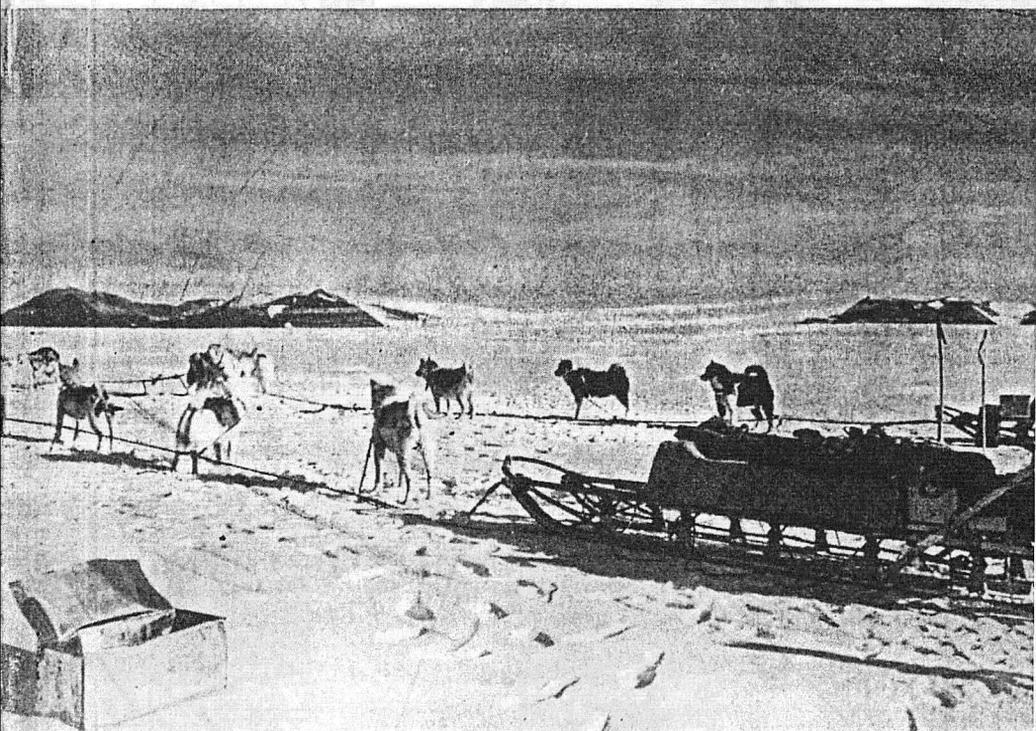


ANTARCTIC

A NEWS BULLETIN

published quarterly by the
NEW ZEALAND ANTARCTIC SOCIETY

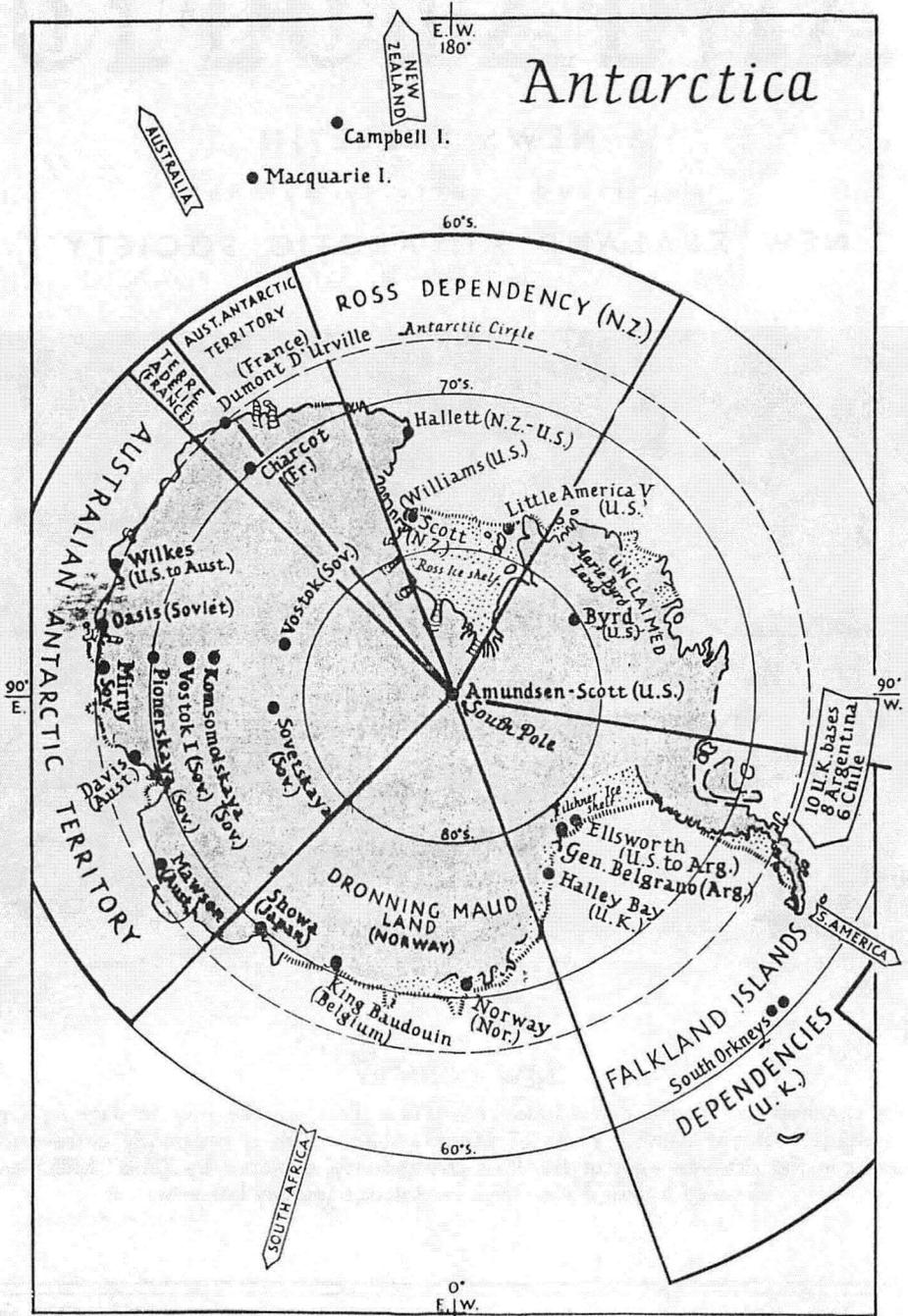


NEW COUNTRY

Dogs spanned out at the camp below New Year Pass, on the way to January Col, in a range, not yet named, south of Mt. Markham. This is previously untraversed country in the extreme west of the Ross Dependency, explored by "Bob" Miller and George Marsh during their long sledge journey last year.

Photo: J. H. Miller.

Antarctica



66 ANTARCTIC 99

(Successor to "Antarctic News Bulletin")

Vol. 1, No. 12

DECEMBER, 1958

Editor:

L. B. Quartermain, M.A., 1 Ariki Road, Wellington, E.2, New Zealand.

Business Communications, Subscriptions, etc., to:

Secretary, New Zealand Antarctic Society, P.O. Box 2110, Wellington, N.Z.

INTENSIFIED PROGRAMME FOR NEW PARTY AT SCOTT BASE

A strong nine-man team has been chosen by the Ross Dependency Research Committee to replace the present New Zealand party under Mr. L. H. Martin at Scott Base. The men were selected from over 150 applicants.

The new leader is **L. R. HEWITT**, aged 45, a well-known mountaineer, who is at present assistant-manager of the Chateau Tongariro. An old boy of Christ's College, Mr. Hewitt served with the R.A.F. and the R.N.Z.A.F. in Britain, the Middle East, and the Pacific. As a member of the New Zealand Alpine Club and the Canterbury Mountaineering Club, he has had 25 years' experience of climbing in the Southern Alps. He also took part in the 1955 New Zealand expedition in the Karakoram Hamalayas.

The other men selected are:

B. P. SANDFORD, M.Sc. (24), of Wellington (whose brother was a member of the I.G.Y. team at Scott Base last year): senior scientist. Educated at Raetihi School, Wanganui Technical College and Victoria University of Wellington, he has this year been working at the Invercargill I.G.Y. station studying auroral spectra.

R. V. PEMBERTON (27), of Wellington: technician. Born in England, he served as a photographer with the R.A.F. He later studied radio and joined the Merchant Navy as a Radio Officer before emigrating to New Zealand. He is employed by

the P. and T. Department as a Technician at Makara Radio Station.

M. F. RODGERS (26), of Lower Hutt: technician. Born in Dunedin and educated at King Edward Technical College, in 1952 he joined the Regular Army as an electronic technician. He joined the Dominion Physical Laboratory in 1955 and was employed in radio physical investigations. He assisted in the building of some of the equipment already installed at Scott Base. Interested in tramping and climbing, he has led several parties into the Southern Alps.

G. F. G. WARD (31), of Kaitaia: Senior Maintenance Officer. Born in Christchurch; educated there and at Temuka District High School, he served an engineering apprenticeship in Christchurch and Fairlie; then entered the Auckland Teachers' Training College in 1953 and trained as a metal work teacher. He was on the staff of Kaitaia College from 1954 as engineering instructor. He has excelled at swimming and has followed cricket, deer stalking and fly fishing.

L. J. SALES (38), of Stokes Valley: maintenance officer. At present em-

ployed as a diesel fitter in the Hutt Railway Workshops, he was born in London and came to New Zealand last year. He has had considerable experience of working under Arctic conditions, as for five years he was area inspector of maintenance for the U.S. Air Force in Newfoundland and made several visits to Greenland. He is also experienced in sea rescue work.

P. PHILLIPS (43), of Auckland: radio operator. Born in Wales, he joined the Royal Navy in 1933 and was for 22 years in the communications and electrical branches in all parts of the world. He served in cruisers, M.T.B.'s and submarines in the Atlantic and the Far East, and was awarded the D.S.M. in 1941. He served with Saunders-Roe on the Black Knight project before coming to New Zealand in 1957. He is employed as a technician with the Navy Department, Devonport. Married, with one child.

E. S. WEDGWOOD (29), of Invercargill: cook. Born in England, at 17 he joined the R.A.F. as cook, and served in Egypt and the Sudan. He joined the Merchant Navy with the Orient Line, then Shaw-Savill and finally spent 18 months in the kitchen of the "Queen Mary" before coming to New Zealand 8 months ago.

One more technician has yet to be appointed.

Dr. Trevor Hatherton, scientific leader at Scott Base 1957-58, and officer in charge of New Zealand's scientific activities in the Antarctic, spent several weeks continuing the gravimetric survey he began two summers ago, working for a distance of about 100 miles along the Victoria Land coastline west of McMurdo Sound. He is now with the American traverse party in Victoria Land.

Mr. J. Humphries, who spent last year at Hallett Station, is at Scott Base on relieving duties for two months.

Mr. G. J. Caughley, B.Sc., of Eltham, a 20-year-old biologist, employed by

the Deer Research Section of the N.Z. Forest Service, will be at Scott Base for the summer. He went south by air on November 9.

AMERICAN GUESTS

With the New Zealand party at Scott Base will be four American scientists:

F. G. VAN DER HOEVEN, seismologist;

A. M. STUART, glaciologist;

P. T. HEISER, auroral physicist;

J. G. WEIHAUPT, asst. glaciologist.

During the winter they will assist with the scientific programme, using equipment to be transferred from Little America. Next summer they will set out on a lengthy field trip by sno-cat, extending the traverse at present being led by Mr. A. P. Crary in the Victoria Land area.

The Scott Base party will leave Wellington on H.M.N.Z. "Endeavour" on December 20.

NEW ZEALAND PLANS

The most important development in the scientific programme at Scott Base will be the intensified study of the lower regions of the ionosphere, 30 to 60 miles above the earth's surface, which affect radio communications by absorbing certain lower radio frequencies.

"New Zealand leads the world in this field of research through the work done at Canterbury University under Dr. J. B. Gregory, senior lecturer in physics," said Mr. Holloway, Minister in Charge of Scientific and Industrial Research.

"Already our scientists have discovered a number of previously unknown features about this ionospheric layer which will be further studied from Scott Base by the use of radio wave techniques.

NEW EQUIPMENT

"With the aid of Government finance, special equipment costing some £5,000 has been designed and built in the university's industrial develop-

ment department to help with this work. Dr. Gregory will spend part of the summer at Scott Base to install it and train the wintering-over staff in its use."

Dr. Gregory is being assisted by Mr. M. J. Randall, a 20-year-old physics student at Canterbury University, who left for the Antarctic by air on November 25.

When the apparatus is installed, Scott Base will have the greatest concentration in the Antarctic of radio and allied equipment for study of the upper atmosphere and radio propagation. Apparatus for the study of aurorae will be added later.

The equipment will allow investigation of a theory that there is a trap layer of dust and debris from outer space roughly fifty-five miles above the earth. This layer has important effects on radio communication.

The Minister said more special equipment was being built at the Dominion Physical Laboratory for another special project—the study of "whistlers", or radio waves from lightning flashes which appeared to travel along the earth's lines of magnetic force, thousands of miles above the surface.

OCEAN SURVEY

H.M.N.Z.S. "Endeavour" will carry out an oceanographical survey in the Ross Sea during January and February, 1959. The scientists engaged on this work will be Dr. R. K. Dell (38), a senior scientific officer on the staff of the Dominion Museum, Wellington, and Messrs. J. S. Bullivant, M.Sc. (24), zoologist, A. G. McFarlane (24), technician (hydrology), N. A. Powell (21), zoologist, and D. G. McKnight (22), technician (biology).

"ENDEAVOUR"

Commander J. E. Washbourn, R.N.Z.N., took over command of H.M.N.Z.S. "Endeavour" on August 5. The vessel is scheduled to leave Wellington for the Antarctic on December 20.

Lieut. E. Burrows and A.B. M. Brown, of "Endeavour", have been awarded the Bronze Medal of the

Royal Humane Society for their part in the rescue of a shipmate who fell overboard during an Antarctic gale.

SCOTT BASE REPORTS

August at Scott Base was very "disturbed" geomagnetically, and three severe storms occurred accompanied by radio blackouts and aurora.

The sun was first seen at 11 a.m. on August 30. The weather during August was mostly pleasant with a warm spell in the middle of the month when temperatures rose to plus 14 degrees. Temperatures were otherwise very cold with a minimum of minus sixty-two.

September 20 and 21 saw the worst blizzard so far experienced this year. Maximum windspeed was 87 m.p.h., but surprisingly little drift was deposited. In general, conditions were cloudy throughout the month with an average temperature of -20° F.

SLEDGES READY

Five of the six cargo sledges were repaired and the sides repaired and strengthened. Duff did excellent work in getting these sledges into a satisfactory condition for the summer's operations.

Two dog sledges were also repaired and other field equipment overhauled. The dog teams were taken for a 16-mile run across the sea ice on August 31. The dogs performed well. Later, they were split into three teams and short journeys were made from Scott Base to Cape Evans and to White Island. On the latter journey the weather deteriorated, bringing high winds and limited visibility and the trip was not as interesting as it might otherwise have been. The dog teams performed well.

One sno-cat was used for a quick run to White Island with a spare field radio for the field party.

FIELD WORK

A start was made on a combined gravity and magnetic survey from Dailey Islands to Granite Harbour with gravity observations at Dailey Islands,

Cape Chocolate, Butter Point, Spike Cape, Marble Point and Granite Harbour, Otter air transport provided by the American Navy being used for these areas as the ice conditions prevailing were unsuitable for vehicle transport.

At last report only two gravity stations had been established, one at the Dailey Islands and one on the bluff between the Hobbs and Blue Glaciers. Further work had to be postponed as the aircraft used broke its fuselage on landing near Cape Chocolate, resulting in a cold and adventurous trip home to McMurdo. (See below.)

Using a Tucker sno-cat for transport, a gravity station was established on White Island and magnetic observations were made on the Ross Ice Shelf ten miles from White Island. A complete set of magnetic observations was not possible owing to poor weather.

Sgt. Duff joined the Little America-Victoria Land traverse led by Mr. Crary on October 15. Major Dawson, of the U.S. Army, who was with the traverse party for their first ten days, said that Sgt. Duff's services had been "invaluable" and that the Americans were greatly impressed by his mechanical ability.

The health of all members has been satisfactory, except for some severe colds and influenza—brought in by the new arrivals.

TAXI ON ICE

Two New Zealand scientists on October 22 had the longest and roughest taxi ride in the history of the Antarctic. It was made after an Otter eight-seater aircraft was grounded by a cracked fuselage. The damage to the fuselage was discovered after the Otter had landed near Cape Chocolate, 30 miles north of McMurdo.

Martin, the leader of the New Zealand party at Scott Base, and Burrows had been flown to the area to make a series of gravity readings.

The aircraft's pilot, Lieutenant Commander K. Allison, aware that an

attempted take-up would be an invitation to disaster, decided to taxi back to McMurdo over the rough bay ice. Crevasses and other menaces to "traffic" forced the Otter to make a detour, adding 10 miles to the journey, which was made in four hours.

A United States Navy Dakota and a Neptune circled overhead to scout a safe route. The circling aircraft radioed to the Otter pilot that they could see the crack in the ski-plane's fuselage, behind the passengers' door, opening as much as 18 in. when the plane bumped over the ice.

"REALLY INTERESTING"

Everything movable in the little aircraft was moved forward for the bumpy journey over the ice. This was necessary to take the weight off the tail. "It was really interesting. We did not know when the tail would break off," said Mr. Martin.

The crack in the fuselage was discovered by the Otter's third passenger, a United States International Geophysical Year representative, Will Smith, who said: "The aircraft swished down to a smooth landing on the ice. Then I heard a rattling sound as though tools were rattling around in a box somewhere." This led to the discovery of the crack.

Mr. Smith and Lieutenant Commander John Henning, the Otter's co-pilot, hiked ahead of the plane for two miles to find a navigable course over the sastrugi.

The white ensign which flew from one of Sir Vivian Fuchs' sno-cats during the crossing of Antarctic was presented by Chief Radar Electrician P. D. Mulgrew to H.M.N.Z.S. "Pegasus".

BASIC NEEDS

"All that is needed in the Antarctic is a better climate and a greater proportion of women in the population."

Quoted by the United States Ambassador to New Zealand in welcoming visiting I.G.Y. scientists in Wellington.

New Zealanders Will Survey Victoria Land Coast

A 12-man party, led by Dr. H. J. Harrington, of Wellington, will undertake geological and mapping work in the Antarctic this summer.

The expedition left Lyttelton in the U.S. icebreaker "Staten Island" on November 25.

Dr. Harrington last summer led a similar party which explored the northern Victoria Land area of the Ross Dependency and mapped some 6,000 square miles of previously unknown territory.

Till the party is withdrawn toward the end of February, it will work in the vicinity of Terra Nova Bay, midway between McMurdo Sound and Cape Hallett.

Last summer the Trans-Antarctic Expedition worked its way up the coast from Scott Base to the Mawson Glacier while the New Zealand Geological party worked south from Hallett Station to the Lady Newnes Ice Shelf. It is planned this year to fill the 200-mile gap between these points.

In the area are mountains up to 11,000 feet in height and extending between 70 and 80 miles towards a plateau.

This area on the western shore of the Ross Sea forms the largest land mass in the Ross Dependency and could be of considerable value to New Zealand in the years ahead. This summer's work should complete a general overall picture of the area and pave the way for more intensive studies of selected areas in the future.

STRONG TEAM

The team, chosen from more than 300 applicants, is:

Dr. Harrington (leader and senior geologist); E. B. Fitzgerald (deputy leader and senior surveyor), of Dunedin; A. C. Beck (geologist), of Westport; I. G. Speden (geologist), of Wellington; G. Henderson (surveyor),

of Rotorua; B. Alexander (surveyor), of Christchurch; A. J. Heine (stores officer), of Wellington; J. Harrison (mountaineer assistant), of Christchurch; W. Romanes (mountaineer assistant), of Hastings; K. C. Wise (mountaineer assistant and radio officer), of Christchurch; J. G. Wilson (mountaineer assistant), of Christchurch; and M. R. White (mountaineer assistant), of Christchurch.

Dr. Harrington is the oldest in the party and Mr. Wilson, at 21, the youngest.

SLEDGE HAULING

An aerial reconnaissance will be made of the area before the party is landed from the icebreaker. They will probably split into smaller groups to cover as much area as possible. Using 11-ft. long, Norwegian type, man-hauled sledges they plan to penetrate 60 to 70 miles inland from the coast.

Members of the party underwent a short, intensive training course on the Tasman Glacier before leaving New Zealand.

EXPERIENCED MEN

Dr. Harrington, who is 34, is a principal scientific officer of the Geological Survey. He graduated M.Sc. at Auckland University in 1944 and after war service was district geologist in Otago from 1947 to 1951. He was then awarded a National Research Fellowship to Oxford University, where he obtained a doctorate in geology in 1954. He led two Oxford University expeditions, to Spitzbergen in 1953 and to the Himalayas in 1954, returning to the Geological Survey as a petrologist. Last year he led the Antarctic geological expedition which operated from the joint U.S.-N.Z. base at Cape Hallett.

Mr. Heine is making his third trip to the Antarctic. He was an observer with the 1956-57 I.G.Y. summer party which helped to establish Scott Base and took part in geological work on the Skelton Glacier. He and Mr. Fitzgerald were members of the 1957-58 party.

UNIVERSITY PARTY

A group of four scientists organised by the Victoria University of Wellington left Lyttelton on November 15 to spend about three months in the Wright Dry Valley area.

Dr. C. Bull, the physicist, is the only one of the four not born in New Zealand. This will be Dr. Bull's first visit to the Antarctic, but he has already visited the Arctic with three expeditions, in 1951, 1952-54, and 1955.

The two geologists, Messrs. B. C. McKelvey and P. N. Webb, spent last summer in the Antarctic, and Mr. R. E. Barwick, the zoologist, the two previous summers.

BY HELICOPTER

The party will fly to Scott Base in an American aircraft and then be transported by helicopter to Wright Dry Valley, on the other side of McMurdo Sound and about 100 miles from the New Zealand Antarctic base.

Of necessity, the expedition will travel "light", as all the equipment must be ferried in by the helicopter, and will then have to be carried as the party makes its survey in an un-mapped area of some 2,000 square miles.

This will be the first non-Government sponsored expedition to the region. The scientists express appreciation of the help they have received from the Department of Scientific and Industrial Research, and the Ross Dependency Committee.

Dr. Bull said the expedition had been made possible by the New Zealand University Research Grants Council.

TO ALL SUBSCRIBERS

With the present issue, No. 12, we end Volume 1 of "Antarctic".

INDEX

A comprehensive index is being prepared, and will be available for purchase by readers. Details in next (March, 1959) issue.

BINDING

Arrangements are being finalised for an attractive uniform binding. Subscribers will be notified of the address to which their twelve numbers should be forwarded for binding at an extremely moderate charge. This cost will include the binding-in of the index, which must first be purchased from the Secretary.

FOR SALE

The Secretary, New Zealand Antarctic Society, has for sale for a short time a limited number of copies of the "BIBLIOGRAPHY OF ANTARCTIC LITERATURE" prepared by Mr. W. Tanzer. This 59-page bibliography lists all Antarctic material (books and articles) available in New Zealand Libraries. Price 2/6.

SPACE . . . AND THE ANTARCTIC

Australian scientists contemplating the development of Woomera into the British Commonwealth's first "space port" for the firing of space rockets are thinking hard about the value of the Australian and New Zealand sections of Antarctica as suitable locations for tracking devices, and possibly as providing a site for a "link" base.

Space above Antarctica is relatively free from dangerous upper radiation, which is repelled from the vicinity of the magnetic poles. So Antarctica would be the ideal place from which to launch a manned space vehicle. And no spot could be better from which to launch a satellite into a pole-to-pole orbit so that it would completely encircle the earth.

Globemasters In Trouble Near Hallett Station

What started out to be a routine airdrop mission for four U.S. Globemasters and a regular flight from Christchurch to McMurdo for a Navy R4D ended in the first emergency landings of Operation Deep Freeze IV.

After the cargo planes had taken off from McMurdo on October 9 the weather deteriorated and visibility was reduced to zero as the result of a 30-40-knot wind combined with falling snow.

The Navy "Skytrain" on its way to McMurdo was ordered to land at Hallett Station because of the poor weather at McMurdo. As the Globemasters returned to McMurdo after air-drops at the Pole and Byrd Stations it became apparent that landing at Williams air-field would be practically impossible. The only alternative landing-place was on the 9,000-foot ice runway at Hallett, 400 miles to the north. But planes of this type had never previously landed on the strip and no instrument landing system was available. Thus it was an extremely hazardous operation.

The R4D pilot stationed his aircraft in such a position beside the runway that he was able to "talk" the Globemasters in, and all four landed safely on the seven-foot thick ice.

Two days later, after fuel had been flown to Hallett by two Navy Nep-tunes, the stranded planes flew to McMurdo in perfect weather. While the guests of the 16 men at Hallett Station, the 40 unexpected visitors were treated "like visiting Royalty." On October 13 a Globemaster dropped a "thank-you" note at Hallett consisting of 335 lb. of fresh provisions and 255 lb. of mail.

During the stranded airmen's "visit" to Hallett Station, the first penguin of the season arrived at Hallett also. He fell into the hands of Captain Gozur, navigator of one of the Globemasters, who presented his captive to

Colonel Barnick, another "visitor." When more of the penguin's friends came trooping across the ice to see what had happened, Colonel Barnick returned him to the flippers of his relatives.

FATAL CRASH

A United States Globemaster crashed 30 miles north of Cape Hallett, north-eastern Victoria Land, at approximately 9 a.m. on October 16.

The Globemaster, on a flight from New Zealand to McMurdo with 17,000 pounds of timber, was about to drop mail at Hallett Station when it crashed into a 1,700-ft. hill near Cape Roget (72° 05' S., 170° 58' E.).

The seven survivors were in the flight deck and three of them were seriously injured. All six in the cargo deck were killed.

Three weasels immediately set out from Hallett Station with a doctor and medical supplies, but were unable to reach the site of the crash as the territory was "cruel and hostile" and pockmarked with crevasses. Two weasels were abandoned in crevasses.

Bad weather made rescue by air impossible until October 17, when a helicopter reached the wrecked aircraft and flew four of the survivors to Hallett Station. Meanwhile, the seven men huddled in the wrecked tail section of the plane. They lit a fire in the casing in the aircraft's toilet, but it was so cold that even hands could not be warmed.

From the point of impact on the snow, the aircraft ploughed forward for 900 feet before it came to rest in three parts. It was not carrying survival tents or stores.

The three injured men, one with frozen feet, were brought to Christchurch, New Zealand, in another Globemaster and admitted to hospital within 17 hours of being picked up at the scene of the crash. The uninjured survivors were also flown to Christchurch. They had been 25 hours on the ice after the crash, in a temperature of 20° below zero.

HALLETT STATION

The combined United States-New Zealand scientific station at Cape Hallett had its first air-drop of fresh provisions early in October. During a return flight to New Zealand a Globemaster dropped fresh provisions, eggs, milk and mail.

NEW MEN

The new leader of the scientific party at Hallett, replacing New Zealander K. J. Salmon, will be Mr. Charles R. Roberts, a 36-year-old American meteorologist.

The three New Zealanders at Hallett for the next year will be:

L. R. JONES, B.Sc. (31), of Auckland: scientific officer. Born at Auckland and attended Seddon Memorial Technical College. He served a general engineering apprenticeship and passed all the examinations of the Institute of Mechanical Engineers. After apprenticeship, he attended Auckland University part-time and graduated B.Sc. in mathematics. He is keen on rowing and weight lifting.

B. E. REID, B.Sc. (28), of Auckland: scientific officer. Born at Wellington; educated at Island Bay School and at Rongotai and Wellington Colleges, he took a B.Sc. in zoology at Canterbury University. He worked with the N.Z. Forest Service for four years in North Island districts and for the past three years has been with the Fisheries Branch, Marine Department, Auckland. Mr. Reid will make a special study of the Adelie penguin colony and of the movement of seals.

A. W. BLACK (32), of Christchurch: technician. Born at Bhristchurch; educated at Christchurch East Primary School and Christchurch Technical College, he joined the R.N.Z.A.F. in 1946 as a radio mechanic and communications fitter and served in Fiji during the 1952 hurricane. He has been with the N.Z.B.S. at Gebbies Pass since 1956 as radio technician. He is interested in hockey and rowing, and as a hobby has experimented with television receivers and transmitters. Married, with two children.

The party will leave for Hallett on the "Arneb" on January 2.

OLD MAN PENGUIN

Brief reference was made in the September "Antarctic" to the radio-carbon dating of a penguin corpse dug up at Cape Hallett. In an article in the New Zealand Journal of Geology and Geophysics (Vol. 1, No. 3, Aug., 1958) H. J. Harrington and I. C. McKellar give further interesting details.

The spit in Moubray Bay on which Hallett Station is built extends for half a mile into the bay and is occupied between late October and late February by a population of nesting Adelie penguins estimated at between 70,000 and 200,000. The whole surface of the area is covered by a mass of guano, the bodies of penguins and chicks, and pebbles used for nests.

A cut made by a bulldozer exposed 1 ft. 3 in. of pebbles, guano, flattened hard permanently frozen penguin bodies and "the general debris of penguin occupation, overlying 2 ft. and more of clean beach gravel without organic remains. The penguin bodies are dry, and flattened to less than an inch in thickness."

One of them was taken from the base of the layer of penguin accumulation and its age determined by the radio-carbon method as approximately 1,210 years. The rookery was therefore probably first colonised between about 600 and 700 A.D., at approximately the date when the Vikings were making their voyages.

WILKES

On September 17 seven men left for the satellite station and on traverse. The trip to the satellite station took seven hours. Two men helped maintain radio contact with the traverse party and to make weather observations.

TRAVERSE SOUTH

The traverse party had two weasels and a sno-cat pulling six sledges, including a sleeping wanigan, with six tons of supplies. The traverse was expected to take about six weeks and to cover approximately 600 miles. The plan was to travel south along long 111° 45' E. to lat. 69° 30' S., with a possible side trip. In addition to glaciological studies, mapping was undertaken and weather observations made. Wilkes kept in daily or bi-daily radio contact with the traverse party.

On September 22 they were 90 miles from camp and making good progress.

The party was unable to find Mt. Long (67° 12' S., 110° 30' E.?) or Davis Peak. They sighted the Davis Islets at the head of Vincennes Bay. (These features were delineated from aerial photographs taken on Operation Highjump, 1946-47.)

The traverse party had bad weather in early November, mostly with high winds, even though only 50 miles away from the main base, when at both Wilkes and the satellite station the weather was fine. They returned to Wilkes Station after eight weeks on the trail. They travelled about 400 miles in the area south of the base. All lost weight up to 10 lbs.

AT THE BASE

The weather in early October was colder than last year but less windy, but later in the month there was a temperature of 27° F. and early in November 33°. This brought melting snow, and leaks.

The first penguin of the season was seen on October 10, an Emperor weighing 50 lb. and about three feet tall. Brought back to camp for all

to see, the bird was much photographed during its short stay.

Interest in 'ice fishing' was renewed with the access of warmer weather, and fresh fish reappeared on the menu. There was open water within half a mile of the shore on November 10, and the sea beyond was clear to the limit of visibility.

It was reported on November 19 that the penguins had begun to lay—and there were "enough for this morning's breakfast."

By the beginning of December temperatures above freezing point were frequent, but more falling snow kept the snow level around the camp buildings near roof level. During a short trip 27 Weddell seals, many with pups, were counted. In the two rookeries 10,000 Adelie penguins were counted.

Dr. Rainer Goldsmith, a British physiologist who spent the 1956 winter at Shackleton, is going to Wilkes on the "Staten Island" to solve the problem "What causes the common cold?" Fifty Navy men are acting as guinea-pigs from whom "Rhino" takes regular blood-samples and swabs. Once one of the present cold-free, virus-free Wilkes party catches a cold after the arrival of the guinea-pigs, Dr. Goldsmith will be able to find out what virus has caused the cold.

FRENCH PLANS

The inland station Charcot in Adelie Land will be closed at the conclusion of I.G.Y., but D'Urville will continue to operate on the same lines as previously with some small reductions in the programme.

It is not planned to do any inland journey for seismic or gravimetric work. However, as part of I.G.Y. a gravimetric profile along meridian 140° E. will be done between October 1958 and January 1959.

Dr. Paul-Emile Victor is at present travelling to Adelie Land on the "Norsel" to inspect the French stations.

SOVIET CROSSING PLANS HAVE BEEN MODIFIED

Despite conflicting reports, it seems clear that the Russians have considerably altered their previously announced plans for trans-Antarctic journeys.

It appears that the main tasks for the current season will be the attempted establishment of two new coastal stations, Lazarev and (possibly) the base in the Bellingshausen Sea, and of Sovietskaya in its final position; combined with air and surface reconnaissance and depot-laying journeys in preparation for the great crossing in the 1959-60 summer.

Speaking to American scientists in Washington early in October, Dr. M. Somov outlined this more conservative programme. The initial crossing is not to begin until a year from now. This will enable the Russians to establish Station Lazarev on the Princess Astrid Coast of Queen Maud Land—the destination of the crossing—and scout out a tractor route to that point through the coastal mountains.

Subsequently a second crossing will be made to the planned Bellingshausen Station on Thurston Peninsula. This will also await the green light from those at the station who will first have to insure that the base can be reached from the inland plateau. The establishment of this base will also await the success of efforts by the "Ob" to penetrate the dangerously ice-filled Bellingshausen Sea.

A Moscow dispatch to the "New York Times" dated November 23, sent as the Russians' fourth expedition was about to sail, quoted the leader of the expedition, Mr. A. G. Dralkin, M.Sc., a geographer, as saying that the cross-country trip would not be started until early October of next year, 1959. Mr. Dralkin was

formerly head of the drifting station "North Pole 4" in the Arctic, where he has worked for 20 years.

The 2,800-mile, four-month trip would be the longest ever made in Antarctica, he said.

The Russians have built three special cabin tractors for the trek. The equipment and supplies are to sail aboard the diesel-powered ship "Ob" from Kaliningrad and this will be followed later by the passenger vessel Mikhail Kalinin.

The 1959-60 journey will be from Vostok to the U.S. base at the South Pole, back to the projected Soviet station at the Pole of Inaccessibility and on to Queen Maud Land.

Dralkin's party will probably fly in from Mirny to Vostok to join the vehicles. Each caterpillar is fitted out with its own galley, bunks, laboratory facilities and office.

"We have a big journey to make in the Antarctic," Dralkin says, "and we are well aware of its difficulty."

Speaking at McMurdo, Dr. Tolstikov, emphasising that these were his personal views, said, "We may change our plans and work in a different region of the Antarctic as this would be a greater contribution to Antarctic research than covering an area already under survey by the United States."

With the United States expedition's photographic reconnaissance and a triangular traverse in Marie Byrd Land this season, it might be better for the Russians to concentrate on an entirely new area—a traverse from Mirny to Sovietskaya and back to Mirny.

The basic aim of the traverse was to obtain seismic readings, and it would be possible to exchange what

information each nation received in its regions of study, Dr. Tolstikov said.

At present the Soviet station Soviet-skaya was 400 miles from the pole of relative inaccessibility, and on the traverse from Mirny an endeavour would be made to reach that pole and establish the station as planned.

VOYAGES PLANNED

Prof. Burkhanov has outlined the proposed ship movements for this season as follows:

In October the fourth expedition's first ship, the diesel electric motor-ship "Lena", will set off from Kalinigrad, heading for Queen Maud Land. There the first Soviet team of a new station to be called after Mikhail Lazarev, the famous Russian navigator, will disembark.

After its call at the site for Lazarev station, where a geological party will also be landed, the "Lena" will cruise along Antarctica's eastern coast, making oceanological investigations.

The "Ob" also has a new route. After bringing the members of the expedition and cargoes to Mirny it will set forth for western Antarctica, where on the shores of the Bellingshausen Sea yet another station will be set up.

The liner "Felix Dzerhinsky" will take part in this fourth expedition. Aboard this motor-ship, well adapted for navigation in the ice, will be the members of the Antarctic expedition led by Dralkin.

ON THE MOVE

Tass reported on September 29 that a party of Soviet explorers had left Mirny and proceeded deep into the Antarctic. The party, in five all-purpose (Penguin) vehicles and four tractors, left Mirny on September 27 for Pionerskaya.

The tractors and one of the Penguin vehicles was to return to Mirny, while the rest of the party would continue to Komsomolskaya.

Here they would wait for the main party, consisting of 14 vehicles, which

was due to leave Mirny soon. When the two parties joined they would proceed further into the interior of the Antarctic.

All along the route the explorers would conduct glaciological, seismic, geophysical, and meteorological observations.

A press report dated October 10 said: "Twenty-four men have completed a 225-mile sleigh-tractor journey from Mirny to Pionerskaya. The journey was completed in 13 days across soft snow in temperatures reaching 50 degrees below zero.

"The explorers will now split into two parties, the first heading south into the frozen continent to carry out research while the other returns to Mirny to collect further supplies."

On October 30 it was reported that "six tractors" had arrived at Pionerskaya after traversing the 230 miles in five days.

TRANS-POLAR FLIGHT

A twin-engined Soviet plane landed at the U.S. base at McMurdo Sound on October 25. The plane, an Ilyushin IL-12 with tricycle landing gear, touched down at 9.49 a.m. after a flight of nearly fourteen hours.

The plane had taken off at 7.55 p.m. from Mirny, and arrived over the South Pole at 5.14 a.m.; it then went on to McMurdo.

The purpose of the flight was to survey a route for the proposed tractor traverse in 1959-60.

A month ago the United States Navy agreed to help the Soviet reconnaissance flight by refuelling and servicing the plane at McMurdo Sound.

The Russian plane was reported to have carried a crew of five and three passengers, including Eugene Tolstikov, the Russian Antarctic programme leader.

After refuelling and servicing at McMurdo, the plane set off on the 1,700-mile direct flight to Mirny.

Moscow reported on September 19 that an IL-12 transport plane from Mirny had made a 1,864-mile non-

stop flight lasting nine hours. The aircraft dropped supplies and equipment at two bases before going on to Oasis and back to Mirny. Observations were carried out en route to determine the height of the ice plateau.

It is expected that Pionerskaya will be closed down in January, 1959. Sovietskaya, when finally established in its position at or near the Pole of Inaccessibility (82° S., 50° E.), will probably be a secondary station manned only in summer.

POLE OF INACCESSIBILITY

Dr. Somov has revealed that the area described as the Pole of Inaccessibility is heavily crevassed. The area is near the crest of a dome-shaped plateau of ice that blankets the Antarctic hinterland.

It had been found to be utterly featureless by both Soviet and American aerial explorers, rising to almost 14,000 feet at its highest point about 9,000 miles from the sea. No peak is known to break the surface anywhere in this vast region, but multiple cleavages of the ice near its summit suggests that a great mountain range lies buried there.

Dr. Somov said aerial surveys had indicated that the actual summit of the ice was midway between this area and the present location of Sovietskaya, the most remote of the outposts. Hence it is proposed, in the coming weeks, to shift Sovietskaya about 220 miles to that summit, rather than the 440 miles to the Pole of Inaccessibility as originally planned.

This would somewhat revise the transcontinental tractor route, which is due to run from Station Vostok, to the South Pole, to the new site of Sovietskaya, and then to Queen Maud Land. Dr. Somov emphasised that the feasibility of the traverse was still "uncertain" and that it might not be completed for three years.

ICE CAP TREK

For the first time in the history of Antarctic exploration a journey of

6,000 kilometres (about 3,750 miles) will be made across a tableland of ice. The Soviet explorers intend to complete the great journey in four months. It will take them from the Vostok station, where all the necessary equipment will be brought from Mirny well in advance, to the geographical South Pole, across the pole of relative inaccessibility to the shores of Queen Maud Land, where they will link up with the team of the new Lazarev station.

The expedition will have four tractors. In front will be a small machine, already down in the Antarctic, called the Penguin, which manoeuvres well and has already proved worthy of its task. The main equipment and the members of the expedition will be carried by three powerful tractors, specially constructed for the purpose.

To establish Lazarev Station, the "Lena" will have to penetrate heavy off-shore pack-ice and land supplies on a treacherous coast. To reach it, when the crossing takes place, the tractor train will have to cross or outflank one of the most precipitous ranges in the Antarctic, the Wohlthat Mountains. Lying immediately north of the polar plateau in the eastern part of New Schwabenland, and centering on about 71° 30' S., 11° 30' E., the range was discovered from the air by the German Antarctic Expedition under Ritscher, 1938-39, but has never been visited. It has wall-like escarpments.

GIANT TRACTORS

Machine-builders of the Ukrainian city of Kharkov have manufactured three tractors for the fourth Soviet expedition.

These snow tractors, each eight metres long and four metres wide, represent not only an excellently-equipped scientific laboratory, but also a comfortable travelling home.

The total weight of a tractor is 34 tons. The track is one metre wide. The specific pressure of this gigantic tractor per sq. cm. is half of man's.

The two-metre tall cabin is made from duralumin with special heat in-

sulation. It has a floor space of 32 sq. metres. Every tractor has a cab for the mechanic-driver, a mess room, a bedroom for eight, a kitchen with an electric stove, a navigator's cab, a radio station, a section for drying clothes, a snow melter for obtaining water, wash-room, etc. All the premises will be heated by warm air. Small electric stations have been mounted on the tractors.

The engines have a capacity that is 120 h.p. greater than previous Antarctic tractors. Taking into account the experience of earlier Antarctic expeditions, the designers created a motor with special supercharging providing the steady and economic operation of the engine even at an altitude of 4,500 km. above sea level when atmospheric pressure is low.

This tractor will have a fuel tank twice the size of that of former tractors. In addition, every one will have a 20-ton fuel tank trailer. Such an amount of fuel will be sufficient for the entire four-months' trip from Mirny to Vostok, and then on to the geographic pole, the pole of inaccessibility, and the final point on the coast of Queen Maud Land, Lazarev Station.

IRON DISCOVERED

In an article by Prof. M. Ravich it is claimed that the Russians have discovered "rich veins of excellent iron ore" in the Antarctic.

Russian scientists over the past two years, he says, have surveyed an area from Queen Maud Land almost to Victoria Land. Using planes and helicopters, geologists have landed on ice-free oases and in the foothills of mountain ranges where rock is exposed. In this way they have examined the rock-structure of mountain peaks normally quite inaccessible. No details are given regarding the exact location of the iron-ore discoveries.

In addition, reports Prof. Ravich, boulders left by ice which has now retreated give evidence of a large iron-ore basin beneath the ice shelf.

The Russians also claim to have found formations similar to the dia-

mond-bearing deposits of South Africa and the northern part of the Yakutsk Republic in the U.S.S.R. These consist of hundreds of steep veins of comparatively young karroo dolerites, cropping through crystalline shales.

An immense layer of this shale, roughly ten miles thick, was examined and proved to be one of the oldest such strata on earth. The iron deposits were in veins of tegmatite connected with enormous granite formations.

THE PENGUINS PANICKED

Dr. M. Somov, who led the first of the series of Soviet expeditions to the Antarctic, recently told U.S. scientists about a disaster in the penguin world near Mirny.

Emperor penguins lay their eggs on ice and then brood them, embedded in folds of flesh in the abdomen. They have no fear of anything approaching on the surface—even the most fearsome tractor. But this nonchalance did not apply to something in the air.

The Russians found a rookery whose population was estimated at about 20,000, all brooding. To make an accurate count, the Russians sought to obtain an aerial photo, but when the plane came over, "thousands of the birds panicked," Dr. Somov said.

As a result, the ice was covered with scrambled eggs and further attempts at aerial photography were abandoned. So, warned the Professor, fly high over brooding penguins.

TO PLAN RESEARCH

The U.S.S.R. Academy of Sciences is organising an Inter-Departmental Commission for Antarctic Research. Besides institutes of the Academy, the Commission will include the Central Northern Sea Route Administration, the Central Weather Forecasting Administration and several universities. The Arctic Institute in Leningrad, which has accumulated enormous experience in polar research, has been renamed the Arctic and Antarctic Institute.

SPRING COMES TARDILY TO AUSTRALIAN ANTARCTIC BASES

Ian Adams reported from Mawson on September 2:

"During August we had almost a week of calm sunny weather and although temperatures were lower than ever the peace from continual winds was welcomed. Nevertheless, winter showed its bite by producing a short but severe blizzard when the wind again exceeded 100 m.p.h.

"Amongst the notable occurrences recently are the forced landing and subsequent rescue of the aircraft (it now has a new engine and is ready to fly again); Bolza's successful climbing of Mt. Hordern, a classical and difficult peak 20 miles inland; and the discovery of a new Emperor penguin rookery during a flight to Davis. Four years ago there were only five known rookeries in the world. Now we have six within 300 miles of Mawson."

After a visit to Taylor rookery Fischer returned with three Emperor chicks which had been abandoned by their parents. One died but the other two are as lusty-voiced as any baby until fed by syringing food down their throats.

AT DAVIS

From Davis Station, Trigwell reported on September 7:

"Officially spring is upon us but at Davis somebody forgot to tell the weather man because although there were no real blizzards during August the last week has been nothing but wind and drifting snow. However, we are looking forward to the spring with its associated sunshine and clear calm days. The maximum temperature for the month was 21.5° F. whilst the minimum was 57.5 degrees of frost with a mean relative humidity of 62 per cent.

"Much hard work has been done since the last report and the three of

us are quite proud of the results. Lin was determined to beat the rigorous Antarctic winter and the handicap of no garage so he set to work, and after digging the Ferguson out of the snow, disconnected the radiator and connected up his patent heat exchanger, consisting of a four-gallon tin of antifreeze and an immersion heater. After several hours heating and together with hot oil the Ferguson was a going concern, but not for long because our dog Nellie decided she would like a meal of spark plug leads. This was soon repaired and after a little surveying a drift-free track to the sea-ice was discovered and now we are in business."

OCTOBER JOURNEYS

October was an eventful month at Mawson. The five-man seismic party under Ian Adams left on September 30 in two tractors and one weasel for the Prince Charles Mountains.

Owing to the bad weather, the party was only able to travel for 18 hours in seven days. Then one of the D4 tractors became jammed in a crevasse 36 miles from Mawson. Adams and Jesson remained with the tractor while Smith, Brown and Blake returned to Mawson in the second tractor and the weasel for salvage gear. However, the second D4 tractor became stranded in a wide, deep frozen melt-water stream on the return journey, and the returning party pushed on to Mawson by weasel.

The second stranded vehicle was salvaged two weeks later, after 35 tons of ice had been dug away, and then went to the rescue of the first tractor. The recovery of this tractor was extremely difficult, partly because of blizzards and "white out" weather

conditions, but also because of the lack of a suitable surface for the tracks of the second tractor to grip on, and the acute angle at which the jammed vehicle had come to rest in a crevasse. But by using four two-ton chain blocks and digging out vast quantities of ice and snow, the tractor was at last hauled out of the crevasse on October 30 and the party was able to resume its journey, which is expected to take about four months. After 370 miles the party will have to cut a new, uncharted path through the rugged Prince Charles mountains. Most of the route is above 9,000 feet.

The purpose of the trek is to make further measurements of the thickness of the polar ice-cap.

AIR SUPPORT

The flying programme was now under way though the weather was hindering operations. After one blizzard, a very large drift blocked the entrance to the hangar. It took the working party a whole day to clear it away with shovels, tractor and a scoop—improved by Richardson from a 44-gallon drum.

Supplies for a dog sled party were flown to the Leckie and Wanti Depots. Astrofixes and magnetic readings were taken by Knuckey and Cook respectively. Grove, returning from Davis to Mawson, landed at Mt. Rivett, the site of the forced landing earlier this year, and recovered films and gear. Knuckey, McLeod and Oldfield were flown to Beaver Lake, about 200 miles south of Cape Darnley. They were surprised to find that the surface of the ice rises and falls three feet twelve-hourly. In brackish water welling from a crack they discovered minute shrimp-like creatures swimming. In another part of the lake the ice masses resemble overturned icebergs.

FURTHEST SOUTH

Wilson with Knuckey and McLeod flew to 74° 20' S. to make an astrofix and carry out a geology survey. This is the furthest south reached in this sector.

"Our hearts have been gladdened," radioed Channon on November 1, "by signs of the spring thaw. Pools of water are beginning to collect in the camp area. Skuas and petrels are returning and Adelie penguins are staking out their claims in the island rookeries and filling the air with raucous cries. They steal pebbles from each other's nests and squabble and indulge in their mating rituals. The seals are also pupping and the dogs relish the return of fresh meat though only adult male seals are shot.

"Taylor Station has been closed, bringing to an end the parallactic auroral photographic programme. Fischer with willing helpers is rearing an abandoned Emperor penguin chick which is thriving on a diet of kippers."

RUSSIAN VISITORS

A Soviet Ilyushin 12 aircraft, carrying five scientists and a crew of six, paid a four-hour visit to Mawson on September 28.

The five scientists included Mr. Tostikov, the leader of all Soviet Antarctic stations and a veteran of Arctic drifting stations, Mr. Ostrekin, the Chief Scientist, and Mr. Bugaev, the Chief Meteorologist respectively at Mirny.

The Australians had already met the visitors when the Australian ship "Thala Dan" called at Mirny on February 1.

ACTIVITY AT DAVIS

At Davis Station the equinox was associated with a blizzard and heavy drifting snow but by the 25th the weather had cleared up and the Beaver arrived from Mawson next day with Grove, Manning and Elliott. Elliott is remaining at Davis until the change-over.

Maximum temperature for the month was 20° F.; minimum temperature, 54.3 degrees of frost and the mean relative humidity 64 per cent. The Ferguson was kept mobile all the month and transported dieseleum aircraft fuel and regularly disposed of the garbage, etc.

While the aircraft was deposing fuel in the Prince Charles Mountains the Davis men took turns to fly in and see some of the ice continent. Although conditions were somewhat hazy the mountains were visible from many miles away.

RELIEF PLANS

"Thala Dan" is scheduled to leave for Mawson and Davis on December 26. "Magga Dan" is due to depart for Wilkes on January 5. Before going on to Wilkes it will call in at Lewis Island to service the automatic weather station there. It is expected that the ship will stay at Wilkes about ten days and then explore the coast of Oates Land before returning to Australia. Mr. P. G. Law will lead the expedition.

NEW LEADERS

The following will lead the new parties at Australian Antarctic bases:

Mawson: J. M. Bechervaise (48), a teacher and mountaineer who was leader of the Heard Island group in 1953 and of the Mawson party in 1955.

Davis: H. O. Steiger (36), a Swiss-born teacher who came to Australia in 1951.

Wilkes: W. R. J. Dingle (37), who has the unique record of having spent a term at each of the four Australian bases, Mawson, Davis, Heard, and Macquarie.

Macquarie Island: T. R. Horwood (29), an ex-Army Major with Korean service, turned banana-grower.

The total wintering-over personnel at Australian stations, 1959, will be 65, comprising 23 at Mawson, 17 (14 Australians and 3 Americans) at Wilkes, 8 at Davis, and 17 at Macquarie Island.

From November 18 to 23 men, sledges and dogs were flown to a mountainous area behind Amundsen Bay, 350 miles west of Mawson. From here they will sledge back to base.

BELGIANS BUSY

The second Belgian Expedition left Ostend on November 15 on the Norwegian ice-breaker "Polarhav". A few hours after the initial sailing the vessel put back because the expedition's three sno-cats were found to be badly stowed.

At the beginning of August very low temperatures were recorded at Roi Baudouin Base, between -49° F. and -22° F., but for the rest of the month temperatures ranged from -31° F. to 2° F. There were 12 days of blizzard. Snow drifts had almost completely covered the base.

SNO-CAT RECOVERED

When Hulshagen had put the base sno-cat into operational condition, a journey was made to Breid Bay to dig out the sno-cat left there in the autumn. A party of five set out on August 18, and returned safely with both vehicles on the 20th.

It was proposed, if weather permitted, to begin the season's operations with a two-man trek on October 10. The two sno-cats would follow on October 20, and the plane and helicopter would fly out to the field parties on October 30, contacting them at the depot set up at the foot of the mountains last March. From there, Giot and Picciotto would explore the range, while Gerlache, Loodts de Ligne, Hulshagen, Vanderheiden and Carels would set out on the reconnaissance of another mountain chain with peaks rising to 3,000 ft. situated some 180 miles to the south-east. An earlier reconnaissance party got to the foot of the range and set up survey poles in temperatures of -31° F.

September brought bad weather which hindered outdoor work and entailed much labour in removing the accumulation of snow on buildings and equipment. The average temperature was -6° F.

Three men who left on September 11 by sno-cat for Leopold III Bay

were held up by a blizzard for six days.

JOURNEYS BEGIN

October's average temperature was 3° F., with a period of fine weather between October 10 and 20. During this time the vehicles were readied, but a fault in the transmission of one of the two sno-cats necessitated its replacement by a Muskeg tractor for the journey south.

The helicopter had to be dug out from under two metres of snow. Both helicopter and plane were test-flown successfully. On a reconnaissance flight the mountains 250 miles to the south-east of the base were sighted.

Loodts and Cabes were landed by helicopter on October 20 at a bay east of King Leopold Bay, but were confined to their small tent by a blizzard for four days. They had to re-pitch the tent during the height of the storm to prevent its being completely snowed-in.

The dog teams set out on October 17. The vehicles (one sno-cat and the Muskeg) left on the 29th. Eight miles south of the base a sudden worsening of the weather compelled a halt, but on November 3 the tractors caught up with the dogs at the foot of the mountains. The two aircraft were to fly out to them as soon as they reached the fuel depot established in March.

FOLK BACK HOME

For an hour each day the seventeen members of the Belgian Antarctic expedition can talk with their families "back home" through the short-wave station at Jurbise, near Mons, and the Belgian telephone system. Commandant de Gerlache held a press conference in September in which from his King Baudouin base, where the temperature was -32.8° F., he answered for over an hour the questions of journalists gathered at the expedition's Brussel office on a hot summer day.

An American ice-breaker is due to call at King Baudouin Base in December.

Japanese Set Out

The Japanese vessel "Soya" left Japan on November 12 to re-establish the Japan base Showa on Ongul Island in Lutzow-Holm Bay in Queen Maud Land, which was built in January, 1957, and occupied the following winter. Ice conditions prevented the re-manning of the base last summer. Professor Takeshi Nagata is the leader of the expedition, which comprises 36 scientists and technicians.

A press report states that among the goods loaded were twenty hula hoops. The "Soya" carries four helicopters and amphibian transport.

Japanese scientists working on records brought back by the 1957 party claim that "quite rich" deposits of pitchblend were discovered near the base.

The Government plans to spend another £1,500,000 on Antarctic exploration and research.

German Plans

The private German expedition being organised by Dr. Karl Herrligkoffer is scheduled to leave from a German North Sea port on the chartered vessel "Kista Dan" in October next year. It is hoped to land the expedition on the coast between 3° and 7° W. The ship is to remain over winter, and to bring the party home in the following (1960) autumn.

Research is planned in geo-magnetism, atmospheric electricity, ionosphere, geology, geodesy and meteorology, with attention also to physiology and zoology. A team of 12 technicians to work with the scientists will include men experienced in polar work.

The expedition has issued a set of four attractive "stickers" picturing the German Antarctic expeditions of Drygalski (1901-03), Filchner (1911-12), and Ritscher (1938-39) and a map of the area, Neu Schwabenland, where it is proposed to establish the base. Those interested should contact Deutsches Institut fur Auslandsforschung, Munchen, Plinganserstrasse 142a/I, Germany.

NORWAY STATION WILL BE ACTIVE FOR ANOTHER YEAR

As mentioned in our June issue, a topographical survey is to be carried out this season from Norway Station in the region between 0° and 15° E., and perhaps, time permitting, further east.

The Norwegian Government has now decided to continue scientific work in the Antarctic another year, so that the season 1959/60 will also be included in the investigation programme.

On November 1, the expedition ship, the Norwegian sealer M/V "Polarbjorn," Captain Henrik Maro, left Oslo with the "Otter" aircraft and the personnel for the air-mapping excursions. The expedition for this task is headed by engineer Bernhard Luncke, topographer with Norsk Polarinstitut. Others participating are geologist Thore Wisnes of Norsk Polarinstitut, whose essential task will be the determination of passpoints in the field by means of a recently supplied tellurometer, and Sigurd Svindland, engineer and topographer with Wideroes Aviation Company. The latter will, together with Mr. Luncke, carry out the air photography. The two Otter planes, with a personnel of nine, are loaned by the Norwegian Air Force, with Major Gudmund Odden in command.

The Director of Norsk Polarinstitut expects the vessel to reach the barrier at about $2^{\circ} 30' W.$ some time in the middle of December. A hut barrack will be erected immediately on the ice, also a runway, so that the photographic flights and transportation of the geodetic parties may start as soon as possible. It is the intention to have the vessel stay at the barrier for about two months, to render possible a most exhaustive surveying work.

Before the arrival of the vessel at Norway Station, a glaciological party will have departed eastwards, carry-

ing dog sledges, to complete the measurements started last year. The expedition leader, the leader of Norway Station, geodesist of Norsk Polarinstitut, Sigurd Helle, will also continue his geodetic field work, as soon as his party has been brought there by the Otters.

Ten members of the party of 14, wintering at Norway Station the last two years, will return home, but Helle will stay another year, together with the meteorologist Torgny Vinje, radio technician John Snuggerud and mechanic Henry Bjerke. Five new members, going south now, will join the wintering party for 1959-60: the meteorological observers Kaare Hansen and Jan-Per Madsen, wireless operator Knut Odegaard, meteorological assistant Astor Ernstsen and steward Rolf Johnson. These nine men will go on with much the same I.G.Y. investigation programme as is now being attended to: meteorological observations with the launching of radio sondes twice a day, radiation measurements, magnetic observations, ozone measurements and aurora australis photography.

After the vessel has left the barrier, not later than February 15, further opportunities for glaciological or topographical work are not expected.

ROSS DEPENDENCY GROWING

Two previously uncharted islands have been discovered in Terra Nova Bay ($74^{\circ} 45' S., 164^{\circ} 15' E.$) in the Ross Dependency. They were sighted by Capt. E. McDonald and Dr. Henry Dater while flying in the helicopter from U.S.S. "Glacier".

F.I.D.S. Stations

Sir Raymond Priestley, who has been acting as Scientific Director of F.I.D.S. during the absence of Sir Vivian Fuchs, is leaving the U.K. on November 27 and flying to New Zealand, where he will join Deep Freeze IV as British Observer. Sir Raymond will not be retiring from his F.I.D.S. activities as he has been made a permanent member of the F.I.D.S. Scientific Committee and is also chairman of the new U.K. National Committee for Antarctic Research organised as a component of S.C.A.R. by the Royal Society. Sir Vivian Fuchs will be returning to F.I.D.S. at the beginning of January.

Three ships have now sailed to relieve the bases. The "Shackleton" sailed from Southampton on October 1 with 16 new recruits. Also on board was Professor D. L. Linton, Professor of Geography at Birmingham University, who is touring the bases preparatory to undertaking a physiographic study of Graham Land using the photographs of the 1955-7 air survey.

The "John Biscoe" sailed on October 21 with another 16 men for the bases, and two hydrographic surveyors who have been seconded from the Royal Navy to work at South Georgia during the summer months. The ship is also carrying a large new hut and aircraft hangar for Stonington Island, Marguerite Bay (Base E).

The "Tottan", which has again been chartered for the relief of Halley Bay, sailed from Southampton on November 21. As announced in the June issue of "Antarctic", F.I.D.S. will take over Halley Bay at the end of the year and it will in future be known as Base Z. The new base leader will be Lieut. G. R. Lush, R.N., who was a member of the I.G.Y. advance party in 1956. The eleven other recruits include two South African meteorologists, one of whom spent a year on Marion Island.

NEWS FROM THE BASES

Field work from the sledging bases has continued in spite of bad weather.

Two parties from Hope Bay worked on the east coast of Graham Land and on James Ross Island. In mid-September two parties of geologists left Base E and travelled south together to the Refuge Islets. They then split up, one party working in the Blackwall Mountains and the other proceeding southwards to Mushroom Island with a support party which returned to base via the Wordie Ice Shelf.

Firm sea ice in Penola Strait enabled parties from the Argentine Islands to cross to Cape Tuxen on the mainland.

At Base J on the Graham Coast an attempt was made to cross Holvedahl Bay but bad sea ice conditions forced both sledges to return to base after two days in the field.

The bad weather also hampered work by two field parties from Base W, Loubet Coast. They returned to base on September 21, but left again a few days later for the Briand Coast.

A new development in the 1958-9 season will be the use of tellurometers for long-distance surveying.

Now Poland

Poland indicated at the S.C.A.R. meeting in August her wish to participate in future Antarctic exploration (see "Antarctic", No. 11).

Tass reported on September 14 that talks were going on about joint work with Polish scientists. It had been suggested that the Soviet Union should hand over two of its Antarctic stations to Poland.

A later Tass report, dated December 7, stated that Russia had given Poland her Oasis Station, 225 miles east of Mirny. Studies of the weather, ozone content of the atmosphere, glaciology, seismology and geomagnetism are carried out at Oasis.

The first Polish scientists will go to the station this year.

At the Geneva conference on detecting nuclear explosions, the technical experts came to the conclusion that 160 control posts would be required on land and ten on ships. Of the continental posts, four would be in the Antarctic.

CHILEAN BASES

The 1958 Chilean bases will continue in operation this year, and "Risopatron", in the Marguerite Bay area, which was destroyed by fire on March 10 of this year, will be re-built. Meanwhile, the Gonzalez Videla Base (65° 09' S., 63° 12' W.) will serve as the "mother station". New investigations in geomagnetism, cosmic rays, geology, chemistry, biochemistry and bioclimatology are planned.

In addition to the usual range of scientific studies at Antarctic stations, Chile plans considerable biological work, including the systematic collection of plankton at previously established stations at different seasons, weather permitting; population, feeding, nesting and migration studies of bird-life; ecological study of the littoral, and studies of fish and marine mammals.

Practical aspects of the proposed Chilean chemical and biochemical research programme include a study of possible products from local fauna (skins, soap, dyes, etc.), the nutritive possibilities of penguins, sea leopards, etc. (analysis for protein, fat, sugar), the practicability of producing fish-meal, and the nutritive possibilities of fish, algae, and molluscs.

The Chilean icebreaker "Piloto Pardo" has been launched, and will shortly be handed to the Chilean crew already in Holland. She is presently undergoing her trials, and will possibly arrive in Valparaiso in December. On her arrival and incorporation into the Chilean fleet, her headquarters will first be Punta Arenas, and later she will be used as the flagship of future Chilean expeditions to the southern seas.

The Chilean flotilla to leave in November for the Antarctic will be composed of the transport "Rancagua" (temporary flagship) and the tenders "Lientur" and "Leucoton", which will carry the supplies to the garrisons there. After the present relief, the "Piloto Pardo" is supposed to take over. The flotilla is expected to remain in the Antarctic until March or

NEW ARGENTINE REFUGE HUT

A party from the General San Martin army base has constructed a new refuge-hut in southern Graham Land, 180 km. south of the base. Named "Nogal de Saldan" after a historic walnut tree in the Spanish place of the same name, under which San Martin rested after giving up the command of the Northern Army, the refuge-hut is situated 20 km. south-east of Cape Jeremy (69° 24' S., 68° 51' W.) facing Alexander I Island.

The construction of the hut took 53 days of hard work in temperatures below -58° F. The journey to the site was partly over sea-ice and the party had to drag its sledges across the mainland by a pass between mountains 1,000 m. above sea-level.

The refuge-hut was inaugurated on September 26. It will serve as a starting-point for future journeys in the area.

Argentina will take over the American-built Ellsworth Station as a going concern on December 31.

NAVAL TRAGEDY

When the Navy vessel "Guarani" was endeavouring to push south in mid-October to bring help to a sick man at one of the Argentine bases, it foundered with the loss of 36 lives. The sick man was eventually taken off by the Argentine ice-breaker "General San Martin".

An Argentine Navy doctor and two sailors from the Almirante Brown Base (64° 53' S., 62° 52' W.) rowed 28 miles in a small boat in September to answer an emergency call from the British base at Port Lockroy (64° 51' S., 63° 31' W.), where one of the base members had acute appendicitis. He was to be taken to the Argentine base

beginning of April next year. These vessels will carry materials for the rebuilding of the two bases that were burned last year.

for further treatment as soon as the weather permitted.

THE "CAPITAN CANEPA"

The Argentine oceanographical vessel "Capitan Canepa" left Buenos Aires on August 28 to carry out a cruise in the Atlantic in accordance with I.G.Y. plans. The vessel aimed to follow the route taken by the British Antarctic research vessel "Discovery II" in 1930, along the meridian 30° W. between latitudes 50° S. and 22° S., studying en route the oceanic waters from the surface to the ocean depths.

The cruise was estimated to last for 50 or 60 days and to cover 8 to 9,000 miles. It is the third I.G.Y. cruise of the "Capitan Canepa".

The first station of the projected profile was north of South Georgia at a distance of approximately 2,100 miles east of Rio Gallegas. The ship was then to proceed to the north.

WHALERS AWAY

Twenty whaling fleets are on their way south.

A Russian flotilla of 18 vessels left Odessa early in November. The factory-ship "Slava" and 17 diesel-electric chasers comprise the fleet, which has two helicopters for air-surveys. All the chasers are equipped with new double-recoil harpoon guns. The fleet is experimenting with a combination of line and caprone electric cable, killing the whale by an electric current.

Seven Japanese chasers called in at Fremantle, Western Australia, on November 14 for oil bunkers and provisions. The ships are to rendezvous in the Antarctic with the former Greek-owned factory-ship "Olympic Splendour", now re-named "Kyoku Yo Maru". Five Japanese whaling fleets left Japanese ports on November 2 and a sixth on November 16.

Nine Norwegian fleets, employing nearly 7,000 men, left Norway in late October.

In addition, three British fleets and

one Dutch are proceeding to the whaling grounds.

CONCERN

The world's five major whaling countries began talks in London on November 20 on the question of limiting the number of expeditions. Representatives attended from Britain, Holland, Japan, Norway and the U.S.S.R. The conference was called by the British Ministry of Agriculture in an attempt to conserve the stock of whales in Antarctic waters.

Norway has threatened to withdraw from the convention if agreement cannot be reached to prevent an increasing number of expeditions engaging in the whale hunt. At present only the total catch is limited. Last season Norway's nine expeditions caught 5,598 whales, but Russia's single expedition caught 1,563, and a "bigger and better" Soviet factory-ship is being built.

WHALING SKYSCRAPER

For twelve years the whaling flotilla "Slava" has been making trips to the Antarctic. Although whales are also hunted there by Norwegian, Dutch, British, Japanese and other whalers, the expanses of the southern waters have not yet been exhausted. A new whaling ship, "Sovetskaya Ukraina", is being built by the Nosenko Shipyards of Nikolayev. This ship will be among the biggest in the world. Her displacement will be about 44,000 tons, and her height will equal that of a ten-storey house.

The "Sovetskaya Ukraina" exceeds the "Slava" not only in size, but also in navigation and production qualities. Her modern navigation equipment will enable her to move in any weather.

S.C.A.R.

The next meeting of S.C.A.R., the Special Committee for Antarctic Research, is to be held in Canberra from March 2 to March 6.

OPERATION DEEP FREEZE IV SWINGS INTO ACTION

Although the United States is handing over control of Wilkes Station to Australia and of Ellsworth Station to Argentina, and Little America V is to be 'de-activated', Dr. Thomas O. Jones, Director of the U.S. Antarctic Research Programme, foresees "a vastly expanded programme of scientific research in the Antarctic," with emphasis on the study of glaciers, the effect of Antarctica on the world's weather and upper atmospheric effects on communications.

The first aircraft to fly south this season was Admiral Dufek's Sky-master, which left Invercargill at 1.56 a.m. on October 1 and arrived at McMurdo at 2.30 p.m. just as a turbulent storm hit the area. The ice runway was in excellent shape. But U.S.S. "Brough", on picket half-way between New Zealand and Antarctica, was buffeted by a severe storm with 35-foot waves which damaged the hull and carried away an 80-foot radio antenna.

Globemaster flights from Christchurch began on October 3. The first of the M.A.T.S. (Military Air Transport Service) C-124 (Globemaster) aircraft was air-borne at 7.45 p.m. and three more followed at two-hourly intervals. Ice-expert Captain Jack Tomasch flew south to check the condition of the ice runway, which is sited on 14 feet of old ice. Some of the taxi-ways and parking areas, however, are on new ice only 66 inches thick.

Two of the first four Globemasters returned to Christchurch but two remained to carry out air-drop missions. A total of ten Globemasters were assigned to Operation Deep Freeze for the season. On one of the return flights to New Zealand the cargo included the R.N.Z.A.F. Beaver aircraft used so successfully last season by Sir Edmund Hillary's party. It was sent back for repairs and will go south again on "Endeavour".

A record was set up on October 13-14 by a Navy R7V Super-Constel-

lation which made the 2,147 nautical mile journey from McMurdo to Christchurch in eight hours, twenty-eight minutes.

Air Force flights for the season ended on November 13. A few more flights were made by Navy aircraft before the ice began to break up. Flying will resume when the ice freezes again in February.

Although several other New Zealand cities, including Invercargill, offered facilities for the erection of the proposed permanent U.S. air base, it has been decided to establish the base in Christchurch. The estimated cost is in excess of \$3,000,000.

AIR DROPS

Aerial re-supply of two inland scientific bases was begun by the United States Air Force on October 8.

Admiral Dufek was aboard a Globemaster which flew to the South Pole and dropped 16 tons of priority supplies and machinery parts. The last airdrop at the South Pole was on December 4, 1957.

A second Globemaster went to Byrd Station and dropped 16 tons of food and other supplies. The air force planned 50 drop missions to the Byrd and Pole stations—750 tons of cargo.

The weather at the Pole was excellent with 30-mile visibility and no cloud cover. At Byrd, visibility was 10 miles and the ceiling 10,000 feet. Byrd weather is usually characterised by restricted visibility and low ceilings.

By October 24, a month after their arrival in New Zealand, the aircraft had completed more than 50 per cent. of their cargo missions. By November 10 only five drops of high priority cargo remained to be carried out at the Pole, and the air-drops at Byrd were completed. The aircraft had all returned to New Zealand by November 13, their task of dropping 886 tons of cargo completed.

RADIO BLACKOUT

A total radio blackout with the United States Antarctic stations from September 24 to 26 stopped the flow of messages between the expedition's headquarters in Christchurch and the stations. It is the longest total blackout that has ever affected the expedition's operations.

The expedition's communications officer, Lieutenant Clyde V. Reese, tried relaying messages via Musick Point, Auckland, and via Pearl Har-

bour, Washington, D.C., and Balboa, but with no success.

ATOMIC POWER

A decision has been made to provide nuclear power plants at American Antarctic bases.

The first atomic generator for heat and light will be installed at McMurdo Sound. Others will follow at the South Pole, Byrd Station, and Cape Hallett.

The siting of the atomic generators and problems associated with their position, construction, manning and safety will be discussed by the two admirals when they visit the bases in January.

The task force engineer, Commander Herbert Whitney, has recently studied packaged atomic power plants for polar use.

The plant which the planners have in mind for McMurdo would cost between four and six million dollars. The money has still to be granted.

At The American Stations

LITTLE AMERICA

On the first operational flight of the season an R4D (Dakota) aircraft left Little America's Kiel Field on September 23 for McMurdo, 440 miles away. At take-off the temperature was -45° F. with a 10-knot wind from the S.S.E. Hours of arduous work in temperatures as much as 60 below zero were required to dig out the planes, mostly by the old "back and shovel" method. Three local test flights were made before the inter-station flight, as the aircraft had not flown since March 25.

Seven months' isolation ended with the arrival of the first plane "in". Among the new men was New Zealander Lin Martin, Scott Base leader, who spent five days at Little America conferring with Albert P. Crary and other scientists on the work which the two stations will co-operate in

carrying out. New Zealanders are joining the American ice-shelf traverse for various periods and four American scientists will work at Scott Base during 1958-59.

When Little America closes down early next year, the Aurora Tower and much scientific equipment will be transferred to Scott Base.

During his visit Martin had a daily session in the steam bath: see "Antarctic" No. 11, p. 307.

ICE SHELF TRAIL

Major Merle Dawson, who reconnoitred the famous Army-Navy trail from Little America to Byrd Station, is responsible for the siting of the trail from Little America across the Ross Ice Shelf to McMurdo, along which the equipment being transferred from Little America will be towed. The trail will be marked at 1,000-foot

intervals by 12-foot bamboo poles, and every 20 miles by a snow cairn topped with an empty fuel drum on which the distance from Little America is marked in luminous paint.

Major Dawson hopes to complete this task by mid-December. On January 20 he will accompany the tractor-train over the carefully planned route. Seven sno-cats will precede the train of heavily loaded tractors, six of them being used as additional cargo carriers, drawing light sleds. Once the trail is marked, the sno-cats should make the journey in three or four days and the tractor train in about a week.

Major Dawson accompanied the science traverse for 127 miles across the ice shelf in October to gain first-hand knowledge of the terrain. He found that at least ten crevasses will have to be blasted and bridged before the 38-ton D-8 tractors can cross safely with their 20-ton sledge loads.

A reconnaissance team of two D-8 tractors and a sno-cat left Little America on November 15 to cover the 475-mile route to McMurdo, a job which it is anticipated will take about 30 days.

On November 29 the reconnaissance party was halted by a small crevassed area and bad weather. They were warned of the crevasses by Captain Robert J. Slagle who discovered the area the previous day while returning to McMurdo after a re-supply flight to the team. The crevassed area lies some 40 miles to the east of McMurdo.

NEAR TRAGEDY

Tragedy nearly struck the party on December 1 when a D-8 tractor crashed through a crevasse when only some 26 miles from McMurdo. Two men in the tractor sustained minor injuries and were evacuated to McMurdo by air for medical attention.

The tractor had made one traverse over the crevasse without incident, but on the second crossing it crashed through a 20-foot snow bridge into the crevasse. With it went the train's two supply sleds, scattering food and fuel irretrievably over a wide area.

The party was unable to continue until more supplies were flown in.

The crevasse was 40 to 50 feet wide and a hundred feet long. Its depth could not be determined.

(STOP PRESS)

The eight-man team reached McMurdo on December 8, after a "suspense-filled" journey lasting more than three weeks.

The first 400 miles were without incident, but after the accident on December 1, crevasses kept the party on edge for 24 miles. One day the team moved only one and a half miles.

Major Dawson recommends that the trail be used only for lighter vehicles and that heavier equipment be brought by ship.

BYRD

A 19-man, 9-vehicle tractor train from Little America delivered 508,825 lb. of cargo at Byrd Station on October 12 after a journey lasting seventeen days in sub-zero temperatures. The highest temperature was -9° F. This was the fifth tractor train to make the journey since the trail was blazed in November 1956. Four hundred and eighty miles out, fires broke out in the two sleeping wanigans, but they were put out before any serious damage was caused.

On the return journey leaving Byrd on October 24 the train broke the trail record by completing the 647-mile journey on November 1 in eight days, two hours and 15 minutes. The tractor-men helped in the erection of a rawin tower for the U.S. Antarctic Research Programme which will begin when I.G.Y. ends on December 31.

N.A.A.F. ROCKFORD

Owing to the forthcoming "de-activation" of Little America, in future Byrd Station will be supplied by air drops. In preparation for the intensified air operations, the tractor train on its outward journey left two wanigans at a point 160 miles from Little America for the purpose of setting up a Naval Auxiliary Air Facility, N.A.A.F. Rockford. This

facility will serve as an advanced weather station and emergency landing field for flights from McMurdo to Byrd.

To complete Rockford, a tractor train will leave Little America early in January with a communications wanigan and hydrogen generator operation for weather forecasting operations, one D-4 tractor and a sno-cat, plus fuel and food supplies.

Next year Rockford will be manned by a small party who will provide flight information and weather reports.

MET. OBS.

In addition to its primary purpose of serving as a cargo carrier, the tractor team is a valuable aid to the Antarctic meteorological programme. Train members radio back daily temperature reports, wind direction observations and reports on cloud cover. This information is important because it provides the only opportunity during the year to record reports from the area between Little America and Byrd Station.

GENERATOR AWAY!

During an air-drop at Byrd on October 9 two parachutes which failed to "spill" pulled a heavy 30 K.W. diesel generator across the Rockefeller Plateau with its metal platform acting as a sledge and the parachutes as sails. Five Globemaster crews kept a keen look out for the roving generator, which was eventually recovered 20 miles from the dropping zone.

Three of the new wintering-over party at Byrd are veterans of the Antarctic night. Sage and McGrillis wintered at McMurdo, and Beckett at Little America, in 1956.

POLE STATION

Eighteen men and two sledge dogs at the South Pole celebrated the first day of spring on September 23 and saw the sun for the first time in six months. They last saw the sun on March 22.

The ten scientists and eight United States Navy men took a holiday from their chores and slept late instead of

rising for breakfast.

They even played a game of baseball—in temperatures that ranged to 90 degrees below zero Fahrenheit. At night they had a party.

HOLE AT POLE

U.S. scientists plan to drill a hole through the polar icecap about 10,000 feet deep with an electrically-heated hot tip drill.

The hole, which will be about four inches in diameter, will be by far the deepest hole ever drilled in polar ice.

The hole will be used to obtain ice samples to determine pressure, temperature and weather data.

Feasibility tests for the project are being made in the United States and a prototype hole will probably be sunk in Greenland. Diesel fluid will be used to keep the ice hole from refreezing during the drilling and recovery of ice samples.

Twelve men were flown in on November 16 to relieve the party who had wintered over.

The coldest temperature ever—135.4 degrees below zero—was recorded 13 miles above the South Pole on July 16.

It was taken by an airborne instrument launched by the Weather Bureau.

So far as the Weather Bureau knows, this is the lowest temperature ever recorded at any height anywhere.

It is about three degrees below the previous record low, established by a balloon-carried instrument in the Antarctic atmosphere in August, 1957.

MARBLE POINT AIR STRIP

The engineering survey of Marble Point (77° 26' S., 163° 48' E.), some four miles north of Cape Bernacchi on the Victoria Land coast, about 60 miles from McMurdo Sound, which has been carried out during the past two summers, will be completed this season. Admiral Dufek considers that it would be possible to build here a hard runway which would be open for six months in the year and with good lighting and good electronic equipment would be usable the year round. The cost is estimated at about \$25,000,000.

American Scientists Setting Out On Long Traverses

Much of the information sought by American I.G.Y. scientists this season will be gathered on a series of major traverses. The surface traverse parties, moving in giant tractors, will conduct seismic, glaciological, meteorological and other geophysical studies.

The traverse parties will use seismic techniques to measure ice thickness and to determine the character of the subglacial floor and of exposed land areas.

The Antarctic ice covering is estimated to have been, at one time, as much as 1,000 feet thicker than it is now. Not yet known, however, is whether the total ice mass is presently increasing or decreasing. The I.G.Y. findings will speed acquisition of a clear answer to this important question.

LITTLE AMERICA TO THE VICTORIA LAND PLATEAU

On October 15 a party of seven men left Little America on a four-month, 1,000-mile tractor journey to the Victoria Land Plateau.

Led by Albert P. Crary, Deputy Chief Scientist for the U.S.-I.G.Y. Antarctic Programme, the traverse group has crossed the Ross Ice Shelf from Little America to the Skelton Glacier, and will work its way up the glacier to the Victoria Land Plateau. The course will then lead westward for some 400 miles to approximately 130° E. From that point the traverse group will return to the U.S. Naval Air Facility at McMurdo Sound about February 4.

The primary purposes of the traverse are to determine the snow and ice characteristics and thickness on a line extending directly into the main Antarctic highlands; to study the Skelton Glacier and the geophysical aspects of the transition from low-lying ice shelf to high plateau; and to detail some specific anomalies of

water depths between Little America and Minna Bluff, found on a traverse during the last Antarctic summer.

With Crary are Wilson and Den Hartog, glaciologists, McGinnis a seismologist, and Layman a mechanic. Also travelling with the group on the first stage of the journey are Maj. Merle Dawson, who will do reconnaissance work in preparation for next January's move of equipment from Little America to McMurdo, and Sgt. Leslie Duff, of Christchurch, New Zealand.

THREE SNO-CATS

Crary and his companions are travelling in three powerful sno-cats with cabs specially equipped for comfortable bunking. A crevasse detector unit has been installed on the lead vehicle. This vehicle also has a miniature gyrocompass as well as sun and magnetic compasses and other facilities for navigation, plus a radio. Another sno-cat carries seismic, gravity and magnetic equipment and a second radio. A third has messing facilities, including cookstoves and a snow melter. It also houses the primary communication station.

Four 2½-ton sleds are being hauled, with the "seismo" sno-cat pulling two. The party is supplied with emergency rations, first aid kits, climbing ropes, crampons, ice axes, and two mountain tents.

Three resupply flights are to be made while the party is en route from Little America to the top of the Skelton Glacier. They are scheduled for October 25, November 5, and November 15. A major resupply cache

for the western phase of the traverse is to be set up at the head of the Skelton Glacier.

SCIENTIFIC PLANS

Elevations of the surface along the traverse route will be obtained by altimetry or by transit levelling. Thickness of ice and depth of water under the ice will be determined by seismic reflection methods. Identity of rock will be established by seismic refraction methods. Gravity observations are to be made, and magnetic observations will deal with horizontal and vertical field strength, and declination.

Examination of snow and firn character will be made to depths of ten meters (approximately 33 feet) from shallow snow pits and bore holes. This will include observations of snow hardness, grain size and shape, densities, temperatures, and snow sampling for isotope analysis, with the primary aim the annual snow accumulation data.

Determination of the volume of ice flowing down Skelton Glacier on to the ice shelf will be made by measurements of absolute movement and ice thickness. Internal temperatures and direction of flow of plateau ice will be determined by seismic refraction methods.

Geographic work will include the location and elevation of mountain peaks flanking the Skelton Glacier. Glacial geological observations will be made for evidence of past glaciation.

STATIONS PLANNED

Standard "station" stops are being spaced at intervals of about 30 miles for snow pit studies, seismic reflections, gravity and magnetic observations, temperatures in ten-meter bore holes. Minor stations are to be made about every five miles for gravity, magnetic, and ramsonde studies. During the passage up the Skelton Glacier the intervals will be shortened to five and two miles for standard and minor stations respectively.

In addition, three major stations will be made at the foot and top of

the Skelton Glacier and at the western end of the plateau line. At these major stations, seismic refractions will be added, drill holes will be made to 20 or 25 meters, and snow samples will be taken for oxygen isotope studies.

RECORD DEEP

Early in November, a seismic sounding, made under blizzard conditions, resulted in the discovery of the deepest water yet found under the Ross ice shelf. The sounding showed that at 79° 6' S., 165° 30' E. the ocean floor was 4,400 feet below sea level.

The 4,400 ft. measurement is more than twice as deep as the previous greatest sounding under the Ross ice shelf, which extends about 400 miles into the Ross Sea bay from a point about 300 miles from the South Pole.

Seismic studies by Mr. Crary and other I.G.Y. scientists last year showed the ice thickness of the shelf to be from nearly 790 to about 1,050 feet. The ocean bottom was shown to be about 2,070 ft. to 2,155 ft. below the surface.

The new low point was found 48 miles south of Mt. Discovery and 90 miles south-south-west of the United States base at McMurdo Sound.

The major scientific significance of the report is in its possible relation to the trough which many scientists believe extends all the way across Antarctica concealed by an accumulation of ice.

IS THERE A TROUGH?

The point would be a logical one for the Pacific side extension of such a trough. An I.G.Y. scientific traverse party from Ellsworth Station, on the Weddell Sea coast, on the Atlantic side, last year detected a deep trough extending inland from the Filchner ice shelf.

The bottom of the trough was found to average 3,500 ft. below sea level. The Ellsworth party reported that the trough, which extended beyond the southerly limits of the expedition, swung in a south-westerly direction.

Mr. Crary's announcement of his finding was accompanied by the cus-

tomary word of caution. It was to the effect that the seismic sounding may have bounced off a "hole" in the ocean floor and that it could not be taken as absolutely conclusive evidence of the trough's existence.

PROGRESS REPORT

New Zealander Dr. Trevor Hatherton joined the traverse at the foot of the glacier.

Throughout the month-long ascent of the Skelton Glacier and during nearly two months of scientific exploration on the high plateau Mr. Cray and his companions will be on their own.

On November 23 the party reported steady progress up the Skelton Glacier.

Navy aircraft are assisting. During December a cache of 2,000 gals. of gasoline and half a ton of food and other items is to be air-lifted to the head of the Skelton Glacier.

TRIANGULAR TRAVERSE

A six-man tractor party led by Dr. Charles R. Bentley, a New York seismologist, left Byrd on November 3 on a 1,100-mile triangular traverse intended to settle the question of whether the Antarctic is cut in two by a gigantic trough stretching from the Weddell Sea to the Ross Sea.

The traverse will take in the southern part of the Ellsworth Highlands, go on to skirt the northern edge of the Horlick Mountains for 200-300 miles, and back to Byrd, where the party expects to arrive on January 20. This route will twice cross the area of the suspected trough.

Six supply flights will be made during the traverse by ski-equipped Dakota aircraft of the U.S. Navy.

AIRBORNE TRAVERSE

Besides the oversnow treks, an airborne traverse is planned. This will follow a course running southward from Mount Waesche to the northern edge of the Horlick Mountains. The airborne scientists, travelling in ski-equipped planes, will land at 50-mile intervals for seismographic soundings probing the depth of the Antarctic ice

sheet. They will also engage in gravity observations and glaciological work.

ELLSWORTH-BYRD

A ground party with three sno-cats set out from Ellsworth Station, Weddell Sea coast, on October 1 to make the over-snow traverse to Byrd Station, a distance of 990 miles. This traverse may help materially to settle the problem of a possible channel between the Weddell Sea and the Ross Sea, under the ice. Admiral Dufek has pointed out that the findings may not be conclusive, as a channel, if there is one, could wind and therefore not be pin-pointed on this journey.

NEW COMMANDER

Rear Admiral David M. Tyree has been appointed to succeed Admiral Dufek in command of U.S. Antarctic operations as from next May. Admiral Tyree, who is 53, is commander of the U.S. Navy task force supporting nuclear tests at Eniwetok atoll in the Pacific.

Admiral Dufek will retire from the Navy on September 1. He returned to Christchurch from the Antarctic on November 26, but plans to go south by ship with his successor in January.

Upon conclusion of the International Geophysical Year, U.S. scientific activity in the Antarctic will be conducted by the National Science Foundation in co-operation with the National Academy of Sciences' Committee on Polar Research.

NEW PLANES?

The U.S. Air Force's new Hercules transport aircraft may replace Globemasters on Antarctic supply missions next year. Their suitability is being evaluated. The Hercules is a four-engined turbo-prop aircraft similar to the Globemaster in design. It carries 32,000 lb. of cargo compared with 35,000 lb. carried by the Globemaster. It can be equipped with combination wheels and skis for polar operations and has provision for eight Jato bottles, two features which the Globemasters do not have.

SUB-ANTARCTIC ISLANDS

MARION AND GOUGH ISLANDS (S.Af.)

The I.G.Y. station on Gough Island will be maintained until March, 1960, in terms of a decision by the Government which has just been announced. At both Gough and Marion Islands the programme of upper air soundings will be reduced from two to one a day at the end of the I.G.Y. During past months this part of the observational programme has been very successful. Good heights have been regularly attained.

The Weather Bureau is sending two meteorological assistants, Messrs. G. M. Artz (Senior Meteorological Assistant) and J. Bothma (Meteorological Assistant Gr. 1), to spend a year at the F.I.D.S. (formerly Royal Society) base at Halley Bay. They left Pretoria for London to join the rest of the expedition which sails on November 21 from Southampton.

CAMPBELL ISLAND (N.Z.)

This year's annual servicing was a most successful operation and the speed with which M.V. "Holmglen's" turn-round was effected was the result of the excellent co-operation of Captain Regnaud and his officers and crew, who worked tirelessly with the ingoing and outgoing expedition members.

The expected "annual servicing calm" failed to eventuate on this occasion and weather conditions were most unfavourable in spite of the presence of the Director, N.Z. Meteorological Service, Dr. M. A. Barnett.

The new railway and the roller conveyor system were highly successful and saved many problems which previously accounted for extra turn-round time. Thanks are due to Mr. G. P. Kape and his team for the unstinting efforts put in to ensure that

these facilities were ready for safe and efficient operation on the arrival of M.V. "Holmglen."

The new appointees, some of whom were mentioned in the September issue, are:

Officer in Charge, P. G. Poppleton.
Senior Met. Observer, E. L. Clague.
Met. Officers, D. Phipson, J. R. Lamb.
Senior Ionosphere Observer, R. B. Thompson.
Radio Technician, P. J. Martin.
Mechanic Handyman, W. R. Hare.
Cook, R. G. Rae.
Carpenter, D. G. Herkt.

The second Ionosphere observer has yet to be selected and will be proceeding to the station in the near future. All appointees are developing into an excellent team under Mr. Poppleton's leadership and a very successful year is anticipated.

We were privileged to have Dr. M. A. Barnett, Director, New Zealand Meteorological Service, present at the station during the servicing. Although the new station has been operating for some time, no official opening ceremony had taken place. This matter was rectified by Dr. Barnett who on November 3, 1958, declared the Bee-man Station officially opened.

The station's scientific programme and general work programme are well under way and the new team appear to be settling in very satisfactorily.

MACQUARIE ISLAND (Aust.)

August provided an unusual prelude to spring by giving the Macquarie Islanders their heaviest falls of snow this year.

For the first time banded giant petrels have been recovered on Macquarie. One had been banded at Mawson Point in 1955, the other had been banded by a New Zealand whaling station.

By early October royal penguins had arrived in thousands, and many

hundreds of sea elephant pups weighing about 80 pounds each and wearing black astrakhan coats had been born. The camp isthmus area was littered by many sea elephant harems comprising large groups of cows each attended by one giant bull beachmaster. The air was rent day and night by the dog-like yaps of pups, the sonorous yelps of mother cows, and the guttural roars of bulls (average weight about four tons). The duty members' movements at night in the camp area were sometimes rendered hazardous. Some of the sea elephant battlegrounds are amongst ionosonde and whistler aerial fields with the result that much damage was done, often requiring the repair party to climb the tall aerial masts in extremely cold windy conditions.

Two freight parties journeyed to Green Gorge to replenish stores and returned with a large supply of rabbits for the main camp larder.

Two days in October were devoted to branding 400 sea elephant pups for the biology programme. Three parties covering the north end of the island counted a sea elephant population of over 18,000 on two occasions for comparative purposes. A giant petrel banded at Hurd Point in March was recovered in September near Valparaiso, Chile.

"Thala Dan" left Melbourne for Macquarie Island on November 25. Among the personnel on board were two 17-year-old Queen's Scouts, David Hindell of Scotch College, Melbourne, and John Harris of St. Peter's College, Adelaide.

Italian Expedition

Owing to lack of anticipated official support, the projected expedition to the Antarctic mainland by a group of Italian scientists under Dr. Silvio Zavatti will not eventuate as planned. Dr. Zavatti proposes, however, to lead a small expedition to Bouvetoya (54° 26' S., 3° 24' E.), the small Norwegian island south of Africa, leaving about mid-December.

VETERANS PASS

SIR DOUGLAS MAWSON

The New Zealand Antarctic Society joins in the world-wide sorrow at the passing of one of the truly great Antarctic explorers of the "heroic age". In a message of sympathy to Lady Mawson the Society said, "The world is poorer for his passing and richer for his having lived."

Douglas Mawson came to Australia from Yorkshire as a boy. With degrees in mining, engineering and science, he became a lecturer at Adelaide University and as a physicist was a prominent member of Shackleton's 1907-8 expedition. He was one of the first party to climb Mt. Erebus and one of the three men first to reach the South Magnetic Pole.

Awarded a Doctorate of Science for his exploits, he conceived the idea of an Australian Antarctic Expedition. He led a party of 25 young scientists and others who went south from Hobart in the steam-yacht "Aurora" in December, 1911, and set up a main base at Commonwealth Bay on the Adelie Land coast. While "Aurora" made three great voyages which added King George V Land and Queen Mary Land to the map of Antarctica, and land parties probed east, south, and west, Mawson himself led a Far Eastern party for 316 miles along the edge of the Continental plateau, a journey which ended in tragedy when Ninnis was lost in a crevasse and Mertz died of exhaustion, leaving Mawson alone to fight his way back to the base.

Knighthed in recognition of his outstanding leadership, Mawson became professor of geology and mineralogy at Adelaide University, and in 1929 organised and led the British, Australian, and New Zealand Antarctic Research Expedition (B.A.N.Z.A.R.E.) in the "Discovery". On two voyages, 1929-30 and 1930-31, more coastal areas were discovered, notably MacRobertson Land, Princess Elizabeth Land and the BANZARE Coast. Maw-

son was one of the first to use air reconnaissance as an aid to discovery.

Sir Douglas Mawson was cast in a heroic mould, a big man in every way. Though his exploits contributed to Antarctic history some of its greatest human stories, he was never a seeker after popular acclaim, never responsible for rash or foolhardy enterprises, always the scientist devoted to his work and willing to sacrifice himself to the uttermost in the course of scientific discovery.

He retained his keen interest in Antarctic exploration and research until his death, and was to the end a valued advisor to the men who followed thankfully and admiringly in his footsteps as unveilers of the mysteries of the South.

SIR HUBERT WILKINS

Sir Hubert Wilkins will be chiefly remembered as a great adventurer, as a pioneer in exploration of the air, and as a dreamer who lived to see one of his wildest dreams come true.

Born on a South-Australian sheep-farm, he was immersed in adventure from his early twenties, and from 1913, when he was with Stefansson in the Canadian Arctic, was never for long away from the Polar regions. His Antarctic sorties began with Cope's four-man expedition in 1921. He was with Shackleton in the "Quest" later in the same year. In 1928 he led an expedition to Graham Land and made the first flight in the Antarctic on November 16. He accompanied Ellsworth in 1935-36, and again in 1938-39. It is a record of persistent enthusiasm few indeed can match.

It was unfortunate for him that his pioneer air-surveying is chiefly remembered for the mistake which led to Graham Land being represented on the maps for some years as an archipelago and not a peninsula. But the error was in no way to his discredit.

He was laughed at for his advocacy of the use of submarines to explore beneath the polar ice; but before he

died the Nautilus crossed the North Pole, under the sea.

In very few men have the visionary and the man of action been so fully combined.

LT.-COL. T. ORDE LEES

Another insatiable seeker after adventure was Thomas Orde Lees, O.B.E., A.F.C., Royal Marines (retd.), who died in Wellington on December 1, aged 81.

Colonel Orde Lees, an Englishman, won the first of his many unusual medals in the Boxer Rebellion. He joined the Royal Flying Corps, and was a pioneer in the advocacy and use of the parachute. Sent to Japan after World War I as parachute expert with an Air Mission, he remained there as a "Times" correspondent and, later, as a teacher of English. He was the motor expert on Shackleton's ill-fated Trans-Antarctic Expedition, and endured the privations of the long months on Elephant Island.

When Japan entered the war in 1941 he came to New Zealand with his Japanese wife and their daughter, and was a very popular lecturer to the troops on his colourful adventures.

An enthusiastic member of the New Zealand Antarctic Society, he served for many years on the Council, and was much loved and respected by Society members. An unconventional, modest, even self-deprecating man, he had a keen sense of humour, and was the best of company.

The N.Z. Antarctic Society forwarded a wreath as a tribute to "an Antarctic veteran, and friend", and the President and Mr. Leigh Hunt (founder of the Society) represented the Society as pall-bearers at the funeral.

IT'S RAINING!

Rain, almost unknown south of the Antarctic Circle, fell at McMurdo Sound on November 30, it is reported from Scott Base.

BOOKSHELF

"MOUNTAINS IN THE SEA", by Martin Holdgate: London, Macmillan & Co. Ltd., 222 pages, ill., N.Z. price 25/-.

Martin Holdgate, as one of the three leaders of an expedition to the little-known Gough Island on the Sub-Antarctic fringe of the South Atlantic, gives us a most interesting and readable account of this remote island and its fauna.

A small section of the book devoted to Tristan da Cunha draws a lively picture of the islanders at work and at play.

The photographs both in colour and black and white are excellent.

A.H.N.

* * *

"THE CROSSING OF ANTARCTICA", Sir Vivian Fuchs and Sir Edmund Hillary: London, Cassell and Co. Ltd., 338 pages, ill., N.Z. price 36/-.

This book we have all been so eagerly awaiting is a straightforward account of the great venture in which New Zealanders played a secondary but very important part. As befits such a story, it is written in a plain, factual style; in Fuchs's case, in a style which manifests the strongly scientific bent of the writer's mind.

There are no heroics, and it is better so: this great story needs no verbal embellishment. The tale is told honestly and clearly, it covers the whole ground adequately, it is well balanced; and that is what is required. The balance indeed is remarkable. This was a complex, many-sided expedition, yet we are given a perfectly clear account of it from its genesis to its triumphant conclusion; and it is most gratifying to New Zealanders that the parts played, not only by the vital depot-laying parties but by the survey teams and the I.G.Y. component at Scott Base, are all given full attention.

Yet, throughout, the primary aim is never forgotten. The actual crossing is described in some 70 pages out of

over 300, yet there is always in the reader's mind the thought, "How will the crossing party get on?" and those 70 pages are a magnificent climax to a grand book.

The story is ideally presented for the reader who is already somewhat familiar with Antarctic conditions. The writers do not waste time telling us things we all know already, so there is time to tell the story fully without unduly lengthening the book.

Sir Vivian has said the final word on the artificially blown-up "quarrel" between the two leaders—the difference of opinion of two strong-minded men which would never have hit the headlines at all if it had not been for the unfortunate publication of some private messages, quite naturally outspoken and bluntly worded. Fuchs tells what happened factually and calmly, and in the whole incident there is nothing of which either man need be in the least ashamed.

One complaint: there is no general map, and the page-size interspersed sketch-maps are not always easy to find and refer to.

And one final word of praise: the illustrations are magnificent, and they, too, cover the whole complex field. There are nearly a hundred photographs, 30 of them in brilliant (but Sir Vivian assures us, not too brilliant) colour.

Congratulations to both authors on a fine piece of co-operative writing which is worthy of the fine co-operative exploit it describes.

L.B.Q.

FRUSTRATION

Lin Martin records that one member of the New Zealand party at Scott Base went out with a dog team in a -40° temperature to revel in the newly-returned sun. When he got back his face was covered with a sheet of ice.

His beard gave him some protection, but created a difficulty. After some searching he managed to find his mouth, to light a cigarette. But when he lit it, the warmth melted the icicles and put it out.

The New Zealand Antarctic Society

—is a group of New Zealanders, some of whom have seen Antarctica for themselves, but all vitally interested in some phase of Antarctic exploration, development or research.

You are invited to become a member.

BRANCH SECRETARIES

Auckland: W. Dobier, 418 Pacific Bldgs., Wellesley Street, Auckland.

Wellington: A. S. Helm, Box 2110, Wellington.

Canterbury: A. Anderson, 15a Medway Street, Christchurch.

Dunedin: J. H. McGhie, Box 34, Dunedin.

"THE ANTARCTIC TODAY"

This volume is out of print, but a limited number of the following separate sections is available, the stapling slightly rusted:

Ionosphere Research (J. W. Beagley).

Meteorology (A. R. Martin).

Marine Biology (R. K. Dell).

Aurora Australis (I. L. Thomsen).

The Nations in the Antarctic (recent Australian, South African, French, etc., exploration by leading experts in the countries concerned).

These separates are available at a cost of four shillings each from the Secretary, N.Z. Antarctic Society.

"ANTARCTIC"

Published Quarterly • Annual Subscription 15/-

Copies of previous issues of "ANTARCTIC" may be obtained from the Secretary of the Society, P.O. Box 2110, Wellington, at a cost of 4/- per copy.

Of our predecessor, the "ANTARCTIC NEWS BULLETIN" only the following numbers are available:
5, 6, 7, 9, 15, 19, 20.

In most cases only a few copies are in stock.

These may be obtained at a cost of 2/6 each.

Annual Subscription, 15/- - Single Copy 4/-

