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## THE INTERNATIONAL GEOPHYSICAL YEAR.

### TWELVE NATIONS IN THE ANTARCTIC.

The years 1957-58 will see a greater effort to unveil the mysteries of the Antarctic than the combined efforts of all past years. Because of "the unusual importance of Antarctica in the solution of scientific problems in almost every field of geophysics," no fewer than twelve (possibly thirteen) of the 36 or more nations which are participating in I.G.Y. will be including the Antarctic in their fields of operation. The vast extent of the whole project is well brought out in this American statement:

(The I.G.Y.) "is a major research undertaking in the earth sciences - those sciences that are concerned with astro-geophysical measurements, meteorology, oceanography and glaciology, ionospheric physics, aurora and airglow, geomagnetism, cosmic rays, and rocket exploration of the upper atmosphere. This undertaking is international in nature, for each of these fields requires the making of observations and measurements on a world-wide basis, for the problems are global in character. Moreover, these fields are scientifically intermeshed, so that maximum progress can be made only if the technical work in all fields is performed simultaneously in both space and time."

### New Zealand's Part.

In this world-wide international investigation New Zealand was asked by C.S.A.G.I. (the Special Committee for the I.G.Y.) to undertake certain specific obligations (see Bulletin No. 17, p. 160) and in May last, at the suggestion of the New Zealand National Committee for the I.G.Y. (a body set up by the N.Z. Royal Society), an inter-departmental committee was formed, which presented a report to the New Zealand Government. After consideration of this report the Government has decided upon New Zealand's share in the I.G.Y. project. This will include investigations in New Zealand itself and in various Pacific islands; but for the Antarctic section of the programme alone the sum of £44,000 has been granted. This will not be the total cost of New Zealand's I.G.Y. Antarctic activities, as a proportion of the total expenditure will come from existing departmental votes, principally those for the Department of Scientific and Industrial Research and the Meteorological Services. This expenditure, moreover, is entirely unconnected with the Trans-Antarctic Expedition, towards which the Government has made a donation of £50,000 and for which contributions to the extent of £100,000 are to be sought from the public.

While the two projects are thus independent in objective, there will be in fact very close co-operation between them. The I.G.Y. scientists will be stationed at the base in McMurdo Sound to be established by Sir Edmund Hillary next year, and will work under Sir Edmund and in close conjunction with the New Zealand section of the Trans-Antarctic Expedition while it is stationed there. At the present organisational stage the Chairman of the inter-departmental committee for I.G.Y. (Dr. E. I. Robertson) is also a member of the Ross Sea Committee.

The Government has decided that thirteen New Zealanders shall take part in New Zealand's I.G.Y. project in the Antarctic during the period involved, July 1, 1957 - December 31, 1958. Five of these men, all scientists, will go south at the end of next year, and they will be relieved at the end of 1957 by eight others who will return to New Zealand at the beginning of 1959. The larger number is due to the fact that after the return of the "Hillary" party to New Zealand, the I.G.Y. group will be self-supporting. The principal subjects of study in the Antarctic will be geomagnetism, the aurorae, ionospheric physics, radio propagation, gravity measurements on the Ferrar Glacier and the Polar Plateau, meteorology, seismology and oceanography.

One New Zealand scientist will accompany the American advance party to the Ross Sea at the end of this year but will not be wintering in the Antarctic.

The United Kingdom.

Britain has several permanent stations in the Graham Land area (the Falkland Islands Dependencies - see quarterly F.I.D.S. reports in this "Bulletin") and the scientific work regularly being carried on at these stations will naturally be geared in with the I.G.Y. programme. The 3-man station which it is proposed to establish on the Polar plateau 300 miles inland from Shackleton Base in Vahsel Bay in 1957, primarily to support Dr. Fuchs' trans-Antarctic crossing, will also carry out scientific work. The station to be set up near Vahsel Bay will be within the zone of maximum auroral frequency, and near enough to the South Magnetic Pole to yield interesting results about variations in the magnetic field.

The United States of America.

The United States National Committee for I.G.Y. in co-operation with the U.S. Navy has already begun the mammoth project which will be America's contribution to the International Geophysical Year. The cruise of the "Atka" last summer was a reconnaissance, and in November Task Force 43 will embark upon "Operation Deepfreeze" as a preliminary to the full-scale scientific project of 1957-58 under Rear-Admiral R.E. Byrd. Task Force 43 will comprise

- (1) a naval unit of seven ships under Rear-Admiral George Dufek.
- (2) an air unit of 15 aircraft under Commander G.K. Ebbe.
- (3) a construction unit of 300 selected volunteer "Seabees" under Commander H.F. Whitney.

The ice-breakers "Edisto", "Glacier" and "Eastwind" under Captain G.L. Ketchum will leave the United States about October 30 and are due to reach Lyttelton on December 1. From there they will carry to the Antarctic the advance party of the Mobile Construction Battalion whose primary duty will be to choose suitable sites (1) for the new Little America, probably at Kainan Bay, thirty miles east of the old site, and (2) for an air-base (to be called AIROPFAC, Air Operating Facility) somewhere on the Ross Ice Shelf, probably on the bay ice at the head of McMurdo Sound. There will also be a Tractor-Route Reconnaissance Party of twenty-one men, equipped with mechanical transport, a helicopter and an Otter plane, who will reconnoitre a route towards the site of Byrd Station, to be built at approximately 80° S, 120° W. in Marie Byrd Land.

The transport unit of the Task Force, consisting of the flagship U.S.S. "Arneb" and the vessels "Wyandot", "Nespelen" (a tanker) and "Greenville Victory", will leave Norfolk, Virginia, in early November and is due to arrive at Lyttelton on December 10.

On December 17, two R.4.D. ski-equipped aircraft (the Navy version of the four-engined Douglas Super D.C.3), two U.F-1's (triphobian Grumman Albatrosses) and two P.2.V.'s (ski-equipped, long-range Lockheed Neptunes), will fly from Harewood, Christchurch, to the McMurdo Sound air-base. If the ice has been found suitable for landing-on by wheeled aircraft, two R.5.D.'s (Douglas D.C.4's) will accompany the flight.

Meanwhile the ice-breakers and the other ships will have taken up positions 250 miles apart to support the flight. The ships will be stationed as follows:

Nespelen at 52°33' S., 169°10' E. (Campbell Island).  
Wyandot at 56°45' S., 170° E.  
Greenville Victory at 60°45' S., 170° E.  
Arneb at 65° S., 170° E.

with one ice-breaker in the region of the ice-pack and one in McMurdo Sound. After the flight the ships will rendez-vous at Scott Island, 67°24' S., 179°55' W., and the ice-breakers will escort the other vessels into the Ross Sea.

In addition to the planes flying-in from New Zealand, 3 HO4S-2 Sikorski Helicopters and 4 U.C.1 de Havilland Otters will be taken south on the ships. On the arrival of the full ship unit at the ice-front, the construction of Little America and of "Airopfac" will proceed. Airopfac is intended to be a landing-ground for wheeled

aircraft, including heavy cargo planes. A tanker-barge holding 320,000 gallons will be towed down for oil-storage purposes and frozen in near the air-field. A snow runway will be constructed at Little America for ski-equipped planes. The United States has invited observers from the nations to be engaged in I.G.Y. Antarctic work, including New Zealand, to accompany this expedition in the summer of 1955-56.

The main body of the Task Force will leave for home in late February, 1956, but construction parties of sixty men each will winter-over at Little America and Airopfac, with the aim of completing their construction before the middle of April and the onset of the Polar night. The R.5.D. and P.2.V. planes will fly back to New Zealand as soon as the stations are self-supporting, probably about the end of February, with the ships of the Task Force taking up positions en route as before. The ice-breakers will then return to the Ross Sea, one probably going on to the Weddell Sea area, while the rest of the ships return to the United States via Wellington. The 120 Seabees will be wintering in the Antarctic.

In the spring, October, 1956, or as soon after as possible, overland freighting will begin to the site of Byrd Station. Transport will be by tractor-train, the construction gang using the "wanigans" of the train for accommodation. With construction complete by the end of December, the Seabees will return to Little America, leaving behind a small caretaker group until the I.G.Y. party arrives.

In October, planes will again fly south from Harewood, this time including heavy cargo planes. As soon as possible after arrival they will commence a big air-lift to the site of the third main station, at the South Pole itself. During November and December this Pole Station will be built and a caretaker group left there. During this period a small temporary base called "Auxiliary Base No.1" will be established as a safety precaution at or near the foot of the Beardmore Glacier. This will be manned by ten men. For this "construction" period there will be 170 men at Airopfac. During this time also two further stations will probably be built, one in the Weddell Sea area and one on the Knox Coast, which lies approximately on the Antarctic Circle and between 100° and 110° East.

Early in January, 1957, the Task Force ships will again arrive, carrying the scientists, technicians and operating staff who will be engaged in I.G.Y. activities. These men will replace the Seabees and others engaged on construction work, who will return to the United States. At Little America there will be 36 I.G.Y. men, at Byrd Station 20 and at Pole Station 15.

Scientific work comprising Aurora and Airglow, Geomagnetism, Glaciology, Ionospheric Physics, Meteorology and Seismology will be carried out at all three main stations. In addition, Cosmic Rays will be studied at Little America, and there will be Gravity Measurements on the glaciological and seismological field traverses by sno-cats, which are planned from Little America and Byrd Station. A "small but pioneering programme" of rocket exploration by rockoons from the ice-breakers and off the ice-shelf is also planned.

In January, 1958, Task Force ships will again arrive in the Antarctic to re-supply the bases and relieve the personnel. In January, 1959 the entire expedition will return to the United States.

#### Australia.

Australia's contribution will be fourfold: continuation and extension of the work being done at Macquarie Island and at Mawson, a reconnaissance of the coast-line between Mawson and Adelie Land, and a major journey for some hundred miles inland from Mawson. The Antarctic Planning Committee has recommended the establishment of a second Australian station on the Antarctic mainland, in the Vestfold Hills region in Princess Elizabeth Land, a rocky ice-free area suitable for the establishment of a station. The Vestfold Hills lie about 350 miles east of Mawson. Australian expeditions visited and explored this region in 1954 and 1955, and will do so again early in 1956 to choose an actual site. It is intended that the station shall be fully operational before the I.G.Y. begins in 1957.

#### Union of South Africa.

South Africa will be extending the meteorological and other work already being carried out on Marion Island, and may establish a weather station on Norwegian-owned Bouvet Island.

Norway.

The Norwegian Cabinet has authorised the expenditure of 1,340,000 Kroner (about £67,000) on preparations for Norwegian participation in I.G.Y. The expedition, organised by Norsk Polarinstitut of which Dr. H.U. Sverdrup is Director, will be led by Hr. Nils Jorgen Schumacher, who was chief meteorologist of the Norwegian-British-Swedish expedition of 1949-52. The base will probably be built near the zero meridian in Queen Maud Land, that is about 11° east of Maudheim, the combined expedition's base. A likely location is Byrd Bay (0°41' W, 69°34' S.), a five-miles-deep indentation in a 34 mile-long ice-tongue discovered by the "Atka" expedition (see Bulletin No.17, p.156). A party of 14 men will probably spend two and a half years in the Antarctic, sailing at the end of 1956 and returning to Norway at the beginning of 1959. "At the base station," says Dr. Sverdrup in a letter to the "Bulletin", "meteorological and aerological observations will be undertaken in accordance with the general plans for such work during the I.G.Y. In addition magnetic observations will be made and observations and photography of aurora will be undertaken. A limited amount of glaciological work will be included. Furthermore, it is hoped that topographic survey may be undertaken to about 12° E."

U.S.S.R.

The main Soviet base will be on the Knox Land coast in the Australian sector at roughly 104° E. A satellite station will be established midway between there and the South Pole in Longitude 105° E., probably at the geomagnetic pole, where the theoretical axis of the earth's magnetic field pierces the earth's crust. There will be a third station in the vicinity of the Pole itself. The expedition is to travel south on a specially fitted ship, the "Ob" of 12,500 tons, with, it is presumed, ice-breaker support. The expedition, which is being organised by the Soviet Academy of Sciences, will be led by Mr. N.M. Somov, polar explorer and doctor of geography, and will begin with researches in meteorology, earth magnetism, sun radiation and cosmic rays. Transport planes, helicopters and tractor trains are to be used for the establishment of the bases. About 80 men will be stationed ashore, including 30 at the polar station and 15 at the intermediate station between there and the coast.

France.

France will again be occupying a station on the Adelie Land coast, probably at Pointe Geologie, with another station a hundred miles or more inland from there. The Paris I.G.Y. Conference recommended that France should set up a station at the Magnetic Pole, the point where the magnetic force is vertical. Tentative French plans involve a three-man trek from Adelie Land across the continent to the New Zealand base in McMurdo Sound. Sir Edmund Hillary has assured the French party that they will be accommodated at the New Zealand station and given passages back to New Zealand with the members of the British expedition after the trans-polar crossing.

Belgium.

The area assigned to Belgium by the Paris conference is a site near Haswell Island at Longitude 95° E., between the Knox Coast and MacRobertson Land.

Japan.

Japan, at the request of the Conference, will occupy Peter I Island, about 600 miles west of Graham Land in 68° 50' S., 90°35' W.

Argentina and Chile.

We have no particulars of the plans of the South American republics, but presumably I.G.Y. work will be carried on at the various bases in Graham Land and in the South Shetland Islands, as well as at the new Argentine base in Vahsel Bay.

Federal German Republic.

The expedition projected by Dr. Karl Herligkoffer, Munich physician and Himalayan mountaineer, was subjected to sharp criticism at a Geographical Congress in Hamburg early in August. The Congress unanimously opposed support of the expedition on the grounds of Dr. Herligkoffer's alleged lack of scientific qualifications and failure to link up his project with I.G.Y. plans. Opposition has also been expressed by two committee members of the German Research Society, the organisation which would be in the best position to give financial support. Despite this, Dr. Herligkoffer still

plans to go through with his project, which he estimates will cost three million marks. He proposes to charter an 8,000 ton B.R.T. ship as ice-breaker and air-base, and to establish a land base in the Norwegian sector in approximately 72° S., 10° W. Norwegian consent, he claims, has been given. Personnel would include 30 scientists. There would be two helicopters and two long-range planes as well as tractors and dogs. Five stations would be laid down towards the Pole, and at the main camp a permanent German station would be left.

(It should be realised that all the national proposals are tentative and subject to revision. Ed.)

### THE TRANS-ANTARCTIC EXPEDITION.

#### New Zealand's Part.

After visits by Sir Edmund Hillary to Europe and by the Secretary, Mr. A.S. Helm, to Australia, the Ross Sea Committee has begun serious planning for New Zealand participation in the Trans-Antarctic Expedition. First priorities are

(1) Selection of Personnel. 665 men, including several from beyond New Zealand, had applied for the 22 positions when applications closed on 31 August. Selection has not yet been made but the material offering is described as excellent. The term of enlistment is from October, 1956, till April, 1958. Each man selected will receive an allowance of £500 per year from the time of departure until return, and will be expected to undergo a month of intensive training in the Southern Alps in August of next year.

(2) Transport. An adequate supply of trained dogs is assured. Thirty huskies are being given to the expedition by the Australian Antarctic Division, and more are being reared at the Auckland Zoo from dogs which were used on the French Adelie Land Expedition of 1949-53. The expedition ship has not yet been procured. The vessel may be manned by New Zealand Navy personnel. Auster and Beaver aircraft will be taken for reconnaissance and transport purposes.

(3) Drive for Funds. Preliminary arrangements are being made for an appeal to the public for £100,000 to supplement the N.Z. Government's grant of £50,000. Committees are being set up in sixty centres following public meetings addressed by one or more of the following, the Hon. C.M. Bowden, (chairman), Dr. R.A. Falla, and Messrs. H.E. Riddiford, B.R. Law and A.S. Helm (secretary). The appeal will be officially opened on October 10. Auckland has already expressed a wish that its quota of £20,000 may be devoted to the purchase of one of the expedition aircraft, which it is hoped will be named "City of Auckland."

Several members of the New Zealand party will have an opportunity to experience Antarctic conditions as observers with expeditions going to the Antarctic towards the end of this year. Sir Edmund Hillary, and Squadron Leader J.R. Claydon of Christchurch, (in addition to Flight Lieut. G.M. Haslop, R.A.F., formerly of Te Aroha, and Mr. George Lowe) will go south with the British advance party to Vahsel Bay: at least one New Zealander will accompany the Americans to the Ross Sea: and one will go with the Australian relief ship to Mawson. These observers will not be wintering-over in the Antarctic but will be returning about March, 1956. Two Englishmen will be accompanying the New Zealand expedition next year: they will be experienced Antarctic men who are experts in handling sledge-dogs.

The following have been added to the Ross Sea Committee:

Group-Capt. F. Squire (representing R.N.Z.A.F.)  
Commdr. E.P. Reade (representing R.N.Z.Navy)  
Mr. T.R. Clarkson (representing N.Z. Post Office).

The Riverton District High School, of which Mr. A.S. Helm, secretary of the Ross Sea Committee, is an old-boy, is contributing £100 for the purchase of Sir Edmund Hillary's own sledge.

#### Tentative Plans.

The provisional time-table for the 1956-57 season is as follows:  
Leave New Zealand: early December, 1956.  
Establish base in McMurdo Sound: January, 1957.  
Reconnoitre route to plateau: February-March, 1957.

Neither the base-site nor the route across the Prince Albert Mountains can be decided until the expedition actually reaches the Antarctic. Possible base sites are (1) the shore of New Harbour near the foot of the Ferrar Glacier, (2) the coast south of Butter Point, which projects into McMurdo Sound south of New Harbour, (3) on one of the Dailey Islands in the south-west of McMurdo Sound. Sir Edmund Hillary has discussed these sites personally with Prof. Debenham and Sir Charles Wright of Scott's 1910-13 Expedition (see below).

The final choice of site may have a bearing on the route from McMurdo Sound to the ice-cap over which Dr. Fuchs' party will be travelling. At first it was anticipated that the route would be up the Ferrar Glacier to its "apposition" with the Taylor Glacier, then up the Taylor Glacier itself. This was the route taken by Captain Scott, Edgar Evans and W. Lashly on the famous Western Journey of October-December, 1903, the only time the plateau in this area has been reached. The more direct route via the South Arm of the Ferrar Glacier is not regarded as practicable owing to the apparently heavily broken nature of the ice: nobody has ever been to see. The nature of the glacier surface is of great importance as it is hoped that the crossing-party will be able to drive their sno-cats (tracked motor vehicles) right to the New Zealand base, and this will not be possible if the ice-conditions are very difficult. Sir Edmund himself hopes that it will be possible to use the Koettlitz Glacier further south. This would provide a still more direct route from the probable base-site to the route of the "crossing" party. However, the Koettlitz has never been traversed for its full-length. Named after Reginald Koettlitz, surgeon and botanist on Scott's first ("Discovery") expedition, it was first explored by Lieut. A.B. Armitage, Dr. E.A. Wilson and seaman W.L. Heald in November-December, 1903. In January-March, 1911, a party comprising T. Griffith Taylor, Frank Debenham, C.S. Wright and P.O. Edgar Evans reached a point on the glacier three miles above Heald Island, which is some 23 miles from the then ice-front. Taylor speaks bitterly of the glacier surface ("awful stuff," "almost impossible for sledges") but it must be remembered that these men were not expert mountaineers and had no dogs.

A "comprehensive" radio station is to be set up at the New Zealand base, for communication with New Zealand, with aircraft and supply vessels and with other expeditions, as well as with parties in the field. It will also transmit news, meteorological information, and personal messages from members of the party. A National Film Unit camera-man may accompany the expedition to film the establishment of the base. Sir Edmund has announced that he intends to grow mustard, cress and other quick-growing vegetables, using two hundredweight of New Zealand soil and a transparent plastic cocoon probably heated by a paraffin lamp. Dr. Koettlitz grew enough mustard and cress in October, 1903, to give all Scott's men one good vegetable meal, using the local Antarctic soil (there is a photograph in "The Voyage of the Discovery" to prove it); and the F.I.D.S. hut at Stonington Island, 68°7' S., had a greenhouse in which were grown spring onions, carrots, lettuces, radishes and cabbages, as well as a brave showing of pansies.

Plans for the reception of the trans-polar party in early 1958 are of course still only in embryo. It may be said, however, that the projected 'depot' near Mt. Albert Markham will be merely a dump of provisions, fuel, etc.: it is not intended to set up a proper station there.

#### The British Party.

Plans for the British advance-party which is to build "Shackleton Base" in Vahsel Bay at the south-eastern end of the Weddell Sea, "are now well advanced", reports the leader, Dr. V.E. Fuchs in a letter to the Bulletin dated 19th August. The party will sail from London on 14th November next in the m.v. "Theron", a Canadian sealing vessel of 829 tons. Calls will be made at Montevideo (where Sir Edmund Hillary and other New Zealand observers will join the ship) and at South Georgia whence the vessel will "go direct into the Weddell Sea at the beginning of January. The Advance Party to be left at the base we set up....will number eight. They will carry out reconnaissance inland and maintain radio sonde programme (one ascent daily) until the Main Party arrives in January, 1957."

Accompanying the Advance Party but returning with the "Theron" early in the new year will be Dr. Fuchs himself, an air unit of two Auster aircraft under Sq.-Ldr. J.H. Lewis, and the New Zealand observers. One of the planes will be assembled and carried on deck, and used to guide the vessel into Vahsel Bay and to select a base site. The other will be crated. Flight-Lieut. Gordon M. Haslop, R.A.F., has been selected as a member of the Expedition's advance party.

A public appeal for funds is to be made at the same time as the New Zealand ap-

peal. Meanwhile substantial contributions have been made by the Government of Australia (£A. 25,000) and South Africa (£18,000, including £8,000 for weather forecasting equipment). Australian and South African observers will accompany at least some stage of the expedition. The total cost is now expected to be about £500,000.

#### The Crossing Party.

The names of some members of the party to undertake the actual crossing in 1957-58 have been announced. Its leader will be Dr. V.E. Fuchs. New Zealander George Lowe of Hastings, friend and companion of Hillary on the successful Everest expedition, will be photographer and ice-work expert. The others named are Sq.-Ldr. John Lewis as reconnaissance pilot; David Stratton, ex-Naval officer, as stores officer; Alan Rogers, senior lecturer in physiology at Bristol University, as doctor; Kenneth Blaicklock as surveyor; and David Pratt, a former officer of the Royal Engineers, as engineer. The main party will leave England in November next year on the new 1,650 ton vessel "Magga Dan" at present being built by the Danish firm of Lauritzen, makers of the "Kista Dan".

The Main party will include a larger air-unit, with heavier planes, probably de Havilland Otters, under Sq.-Ldr. Lewis. The aircraft will reconnoitre for an advance-base site 300 miles south towards the Pole. It will then ferry in supplies for the 14 men who will make the crossing in 1957-58, using sno-cats and reconnaissance plane(s).

Her Majesty the Queen has consented to be patron of the Expedition. Philatelists will be interested to know that some of the lower values of the Falkland Islands Dependencies stamps (see Bulletin No.12, p.90) are being over-printed "Trans-Antarctic Expedition, 1955-1958."

#### New Zealander to Fly with Fuchs.

Flt/Lt. Gordon Murray Haslop was born in 1922 in Canada and came with his parents to N.Z. in 1927. Educated at Hamilton and Te Aroha and Auckland Teachers' Training College, he joined the R.N.Z.A.F. in 1942 and ultimately went to England and was in operations there.

After the war he was with the R.A.F. in Middle East Transport Command. Returning to N.Z. in 1947 he was given a four years' commission with No. 41 Squadron Transport Command, operating as far as Singapore and Hong Kong. While with No. 41 he was chosen for the Berlin Airlift till it was over, then returned to N.Z. He also did duty in Malaya dropping supplies in the jungle to anti-terrorist missions.

He joined the R.A.F. in 1951 and was an Instructor for a time, later being transferred to No. 167 Squadron stationed at Benson, near Oxford. It was from there he was chosen to fly with the British Trans-Antarctic party.

#### Squadron Leader J.R. Claydon.

Squadron Leader John Richard Claydon has been selected to accompany the advance party of the Trans-Antarctic Expedition to the Weddell Sea towards the end of this year, "to gain experience" (says an R.N.Z.A.F. spokesman) "and to fit himself to command the R.N.Z.A.F. element of the New Zealand expedition...in 1956." Born at Christchurch and educated at the Technical High School there, Squadron Leader Claydon joined the R.N.Z.A.F. as an airman in 1936 and served for six years on the ground staff before he decided on a career as a pilot, and began flying training in 1942. He graduated with a "special distinguished pass" the following year. In World War II he completed three tours of operations with the renowned No. 14 (Fighter) Squadron in the S.W. Pacific. He served with No. 14 Squadron again after the war, when it went to Japan for duty with the British Commonwealth Occupation Force. Subsequently he became adjutant and a flying instructor of No. 3 (Canterbury) Territorial Squadron. After a period of administrative duties he was given command of the Flying Training School, Wigram.

Squadron Leader Claydon has left for the United Kingdom, where he will work closely with Squadron Leader J.H. Lewis, senior R.A.F. officer of the Trans-Antarctic Expedition, until they sail for the Antarctic with the advance party in November.

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The French National Assembly on August 5 approved a Bill bringing French southern and antarctic possessions into the French Union as a separate and self-contained territory.

F.I.D.S.

(By courtesy of the Falkland Islands Dependencies Scientific Bureau.)

Routine work has continued at all Bases. At the Argentine Islands (Base F) work has continued on the new geomagnetic hut, and an ozone room has been prepared for the installation of a spectrophotometer. Base F will be F.I.D.S. main I.G.Y. station and its programme of work will include geomagnetism, and solar radiation and ozone measurements. The Base V hut at View Point, which is subsidiary to Base D at Hope Bay, has been extended to accommodate four people. At Base G on King George Island in the South Shetlands a site has been prepared for a new base hut which is to replace the existing one. The two new bases, N and Y, are now reported to be well established. (See Bulletin No.18.) A general reconnaissance of Anvers Island is being carried out, and a provisional astro-fix has given the position of Base N as 64°45' S., 64°05' W.

As the "Norsel" will not be available to assist the "Biscoe" again this coming season, a new Swedish ship has been bought by F.I.D.S. It is a diesel-driven cargo vessel strengthened for work in ice. It is about the same size as the "Biscoe" with gross tonnage 978, length 190 ft. and beam 36 ft., but has much greater cargo capacity. It will be named the "Shackleton". (A press report from Copenhagen states that the ship's original name is "Arendal". Equipped for ice-breaking, the vessel will be furnished with an elaborate laboratory, and cabins and bunks for 60 people. Ed.)

BRITISH WARSHIP FOR THE FALKLANDS.

A correspondent of the Sydney Morning Herald states that the British warship "Protector" (3,000 tons) is to be stationed at the Falkland Islands. The Admiralty has issued a general call to the fleet for volunteers to join the ship.

SOUTH GEORGIA SURVEY.

The South Georgia Survey, again led by Mr. Duncan Carse, left England on August 25 on the whaler "Southern Opal". The aim of this season's expedition is to complete the survey of the island begun by Mr. Carse in 1951-52 and continued in 1953-54. (See Bulletin Nos. 9, 10, 11, 14, 15.) Other work will also be done, as the eight members of the team are qualified in surveying, meteorology, zoology, photography, ski-ing and mountaineering. A film will be made, and there will be another attempt on Mt. Paget. The expedition this season will follow the route taken by Shackleton, Worsley and Crean when they crossed the island in May, 1916, after the boat-journey from Elephant Island. The expedition members plan to meet Dr. Fuchs and Sir Edmund Hillary on South Georgia shortly before Christmas. The expedition has been commissioned by Mr. Peter Scott (son of Captain R.F. Scott) to bring back up to five pairs of South Georgia teal: it is hoped to breed these birds to avoid extinction of the species. The team will be away for eight and a half months, and will spend about six months on the island.

MAN TO MAN.

Feeling was running high between Great Britain and Argentina and heavy-handed protests were being exchanged with due ceremony and the display of naval strength.

Meanwhile, way down south, British and Argentine men were enjoying one another's company, just sorry that their huts were sited some miles apart. The Argentine Lieutenant spent most of his 'evenings' in the British party's hut playing darts, learning English and sometimes bringing a present - maybe penguin-breast sausages seasoned with garlic or sweet potato jelly. One day he was greatly upset. His wireless set was out of order, winter was coming on, and he was much concerned in case he should not be able to get in touch with his British friends when the weather was bad, to see that they were alright.

Meanwhile, diplomatic protests rumbled overhead like thunder in the high storm clouds.

AN ECHO OF 1912.

Arnold Court, meteorologist at Byrd's 1939-41 West (Ross Sea) Base, in a paper on "Antarctic Atmospheric Circulation" published last year indicates that 1912 was the windiest year in Antarctica of which we have extensive observational records. This may well have cost Scott and his men their lives.

AUSTRALIANS AT MAWSON.

An unusually fine June with a good moon allowed every man, without exception, to help either with dog sledging trips on the sea-ice or with weasel journeys. Two of these founded the island automatic weather station in the Ytterskjera Group, a most impressive site six miles over the frozen sea, abreast two vast tabular icebergs. On one of the Mount Henderson trips, Bechervaise, Shaw and Macklin encountered winds seventy miles per hour faster than those at Mawson, ten miles north.

A memorable feature of June in the Antarctic is the midwinter festival. At Mawson messages of good will were exchanged with polar and sub-polar bases throughout the world, and the occasion was celebrated with various trimmings packed by friends last summer.

In the dark days, most men were very busy on records and re-orders for next year and on general construction work. All assisted in the night painting of the living hut, 'Biscoe'. As seal meat had become scarce, Fox had several helpers, retrieving their youth by mixing imported dog food to the consistency of mud and pressing out pies of precise ration size. These are simply hardened by freezing.

Early July brought continuous blizzard and rising drifts, contrasting with the dark, fine month of June. The temperature averaged 33° F below, with a minimum of 50° below, freezing. The sunshine recorder, so long overworked, indicated no sun for over five weeks.

Bechervaise reported on 4 August, "July passed unmourned at Mawson. The only times the temperature exceeded zero Fahrenheit were on the many days of howling blizzard, obliterating everything. Hurricane blasts reached 110 m.p.h. and, for hours at a time, the mean wind velocity was seventy. World-filling drift blocked flues, turned hut porches into fantastic ice caverns and reached the roofs. Automatic wind measuring instruments at the Ytterskjera and Henderson remote-stations were dismembered. At home the meteorologists, Shaw, Elliott and Fox, spent "dicey" moments during balloon releases, occasionally just failing to make 100 yards in the necessary six seconds. (On windy days the meteorologists have to run when releasing their radio sonde balloons, so that the radio transmitter, which is attached to the balloon by a cord about 20 feet long, does not drag on the ground. Ed.) Parsons spent hazardous moments reclaiming the aluminium sheets of the physics hut. However, a few clear days gave promise from the reviving sun, days when crimson light tinged the ice plateau and the steep cliffs falling to the thick sea-ice. On the coldest day so far recorded at Mawson - 56° below freezing - the entire horizon of the northern sky was fretted with extraordinary double mirages of bergs so distant as to be normally invisible.

"Despite the weather, many man-hours were devoted to the servicing of the weasels by Gowlett, Crohn, Lacey and myself, working frequently at forty degrees below freezing and sometimes by searchlight. Elliott, Fox, Macklin, Allison, Ward and Riddell helped with dog exercising on relief trips to Ytterskjera. At present active preparations are under way for a dog sledging trip for geological, biological and mapping purposes to Bretangen, about sixty miles west, where exists one of the few known emperor penguin rookeries. Oldham and Elliott are busy rigging a new Norwegian sledge and Fox works incessantly on harness, traces and dog boots. (Leather "booties" used to protect the pads of the huskies' feet from rough ice surfaces. Ed.) Van Hulssen, in addition to his technical instruction to all men concerned, has serviced all sledge and weasel radio installations. Riddell, besides lining his own workshop, has commenced building a weasel garage. His moustachios, encased in ice, are a wonder to behold. Allison now possesses the finest existing polar surgery, even resplendent in a coat of silver paint applied on a fine day - at -10° Fahrenheit - but he completely lacks patients. "

Sledging Journey Completed.

Six men returned to Mawson on 25 August from a successful 140-mile journey by two dog sledges each drawn by ten huskies. The purpose of the journey was to visit an emperor penguin rookery discovered by Dovers last year. Only five such rookeries have so far been located in Antarctica.

The party, consisting of Bechervaise, Crohn, Lacey, Oldham, Macklin and Fox, set out on their winter journey on August 15th. The two dog teams, each drawing loads of six hundred pounds plus, at times, three men, travelled up to 25 miles daily. While still 30 miles from their objective the men encountered numerous groups of emperor penguins converging upon the breeding place in the lee of a vast glacier tongue. For food these birds must travel to the open ocean. As the sea was frozen solid far be-

yond the horizon, the men could not estimate how far the procession of birds stretched to the open water.

When the party reached the rookery, 60 miles from Mawson, they found more than 2,000 birds closely assembled on a strip of land-based ice. The sledging party remained for two and a half days making observations. The weather was generally good, with temperatures ranging from ten to fifty degrees below freezing, but work was held up for one day while a blizzard raged.

On the return journey the men traversed miles of rough pressure ice, threading their way on an uneven surface between countless towering icebergs frozen fast in the solid sea. Occasionally open cracks in the sea-ice were encountered, in which the sea appeared only two feet below the surface of the ice. These caused occasional detours but most were crossed without difficulty. One crack only fifteen miles from Mawson had permitted a number of Weddell seals to emerge from the sea and to lie out on the ice around the crack. As supplies of seal meat at the Station were by then, at the end of winter, beginning to run short, the men organized a weasel party immediately upon their arrival at base to return to shoot some seals to provide food for the dogs and a welcome diet of fresh seal meat for the men.

#### New Party for 1956.

Selection of personnel for the 1956 Expedition has been completed and it is expected that the party will sail from Melbourne on December 14. Nineteen men will be remaining at Mawson under Mr. William G. Bewsher. Eighteen will be sailing on the m.v. 'Kista Dan' and the other man, geologist Peter Crohn, who has already spent a year at the station, will be remaining for a second term. Mr. Bewsher is a Victorian teacher and a keen mountaineer. He served for five and a half years with the A.I.F., and is now 31 years of age.

The other new men are:

Donald Dowie, 38, medical officer.

John S. Bunt, 28, marine biologist (at Macquarie Island, 1951).

Robin M. Jacklyn, 33, cosmic ray physicist (at Macquarie Island, 1951).

Eric L. Murray, 23, radio physicist.

Sydney L. Kirkby, 22, surveyor.

James W.P. McCarthy, 36, senior meteorologist (Officer in charge at Macquarie Island, 1952, and previously at Heard Island).

Peter M. McGregor, 27, geophysicist (at Macquarie Island, 1952).

Nils T. Lied, 35, weather observer (at Heard Island, 1951).

Mervyn Christensen, 32, weather observer (at Macquarie Island, 1952).

John Hollingshead, 27, senior radio operator and technician.

Gordon L. Abbs, 35, radio operator (at Macquarie Island, 1953).

Denis J. Pickwell, 23, radio operator.

Lionel G. Gardner, 31, engineer (at Heard Island, 1953).

John A. McKenzie, 48, cook.

Australia's 1956 expedition is expected to be able to probe big areas of the continent not previously explored. A de Havilland Beaver aircraft has been adapted for Antarctic conditions. It will be able to take off from land or snow and will have a range of 500 miles. It will be equipped with scintillometer and other radio gear to obtain information for a "radio active minerals map" of the Antarctic coastline. The R.A.A.F. crew will be headed by S/Ldr. D.W. Leckie who was one of the pilots in the pioneer party which established Mawson in 1954-55. The other two members of the R.A.A.F. Antarctic Flight who will be spending 1956 at Mawson are Sergt. Geoffrey Johanson and Sergt. Gerald Sondberg.

Among those who will be going to Mawson but returning to Australia on the 'Kista Dan' in March are Mr. P.G. Law, who will lead the party, and Flight Lieut. P. Clemence, who will act as co-pilot on reconnaissance surveys.

The Mawson physicist, Parsons, has assembled two directional cosmic ray telescopes made in the University of Tasmania and taken south by the 'Kista Dan' in February. The world's largest cosmic ray telescopes, they are mounted on converted anti-aircraft gun mounts set on concrete piers weighing four tons. Containing 230 radio valves and 150 geiger counters, they are housed in a laboratory capable of withstanding winds of 150 m.p.h.

Philatelists Note! Letters to be postmarked at Mawson and at Macquarie Island must be forwarded to reach the Philatelic Bureau of the Melbourne G.P.O. by November 20 and November 4 respectively.

A.N.A.R.E. Publications.

Neither the new Australian map of the Antarctic nor the promised volume of antarctic photographs will be published before Christmas.

ARGENTINE HOSPITALITY.

The Argentine Ministry of Marine announced on July 12 that a British subject, Mr. C. Briand, of the British F.I.D.S. base on Deception Island, had been admitted to the Argentine naval base on the same island. Reports from Argentina say that the Argentine Antarctic bases have doctors, medical orderlies and "all equipment of modern living" including ice-chests.

Four Britons who left the new F.I.D.S. base at Horseshoe Island in the north eastern part of Marguerite Bay (about 67°53' S., 67°11' W.) on July 9, en route for the unoccupied British base on Stonington Island (68°11' S.), reached Debenham Island on July 13 and were surprised, says an Argentine report, "by a violent blizzard lasting five days. It caused a wide and deep crack in the surface of the bay." The four men were given shelter at the Argentine "General San Martin" base, and returned to Horseshoe Island on July 17.

The Argentine army authorities announce that members of the Hope Bay base inaugurated on June 20 a new topographic 'refuge' named Antonio Moro. It is situated in Paso del Medio near Apolinario Saravia Hill.

THE CHILEAN POINT OF VIEW.

Both Argentina and Chile have rejected the British proposal to submit their claims in the Graham Land area to the International Court at the Hague.

An editorial in "El Mercurio", Chile's leading newspaper, on August 13, states, inter alia, "Both Chile and Argentina have refused to do so, not because they are against the procedure of arbitration or judicial means as a method of solving international disputes, not that they consider their titles to be weak, but because the matter is one of sovereign rights over their respective national territories," and adds that over this national territory "Chile exercises full and absolute sovereignty by virtue of undeniable juridical, political, historical, geographical, diplomatic and administration rights." The paper does not explain how Argentina and Chile can both exercise sovereign rights over virtually the same territory.

There is a feeling in London, says the diplomatic correspondent of the Times, that the time for conciliation, waiting and talking has passed; and some observers are predicting that it may be necessary for Britain to adopt sterner measures to protect her interests.

THE WHALING SEASON 1954-55.

The pelagic whaling season ended on March 19, the catch amounting to 15,300 blue whale units, 200 units less than the permitted figure, and below the 15,456 blue whale units caught in the previous season. There was a considerable decline in the catch during the two last weeks of the season. The operations lasted 72 days, and 233 boats were engaged. The daily catch per chaser was .92 blue whale units as compared with .98 in the previous season.

The production of whale oil amounted to 1,776,367 barrels, a decline from last year of 188,627 barrels. This indicates a lower yield of oil per blue whale unit: 128-129 barrels in the three preceding seasons, 116.2 barrels in 1954-55.

Production of whale oil and sperm oil in barrels as reported by the various expeditions (provisional figures based on telegraphic reports):

		<u>1954-55</u>	<u>1953-54</u>
<u>Norway:</u>	Kosmos III	108,400	107,136
	Kosmos IV	121,333	147,816
	Norhval	110,400	127,246
	Pelagos	85,790	104,936
	Sir James Clark Ross	64,762	96,944
	Suderoy	49,500	53,518
	Thorshammer	52,731	83,762
	Thorshavet	105,425	126,977
	Thorshovdi	107,305	114,750

		<u>1954-55</u>	<u>1953-54</u>
Great Britain:	Balaena	187,750	171,593
	Southern Harvester	117,110	127,341
	Southern Venturer	95,753	172,204
<u>South Africa:</u>	Abraham Larsen	99,000	147,271
<u>Holland:</u>	Willem Barendsz	64,739	97,596
<u>Russia:</u>	Slava	172,088	169,117
<u>Japan:</u>	Nisshin Maru	146,471	146,765
	Tonan Maru	143,094	105,912
	Kinjyo Maru	77,359	-
<u>Panama:</u>	Olympic Challenger	147,880	-
	<u>TOTAL:</u>	<u>2,056,893</u>	<u>2,110,884</u>

The catch comprised 2,158 blue whales, 25,828 fin whales, 493 humpbacks and 135 sei whales (a total of 28,614 baleen whales), and 5,712 sperm whales. The blue whale catch was down by 526 compared with the previous season. The blue whales amounted to 7.7% of the total blue and fin whale catch, as compared with 9.7% in the 1953-54 season.

At the three South Georgia shore stations the production of whale and sperm oil was 180,699 barrels (1953-54, 184,836 barrels).

#### WHALING CONFERENCE.

At the meeting of the International Whaling Conference held in Moscow in July it was decided to reduce the permissible catch for next season from the 1954-55 figure of 15,500 blue-whale units to 15,000. Previously the figure had been for some years 16,000. The 'ceiling' will be further reduced by 500 in the following season.

#### NEWS OF THE WHALING FLEETS.

A new ship, Willem Barendsz II, to replace the present factory-ship of the Netherlands whaling fleet, will commence operations in the coming season. The vessel has a displacement of 44,000 tons and a dead weight of 26,500 tons.

The Argentine Government intends to sell by public tender the factory-ship "Juan Peron", built in Belfast in 1951 for Campania Argentina de Pesca. The 42,270-ton vessel, stated when built to be the world's largest factory-ship, was bought by the Argentine State Oilfields Organisation and used to carry oil to the Caribbean. The Government now thinks it desirable to use the ship for whaling purposes. The new buyers, states a decree issued on August 11, must be of Argentine nationality. This, it is said, would "strengthen Argentine sovereignty" in the Antarctic.

The Norwegian factory-ship "Sir James Clark Ross" was delivered to her owners on August 23 after being lengthened 40 feet in a German shipyard.

#### CAMPBELL ISLAND.

##### NEW STATION TO BE CONSTRUCTED.

The New Zealand Government has decided to erect a new station of a permanent nature on Campbell Island to replace the present buildings, a survival of war-time coast-watching days. The site is Beeman Cove, about a mile from the present camp-site in Tucker Cove and accessible from it in about an hour by land and ten minutes by water. As previously reported in the Bulletin, recent parties have built a stores shed and a jetty at the new site, and a winch and crane have been fitted up. The main advantages of the new site are that there is deep water close inshore, the site is relatively flat and sheltered, and the conditions will make radio sonde and other scientific observations more practicable.

The main buildings to be erected next year are a hydrogen-generating hut and a generator shed behind the jetty. The foundations will also be laid for an ionosphere hut, a "technical building" of 864 sq.ft., and a domestic block of 2,560 sq.ft. It will be necessary to build a "railway" from the jetty to the camp site, 200 feet higher. It is proposed to include two carpenters in the relief towards the end of this year, who will assist in laying the foundations, and early in 1957 a construction gang will erect the prefabricated buildings.

News from the Island.

Ian Clark reported to the Bulletin by radio-telephone on September 7 that all were well, and very glad of such signs of Spring as the first lambs, born in the third week of July, and the Bulbinella shoots poking through the peat. A few sooty albatrosses had been noticed flying round Beeman peak, also one or two skuas, the first seen for some months. Royal albatross chicks were showing dark wing feathers and, still carrying much down, were heavier than the parent birds. Attempts to photograph the feeding process were not very successful, as the parents withdrew ten feet or so from the chicks when approached: but after a three quarter hour wait one photo was obtained at a distance of fifteen feet. Interest was keen in a large pure-white bird which Dr. Falla has identified as a white giant petrel, the first reported on the island. Great interest was taken also in the appearance of many dozens of whales, thought to be sperms, in North West Bay. Diving, leaping and blowing, they made "a fantastic sight".

The air-drop described below was hilariously welcomed. The men would like to pay a tribute to the skipper and crew: nearly all the containers fell within 50 feet of the target area. Particularly welcome was the mail and the fresh food, especially the fruit. The unpacking of the cannisters was "great fun" said Mr. Clark, and the camp was "like an orphanage on Christmas morning". As the weather was fine, everything was gathered in within two days, and all dry. The main construction work has been the building of a road from Beeman Point to the Hydrogen Hut site, and the completing of the installation of the crane-winch.

An air-drop, chiefly of spare parts for generators, tractors, etc., took place on 14th July under good conditions considering the season. The plane was an R.N.Z.A.F. Hastings which flew from Whenuapai and back non-stop in about fourteen hours. Visibility was 25 miles, reduced to 5 miles during the brief periods of light showers. The drop site was just south of the old sheep camp. Most of the cannisters landed within 50 feet of the target. The ambulance stretcher was used to transport the cannisters to the jetty and the parachutes and cannisters were got under cover before they got wet. Only one cannister came to grief on landing, breaking a radio tube and bursting the container of .22 ammunition. Apart from this minor mishap, all goods arrived in excellent condition.

A Mermaid on Campbell Island.

While the men on Campbell Island were working at Beeman Point towards the end of August they were entertained by what appeared to be a sea-bear which had caught a large flounder and was "worrying" it like a cat with a mouse, on the surface of the water. Byron Hart was crouched beside a rock watching, with his chin resting on his hand, when the beautiful creature approached the wharf, came right up to the rock and proceeded to rest her head on her flippers too. The heads of the pair were not six inches apart. Then she nuzzled his hand like an affectionate puppy with her little wet nose and eventually climbed out of the water and sat on the rock beside him, where they had a long and intimate talk. The men were deeply moved by the touching episode.

THE "ENDURANCE" STORY.

by T. Orde Lees, O.B.E., A.F.C.

(Lt.Col. T. Orde Lees was a member of Shackleton's Trans-Antarctic Expedition of 1914-17. He now lives in Wellington and is a member of the Council of the New Zealand Antarctic Society. Col. Orde Lees has kindly supplied this account of the critical phase of the expedition not covered by Harry McNeish's diary.)

The last we saw of the ship, Endurance, was her main-mast disappearing from sight and sinking ever so slowly. We were then a good mile away from the ship because, for safety, Shackleton selected an ice-floe of more than a square mile in area on which we lived for more than six months drifting mainly northward at an average of about two miles a day.

At first Shackleton attempted to do the impossible by going over the ice-floes to the nearest land, then about 250 miles away. Incidentally we had all the dogs, about 65 of them, and they could help to pull the boats. It's wonderful what the dogs can do. The bigger ones can pull on a sledge at least 100 lbs. and a dog that cannot pull 75 pounds isn't worth his keep.

During the six months that it took us to reach the edge of the pack-ice in the Atlantic no one except myself and Green, the cook, had anything to do. I was the seal hunter; if not seals there were always plenty of penguins. Relieved of the motor sledges, four of them, which I had designed for "the Boss", as we all called

Shackleton, he very kindly asked me to take on the seals on which we mainly lived, merely because at Davos in Switzerland I had more experience on ski than any of my colleagues. Believe it or not, Shackleton himself was quite incapable on ski.

Though in the Royal Marines for a good part of my life I never overcame sea-sickness. This enabled me, a full week ahead, to inform the Boss that, during the night, I felt sure that we were approaching the Atlantic because I felt the ice-floe on which we were then existing moving up and down. He was delighted and told me to let him know the next morning. There was no doubt about it next morning. Although I wasn't actually sick I came very near it.

At last we were nearing the edge of the pack-ice. It was not unlikely that the time had come for us to launch the three boats that we had brought from the ship all those 200 or 300 miles. Under the Boss's direction when all seemed propitious we launched the boats. There was no question of taking even one of the dogs in the boats. So those which we hadn't eaten were shot by Wild, our second in command. We ate about a dog a day when short of seal-meat.

During the night, at any rate for the first two nights, we camped on small ice-floes. The first one was all right but the second one broke in half during the night right underneath one of the tents and deposited one of the sailors names Holness in the icy water. The Boss had heard the ice crack and rushed out just in time to save the life of Holness. It was then discovered that our supply of seal-meat had drifted off on the other half of the small floe. It was just touch and go whether we had enough seal-meat to get us to the island called Elephant Island, on account of the large number of sea-elephants that breed there.

On our third night, being more or less clear of the pack-ice, we had a narrow escape of being eaten by killer-whales. For several hours these terrible creatures were all round us. Had the killers had the technique of the Arctic whales they most certainly would have eaten us one by one. Fortunately they had not thought about how to tip a boat over.

It was on the third day that we discovered that none of the boats had brought with them any ice for the purpose of drinking. In spite of the fact that we had been warned not to drink sea-water I myself drank it whenever I felt thirsty. The water surrounding Antarctica is more brackish than the water at the mouth of a river.

On the fourth day, Captain Worsley, our skipper, made the discovery that we were some forty miles out of our course for Elephant Isle. Shackleton immediately stood up and ordered all boats to go about. A sight can only be taken when the sun is visible. There had been no sun visible for the first three days. Most fortunately a wind from the south-east favoured us and after another three days we arrived at Elephant Island, that is to say at least two of the boats arrived there. What had happened to the missing boat was a matter of conjecture. By the way, each of our boats were named for convenience. Shackleton's boat was the James Caird, our boat was the Stancombe Wills: it was the Dudley Docker that had gone astray. After waiting till noon, immensely to our delight, the Dudley Docker turned up.

We landed on a small beach which was exposed to the sea in such a way that we could have been swamped if winds from the South sprang up; notwithstanding, the Boss sent me and our geologist, Wordie, up a very steep cliff to see whether there was any chance of making a camp up at the top. The cliff was at least 200 feet high. When we got to the top there was nothing doing. Meanwhile the Boss had sent one of the boats exploring for a better cove than the one where we landed. As we came down from our cliff climb, the boat returned to say that about three miles away they had found a first rate place sheltered from nearly every wind. All three boats were launched and in something of a blizzard we rowed round to the appointed place. The blizzard increased in fury and lasted about a week. Meanwhile our few remaining tents were being torn to pieces. You will believe it when I say that several cooking pots which we had brought with us were lifted from the ground and blown out to sea.

The Boss had been working out how to rescue us. He planned to go to the British Island of South Georgia at least 800 miles away, which is more or less a Norwegian whaling station. He selected his crew, the skipper of the Endurance, the carpenter and three sailors. On the 7th day the blizzard subsided, the sea was comparatively calm. We all thought what a brave thing to do just for our sakes.

The voyage took them just sixteen days to do, an average of 50 miles a day. In spite of waves 40 feet high they stuck to it and arrived on the wrong side of South Georgia. Pluckier still, the Boss, Worsley, and the sailor, Crean, started off to cross the Island. This they succeeded in doing. After telling their experiences to the head manager of the whaling station they borrowed a whaling vessel

of about 150 tons. This ship ran out of coal, or feared it might. Next they took steamer to Buenos Aires. There the Boss was given a naval vessel, but as soon as the Captain of the cruiser saw the pack-ice he said, I'm not going to run my ship into all that ice for love or money. Next the Boss went to Uruguay where he chartered a motor schooner, the engine of which broke down about half way. Finally he obtained a small metal tug from Chile and it was this tug that rescued us.

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ONE OF SCOTT'S MEN.

A veteran of Scott's "Discovery" Expedition of 1902-1904 died at his home in Christchurch on August 14 aged 77. He was Mr. A.H. (Harry) Blissett, who as a private in the Royal Marines volunteered for service in the Antarctic and served under Captain Scott throughout the expedition. He is remembered as the first man ever to discover an emperor penguin's egg. This was on an expedition to Cape Crozier led by Lieut. Royds in November 1902: Scott recorded in his diary when he first heard the news, "Blissett has discovered an Emperor penguin's egg and his messmates expect him to be knighted"! On a later journey to the rookery Blissett suffered severely from frost-bite.

After sixteen years in the Royal Marines, Mr. Blissett worked in the prison service before and after the first World War, in which he also served. He had been living in Heathcote, Christchurch, for the past sixteen years.

The funeral arrangements were in the hands of the Returned Services Association. The Christchurch branch of the New Zealand Antarctic Society forwarded a wreath, and was represented at the funeral by its president, Mr. H.F. Griffiths, and Mr. A. Robins.

During his visit to New Zealand last year Mr. C.H. Hare of Melbourne, who was also a member of the "Discovery" expedition, renewed his acquaintance with Mr. Blissett, and the two veterans then kept up a correspondence until Mr. Blissett's death.

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Frederick J. Hooper, one of the party led by E.L. Atkinson which found the bodies of Scott, Wilson and Bowers on November 12, 1912, died at Southport on June 20, aged 64. Hooper joined the expedition as steward but was added to the shore party, "much to his joy" Scott wrote, and proved such a valuable member of the expedition that he was selected by Priestley to form one of the summit-party on the Mt. Erebus climb in December, 1912. He had served in the Royal Navy.

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"FOUND OF PLANKTON PLEASE."

In a fully documented article in the Norwegian Whaling Gazette, Kjell Baalsrud discusses the possible utilization of plankton for food and other purposes. The tiny organisms known as phytoplankton, "the plants of the sea", constitute the food of other organisms, the various species of zooplankton, invertebrate animals an important part of which are crustaceans of sizes from a couple of millimetres to several centimetres. These serve as food for fish and whales. While this is an over-simplification, the fact remains "that organic matter is produced in microscopic algae and later transformed by organisms of increasing size. In any transformation process there is a loss of organic matter... The organic matter which we harvest from the sea in the form of fish or whales has been transformed at least twice. If we assume that in each transformation 10% of the organic matter is incorporated into the next link of the chain, then the sea must produce 100 lbs. of phytoplankton and 10 lbs of zooplankton per lb. of fish or whale... These cautiously estimated figures give an idea of the size of the plankton production in the sea. Naturally one wonders whether it would be worth while to catch these first links of the production chain."

Plankton, it is pointed out, is a very heterogeneous raw material whose composition may vary within wide limits. But plankton in general has a high protein content. Though feeding experiments with rats have given rather discouraging results, it is possible that valuable protein components could be made more easily available by special treatment of the plankton.

As a raw material for carbohydrates plankton is of relatively little value, but the fat content deserves particular attention. The fat is the plankton component that could most readily be isolated and dealt with by present industrial methods. Because of its high content of unsaponifiable matter, plankton fat is not suited for human consumption, but like sperm oil it should be a valuable raw material for industrial purposes. Plankton also contains considerable amounts of vitamin A.

"The work which has so far been carried out" the article concludes, "has given some valuable information concerning the nature of plankton as a raw material and of the special practical problems of the harvesting. Some new idea or some new technical remedy may sooner or later initiate the development of methods which will make the utilization of plankton practically feasible."