propose to initiate arbitration proceedings. The Argentine Government, though they might request, could not compel arbitration. They are not at present signatories to the Optional Clause, and, even should they become signatories, the matter is not one of those which is covered by the signature of His Majesty's Government in the United Kingdom, since it is not a dispute with regard to some fact or situation arising after His Majesty's ratification of that signature. It might, however, be argued with some force by the Argentine Government that a new British occupation of the islands is a new fact or situation which has arisen since the ratification.

Experience has shown that the topic of the South Orkneys, as well as that of the Falklands, is a live one in Argentine politics, and is the subject of periodical popular agitation and of press campaigns, in the course of which strong pressure is brought to bear on Argentine politicians to take steps for the effective prosecution of the Argentine claims. His Majesty's Governments must therefore recognise that these issues are likely to be raised periodically until some solution can be found.

APPENDIX VIII

THE CASE FOR ARGENTINE TERRITORIAL CLAIMS IN THE ANTARCTIC

Early in 1941 a book stating the case for the Argentine claims to territorial rights in the Antarctic was published by Dr. Juan Carlos Rodriguez, Professor of International Law at Buenos Aires University. The case which he puts forward and which has been advanced repeatedly by the Argentine press, is summarised below, with some additional notes appended in square brackets:—

(1) The exercise of jurisdictional rights such as the establishment and maintenance for 40 years of the meteorological station on Laurie Island, and the despatch of naval expeditions to Graham Land, notably the Corvette *Uruguay* in 1903 to rescue the Nordenskjöld expedition. [The Argentine Government has employed this occupation as an argument in favour of Argentine sovereignty not only over Laurie Island but over the South Orkneys as a whole. His Majesty's Government have repeatedly denied the Argentine claim; they have safeguarded their position in respect both of the meteorological station and the wireless station; and they have committed acts of sovereignty by the issue of whaling licences and by the despatch of administrative vessels to the islands during the whaling season. On the basis of occupation, however, it is clear that the title of the Argentine Government, at least as regards Laurie Island, tends to grow stronger and that of His Majesty's Government to grow weaker; and while it can be argued that the meteorological station is maintained with the assent of His Majesty's Government, the wireless station is obviously maintained in defiance of it. In the absence of effective occupation, the visits of the ships of the Discovery Committee may be taken to re-enforce British claims, but the establishment by Argentina of a post-office has strengthened the Argentine case. Apart from the annual relief ship to Laurie Island since 1904, the only Argentine expeditions to the Antarctic have been those of the *Uruguay* (1903) and the two voyages of the *Primero de Mayo* (1942 and 1943).]

(2) The Chile-Argentina Boundary Treaty of 1881 contains the statement: "to Argentina, all islands in the Atlantic to the east of Tierra del Fuego, and off the Patagonian coasts, and to Chile, all islands south of the Beagle Channel and to the

J. C. Rodriguez:
La Republica Argentina y las Adquisiciones Territoriales en el Continente Antartico, Buenos Aires, 1941.

by the Buenos Aires Government between 1820 and 1833. But the times were confused and the facts are extraordinarily obscure. A temporary abandonment of, or loss of control over, outlying territory such as the Falkland Islands in times of disturbance certainly does not render the territory affected a *terra nullius*, open to acquisition by the first occupying power, and the question whether the events of these confused years amounted to more than that is one only to be answered by a minute examination of all the facts. Here it is perhaps sufficient to say that the writer of the present note is not convinced that the islands had become a *terra nullius* in 1832, or that the British occupation of that year was at the time other than an unlawful act of aggression.

This occupation, however, has now been continued without interruption for more than a century, and it may well be that in law the lapse of so long a period has converted possession, irrespective of the manner in which it originated, into a good title to the sovereignty of the islands. International law contains no specific rules regarding the length of time needed to confer a prescriptive title to territory, but it is certain that it recognises the principle of prescription, and this is probably a case in which it would be held to apply. The fact that Argentina has never really acquiesced in the British claim, though an important element in the case, would not of itself be sufficient to prevent the acquisition by Great Britain of such a prescriptive legal title to the islands.

The attitude of the United States to this controversy is of some interest. At the time of the *Lexington* incident in 1831 the United States contention was, in effect, that no Government or State had the right to sovereignty over the islands. The Argentine demand for compensation was presented again in 1884, but President Cleveland in a message to Congress stated that the claim was unfounded; the act of the *Lexington* in destroying a colony of pirates being amply justified. In a note subsequently delivered the United States Government rejected an appeal of the Argentine Government to the Monroe Doctrine and, in effect, took the view that the question of compensation to Argentina could not be settled until the larger question of sovereignty had been determined. More recently, during the negotiations for the Anglo-United States Trade Agreement of 1938, the United States negotiators refused to accept a list of British colonies in which the Falkland Islands appeared, on the ground that the acceptance of this list might be interpreted as a United States acknowledgement of the British title and that this would create difficulties for them with the Argentine Government. It was clear, however, that the motives of the United States Government were entirely political, and that while they did not regard the Argentine claim as a good one, they were not prepared explicitly to recognise the British title.

A 6213/24/2
of 1938.

The Argentine Government have never pressed their case internationally (beyond asserting their authority over the islands in communications to the International Postal Union). In spite of considerable provocation on the subject from the Argentine Government, His Majesty's Government have refused to contemplate arbitration. It has repeatedly been stressed by the Admiralty that the strategic value of the Falkland Islands alone makes it impossible that His Majesty's Government should ever voluntarily give them up.

The British case, with extracts from the original documents, is presented by Professor H. A. Smith in *Great Britain and the Law of Nations*, Vol. 2 (London, 1935). The anti-British case is presented very exhaustively by Julius Goebel (an American author) in *The Struggle for the Falkland Islands* (New Haven, 1927). Library Memorandum, Confidential (13336), deals with the situation of the Falkland Islands up to 1928, and is supplemented by Confidential (13471) of 1928, Confidential (14775) of 1936, Confidential (14959) of 1937, and Confidential (15978) of 1940.

APPENDIX VII

THE POSSIBLE EFFECTS OF RESORTING TO ARBITRATION OF THE SOUTH ORKNEY ISLANDS DISPUTE

His Majesty's Government can contemplate with absolute confidence of success the arbitration of disputes with Argentina relating to any areas in the Antarctic except the South Orkney Islands. There are, however, serious objections to arbitration. The question of the South Orkneys, or of any other part of the Falkland Islands Dependencies, cannot unfortunately be separated from that of the Falkland Islands themselves (see Appendix VI, pp. 174-176). In the first place the Argentine Government might, in proposing to arbitrate the case of the South Orkneys, make a similar proposal over the Falkland Islands. To this His Majesty's Government in the United Kingdom could not agree, for they are not in any circumstances prepared to envisage the possibility of such an arbitration going against them. Alternatively, the Argentine Government, having obtained the consent of His Majesty's Government in the United Kingdom to arbitration in the case of the South Orkneys, might at some subsequent date propose a similar reference in the case of the Falkland Islands. While His Majesty's Government could not accede to any such request, their position might be embarrassing in view of their consent in the earlier case.

Confidential
(14775) of 1936.

A more serious objection to arbitrating the case of the South Orkneys lies in the fact that, while the sole object of His Majesty's Government in the United Kingdom in agreeing to arbitration would be to improve their relations with the Argentine