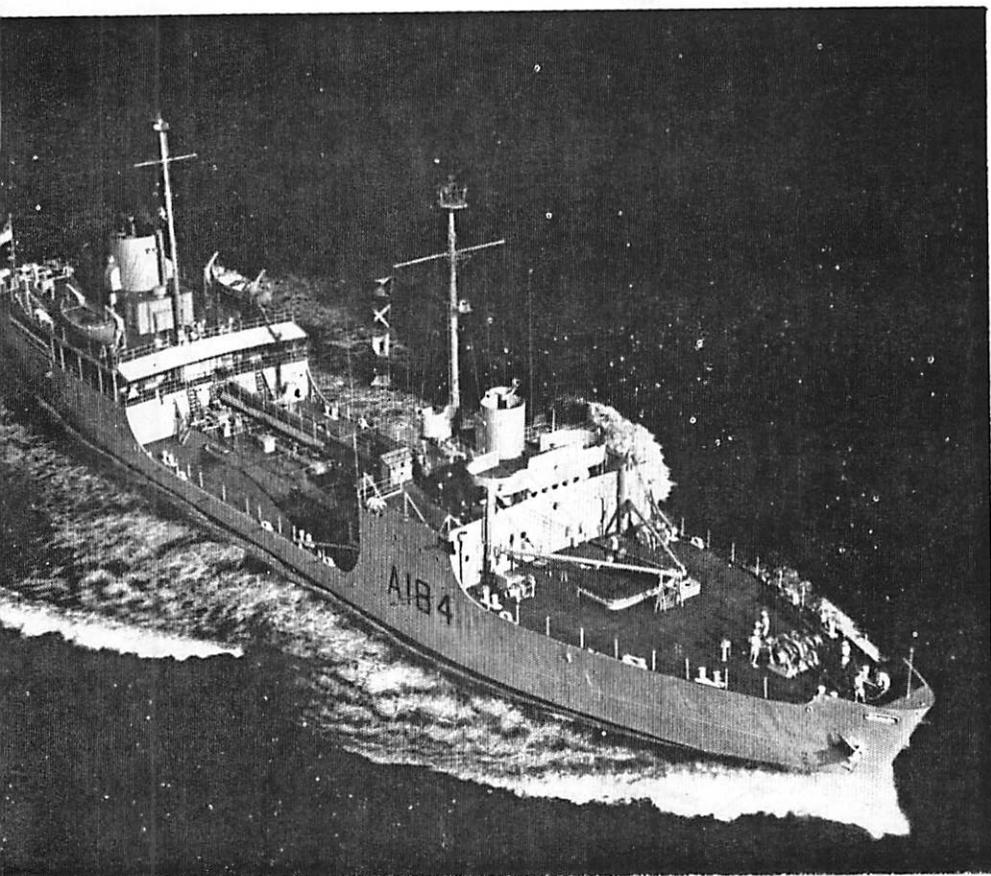


ANTARCTIC

A NEWS BULLETIN

published quarterly by the

NEW ZEALAND ANTARCTIC SOCIETY



THE NEW ENDEAVOUR

Flying the New Zealand flag, H.M.N.Z.S. Endeavour off Hawaii during her voyage to New Zealand to begin Antarctic supply work this summer.

Official U.S. Navy Photograph.

"ANTARCTIC"

(Successor to "Antarctic News Bulletin")

Vol. 3, No. 4

DECEMBER, 1962

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

R.G.S. AWARD

The Cuthbert Peek Grant of the Royal Geographical Society for 1962 has been awarded to Captain P. J. Hunt, R.E., leader of New Zealand's southern field party in 1960-61, "for his contribution to Antarctic survey and his qualities of leadership in the field."

THE TWO ENDEAVOURS

The New Zealand Antarctic Society proposes to present to the new H.M.N.Z.S. "Endeavour" a painting of the old "Endeavour" by a distinguished New Zealand artist as a gift from Society members. Contributions for this purpose will be welcomed, and should be addressed to the Treasurer, N.Z. Antarctic Society, P.O. Box 2110, Wellington.

"ANTARCTIC WEEK"

The Christchurch Branch of the N.Z. Antarctic Society staged an Antarctic Exhibition in connection with the Antarctic Week in September, organised by the Christchurch City Council with the co-operation of U.S. Operation Deep Freeze and the Society. We hope to publish an account of this very successful effort in our next issue.

"DISCOVERY"

A coloured photograph of the statue of Captain Scott in Christchurch, New Zealand, has been presented by a Christchurch citizen, Mr. F. N. Dephoff, under arrangements made by the Mayor and Council of the city, for the wardroom of the "Discovery," Scott's old ship, which is moored on the Thames in London as a permanent memorial to Scott.

The Christchurch statue, which was carved by Lady Scott, was purchased by public subscription and unveiled on February 9, 1917.

SUBSCRIPTION TO "ANTARCTIC"

We regret that owing to rising costs it has become necessary to increase the subscription rate for all readers who are not members of the New Zealand Antarctic Society. From the beginning of April, 1963, the annual subscription for this journal will be £1. The charge for single copies will be 5/- in all cases.

INDEX

We regret that owing to unforeseen circumstances the completion of the index which is being prepared for volume 2 of "Antarctic" has been delayed. Every effort is being made to expedite the preparation of the index, and we apologise to readers who may have been inconvenienced by the unavoidable delays.

VETERAN

Visiting the Antarctic to examine the operation of the current scientific programme in November was Dr. Laurence M. ("Larry") Gould, Chairman of the Polar Research Committee of the U.S. National Academy of Sciences. Dr. Gould was making his fourth visit to Antarctica. He was Chief Scientist and Second in Command of Byrd's first expedition in 1928, and led one of the most outstanding dog-sledge journeys in Antarctic history. He returned in 1956 and 1957 as head of the U.S. scientific effort during the I.G.Y.

TWO NEW ZEALAND SLEDGING PARTIES IN DIFFICULT AREA

Two teams of New Zealand surveyors and geologists with their field assistants are this summer working in an area which has long resisted human penetration.

This is the notorious Terra Nova Bay—Wood Bay region, that part of the Victoria Land coast and its hinterland which lies between 74°S and 76°S, approximately 150 miles north of Ross Island, or half-way between Scott Base and Hallett Station. The six-man Northern Party of Scott's Last Expedition under Victor Campbell wintered on this coast in 1912, huddled in an ice-cave which they had excavated in a drift at Evans Cove, Inexpressible Island. But except for a few days spent on the glaciers which descend from the Victoria Land mountains at about 75°S, they were unable to make any penetration of the interior. The only party ever to succeed in striking inland in this whole region was the Magnetic Pole party, David, Mawson and Mackay, of Shackleton's 1907-09 ("Nimrod") expedition. In one of the most famous of Antarctic journeys this team, after man-hauling their sledges all the way up the coast from McMurdo Sound, struck inland from the Southern end of Terra Nova Bay and then sledged north-west for over 250 miles, reached the then site of the Magnetic Pole and sledged back to Relief Inlet (in Terra Nova Bay) where they were picked up by the "Nimrod". The only later party to operate anywhere near this area was the Northern Party of the Trans-Antarctic Expedition under Lt.-Cdr. F. R. Brooke. The northern limit of this party's sphere of operations however, was the Mawson Glacier, 150 miles south of Terra Nova Bay.

The New Zealand team operating in this area during the 1962-63 summer will have with them not only the published narratives of these parties, but a photostat copy of Pro-

fessor David's manuscript diary, now in the archives of the University of Sydney.

RECCE

A preliminary air reconnaissance of the general area was made last summer. A more detailed survey from the air was made on October 16 this year, when Roberts and Tinker (Scott Base leaders 1962 and 1963) accompanied by the team leaders (Hewson and Gair), Tobin, Ricker and photographer Mannering, left McMurdo by Dakota in a -40° C temperature, and flew over the Mawson, David, Priestley, Campbell and Aviator Glaciers and over the plateau to the west. On their return they described the country in which the New Zealand dog-sledging teams will operate as "challenging".

SOUTHERN PARTY

First of the New Zealand teams into the field was the Southern party comprising R. W. Hewson (leader) who was a member of last summer's northern field party and who has wintered over at Scott Base, M. R. J. Ford (surveyor), D. N. B. Skinner (geologist, who was in the northern field party in 1960-61) and J. F. Ricker (Canadian geologist who has done Antarctic field work with an American expedition). Hewson's team left Scott Base on October 18 with two dog-sledges, each drawn by nine huskies. This is the earliest date on which a sledge party has set out from Scott Base since the preliminary sorties before the commencement of the Trans-Antarctic journey of 1957-58.

Ford, who will be wintering over at Scott Base, will be replaced for

the second phase of the season's field work by I. Cave, also to be a winter-party man.

Travelling with Hewson's party in the early stages was another four-man team comprising W. R. Logie (leader), P. M. Otway (surveyor), K. A. J. Wise and B. R. Wilkes (New Zealand entomologists working for the Bishop Museum, Honolulu). Otway was a member of the Southern field party last year and has wintered at Scott Base. Wise and Logie have also had considerable previous Antarctic experience.

MOTOR TOBOGGANS

This team is trying out two newly acquired American-made motor toboggans which, if they prove satisfactory at high altitudes, may eventually partially replace dogs for most New Zealand field work in the Antarctic. The motor vehicles were to be tested in company with the dog teams at sea level, up the coast from McMurdo Sound to the David Glacier, and up the glacier itself. They were then to be air-lifted back to base.

The day after the toboggans left base their drive belts broke as a result of extremely low temperatures and had to be replaced; spare belts were flown out by helicopter.

By October 23, five days out, the combined teams were two miles north of Spike Cape ($77^{\circ} 18'S$) and reported "all O.K."

FIFTY YEARS AGO

On October 25 they reached Granite Harbour ($76^{\circ} 57'S$) where Griffith Taylor's Western Geological Party had its base in 1912. They pitched camp and visited the granite block kitchen constructed and used by Taylor's party. This igloo was also visited by an American party a year or two ago. The New Zealanders were interested to see an ice-axe, several pairs of boots and old fuel cans left by the British party 50 years ago. Not to be outdone, the entomologists discovered an insect "in a dormant state."

By the end of October the combined dog and motor parties had reached the Nordenskjold Ice Tongue north of Tripp Bay.

Here they crossed the Oates Piedmont Glacier, striking inland from the Ross Ice Shelf, made a difficult crossing of the Mawson Glacier, and camped at the head of the Davis Glacier in $75^{\circ} 50'S$; $160^{\circ} 40'E$.

From here the dog-team parties were to carry out survey work and the toboggan men to be air-lifted back to base.

NORTHERN PARTY

Meanwhile the less experienced Northern Party, comprising Gair, Pain (who had wintered at Scott Base) Tobin and Sheehan, had been "indoctrinated" in a series of experimental sledging trips in the vicinity of Scott Base. One such training run was to Black Island and White Island from October 23 to October 26 when the party was accompanied by Billing, Public Relations Officer at the Base. High winds on the 25th made for unpleasant conditions.

The team was flown to its actual field of operations on November 3 by two Dakota aircraft of the U.S. VX-6 Squadron. A very rough landing was made on a poor surface on the Polar Plateau at 2,000 feet, in approximately $73^{\circ} 15'S$, $163^{\circ} E$. This is about 80 miles north-west of Wood Bay, between the country traversed by David's party, to the south, and that crossed by the American Snotcat traverse of 1959-60, to the north, on approximately $72^{\circ} S$. The Americans, however did not travel further east than about $160^{\circ} E$. (see "Antarctic" vol. 2, no. 6, June, 1960).

RELUCTANT EXPLORER

One passenger missed his plane. At McMurdo airstrip the Greenland husky Koleralik ("the timid one") slipped away and evading all would-be captors, made post-haste for the Scott Base dog-lines. He was replaced by a 15-month-old youngster, Freddy.

Delays—and a Near Disaster

A bad run of weather at a critical period, culminating in a number of mishaps to U.S. aircraft and N.Z. ground vehicles, considerably delayed the commencement of New Zealand's field programme.

November 22 was a black "Thanksgiving Day" for the New Zealanders' good American friends. At McMurdo there had been three days of waiting for suitable weather conditions to permit the air-lifting back to base of the Southern Geological and Survey party's toboggans and transportation of the Victoria University of Wellington party and the "Tara-rua" expedition to their respective spheres of operation. Then on Thanksgiving Day came news of the disablement of a Dakota aircraft in the Sentinel Mountains and a helicopter crash injuring two men in the Taylor Valley.

However, one major task was accomplished. A ski-equipped Dakota carrying the six-man University party landed safely on the Darwin Glacier. Almost immediately, however, fog banks closed in on both sides of the makeshift up-hill runway, and the plane made a difficult take-off in the nick of time.

TOBOGGAN LIFT

The attempt to carry Logie and his team with their snow-toboggans back to Scott Base from 5,000 feet up on the Polar Plateau near the head of the Davis Glacier was, however, foiled. The aircraft had to return to McMurdo carrying not the toboggan-team but the urgently-needed new sledge-runners which had been flown out for one of the dog-teams. The leading aircraft dropped to fifty feet above the snowfield landing site before it was decided that the fog and ice crystals in the atmosphere would make safe landing and take-off impossible.

The site, which had never before been used for aircraft landing, was only found after the plane had woven its way through mountain valleys and fog-banks.

The final blow of the day was the break-down of a Scott Base

weasel while crossing rough ice homeward bound four miles from the base. The occupants, Tinker, Mannering, Rainey and Cave, who had been on the flight to the Davis Glacier, had to walk the rest of the way home.

A second attempt was made to pick up Logie's toboggan party on November 22, but although the aircraft commander had no difficulty in locating them, conditions were so poor that the first aircraft could not land and the second plane was sent back from near the Mawson Glacier.

PEARILOUS MOMENT

Three days later, November 25, another attempt to pick up Logie's party all but ended in tragedy. A Dakota landed safely on the Plateau and flew Otway and Wise back to McMurdo. On the second flight Logie, Ford and Wilkes were emplaned. On board also were cartographer Rainey, Mannering and Billing from Scott Base.

The aircraft, piloted by Lieutenant D. R. Miller, had just fired the bank of six jato bottles and was about 30ft. off the runway when it stalled and the port wing dug into the snow. Only a split second power shut off prevented it from cart-wheeling on the wing which dug a long scar in the runway before the aircraft settled at right angles to the flight line.

Jato bottles continued to flame as petrol trickled on to the snow. The temperature of about 30deg. of frost probably stopped the ignition. Pieces of shattered engines and ski undercarriage were widely scattered. There were tears in the wings and fuselage.

Providentially the petrol did not ignite. If the starboard wing had dropped, the aircraft could have ploughed through the camp killing men and dogs.



SLEDGING TEAMS PREPARE TO START

The Northern Party of this year's New Zealand Geological and Survey Expedition lands from a U.S. aircraft at $73^{\circ} 15'S$, $163^{\circ} E$ on the Polar Plateau to commence exploration in Victoria Land, Ross Dependency.

Photo: G. Billing, Antarctic Division, N.Z.D.S.I.R.

RESCUE PLANS

After the immediate fire danger ended, radio contact was made with Scott Base and the rescue organised.

A survival camp was set up alongside the New Zealand dog team party camp in case rescue was delayed.

The men dined on steak and eggs salvaged from the aircraft while waiting for news of the relieving helicopters and Otter aircraft being guided in by the Scott Base leader (Lieut.-Col. R. A. Tinker).

Heavily-laden helicopters had difficulty taking-off at altitude and had to burn up spare fuel first, but by 2 a.m. the New Zealand party was safe at Scott Base.

Heavy equipment had to be left on the landing site for pick-up later.

The dog teams were later air-lifted further north across the David Glacier, which appears to be impassable for surface parties, to the head of the Priestley Glacier in approximately $74^{\circ}S$, $163^{\circ}E$, and from here will travel south-east towards the coast of Terra Nova Bay where they will rendezvous with Gair's Northern Party.

One of Gair's special interests will be to compare the rocks of the Beacon series with the rocks of the Karoo system of southern Africa: important evidence in the Gondwanaland theory of one great original southern continent. Gair became familiar with the Karoo system during 1950-57, when he worked with the Northern Rhodesia Geological Survey.

TARARUA ANTARCTIC EXPEDITION

The crash meant another delay for the New Zealand eight-man Federated Mountain Club party, which had been waiting several days to enter its Tucker Glacier survey area.

The expedition has in the main been organised by the Tararua Tramping Club of Wellington. The area they have chosen to explore, survey, and make a geological reconnaissance of is a mountainous region lying to the south and west of the Tucker Glacier (approximately 72° 30'S, 166°E).

The composition of the party is: J. Millen, B. E. Leader and surveyor, G. Holdsworth, B.E. Deputy leader; F. Pearson, B.E. surveyor, P. Le Coultre, B.Sc. geologist, E. Leitch, B.Sc. Geologist, J. Hayton, I. Joice, R. Lloyd.

The expedition has been financed by the party members and the Tararua Tramping Club, and it is hoped that the Mt. Everest Foundation will give assistance. Major support has been provided by the Antarctic Division of the N.Z. D.S.I.R. in the form of loaned equipment and accommodation at Scott Base, and some supplies of food. Equipment has been loaned by the N.Z. Alpine Club and many N.Z. firms have assisted the expedition.

On November 15 the main group of the party flew down to Scott Base and set about making ready for the field. The Expedition will operate in the field for 8 weeks, returning to New Zealand in February. Moving in two parties of four, man-hauling sledges, it is hoped that a survey of 2500 sq. miles of previously unvisited territory can be mapped, involving each party in about 200 miles of travel.

LITTLE KNOWN COUNTRY

The only previous exploration of the Tucker Glacier region was carried out by a N.Z. Geological Survey party under Dr. H. J. Harrington in the summer of 1957-58. This eight-man party, working from Hallett Station, spent four weeks on the

glacier and their work made possible the publication in January 1960 of the 1:250,000 "Tucker Glacier" map by the N.Z. Lands and Survey Department.

The surveys of the "Tararua Expedition" will be connected with stations established by the 1957-58 expedition and also with stations expected to be established during November, 1962, by the U.S. tellurometer operation "Topo West".

The geologists, in addition to their reconnaissance surveys and collecting of rock specimens will also be responsible for collecting any mosses and lichens encountered. Soil sampling will also be undertaken as opportunity arises, and regular meteorological observations will be made.

An aerial reconnaissance is to be carried out before the full team is flown into its area of operations to examine the area and to determine landing, re-supply and withdrawal points.

TENTATIVE PLANS

The provisional plan is to land the party on the Plateau between the head of the Trafalgar and Pearl Harbour Glaciers (approx. 72° 20'S, 160°E) which enter the N.W.-S.E. flowing Tucker Glacier from N.W. From here the two parties will each man-haul two sledges in the respective areas of operations.

The parties will rendezvous again here about the end of December and will probably return to Scott Base about the end of January, possibly from near the confluence of the Tucker and Trafalgar Glaciers (72° 30'S, 168° 30'E). At this point the party would be in a position if necessary to man-haul their sledges across the Tucker and by way of Football Saddle to Hallett Station.

LATE NEWS

The party was flown in by two U.S. aircraft on December 5. A difficult landing in very soft snow was made at 72° 17'S; 165° 35'E at a height of 8,200 feet above sea level.

This is on the Plateau about 100 miles west of Hallett Station.



CRECHE AT CAPE CROZIER

Emperor penguins guard their chicks at Cape Crozier in the Ross Dependency, where New Zealand scientists will be working this summer.

Official U.S. Navy Photograph.

AT CAPE CROZIER

This summer will see the longest human occupation of Cape Crozier, the eastern tip of Ross Island, since Wilson, Bowers and Cherry-Garrard lived there for ten days during "The Worst Journey in the World" in the winter of 1911.

Three New Zealanders and an American left Scott Base for Cape Crozier by U.S. helicopter on October 29. The New Zealanders, whose primary task was to instal a new type of tape recording seismograph at the Cape, were R. R. Dibble, senior scientific officer, Geophysics Division, D.S.I.R., who developed the apparatus, G. A. Williams and A. C. Langston, both technicians who have wintered-over at Scott Base. The American with them is a research biologist who is studying penguins.

Dibble returned to New Zealand on November 10 but the two technicians remained to operate the seismograph for a month, also to

assist in a sea current measurement study to be made by N. M. Ridge-way of the New Zealand Oceanographic Institute.

The men lived in a small Jamesway hut set up by American scientists in September.

It is thought that the recording of vibrations caused when icebergs calve from the ice shelf may help to disclose the cause of vibrations recorded at Scott Base. There is a growing belief that the origin of the two sets of vibrations is the same.

In his two months at Cape Crozier Williams will try to find the walls of the stone hut in which Dr. Wilson's party lived. The site was re-discovered by Sir Edmund Hillary in 1957. Williams hopes to carry out restoration work on the site and ensure the preservation of equipment left there by Dr. Wilson.

On November 14 the party sighted the U.S. ice-breaker and cargo ship convoy battling its way through the ice 60 miles north of McMurdo.

ZOOLOGICAL PLANS

At various periods during the coming summer five University of Canterbury men will be continuing the work on Adelie penguins and McCormick skuas carried out during the past few years. This year's team comprises: Dr. B. Stonehouse, W. Featherson and M. S. R. Smith all of whom will be furthering their work on projects which they initiated last summer.

O. R. W. Sutherland, a B.Sc. (Hons.) student, who will begin observations on Adelie penguins and skuas.

P. Fitzgerald, M.Sc., a soil chemist who is interested in analysing soil samples to establish soil-flora relations.

A party which included the old and new Scott Base leaders flew by helicopter to Cape Roysd on October 18 to select a site for the proposed biological hut at the Cape. This will not be erected until late in the summer.

Stonehouse and Sutherland carried out a count of Emperor penguins at Cape Crozier and were returned to Scott Base on December 5.

Wellington University Team Heads For The South

The six members of "VUWAE 6," this year's expedition mounted by the Victoria University of Wellington, left New Zealand on U.S. aircraft on November 10 and 14 bound for Scott Base and their field of operations to the south.

This year's team will be working on the ice-free areas in the vicinity of the Darwin and Carlyon Glaciers, Victoria Land, some 150 miles southwest of McMurdo Sound. (See Antarctic vol. 3, no. 3, September, 1962). The expedition is the sixth in a series of expeditions by members of the University, and continues the scientific exploration of largely ice-free areas which has been the objective of most of the earlier V.U.W. expeditions.

This summer the principal aims will be geological mapping, topographical survey and glaciology, but biological, geophysical, and meteorological studies will also be undertaken as opportunity offers. The Darwin Glacier area, where this expedition will work, is further south, higher and more exposed than the areas traversed by the earlier University parties.

A preliminary air reconnaissance of the area early in November revealed what appeared to be "a very good ski-landing place" at 79° 47'S, 158° 10'E. This is in the Brown Hills

area just north of the Darwin Glacier about 20 miles from its junction with the Ross Ice Shelf in approximately 160°E. The area is, therefore, in Australian Antarctic Territory.

The party was flown in, after considerable delay, on November 22, and is expected to set up camp in the Brown Hills region. They will move across the Darwin Glacier to the ice free areas on Tentacle Ridge (79° 35'S, 157° 20'E) north of the Darwin, and on the Darwin Mountains further to the west. The party is equipped with a banana sledge for the purpose of this investigation. No re-supply flight is envisaged.

BROADCAST TO FRENCHMEN

Radio Australia has begun broadcasting a weekly 15-minute programme to French scientists in Antarctica.

The programme, which is tape-recorded by Paris Radio, is air-freighted to Melbourne each week.



AFTER THE WINTER AT SCOTT BASE

New Zealanders clear snow drifts before the summer thaw to prevent flooding of the covered way, seen on right.

Photo: Guy Mannering, Antarctic Division, N.Z.D.S.I.R.

AT SCOTT BASE

Flights by United States planes from Christchurch, New Zealand, to McMurdo, Antarctica, began on September 16, and the following day Lt.-Col. R. A. Tinker, the Scott Base leader for 1963 and his deputy W. R. Logie, flew south. By October 11, 20 New Zealanders had arrived at Scott Base, 13 of them to winter over throughout 1963. At the peak of the summer season there will be more men at Scott Base than ever before.

New Zealand still relies heavily on dogs for field party haulage. At the beginning of the season there were 58 dogs at Scott Base, including eight pups born during the winter.

By November 15 the Base population had grown to 40, including the Ministry of Works men who will supervise the £30,000 building project. Site clearance for the new buildings began about mid-November under the direction of T. G. H. Hayward.

Visitors have included Messrs. A. E. Allen and H. R. Lapwood, M.P.'s and Mr. J. B. Collett, Mayor of Lyttelton. Dr. H. Gowland, assessor of medical examinations of men applying for Antarctic service, spent about a week at the base in mid-November.

A. Heine, a frequent visitor to the Antarctic during the past few years, is engaged on a glaciological research programme. Photographer Guy Mannering is assisting Mr. Heine by photo-recording the break-up of sea-ice in McMurdo Sound.

P. McGill was injured when he fell from a sledge on the skiing grounds on October 27. He was evacuated to New Zealand by U.S. aircraft but is expected to return to the Antarctic later in the season.

TRANSPORT FLEET

The mechanical transport at present in use at Scott Base or in the field comprises: 1 Nodwell personnel carrier, 1 Sno-cat, 3 weasels, 4 farmtractors, 1 D-4 tractor, 2 Polaris snow sledges, and 1 Land Rover, a total of 13 vehicles.

CONSTRUCTION TEAM

The following Army personnel are engaged on construction work at Scott Base this summer, under the control of civilian officers.

Staff-Sgt. R. Ross, Cpl. T. G. W. King, Cpl. E. I. Watson, L/Cpl. S. B. Duncan, R. L. Taylor and J. G. Bell, Sprs. R. D. Milligan, W. J. McNaughton, S. J. Russell, S. A. Thomas, D. K. H. Rolle, J. D. D. Atherton.

"ENDEAVOUR"

The new H.M.N.Z.S. "Endeavour," on loan to New Zealand from the United States Navy, arrived in Auckland, New Zealand, on November 19 under the command of Acting Cdr. (Rtd.) J. Lennox-King, R.N.Z.N. V.R.O., M.B.E. Formerly the United States tanker "Nemakargon," the vessel is diesel-electric powered, 1742 tons light, 4335 tons full load, 310 feet overall length.

"Endeavour" is scheduled to depart from Lyttelton on December 21 and to arrive at McMurdo Sound on January 1, 1963. She will begin a second voyage to the Antarctic on January 22, and on the return voyage will call at Campbell Island (February 16-18) and arrive at Lyttelton on February 21.

"Endeavour" has a complement of four officers and 60 men.

The vessel arrived at Wellington on December 12 to take on supplies for the New Zealand party at Scott Base.

WOMAN

Miss Gallagher, the only woman ever to live at Scott Base, is to have a face lift. She had lost so much of her charm (bad company?) that she was banished to an ice-cave. A sympathetic Wellington firm of display model manufacturers heard of this and radioed: "Will change Miss Gallagher to a blonde. Return for repair. No Charge. No kidding. Love to all."

So on November 11 Miss Gallagher was flown out to New Zealand on a U.S. Super Constellation and will later return to Scott Base, as beautiful as ever.

AT HALLET

The three men who will comprise the New Zealand component of the Hallett Station scientific staff throughout 1963 were flown north from Scott Base to Hallett by Hercules transport aircraft on the afternoon of October 20.

New Zealander Claude Taylor, late of Newport-on-Tay, who has been scientific leader at Hallett throughout this year, wore his Hunting Stuart Tartan in mid-winter (length of time not given), and also at Scott Base during transit to and from Hallett Station.

B. E. Reid and H. J. Cranfield, who will be carrying out biological research at Hallett Station, were flown in on October 13.

FLYING SAUCER ?

Claude Taylor, whose radioed report of an "object" sighted at Hallett Station on July 7 has aroused wide interest (see "Antarctic", September, 1962, p. 120) is back in New Zealand and has pointed out some errors in his report as it reached New Zealand.

Line 2—for "several" read "seven."

17—for "with" read "well".

30—for "revolution" read "resolution".

34—for "revolve" read "resolve".

WHAT HAVE WE HERE ?

Strange things happen during the Antarctic winter to perfectly normal (and perfectly sober) men. For instance, last winter two Scott Base men were returning by weasel across the ice-shelf from Arrival Heights to base through a fog when suddenly in the headlights loomed a large animal.

"Look!" cried out one man excitedly, "A horse!" He really thought that they had found a descendant of the Scott expedition ponies. But as the "horse" came close it turned out to be nothing more exciting than one of the Scott Base huskies, magnified enormously by the fog.

AMERICAN DEEP FREEZE 63 AWAY TO EARLY START

Making the earliest fly-in to the Antarctic in Deep Freeze history, Rear-Admiral David M. Tyree arrived at McMurdo Station on September 16.

This broke not only 6 months 12 days' isolation for the winter-over party but also the early fly-in record by 11 days. On board were 119 other passengers flown in to make advance preparations for the arrival of the main body of scientists and summer support personnel in October. 2,300 pounds of mail and 4½ thousand pounds of fresh New Zealand fruit, vegetables and milk were also flown in.

Admiral Tyree said that this year's early fly-in was essential in view of the most ambitious schedule planned for Deep Freeze 63. (See 'Antarctic', September, 1962 and following.)

On October 9 Rear Admiral James R. Reedy joined Admiral Tyree and for the next 10 days they made extensive inspection tours of all of the U.S. Antarctic outposts except the Pole Station itself, where temperatures were still too cold for flights. Conditions were satisfactory and Admiral Tyree remarked on the work done during the winter period, saying it was a credit to the wintering-over group.

By the time Admiral Tyree returned to Christchurch on October 20, 28 turn-around flights of the Globemaster, three R4Ds, a P2V, a VX-6 squadron R5D and four turn-around flights by the Super Constellation had been completed and these support movements were quickly followed by the arrival in New Zealand of the ice-breaker "Glacier", tanker "Mirfak", icebreaker "East Wind" and the "Chatahoochee", all scheduled for resupply and support work.

Also participating later will be the supply vessel "Tombigbee", due to leave Lyttelton on January 2.

PARA-RESCUE

Rigorous field training was the order of the day for the Para-Rescue Team of VX-6, receiving instruction at Scott Base from New Zealanders stationed there.

To combat the brutal conditions facing any downed aircraftsmen in Antarctica, the Para-Rescue team was being taught the techniques of climbing snow-piled hills, getting into and out of crevasses, the use of ice-axes and all means of overcoming in safety the natural dangers threatening man in the Antarctic.

ANTARCTIC EVES

The thin edge of the wedge of feminine participation in Antarctic ventures has been driven home. Two U.S. women biologists from De Paul University, Chicago, will be amongst the scientists on board the U.S. research ship "Eltanin", operating from Valparaiso. Admittedly they may not reach the Continent, but such a major innovation must start modestly.

The senior representative of the National Science Foundation thought it might well take a decade to break down opposition to the idea of women in the Antarctic, although there have been women scientists at the Russian base at Mirny, and aboard the Russian research ship, "Ob." The wife of a Norwegian whaler in 1937 was probably the first woman to visit Antarctica, two women wintered over at an American base in Graham Land in 1948, two air hostesses spent an hour or two at McMurdo in 1957, and Mrs. P. G. Law, wife of the director of the Antarctic Division of the Australian Department of External Affairs travelled to Macquarie Island and MacRobertson Land; but the Antarctic was still essentially a male preserve.

CHANGE OVER

In a bitter 30° below zero temperature. Rear Admiral David M. Tyree handed over command of the U.S. Navy Antarctic support force to Rear Admiral James R. Reedy on November 26.

A 20-minute ceremony at Amundsen-Scott South Pole base marked the end of Admiral Tyree's three and a half years' command in the Antarctic. Both Admirals read their respective orders, saluted the U.S. flag and turned to walk back into the South Pole Station.

Admiral Reedy will be based at McMurdo Base, while Admiral Tyree will take up his new post, that of U.S. Antarctic projects officer, in Washington.

POWER PLANT TROUBLES

Fire caused minor damage to Antarctica's nuclear power plant at McMurdo on October 7. Nobody was hurt and no radiation was released, but fuel reserves subsequently came to be considered critical and barrels of diesel fuel had to be flown in by helicopter from a distant fuel cache and oil tanker to relieve the situation.

The nuclear plant was shut down for about a month, which necessitated drawing on power from the diesel generators, and postponed the anticipated day when all power for the camp would be generated by the nuclear plant.

The week before the fire the U.S. Atomic Energy Commission had cancelled a contract for a portable nuclear power plant at Byrd Station because of cost increases, schedule slippages and dissatisfaction with the design as developed.

Fears proved unnecessary when a three-man geological party working up the Shackleton Glacier failed to report to McMurdo for 11 days. An aeroplane was flown out in search of the party and found them neither lost nor in any sort of trouble but a faulty radio.

HIGHLIGHTS OF 1962-63 RESEARCH

The U.S. National Science Foundation has announced research grants and contracts totalling four million dollars for the 1962-63 Antarctic research season.

These grants have been made to universities, research institutions and government agencies for basic research on the Antarctic continent, nearby land and sea areas and for associated work in the United States on materials and information gathered previously.

Scientific disciplines granted awards include biology, geology, glaciology, mapping, meteorology, oceanography, upper atmosphere physics and seismology. Scientists will attempt to solve, among other problems, those relating to the amount, increase or decrease of ice in the continental ice-cap, to the possibility of there being a deep sub-ice trench from the Ross Ice Shelf to the Weddell Sea, and to the salinity and warmth of ice-covered lakes in the dry valley system.

Biological research, centred in McMurdo Sound, Hallett Station and the research ship "Eltanin", will include study of fresh-water lakes, soils,

lichen growth, birds and marine biology.

GEOLOGICAL RESEARCH

Geology, a major field of research under USARP, will be further studied by a number of parties covering many thousands of miles of the continent.

A U.S. Geological Survey team will work on the Pensacola Mountain range, by foot and motor toboggan, while University teams will move into the hitherto unexplored Heritage Range of the Ellsworth Mountains and the Mt. Weaver area of the Queen Maud Mountains (seeking geological relationships between this area and others lying east and far north-west), McMurdo Sound, the Dry Valleys of Victoria Land and the South Antilles Basin between Antarctica and southern America.

Three main categories are projected for the 1962-63 season: four major field expeditions; five special detailed studies of various aspects of the geology of the continent; and six intensive laboratory studies in the U.S. to back up Antarctic field research.

TRAVERSES

Several ambitious over-snow traverses are planned for this summer.

With 12,000 miles behind them already, U.S. scientists plan this season to cover another 1550 miles by over-snow traverse.

The University of Wisconsin is sending a team to make a 1200 mile traverse. This will cover a roughly triangular area beginning at the South Pole, extending northward along the 165th meridian West, turning eastward to skirt the south extension of the Queen Maud Mountains, and after a short northerly leg, continuing east to a point at $60^{\circ} W-86^{\circ} 30' S$, to follow the 60th meridian back to the pole. A brief return to the Pole in late December for refueling will break the traverse into two stages. The first stage will cover 650 miles and the second 620 miles.

The seven-man party, travelling in three diesel powered Sno-cats will, include two seismologists, two glaciologists, a geomagnetician from the U.S. Coast and Geodetic Survey, and two traverse engineers. The two glaciologists are from the Ohio State University Institute of Polar Studies. The primary goal of the traverse is to describe the area visited where no observations have heretofore been made. An additional goal of the traverse party is the resolution of conflicting U.S., British, and Russian reports of the rock surface elevation beneath the ice in the area of the South Pole.

NAVY TEAM

A seven man U.S. Navy team under the command of Major Wilbur E. Martin plans to cover more than 1300 miles with three traverses.

Equipped with Trackmasters, which exert only one pound of pressure per square foot of snow, two D-8 Caterpillar tractors, two four-man Wanigans for sleeping and eating and several sleds for haulage, the party is scheduled first to rehabilitate Little Rockford Weather Station, and then to establish a new overland route to Byrd Station, half the length of the present Army-Navy

Trail. This new route will cover totally unfamiliar, uncharted territory, at the edge of which it is hoped that contact will be made with a shore party from the icebreaker "Glacier", which will have to penetrate the heavy ice pack of the Amundsen Sea, a feat never previously achieved. Should the "Glacier" be unsuccessful in this, the traverse party will have to retrace its tracks to Byrd Station, thus bringing its mileage to 1700 miles instead of the 1300 otherwise planned. The 400 miles between Byrd and the coast will provide the team with crevasses to fill as well as topographical and exploratory information (altitude, snow conditions, etc.) to obtain.

TOPO EAST AND WEST

Topographical engineers of the U.S. Geological Survey will fly by helicopters among the Queen Maud and Horlick Mountains south of the Ross Ice Shelf and in north Victoria Land in a two-part project designed to provide map control for an area of about 100,000 square miles.

The work will provide the precise location and elevation of points from the ground needed (along with aerial photographs) to prepare accurate topographical maps of the area. The engineers will obtain the critical control necessary through the use of Electro-tape System, an electronic measuring device accurate to two inches in 20 miles.

EIGHTS STATION

The establishment during this summer season of the Eights station in Ellsworth Land, near the foot of the Antarctic Peninsula (Graham Land or Palmer Land) 1525 miles from McMurdo Sound is expected to be a difficult job. Poor weather at the Sky-Hi temporary camp is being repeated this year. Snow accumulation is up to seven feet, and this is exceptional when the normal accumulation in the Antarctic is from a few inches to about two feet.

The Eights base is not expected

to be ready as a permanent scientific station until the end of the summer season. The Air Force will soon begin making supply drops in the area. Fifteen persons, 14 Navy men, were at the location in mid-November and they will retrieve the fuel dropped by the Globemasters and stack it. This job should last until about the end of November. The prefabricated housing units will be flown in by Hercules aircraft. These units are aboard the U.S.S. Arneb, which is due at McMurdo about mid-December. In December, Mr. K. N. Moulton, of the National Science Foundation, will arrive at Eights station to supervise the setting up of the scientific equipment. The station will be manned year-round by five scientists and six Navy support personnel.

NEW STATION?

After Eights station has been established, the next important project to be carried out, probably in the next operational season, will be the establishment of a permanent biological station on the Palmer Peninsula. In readiness for this, a site-survey team will be operating this season from the "Edisto" off the Peninsula. The station will be only a small one, with perhaps 15 to 40 persons working from it.

WINTER FLIGHTS?

When Mr. Philip M. Smith, senior representative of the U.S. National Science Foundation at McMurdo during the first part of the current season, passed through Christchurch on his return to Washington on November 12, he told the press that in his opinion no major advance in Antarctic scientific research was now possible unless winter flights were made from New Zealand to the Antarctic.

This, he pointed out, would mean getting new equipment, bringing in new navigational techniques and developing new concepts of operating the skiway at McMurdo Sound.

Whether such flights were feasible, he added, was not in his province, but was a matter for the Navy.

FRENCH PLANS

About 30 French scientists and technicians will arrive in Hobart on the Danish polar exploration ship "Magga Dan" at the end of November.

"Magga Dan" will load supplies in Hobart before sailing for Antarctica. She left France on October 12.

Paul-Emile Victor will join the ship in Hobart before she resumes her voyage to Adelie Land.

Nineteen of the Frenchmen will remain there until December next year, when another exploration ship will call to return them and land new staff.

The party consists of cosmic ray experts, marine biologists, meteorologists, geophysicists, geologists, glaciologists.

The remainder of the party are construction workers, hydrographers and cartographers who will return early next year after a "summer campaign."

The "Magga Dan" is expected to leave Dumont d'Urville about the end of January.

The winter party will probably number 19. Dumont d'Urville will be the only base occupied. Transport at the base consists of two Sno-cats, three tractors and three weasels.

The main building work will be largely preparatory to more extensive re-building in the 1963-64 summer. A quay for unloading purposes and a garage will be built, a flying-fox installed, and the foundations prepared for two laboratories and a balloon-inflation shelter. Some of the existing buildings will be shifted or demolished to enable the necessary levelling to be done in preparation for the following summer's big construction programme.

The first French-woman to visit the Antarctic will be a member of the summer party. She is Christiane Gillet, Chef du Bureau Technique of Expéditions Polaires Françaises. Mlle. Gillet was in the Arctic in 1958, 1959 and 1960.

RUSSIANS PLAN TO WINTER AT FOUR STATIONS

The leader of the eighth Soviet Antarctic Expedition, Dr. M. M. Somov, speaking in Moscow on November 6, gave an outline of Soviet plans for the 1962-63 season in the Antarctic.

During the past year Soviet research scientists have been working at only two Antarctic stations, Mirny ($66^{\circ} 33'S, 93^{\circ} 01'E$) and Novolazarevskaya ($70^{\circ} 46'S, 11^{\circ} 49'E$). The eighth expedition, however, will be re-activating two other stations, Vostok and Molodezhnaya, in preparation for IQSR, the International Year of the Quiet Sun. The two stations will have to be prepared, equipped and provided with all essentials within the short period of the Antarctic summer: a difficult task because the thickness of the off-shore ice and the meteorological conditions, for example, can not be estimated in advance.

The two vessels "Ob" and "Estonia" were expected to leave Russia a few days after Dr. Somov spoke. On their arrival at Mirny, a column of cargo-laden tractors would set out for Vostok. One item of this cargo would be a complete hut constructed of fire-proof materials. The winter personnel would be air-lifted to Vostok.

Tractors, fuel, provisions and scientific equipment will be off-loaded at Mirny in December. A considerable proportion of the cargo landed here will be destined for the inland Vostok Station ($78^{\circ} 27'S, 106^{\circ} 52'E$), situated at the South Geomagnetic Pole, where the world's lowest temperature ($-88.3^{\circ} C$ or $-127^{\circ} F$) has been recorded. The station is situated at an altitude of 11,500 feet. At this height, said Dr. Somov, "the healthiest of men soon feel their strength drain away."

Two Czech scientists will be wintering at Vostok with the Russians.

The Leader at Vostok for 1963 will be V. V. Sidorov.

FIELD WORK

After unloading at Mirny, "Ob" will voyage round the Enderby Land

coast carrying out meteorological and hydrographical observations, and will re-open the Molodezhnaya Station, where the Leader for 1963 will be P. T. Morozov.

The fourth base Molodezhnaya, will be fully established on the site in Enderby Land where some of the preliminary work was carried out last summer. The co-ordinates are given as $67^{\circ} 58'S, 44^{\circ} 02'E$. This site, several hundred miles from the Australian station Mawson is approximately half-way between Mirny and Novolazarevskaya.

A group of geologists supported by single-engined aircraft will explore the mountain region to the south of Molodezhnaya. This group, with the construction party, will be flown ashore from the "Ob" by aeroplane and helicopter, but the main supplies will be landed later when ice conditions improve so that the vessel can approach closer to the station.

AUTUMN TREK

It was reported on September 29 that a Soviet team had trekked 125 miles in 10 days through heavy snowstorms to set up an automatic radio weather station on the ice cap.

The party had left the Pravda Coast a week before. The site for the automatic station is south of the Davis Sea coast, at an altitude of 1400 m. The six-man team, headed by Borodachev, leader of the Land Transport Division of the Seventh Expedition, travelled by sledge tractor train. They were held up by blizzards and steep glacier slopes, and had not, at the time of the report, reached their goal.

The members of the Seventh Expedition will leave on their return to Europe on the "Estonia," which is described as a "passenger ship" about the end of January.

AT SOVIET STATIONS

The wintering over party at Mirny totalled 62 comprising the Leader (V. I. Venediktov) and Deputy Leader, 26 other scientists, 11 engineers, 9 radio specialists, 5 mechanics, 4 pilots, 3 cooks, a storekeeper and a clerk.

For winter 1963 it is planned to have 20 scientists and 36 other men at the station.

At Novolazarevskaya there were 21 men, the Scientific Leader A. G. Dralkin, the Station Commander U. M. Rogochev, 11 scientists, 4 engineers, 2 radio men and 2 cooks. 6 scientists and 7 others will winter over.

At the re-activated Vostok Station there will be 12 men, half of them scientists, while at Molodezhynaya there will be 4 scientists and 2 others.

The vehicles at Mirny number 11, 8 tractors and 3 GAZ-47 cross-country vehicles. There are 5 aircraft, an IL-2, an IL-14, an AN-6 and LI-2 and an MI-4 helicopter.

At Novolazarevskaya are an AN-2 and an AN-6, and two GAZ-47's.

Stores at Vostok (at present unmanned) are 3 Kharkovchanka cross-country vehicles and 5 truck-tractors, while at Komsomalskaya there are 2 truck-tractors and 2 Penguin cross-country vehicles.

PROBLEMS

Dr. Somov listed some of the problems still awaiting solution. Are the glaciers diminishing or increasing in size? Is the temperature rising or falling? What is the future of this polar continent, covered, many millions of years ago, with green forests? Of more practical importance, he said, was the establishment of trans-continental air-line routes and the study of the world weather pattern.

During the past seven years most of the buildings at Mirny have become entrenched in deep snow. The snow layer extends about five feet above the roofs of the buildings and is continuing to rise. The foundations of the buildings have long since

become frozen into the glacier. Soon the ceilings will be unable to withstand the mass of accumulated snow. Dr. Somov thinks it may be practicable to dig the huts out and to transfer them complete to new sites.

He claimed that in the seven years since the Soviet flag was first hoisted, the Pravda Coast, where the main Russian base, Mirny, is situated, has become "one of the most homely spots on the ice continent."

WILD LIFE PROTECTION

In accordance with the SCAR request to all countries engaged in Antarctic exploration and research to conserve the wild life in their areas of activity, a request reiterated in the Antarctic Treaty, regulations drafted by the Soviet Committee for Antarctic Research have now (August, 1962) come into force and are binding on all Soviet citizens in the area covered by the Treaty. Bird nesting sites and seal colonies near Soviet Antarctic stations have been declared protected zones. Only in exceptional cases and for scientific purposes is the catching of birds and seals permitted. The use of explosives and firearms, aircraft flights and the transit of vehicles, and the disposal of oil products and other harmful waste, in any way which might injure wild life in the area, are all forbidden.

The responsibility for observing the regulations lies with expedition leaders and the captains of ships and aircraft.

Soon after their arrival in the Antarctic the Soviet expedition declared Haswell Island, the home of a large penguin colony near Mirny, a reserve.

"Pravda" reported on November 27 that the "Estonia" had sailed from Leningrad the previous day with some 200 men of the Eighth Expedition on board, including a team from the Polar Aviation Division headed by A. Marchenko, and the men who will winter over. The aviation detachment will fly men to their posts, aid parties on field journeys, do reconnaissance flights and carry out aeromagnetic surveys.

TWO MAJOR JOURNEYS FROM AUSTRALIAN BASES

Two long traverses are the focal points of the spring activities of the 1962 parties at the Australian Antarctic bases.

From Wilkes Station a geophysical traverse party set out on September 17 for the Russian Vostok station, 900 miles to the south-west, which was reached on November 20. From Mawson a party of eight with heavy vehicles set out on October 16 for the Amery Ice Shelf 400 miles eastward, more than half-way towards Davis Station. Meanwhile during August, the Stations emerged from the winter to meet a returning sun.

LATE WINTER AT MAWSON

During August although light was returning temperatures were lower than ever with a record minus 31.7° F. Nevertheless two field journeys were launched during August. Firstly, four men had a very enjoyable four-day trip to the Auster Rookery over sea ice. Driving the weasel and sno-trac, they did glaciology work, and counted forty thousand Emperor penguins at the rookery, which is located amidst a maze of icebergs. They camped each night on islands and returned very fit and cheerful.

The second expedition left on August 25: a party of three travelled by dog sledge over the plateau to Church Mountain, one hundred miles to the east, in an area as yet unexplored except by air. The party struck a snap blizzard and laid up at the caravan at Fischer's Nunatak for two days.

At Base preparations for the major spring trip to the Amery Ice Shelf occupied all spare time.

IN SEPTEMBER

Spring had now returned to Antarctica and with it the skuas and snow petrels on 8th and Adelie penguins on 21st. There were also Weddell seals in large numbers, some with pups and fifty-seven counted from one spot beyond Rookery Island. On warmer days icicles hung from rocks and buildings and the

first streams were trickling down Gashwater Alley.

Castle Berg, 100 feet high and a mile across and probably the most familiar feature of the seascape since the station was started, split in two on 27th, one half being steeply tilted and separated by a wide gap from the other half.

Two field journeys: Wigg, Williams, Watts, Filson and Nelson took a weasel and sno-trac west over the sea ice to Taylor Glacier where they re-counted penguins and about 4,000 new chicks. Then there was a one-day, 100-mile return trip to Foldoya Emperor Rookery further west.

DAVIS

Like Mawson the year's lowest temperatures came to Davis station during August.

In temperatures below minus 30° F three men walked to the inland lakes to obtain water samples; these lakes are below sea level and two have so far remained frozen even though the water temperature is around zero degrees, Centigrade.

At Davis, August produced almost everything weatherwise except rain and thunderstorms. The men experienced the highest and the lowest August temperatures on record, ice fogs with mock suns and the longest blow of the year. On the brighter side has been the increasing sunlight.

WILKES

August weather proved to be the worst to date, with little sun and winds peaking to 128 m.p.h. August had the lowest station pressures on record, the highest average wind and the greatest snowfall. These constant high winds caused heavy drifting snow and the main station buildings disappeared below the snow

surface, leaving only a few heater exhaust stacks to mark their existence.

In a brief spell of calmer conditions, Fox set off to release a balloon, but discovered that the new Met. Release Building had disappeared. A later investigation showed the building completely broken-up. Many sections had disappeared

and a trail of debris followed the wind direction.

The bulk rubber fuel tank, containing 2,000 gals. of fuel, was again blown off its stand when the tie-down points were torn from the tank body.

Preparations for the inland traverse steadily proceeded and all major work was completed.

From Mawson to the Amery Shelf

On October 16 a party of eight men from Mawson left on a field excursion to investigate the Amery Ice Shelf. The men are expected to be in the field for a period of two months and to cover a distance of about 800 miles.

For transport the party are using dog teams and mechanical vehicles. The tractor train consists of two D-4 tractors, a snowtrac, two living caravans and five sledges.

The excursion is led by Carstens, surveyor, other members of the party being Trost, electronic engineer, Landon-Smith, glaciologist, Foley, weather observer, Harvey, radio operator, Single, diesel mechanic, Freeman, electrical fitter, and Walker, cook.

The principal objectives of the journey are to establish a heavy vehicle passage over the Antarctic Plateau from Mawson to the Amery Ice Shelf, where glaciological studies will be made while the party spends about three weeks in that vicinity. On the ice shelf the party will initiate studies aimed at determining the rate of flow of ice as it moves slowly seawards and the rate of accumulation of snow on the surface.

During the journey the altitude of the ice plateau will be frequently measured and weather observations will be made at six-hourly intervals. Astrofixes of rock outcrops discovered will be of value for mapping this area. The geology along the route will be studied and collections of lichens made.

The Amery Ice Shelf was first sighted 33 years ago. Lying between Mawson and Davis, it is a floating

apron of ice 1,000 feet thick and about 20,000 square miles in area. The ice shelf is fed by a number of glaciers including the Lambert Glacier, one of the biggest in the Antarctic. It is distinguished from other ice shelves by the large-scale melting taking place on the slopes surrounding it. In summer there are rivers and lakes of melt water.

Another striking feature on the surface of this shelf is a number of large circular or oval depressions resembling meteor craters but believed to be due to collapse of the ice. The uncertain origin of these glacial features is one of a number of problems which the current expedition may be able to solve.

Further news of this party was released on November 19. For seven days a blizzard had raged around the party of eight men heading for the Amery Ice Shelf. In the preceding two weeks, because of blizzard and the freezing temperatures which accompanied it, the men had constantly to seek shelter and could travel only nineteen miles towards their goal. Temperatures fell as low as 75 degrees fahrenheit below freezing point and averaged 42 degrees below freezing.

The party had reached an altitude of 5,000 feet above sea level in a very windy and dangerous part of Antarctica. Crevasses were a major hazard.

During an October field journey an Australian mechanic repaired an engine gear-wheel of a broken down weasel with silver paper off a meat-bar and old nails.

Trek Across the Ice Cap from Wilkes to Vostok

A party of six, led by New Zealander Bob Thomson, left Wilkes Station on September 17 to travel 1800 miles across the Ice Cap.

The traverse, which will go further south than any other Australian expedition, will be one of the most important ever undertaken from an Australian station.

The seismic ice depth measurement work will link up with that completed by the 1961 Australian National Antarctic Research Expedition and with seismic traverses by the Russians from their Vostok station.

The party comprises Robert Thomson, the New Zealand officer in charge at Wilkes station and leader of the party; Walker, geophysicist; Battye, glaciologist; Foster, U.S. weather technician, of Ohio; Collins, diesel mechanic, and Evans, mechanic-driver.

After travelling a short distance east from Wilkes, the party headed due south, following the route traversed by two Australian parties in 1960 and 1961.

The furthest point previously reached was about 350 miles south of Wilkes.

SLOW PROGRESS

First reports of progress were released on October 15. Blizzard conditions on the Antarctic Plateau south of Wilkes had retarded progress.

In the first week they travelled 120 miles but in the second, third and fourth weeks the distances covered were only 51, 44 and 57 miles respectively. Blizzard and other hostile weather conditions made it possible for them to travel on only about 18 out of the first 28 days that they had been in the field.

Large sastrugi, which are carved out on the hardened snow surface by wind, had also slowed up the

progress of the party's snow vehicles. Strong winds had piled up snow drifts reaching to the roof of their caravan.

By October 28 the party was 400 miles south of Wilkes.

Greatly improved weather conditions during the past week had favoured progress. In the week they had travelled 126 miles, compared with about 50 miles for each of the previous three weeks, when their progress had been frequently held up by blizzards. The considerable distance travelled was all the more creditable because the vehicles had constantly to negotiate high sastrugi preventing them from advancing at more than two miles per hour.

The party had measured ice depths by gravity observations every 5 miles from Wilkes up to 354 miles, the southern-most point reached by last year's group. Over the second stage of the journey, seismic shots were fired every 20 miles.

By November 4 the party had covered over 500 miles. During the week they travelled 105 miles and encountered temperatures as low as 114 degrees below freezing point.

The main obstacles confronting them were high, jagged snow ridges on the southern side of wide ice valleys that crossed their path.

AMERICAN FIELD SUPPORT

From the outset it had been planned that after the party had travelled 600 miles the U.S. Naval Support Force would assist by an airdrop of drums of fuel.

Accordingly on November 4 a round flight of nearly 2,000 miles was made by a United States Globemaster aircraft to drop tractor fuel to the Australian field party.

This airdrop was carried out by the Ninth Troop Carrier Squadron of the United States Air Force by arrangement with the Commander of the U.S. Naval Support Force in Antarctica, Rear Admiral D. M. Tyree.

Although the small six-man party and its tractor train was only visible from the air as a small spot on a vast ice plateau, the aircraft had no difficulty in locating it. The party was then 572 miles inland and supplied the aircraft by radio with information on weather conditions and an accurate determination of latitude and longitude.

Arriving over-head at 9.30 p.m. the aircraft dropped 36 drums of fuel in all (1,364 gallons) after making three runs. On each run the plane released three canopy parachutes each carrying four drums in a pallet. One parachute failed to open and its load of four drums, bursting on impact, plunged many feet into the snow.

VOSTOK WON

On November 18 the traverse party reached Vostok.

As the party approached their goal the men were thrilled to see the radio antennae of the Russian station protruding from the ice 12 miles away. The rest of the station was buried beneath the snow. Vostok is manned during the summer months only, and was unoccupied when the Australians arrived.

Bad weather, heavy snow, hard wind-packed snow ridges and low temperatures had been successfully overcome. The plateau over which they travelled had reached an altitude of 12,000 feet. At one point the underlying rock lay three miles beneath the ice surface.

The team had a few days' rest at Vostok before commencing on November 25 the long haul back to Wilkes, where they are due by January 15.

SUMMER PLANS

This summer the annual relief of the Australian bases will be carried out by two motor vessels under charter from the J. Lauritzen Company of Denmark. "Nella Dan" and "Thala Dan." A Beaver aircraft and

two Bell 47-G-2 helicopters will operate from the "Thala Dan."

SHIP MOVEMENTS

"Thala Dan" is scheduled to leave Melbourne on December 21, and to proceed via the French base Dumont d'Urville, Lewis Island and Chick Island to Wilkes Station. After a fortnight (January 14-29) at Wilkes, the ship proceeds via Chick Island, Albov Rock, Lewis Island and the Oates Land coast to Macquarie Island, and is due back at Melbourne on March 6, 1963. On Chick Island and Lewis Island there are fully automatic weather stations, visited annually for maintenance and repair.

"Nella Dan" is to leave Melbourne for Heard Island on January 7 and then proceed to Mawson, where she is scheduled to remain from January 20 till February 8. She then goes on to Davis, the Russian base Mirny, and Wilkes, then calling at Heard Island and the French base at Kerguelen before reaching Hobart on March 20.

PERSONNEL

The Officer in Charge at Davis in 1963 will be W. F. Young, and at Wilkes J. P. C. Curlewis. The total personnel at the Australian stations on the Antarctic continent will be

Mawson	26
Davis	9
Wilkes	24

Three of the Wilkes team will be Americans.

During the coming summer it is proposed to continue the hydrographic survey of the approaches to Wilkes, and a geodetic survey of the area will be made. It is proposed to carry out further trimetrogon flights along the coast of Wilkes Land, George V Land and Oates Land.

The Australians have two launches and three 14ft. powered dinghies for use in the Antarctic. Surface (land) transport includes weasels, D-4 tractors, field caravans and "Snowtracs", and for 1963, in addition, a Skidoo motorised toboggan (at Mawson), a Nodwell tracked carrier and, for camp use, a Bombardier snow tractor (at Wilkes), and a motor-cycle and side-car (at Davis).

THE S.A.N.A.E. NEWS

Some idea of the weather conditions at the South African "S.A.N.A.E." station may be gained from this summary of the meteorological records in June:

Mean temperature -18.6°C ; mean maximum -14.4°C ; mean minimum -24.2°C ; highest maximum -7.2°C ; lowest minimum -36.5°C . mean pressure 997.7 mb; highest pressure 1022.4 mb; lowest pressure 967.5 mb. Low level winds: average velocity 30 knots, highest gust 89 knots. Relative humidity average 72%. Number of days with driving snow, high and low: 25.

This was regarded as "good weather" (see below).

Serious difficulties are still being experienced with the launching of balloons, because room in the balloon-cabin is very restricted. As soon as the sliding doors are pushed up and there is a wind of more than 15 knots a crosswind is caused, so that the balloons are forced against the walls and burst in most instances. This almost frustrates launching when there is a strong wind. Otherwise all instruments are working well and all launchings could be recorded until the balloons burst.

On July 3 du Preez reported:

"During the fortnight there were only four days with reasonably good weather. Today, however, the wind gave us a chance to do some outdoor work. Two of the sledges which had been placed on a scaffolding were blown down during the latest gales. Today they were replaced on a scaffolding together with the dog sledge.

"A large cable drum was excavated again and rolled to the surface. A large quantity of snow and ice driven by the wind formed during the gale at the western side of the base up to a distance of 250 ft. The aerials nearest to the base are now 3 feet above the surface. They will be made longer soon. The emergency exit between the lavatory and the accommodation building is at the same level as the surface of the snow. This exit will no longer be used until extensions are available.

Sufficient extensions will be ordered for 1963. There are still 4 exits which can be used."

On July 19 the base radioed:

For the 13 southernmost South Africans things are still not as rosy as we could wish. Contrary to the good weather of June, July started with continuous winds of approximately 40 miles per hour during several consecutive days.

SANAE WEATHER

Mean temperatures for both July and August were -27.9° (-18.2°F). The lowest temperature recorded in July was -47.1°C (-52.7°F) and in August -45.7°C (-50.2°F).

On August 21 four men visited the old Norway station to collect building material, paint, oscilloscope and tractor parts. The trip took about three hours each way (15 miles). The men found that the snow is still settling and sinking lower at the old Norwegian base, but all the corridors and entrances were still readily usable. (Norway evacuated the station in December, 1959).

HUSKY TRAINING

At the end of August the dogs were let out in pairs to run about for exercise. Eight dogs were spanned for their first short run of 4 km.

Amusement was caused after a heavy snowfall when the young huskies sank in the loose snow and were often left hanging as their short legs could not reach the firm surface underneath. Men sank in knee-deep.

The sun returned on July 26.

JOURNEY PLANNED

A major part of the remaining time will be spent on short trips in various directions. The climax will be reached by the departure for the mountains approximately 90 miles to the South of S.A.N.A.E.

S.A.N.A.E. PLOTTED

From the astronomical observations it appears that the co-ordinates of the S.A.N.A.E. base are: $70^{\circ} 18' 32''\text{S}$ and $2^{\circ} 21' 30''\text{W}$.

EXTENSIVE FIELD WORK PLANNED BY BRITISH ANTARCTIC SURVEY

Six United Kingdom main bases and one subsidiary base will be relieved this summer and manned throughout the 1963 winter by a total working party of 87.

The Hope Bay base and the subsidiary View Point hut at Duse Bay will be kept open during the summer but then closed as work in the area has now been completed. Extra living accommodation is to be built on to the Adelaide Island base hut.

The relief is again being carried out by three ships. R.R.S. "Shackleton" sailed from Southampton on October 9 with 12 men for the bases, and R.R.S. "John Biscoe" on October 30 with 18 men. The "Shackleton" also carried a 3-man U.S.A.R.P. ornithological party destined for Bird Island, South Georgia. The "Kista Dan" has been chartered for a fourth season and is due to sail on December 6 with 19 men for the bases. Of the 49 men going south this year, no fewer than 14 are ex-British Antarctic Survey men who have been re-engaged. In the case of Ken Blaiklock it will be his ninth season south; he has already spent 8 winters in the Antarctic (2 of them with the Trans-Antarctic Expedition and 2 with the Belgians), but this time is going south for the summer only.

IN TRAINING

A three-day meeting for new recruits was held at Cambridge in mid-September and this included lectures, discussions and film-shows on every aspect of the Survey's activities. This year we were very pleased to welcome Mr. P. G. Law (A.N.A.R.E.) and Drs. W. J. L. Sladen and G. Llano (U.S.A.R.P.) as guests. We were also very pleased that Sir Raymond Priestley was again able to be present and give a talk on his experiences with the Shackleton (1907-09) and Scott (1910-13) expeditions and, more recently, with the Americans (Deep Freeze IV) and with

H.R.H. The Duke of Edinburgh on board "Britannia" (1956-57).

The "Shackleton" and "John Biscoe" are now well on their way but "Shackleton" unfortunately had to enter dry-dock in Montevideo for repairs to her propeller which developed a fault a few days out from Southampton. This delay will reduce the time available for seismic and magnetometer traverses as, of course, priority must be given to relief activities.

SCIENTIFIC PROGRAMME

Some indication of the wide coverage of scientific work at the British stations is given in this summary of programmes at the eleven stations.

STANLEY, FALKLAND ISLANDS

Synoptic meteorology (surface), Upper air observations (radio-sonde unit), Forecasting service, Climatology, Radiation, Seismology, Aurora and airglow observations (visual).

SOUTH GEORGIA

Syn. met. (surface), Forecasting (whaling season), Biology (Fur seals).

DECEPTION ISLAND

Syn. met. (surface), Sea ice observations, Aurora and airglow (visual), Glaciology, Biological project survey.

ARGENTINE ISLANDS

Syn. met., Upper air obs. (radio-sonde: radar winds), Ozone, Geomagnetism, Ionospheric recording, Solar radiation, Aurora and airglow obs. (visual and all-sky camera), Ice sounding by radar techniques, Radio echo, Glaciology, Biology, Human physiology, Survey and geology—Tottan Mountains.

SIGNY ISLAND

Syn. met. (surface), Sea ice obs., Biology, Glaciology, Bird ringing, Aurora and airglow obs. (visual).

HOPE BAY

Magnetometer survey, Gravity sur-

vey, Weather (autographic records only), Sea ice obs.

ADELAIDE ISLAND

Glaciology, Sea ice obs., Syn. met. (surface), Air support for field work at Fossil Bluff and on the East coast of Graham Land.

FOSSIL BLUFF AREA

Geology, Topographical survey, Weather log only, Aurora and air-glow obs. (visual).

EAST COAST CENTRAL GRAHAM LAND

Topographical survey, Geology, Field magnetic and grav. ty obs.

STONINGTON ISLAND

Support for field work at Fossil Bluff and on East coast as necessary.

Scientific work will also be carried out on the four ships engaged in British Antarctic Survey activities.

SURVEYS PLANNED

Field work by ground parties will be concentrated in three main areas—in the central part of the east coast of Graham Land, in George VI Sound and Alexander Island which lies to the west of it, and also in the Tottan Mountains about 300 miles inland from Halley Bay.

Six surveyors, led by Blaiklock, will spend the summer working on the east coast of Graham Land at approximately 66°S, filling in gaps in the existing surveys. This party will be flown in from Adelaide Island and will be provided with a small pre-fabricated hut. For transport they will have two dog teams and an Eliason motor sledge. None of the men will winter there in 1963: 5 will winter at the Stonington Island base and Ken Blaiklock will be returning home.

A party of Hope Bay geologists will extend their mapping of the east coast of Graham Land southwards into this area, their field-work between Hope Bay (63° 24'S) and Cape Disappointment (65° 33'S) having been completed. The network of gravity stations from Hope Bay will also be extended into this area at the same time. The detailed magnetic survey of Trinity Peninsula will be carried south to Cape Disappointment, if possible, and into

the parts of north-east Trinity Peninsula and the James Ross Island group not already covered.

Magnetometer and gravity surveys will also be undertaken from the ships along the Scotia Arc, in the Bransfield Strait and elsewhere.

Work will continue on a tellurometer survey of George VI Sound. The base at Fossil Bluff in the Sound will also be the starting point for work by geologists and surveyors on Alexander Island to the west: geological reconnaissance will be continued south of latitude 71° S and topographical survey will be extended southwards and westwards. Mapping will be on scales 1/200,000 and 1/100,000, but areas of special interest will be mapped at 1/25,000.

Further north, the survey of Adelaide Island will be extended to link the survey of Marguerite Bay, George VI Sound and Alexander Island to the triangulation further north. If possible, air photography of Adelaide will be undertaken this year, as apart from one flight down the east coast the 1955-57 air survey of Graham Land extended only as far south as the north of the island.

IN THE FIELD

From Halley Bay, field parties with dog-teams and Eliason toboggans will start work on the Tottan Mountains—geologists in the western part and surveyors in the south. These mountains were explored for the first time last year. Stores will be moved into the area by Muskeg tractors immediately after the visit of the "Kista Dan" which is scheduled for the end of January.

In addition to the above projects routine work will be carried out at all bases. Full geophysical programmes will be continued at Halley Bay and the Argentine Islands bases. Glaciological observations will be carried out at five bases including these two, and new radar equipment for ice-sounding will be tried out on journeys from Halley Bay. (This equipment will be towed by a Muskeg tractor and will operate continuously).

Biological work, described in the September issue of "Antarctic" will be continued at Signy Island, South Orkneys. Work from the ships will

include, if possible, the link up by naval parties of several local surveys in the South Shetlands and the charting of the south and south-west coasts of Adelaide Island.

NEWS FROM THE BASES

Surveyors from Hope Bay completed work on Joinville Island, and attempts are also being made to complete the triangulation of northern Adelaide Island before the tellurometers are flown south to Fossil Bluff for use in George VI Sound.

The two "Otter" aircraft which were again housed at Deception Island during the 1962 winter, returned to Adelaide Island on September 19 in preparation for summer activities. Stores are to be flown south from Adelaide to Fossil Bluff and also over to the east coast for the summer field parties.

In preparation for work in the Tottan Mountains a depot has been laid 120 miles along the route from Halley Bay. A second party from Halley Bay recently crossed the residue of the once-extensive Stancombe Wills Promontory (ice shelf) which was observed by Shackleton at 74° 04'S, 22° 48'W, but has since broken up.

SKIN-DIVERS

Two skin-divers, the first men to explore Antarctic waters by means of aqua-lung suits, left Southampton on October 9 aboard the research ship "Shackleton."

They arrived aboard to find there had been a delivery hitch over their suits which will be sent by another ship in three weeks' time.

Working from Signy Island in the South Orkneys, the divers will collect specimens of animal and vegetable life from the sea. They will go down as far as 60 feet to get specimens previously obtainable only by dredging. They expect to be able to stay down only 20 minutes at a time "to start with."

The "Shackleton" is making her annual relief voyage to British bases, where the scientists and technicians will spend up to two years. She is commanded by New Zealand-born Captain David Turnbull, who is making his fourth visit to the Antarctic.

AFTER ALL THAT !

During the 1961-62 summer, two young Britons risked their lives trekking across 300 miles of Antarctic wastes from Halley Bay to the Tottan Mountains to chip rock specimens from the icy peaks.

Then the "Kista Dan" bringing the team and their hard-won specimens back to England was trapped by the 25ft-thick pack-ice. Only when the American icebreaker Glacier crunched its way to the rescue could the "Kista Dan" sail on to Southampton.

There, British Road Services took over the three brightly painted crates containing the rock specimens which glaciologist Dennis Ardus, 24, and 31-year-old radio operator Colin Johnson had risked so much to get.

On the 135-mile journey from Southampton to Birmingham by road, the rocks, carried safely for 9,000 miles, disappeared.

For six months the hunt for the missing rocks has been going on in sidings, warehouses and railway stations up and down Britain without success.

A spokesman for British Road Services said on October 9: "I'm afraid we have lost them."

So that is that.

SWISS EXPEDITION

IN 1963-4?

The Geneva correspondent of the London "Times" reported on October 5 that the first Swiss expedition to the South Pole is being organised by the Polar Exploration Society recently founded at Lausanne. Fifteen scientists, doctors, and technicians have so far been accepted for the party. They will spend a year in preliminary training before sailing from Marseilles for Adelle Land on October 15, 1963. The expedition, equipped with six tracked vehicles, hopes to cover about 2,400 miles.

ARGENTINE PLANS

The programme of scientific research planned for 1963 by Instituto Antartico Argentino is essentially the same as in 1961 and 1962. The same ships are to be used:

Icebreaker "General San Martin,"
Transport "Bahia Aguirre,"
Survey-ship "Chiriguano,"
Tanker "Punta Médanos,"

Oceanographic ship "Capitan Canepa," and as before there will probably be two DC-3 and one DC-4 Navy planes, five Beavers, and two Sikorsky 55 helicopters.

The General San Martin, Almirante Brown, Teniente Camara and Melchior bases will again not be in operation.

A programme of Antarctic research is being planned in connection with the International Quiet Sun Year.

The Argentine bases regularly occupied in recent years are as follows:

ORCADAS, opened February, 1904, 60° 45'S, 44° 43'W, on Laurie Island, South Orkney group. 13 men.

DECEPTION, opened January, 1948, 62° 59'S, 60° 43'W, on Primero de Mayo Bay, Deception Island. 15 men.

ESPERANZA, opened March, 1954, 63° 24'S, 56° 59'W, on Hope Bay. 21 men.

GENERAL BELGRANO, opened January, 1955, 77° 58'S, 38° 48'W, on the Filchner Ice Shelf. 13 men.

ELLSWORTH, opened as a United States base April, 1957, on the Filchner Ice Shelf, 77° 39'S, 41° 02'W. Administered by Argentina since 1959. 32 men.

TENIENTE MATIENZO, opened March, 1961, 64° 58'S, 60° 03'W, on Larsen, one of the Seal Nunataks protruding above the Larsen Ice Shelf, to the west of Robertson Island. 24 men.

Other stations not at present occupied are:

MELCHIOR, opened March, 1947, 64° 20'S, 62° 59'W, on Observatory Island in the Melchior Archipelago.

GENERAL SAN MARTIN, opened March, 1951, 68° 08'S, 67° 08'W, on Barry Island in the Debenham group, Marguerite Bay. Destroyed by fire in February, 1959.

ALMIRANTE BROWN, opened April, 1951, 64° 53'S, 62° 53'W, on Paradise Harbour on the west coast of the Palmer Peninsula.

TENIENTE CAMARA, opened April, 1953, 62° 36'S, 59° 54'W, on Half Moon Island on the east side of Livingston Island, South Shetland Islands.

In addition, about 40 temporary stations, most of them merely emergency shelters, have been erected, and most of them are stocked with food and fuel. Three (Captain Campbell, Petrel and Jubany) were temporarily occupied during the 1961-62 summer, while one (Conscripto Ortiz) was destroyed by an avalanche in that period.

JAPANESE MAY RETURN

It was reported from Tokyo on November 13 that three Japanese would leave on November 14 for Christchurch to inspect Antarctic bases with the co-operation of the United States.

The Ministry said the three Japanese would be Mr. Masami Rayama, chief of the third and fifth Japanese wintering team on the Japanese Antarctic base of Ongul Island, Mr. Yasuhiro Nakasone, former director of the Science and Technology Board, and Mr. Shun Hasegawa, former Parliamentary Vice-Minister of Education.

They were expected to visit United States and Soviet bases in the Antarctic as well as the Japanese base now closed, before returning to Japan on December 6.

Whether Japan will re-open the Showa base may largely depend upon the report brought back by these investigators.

Summer Programmes Planned for Chilean Bases

Chilean Antarctic activities for the 1962-1963 season will be in the hands of technical and scientific personnel of the Armed Forces and the University of Chile.

The Antarctic Task Force (Navy) will comprise the transport "Piloto Pardo", the oceanographic vessel "Yelcho", and an ocean-going tug of the "Lientur" class, with two Bell 47J helicopters on the "Piloto Pardo." The total complement of the three vessels is 34 officers and 290 men.

The task-force, under the command of Cap. Nov. Sr. Victor W. Amenabar, is due to leave Valparaiso on December 1 and to arrive in Antarctic waters on December 20. The fleet is scheduled to leave for Chile on March 1, 1963. The route in the Antarctic will be Drake Sea, Bransfield Strait, Gerlache Strait, Grandidier Channel, Bellingshausen Sea.

The Chilean bases to be occupied throughout the coming year are:

BERNADO O'HIGGINS BASE, 63° 19'S, 57° 54'W, on Cavadonga Bay, O'Higgins Peninsula (opened February, 1948). The team for 1963 will comprise eight men under the leadership of Capt. Sr. Ivan D. Urqueta. An Army base.

Construction and maintenance work will be carried out to provide more comfort for the wintering parties. There will also be extension and maintenance work on the out-buildings and shelters. The telecommunication aerials will be overhauled and new aerials erected. The lighting system will be overhauled.

The scientific programme comprises seismology, meteorology, biology and tide studies.

The programme of work for 1963 also includes the following: Overhauling and installation of new telecommunication aerials. Repairs to auxiliary shelters. Overhauling of the lighting installation and repairs to the generators.

ARTURO PRAT BASE, 62° 29'S, 59° 38'W, Chile Bay, Greenwich Island (opened February, 1947). Eight men under Capt. Corbeta Sr. Gaston G. Gallegos will winter here. It is a Navy base.

PEDRO AGUIRRE CERDA BASE, 62° 56'S, 60° 36'W, Pendulum Cove, Deception Island (opened February, 1955), an Air Force base. Seven men under Capt. Band (A) Sr. Mario L. Tobar will comprise the 1963 team.

Attached to this base are three emergency shelters: at the base itself, at Telephone Bay and at Buen Tiempo Cove. Considerable additions are envisaged for 1963, and a programme of volcanological observations will be carried out in conjunction with the Instituto de Geofisica y Sismologia of the University of Chile.

GABRIEL GONZALEZ VIDELA BASE, 65° 49'S, 62° 51'W, on Paradise Harbour, O'Higgins Peninsula (opened May, 1951). Staffed by nine men. The Leader for 1963 will be Sr. Alejandro A. Bobadilla. Since 1961 this station has been run by the Instituto de Geofisica y Sismologia. A marine biological laboratory is to be built. An extensive programme is planned in Meteorology, Seismology, Marine Biology and Glaciology.

In addition there is a sub-base, Yelcho, 64° 52'S, 63° 35'W. It is a Navy station, occupied in summer only, by five men. The sub-base is to be completed this summer.

The scientific programme at the Videla base includes Meteorology, Seismology, Marine Biology, Physiology and Psychology. Geomagnetic studies will possibly be transferred to other bases.

An attempt will be made to finish the programme of glaciology, which is being carried out at this Base, during the two months of Summer. For this purpose three Mining Engineering students have been chosen who will receive topographical training and basic theoretical preparation. It will, however, be necessary to obtain the help of a foreign specialist to direct the topographical work as there is no research centre handling this subject in Chile. The inclusion of this programme will be confirmed later. The difficulties of topographical work in the Winter do not justify keeping up this programme all through the year as was done experimentally in 1962.

SCIENTIFIC RESEARCH MISSION

During the second phase of the relief, the meteorologist and ex-commander of G.G.V. Base, Dr. Manuel Puigcerver, will visit the four Chilean Antarctic Bases together with a senior member of the University. The prime object of this visit will be to study the meteorological and local conditions at each base in order to fix the future position of the radio location station, which is at the moment working at G.G.V. Base, in an area more representative of the Antarctic climate, and also to obtain a better international geographic distribution of upper air observations. At the same time the Antarctic scientific programmes will be controlled, especially those at G.G.V. Base. It is also proposed to visit the British base at the Argentine Islands at the express invitation of Sir Vivian Fuchs, Director of the British Antarctic Survey. For this visit, a special trip to this base will be requested by a ship of the Antarctic Fotilla for about one week.

EMERGENCY HELP

The means for providing assistance at the bases are limited: sledges drawn by dogs, first aid kits and radio sets of limited range. With the exception of the O'Higgins Base and possibly the Gabriel Gonzalez Videla Base, the bases have no doctor. During the Summer, while the Antarctic Flotilla remains in the area, these means of assistance are adequate for any emergencies which are likely to arise.

ANTARCTIC WHALERS

During the past three seasons, three new Russian factory ships have been put into service in the Antarctic, "Sovietskaya Ukraina" in 1959, "Juri Dulgorukij" in 1960 and "Sovietskaya Rossia" in 1961. The Norwegian factory ship "Kosmos III" was sold to Japan in 1961 and operated as "Nisshin Maru no. 3", but the "Kinjyo Maru" was withdrawn, so that the Japanese again used seven ships. The other whaling nations had the following factory ships; with the number of chasers in brackets:

Norway	7 (71)
United Kingdom	2 (22)
Netherlands	1 (15)
U.S.S.R.	4 (67)

The total of 21 factory ships and 261 chasers is the same as in the 1960-61 season with the exception that nine more chasers were operating.

In the area south of 50°S the catch of blue whales in 1961-62 was approximately 750, as compared with 1,000 in 1959-60 and 600 in 1960-61.

The overall figure for pelagic whaling in the Antarctic during the same period is as follows:

1959-60	36,559;	1960-61	38,972;
	1961-62	37,361.	

There has been a steady decline in the catch of humpbacks (1338, 718, 309), but a rise in that of sei whales (3234, 4310, 4709).

The ability of the whales to recover from over-catching is illustrated in the figures from area 1, which was for some years a "closed" area. Here the seasonal catches in blue-whale units have been:

1959-60	322
1960-61	241
1961-62	1809

Apart from the seasons 1955-56 and 1956-57, this was the largest catch ever taken in the area. By contrast, in area V (covering most of the Ross Sea region) the blue whale units captured fell from 2,222 in 1960-61 to 718 in 1961-62.

WHALING TALKS

A meeting of the Scientific Committee of the International Whaling Commission will be held at Seattle, U.S.A., from December 6 to December 19.

NEWS FROM THE SUB-ANTARCTIC

Attack On Big Ben

HEARD ISLAND (Australia)

Heard Island, 2,500 miles southwest of Fremantle, is in the news again. The island was occupied by Australian expeditions for seven years, from December, 1947, till the close of 1954.

It is situated at 53° 01'S and 73° 23'E. During its occupation, successive parties of Australian scientists gradually developed the Heard Island station to a high degree of efficiency. Their continuous meteorological, geomagnetic and seismic records provided valuable information about a featureless region of wind-swept ocean.

This summer another Australian team is to occupy the lonely, wind-swept island. Early next year a six-man scientific party will carry out an extensive scientific programme.

OLD HANDS

The expedition, led by Dr. G. M. Budd, of the School of Public Health and Tropical Medicine, Sydney, will leave on the A.N.A.R.E. ship, "Nella Dan" on January 8. Dr. Budd will be making his third trip to the Antarctic, having served previously at Heard Island (1954-55) and at Mawson (1959-60).

Among the other members will be Dr. Jon Stephenson, senior lecturer in geology at Townsville University College. Stephenson was one of the geologists who accompanied Dr. (now Sir Vivian) Fuchs on the Commonwealth Trans-Antarctic Expedition of 1957-58.

SCIENTIFIC PROGRAMME

The expedition will have two main objectives—

1. Scientific investigations in the fields of geology, glaciology, physiology, biology and meteorology.

2. The first ascent of the 9000 foot active volcano "Big Ben" which dominates the island.

"Nella Dan" will land the party on Heard Island before going on to relieve the Australian stations at Mawson and Davis. The ship will return six weeks later to pick up the party and carry them back to Hobart about March 20, 1963.

The geologist will concentrate on a geological survey of the interior of the island, which has never been reached before, and on a study of the volcanic activity.

Glaciological interest will be directed towards an attempt to determine whether the snow and ice cover of the island is increasing or decreasing and to observing the effects of fire and ice on rock near the summit.

The physiologists will extend to this region their current Antarctic studies concerning man's ability to acclimatise himself to different types of cold conditions—a matter which has by no means been settled yet.

Biologists will study developments in the colonies of giant petrels, prions, skuas, albatrosses, penguins, etc., following the seven year occupation of the island which was terminated in 1955.

BIG BEN

As part of the geological survey the party hopes to get to the higher parts of the island—including the summit of the unconquered Big Ben.

Big Ben, an ice-covered volcanic cone rising to 9000 feet, forms the main bulk of the island, which is 28 miles long by 13 broad.

In 1947 an amphibious 'plane of the Royal Australian Air Force flew over the island and reported smoke rising out of the ice-clad peak of the volcano. It was last known to be active in 1929, when a British ship sailing in the vicinity saw flames

leaping into the air from the mountain cone.

One of the members of the 1947 expedition to Heard Island, Dr. A. R. Gilchrist, will return to the island with the 1963 expedition. Dr. Gilchrist surveyed the first stages of the route to the top of Big Ben Peak, but neither he nor his colleagues was equipped for the difficult ascent.

The route to the top of the volcano will be over glaciers and in the face of threatened avalanches. The climbers will have 20 hours of daylight each day while they make their attempt.

WORLD'S WORST WEATHER?

One thing they can be sure of during their period on Heard Island is bad weather. So frequently is the island obscured by cloud that the first view of it from an approaching ship is of forbidding glacier cliffs or abrupt headlands looming out of the mist.

On occasions, however, the icy summit of the island is visible, rising above low cloud, from immense distances.

Big Ben's dome seems then to float in the sky above the horizoned murk, making one of the most dramatic sights of the stormy Southern Ocean.

Formidable ice-cliffs and buttresses soar 5000 or 6000 feet above the pressure ice of the glaciers.

Attempts to climb Big Ben were defeated in 1948, 1949, 1951, and 1953 by blizzards and poor visibility. In 1953, at a height of more than 5000 feet, Bechervaise, Shaw, and Elliott were buried for five days in a small tent.

ILES CROZET (France)

Thirteen men will live on the Crozet Islands throughout the summer. The main task will be the setting up of an automatic meteorological station and the construction of a cable railway which will facilitate the transfer of material next year from the landing place at la Crique du Marin to the plateau selected as the site of the permanent station.

AUCKLAND ISLANDS

(New Zealand)

DOMINION MUSEUM-D.S.I.R. EXPEDITION, 1962-63

Fourteen members of the party are expected to embark on H.M. N.Z.S. "Endeavour" at Lyttelton on 21 December and it is likely that at least one other will accompany Mr. John Graham who, with the fishing launch "Orion" of Oamaru, is expected to join the expedition at the Auckland Islands. With the use of this vessel, it is hoped to carry out an extensive off-shore programme of dredging, trawling and marine biological work generally. With other marine biologists examining as much of the tidal zone and shore line as possible, this part of the programme is expected to prove very fruitful. The other auxiliary craft of the expedition is a 16' open boat with in-board motor which will be used within the confines of Port Ross for similar work and for the transportation of parties over the short distances to the northern fringe of islands. Both botanists and zoologists expect to make overland journeys from the north to the south end of the main island and it is hoped to establish a camp on Adams Island so that as many members of the party as possible can spend up to a week or more in an investigation of an island which is the one in the group least modified by introduced animals and past human activity.

The period of December-January is the peak of the breeding season of the Southern sea-lion and it is proposed to make extensive observations and population counts, work in which several of the members will be able to assist.

As nothing is known of the present condition of the several buildings erected in 1941 and known to be still standing in 1954, the Dominion Museum is providing some repair material and timber in order that existing buildings may be strengthened and left this time in a useful condition for subsequent parties. It may be possible to maintain the Port Ross establishment as a base

for future field work, the control being vested in the Museum by the Commissioner of Crown Lands, Invercargill.

MARION ISLAND

(South Africa)

A racy correspondent on Marion Island reported to the Weather Bureau Newsletter:

"Marion is altering its shipbuilding dock. The big question is will it float? Mathematically it should be able to carry 500 lb., but if Marion keeps silent for a long time it will prove that this was wrong.

"July was a pleasant month on Marion, which means that it was cold enough, but there was a reasonable low level wind so that the upper air programme could be carried out satisfactorily. So long as the balloons can be launched everybody is happy.

"The few pleasant days we have had were used for a cat hunt. Cats are gradually but steadily occupying the island and cause great losses to birdlife on Marion. On one day and at a distance of less than a mile we discovered fifteen half-eaten penguins and other birds. Up to date five cats have been killed.

"Marion remains true to its statistics, and the mean temperature for the month was 3.5° C. The mean sea temperature was 4.4° C. The maximum temperature was 9.3° and the minimum 5.0°. The humidity percentage was 6% lower than during last month, viz., 86 but there were 12 inches of rain against only 6 in June. At the same time it was more than the average for July. The total of hours of sunshine was 69.5.

"Our local ship has not yet been launched because the men think that it is a little bit too cold for a swim. In the meantime a bottle of dry wine is kept cool in order to break it against the bow.

"During the night of July 16 strong wind and a snow storm broke the anchor wire which held in position two legs of the rhombic aerial so that the wireless station was out of order for five hours. Several water-pipes were also frozen."

CAMPBELL ISLAND

(New Zealand)

The annual servicing ship "Holm-burn" left Wellington October 29 and after a moderate passage arrived at Campbell Island mid-afternoon November 1.

The ingoing team consisted of John Hall, Cook; Case Roobeck, Mechanic-Handyman; Allan Dodds, Ionosphere Observer; John Squibb, Senior Met Observer.

The unloading of stores commenced soon after arrival in perfect weather. The ship left for New Zealand on November 2 and arrived back in Wellington on November 5.

The outgoing personnel were L. P. Rush, Ionosphere Observer; G. W. Voight, Mechanic-Handyman; R. B. Goffin, Met Observer; and S. J. Smith, Cook.

Ian Fisher also came off Campbell with the outgoing party, and after having a short holiday in New Zealand returned to Campbell Island on H.M.N.Z.S. "Rotoiti" for another 12 months' sojourn.

The new party has started its study of Wild Life. A Sooty Albatross was sighted which was banded by Sorensen on November 22, 1942. A Cape Pigeon was also sighted previously banded by the Tory Channel Whaling Station in July, 1958: Band No. 41115. The first White Heron was sighted at Tucker Cove on November 14.

The sea elephants have completed mating and 34 pups have been branded so far this year.

Visiting officers on the servicing ship included Mr. A. MacDonald, Civil Aviation Administration, Stores branch, Flying Officer J. Murray, Medical staff, Air Department and Mr. J. Suttee, Radio Technician division. These officers carried out inspections in their own particular fields.

The following information was passed by the Officer in Charge. "The party is in excellent health and the average weight is 13½ stone. The average age is 33 years."

ILES KERGUELEN

(France)

The relief ship "Gallieni" will leave Réunion on its first voyage of the season on December 10. After calling at the Crozet Islands, Kerguelen and Nouvelle Amsterdam, the ship will return to Réunion on January 13, 1963, leaving again on its second voyage on January 15. The summer commission will extend over about 30 days.

A slip has been constructed at Kerguelen to facilitate the dry docking of the three barges (two of 30 tons and one of 20) and the launch. The slip was opened on November 13. A building to house the teletype receivers is in course of construction.

The principal investigations this summer will be:

A continuation by Prof. Bauer's team of its electrical and gravimetri-

cal survey of glaciers and of its work on ice accumulation and ablation.

An endeavour to link up the archipelago with the world gravimetric network.

Geological prospecting with special attention to thermal activity and the quaternary glaciation Marine biological research.

Routine work will be carried out in the fields of meteorology, ionosphere, magnetism, aurora, cosmic rays, atmospheric optics and radio activity.

The seismological station at Mollo, which is at too great a distance from the main base, will be dismantled and re-erected at Port-aux-Français. The upper atmosphere station will be **out of action** as no suitable applicant is available.

Terre Australes et Antarctiques Françaises have issued three new postage stamps: 8 francs C.F.A. "Sea Elephant Battle," 50 francs C.F.A. "Adelie penguins" and 50 francs C.F.A. "Telstar."

Hazardous Rescue on Windswept Macquarie Island

A biologist of the Australian party on Macquarie Island, Wim Vestjens, left the base in September to spend six months at Bauer Bay, six miles away across a high plateau, in order to study the Royal penguins and especially the factors which control their breeding. More than 7,000 birds have been banded in the past few years, and Vestjens wanted to be on the spot when the banded birds returned to the rookery.

DISTRESS CALL

Early in November, following a distress signal from the isolated hut, Pedersen, the Station leader, and Dr. Nespor went to Vestjens's aid, and sent out a call for further assistance and a stretcher party.

The destroyer, H.M.A.S. Vampire, was returning to Melbourne from exercises in New Zealand when it

was directed to head for Hobart and prepare for the mercy mission.

However, a message received later from the island said the illness was not as serious as was earlier feared and it was not necessary to evacuate him urgently.

TOUGH JOURNEY

The stretcher-party of eight men travelled six miles across the island over a high plateau and reached Bauer Bay in one hour and forty minutes.

After a very short rest, the bearers set out with Vestjens strapped in his sleeping bag on to a stretcher harnessed to the shoulders of four men. As the patient is well over six feet tall the stretcher bearers had a heavy load.

From 4 o'clock in the afternoon until 8 o'clock that night the party followed a tortuous course under bleak skies and in cutting winds.

After stumbling through seal walls and boggy fens, they began the steep and rugged climb upwards to the plateau. Frequent replacements were made as bearer after bearer became exhausted.

Across the plateau the men raced to beat the failing light and fought against the cold to the eastern edge. Here they began an extremely steep descent to the coast again. This last stretch of half a mile dropped 900 feet, along a very narrow track with a slope of one in three which required great care to secure a footing and permitted only two men at a time to handle the stretcher.

On reaching sea level the exhausted rescuers were met by a tractor to aid them in the last mile to the station's hospital.

A report on November 7 stated that Vestjens' condition was satisfactory and improving. His illness was diagnosed as extreme physical and nervous exhaustion resulting from his arduous efforts in the field.

A November report said that Vestjens was "up and about."

ISLAND NEWS

The fence defending the meteorological instruments from marauding seals was once again flattened before the onslaught of bull seals in their exodus from the high living harems on the beaches to the recuperation centres amongst the tussock grass.

The last part of October saw two parties leave the station and both remained out for seven days. The first party painted the interior of the Green Gorge Hut and later painted the outside of the huts at Hurd Point on the southern tip of the island.

The second party, searching both east and west coast lines, counted seals and checked for brands. In all, they counted over seven thousand pups and cows.

Two sea scouts and two Queen's scouts will also be with the summer relief party, and several scientists will make special observations during the time the ship is at the island.

An Army group will man three amphibious "DUKW's" to land stores and equipment.

The Officer in Charge for 1963 will be C. B. Ellwood (35).

TV DRAMA

Osmar White, an Australian journalist who has spent seven months in the Antarctic has written a TV play "Manhaul" with an Australian Antarctic station as its setting. The play opens when the seven men who are nearing the end of their year-long isolation are told that their relief ship will be unable to get through and that they must face another Antarctic winter. Latent antagonisms flare up and—

This tense drama was shown on Sydney, Brisbane and Adelaide stations in September.

TV REALITY

An Australian television team went south on "Glacier" in the earliest-ever penetration of the pack to make a documentary film for Intertel, says the Australian "TV Times." The working title for the film is "Twelve Flags Fly South."

FOR PHILATELISTS

Two regular magazines cater for the needs of specialists in Polar stamps and covers.

"POLAR POST" is the journal of the Polar Postal History Society of Great Britain.

"ICE CAP NEWS" is published six times a year by the American Society of Polar Philatelists.

DOCTOR WANTED

The departure of the relief party for Macquarie Island may have to be delayed unless it can secure the services of a doctor to accompany the party, which is scheduled to leave Melbourne on November 29, by the MV. "Thala Dan."

Normally doctors attached to Antarctic Stations remain there for about one year. Because of the recruiting difficulty, however, the Department is prepared to accept an applicant for the period up to March, 1963.

As we go to press it is announced that Dr. David Cooke has offered to serve for three months, so the relief will proceed as arranged.

Two school cadets will again accompany the relief expedition to the island late in November.

THE READER WRITES

Sidelights of Antarctic Research

Letters of approximately 500-600 words are invited from readers who have observed some little known facet of Antarctic life or who have reached conclusions on some Antarctic problem.—Ed.

A VETERAN RECALLS

Sir,

The visit in February this year by Messrs. Hanley and Burrows of D.S. I.R. to my old magnetic observatory of Cape Denison in Commonwealth Bay, as described in your June issue, is of much interest and awakens many memories.

The discussion in my Report on Terrestrial Magnetism (Vol. I of Series B of the Scientific Reports of the Australian Antarctic Expedition 1911-14) shows that the South Magnetic Polar Area was, in 1912, about 350 miles from Cape Denison. These and subsequent data were considered by the late Dr. C. C. Farr, D.Sc., F.R.S., who discussed location of the South Magnetic Pole in Vol. IV of the Scientific Reports of B.A.N.Z. Antarctic Research Expedition 1929-30. Farr showed that the Pole had moved some 105 miles to the NW by 1939, while later observations by the French in Adelie Land (1950-52) defined the Pole within 80 miles of Commonwealth Bay. Details of the present "fix" by Hanley and Burrows will be of exceptional interest to specialists in terrestrial magnetism.

There is room (and occasion) here for some up-to-date inquiry into the movement of the S.M.P. since 1912. Farr's analysis gives 105 miles in 27 years, equivalent to 3.9 miles per year, while the Hanley-Burrows (and French) location means 355 miles in 50 years (7.1 miles per year), or 250 miles in 23 years (10.9 miles per year).

Perhaps the most interesting item for me personally is the statement that, "they found the old magnetograph hut in good condition and ice-free". This, after 50 years subject to the violent vicissitudes



ERIC N. WEBB

New Zealand magnetician of Mawson's 1911-14 expedition, as an officer in the Australian Imperial Force a few years later. Mr Webb, who was awarded the D.S.O. and M.C. for his war service, is at present visiting New Zealand after many years abroad as a hydro-electric engineer. His home is in Cornwall, England.

of Cape Denison, is a notable record. In fact the "magnetograph house" (described briefly and illustrated in "The Home of the Blizzard," but with more detail in Vol. 1 series B of A.A.E. Scientific Reports) was rather an after-thought

in the Expedition's equipment. I remember well that, when Dr. Mawson had persuaded me to undertake the observatory, as well as the field magnetic work, I had, not only to set up and familiarise myself with the Eschenhagen instruments, but also to design and obtain the materials for a hut to house them—all in a little over a month. Thus, it became a timber frame with T & G boards $\frac{3}{4}$ " outside and $\frac{1}{2}$ " inside, each having tarred paper lining which was fixed with battens, especially along the joints, in order to render it tight as possible. The prime objective was the most equable temperature attainable, to which end the double compartment entrance and the many tons of stone built round the walls made substantial contribution. That the hut was built completely at site from bundles of timber which had no easy passage on the S.Y. "Aurora" is further tribute to the builders and is in contrast to the present day of "pre-fabs."

I do not recall any difficulty with falling ice during my running of the observatory to February, 1913, though some unexplained shifts of base-line on the magnetograms did occur. These were the more disconcerting for the months of Bage's operation, because there was then no dip circle (which had been cached in the vicinity of 67 mile depot to lighten load for our desperate dash to the coast) and thus no "absolute" check on "V" (vertical force).

It is rewarding indeed to learn that our efforts to compete with those fierce elements of wind and temperature have been so much more successful than we dared to hope, in that the old hut still provides effective shelter today.

E. N. WEBB,

Chief Magnetician, A.A.E.

Helford Passage,
Cornwall, England.
September, 1962.

VETERAN'S ASHES SCATTERED

The dying wish of Antarctic veteran Alfred Herbert Larkman has been fulfilled. His ashes lie scattered on Larkman Nunatak high on the great Polar Plateau 300 miles from the South Pole.

Only about two weeks before his death last July, "Bert" Larkman learned that his name had been given, on the suggestion of a New Zealand field party, to one of the Aurora Nunataks. These are a group of five mountain summits piercing the ice cap far to the south of the great glaciers like the Beardmore which feed the Ross Ice Shelf. Mr. Larkman expressed the wish that his ashes might be scattered on the nunatak named after him.

WISH FULFILLED

This was done in the early morning of November 16. A United States Navy Hercules aircraft piloted by Cdr. W. H. Everett, Commanding Officer of the U.S. VX6 Squadron, left Williams Field, McMurdo Sound, on the evening of the 15th bound for the South Pole. Leaving the Pole at 11.45 p.m. on the return flight to McMurdo, the Hercules was diverted to pass over the Aurora Nunataks, the position of which had been carefully plotted from aerial photographs and maps on the outward flight. Also on board the plane was the Scott Base leader, Lt.-Col. R. A. Tinker, and Graham Billing, N.Z. P.R.O. at Scott Base.

As the plane approached the area, the persistent heavy cloud cover thinned to leave only mist swirling among the peaks. This sudden clearing allowed the Hercules to descend from 24,000 to 10,000 feet only a few hundred feet above the peak. The aircraft was de-pressurised, the Larkman nunatak unmistakably identified and Colonel Tinker knelt beside the rear paratroop door on the port side. At a signal from the pilot he scattered the ashes in their opened container over the peak. As the aircraft was banked for the drop the Larkman Nunatak could be

clearly seen. Colonel Tinker knelt for a few moments beside the open door which was then closed and the Hercules climbed to cruising altitude once more.

Colonel Tinker later expressed the appreciation of New Zealand for VX-6 help in thus paying tribute to one who played his part well in Antarctic exploration in the heroic age.

HARRY WEXLER

We regret to announce the death in Boston on August 11, at the age of 51, of Dr. Harry Wexler, Director of Research of the United States Weather Bureau and one of America's most distinguished scientists. Harry Wexler was well known to a great many New Zealanders as Chief Scientist for the U.S. I.G.Y. Antarctic Program, and during his visits to this country and to McMurdo Sound his cheerfulness and warm friendliness won the deep personal affection of many who already admired him for his ability and leadership in the field of meteorology and many related sciences.

A SHACKLETON GESTURE

A speaker at a First World War reunion in Palmerston North recently recalled that while he was a patient in an English hospital "Oatlands Park" in 1917, the badly wounded men were visited by Shackleton soon after his return from his "Endurance" expedition, and were deeply moved by "the modesty, sincerity and self-effacement of the great sailor who found time amid his multitudinous commitments to address himself to our group."

He believes that it was Shackleton's first public recital of the story and that Shackleton made it clear that he visited the hospital because of the kindness shown to his ship's company by the New Zealand people.

BOOKSHELF

HIGH LATITUDE—J. K. Davis, Melbourne University Press. 292 pp. illustrations and maps. Aust. price 45/-.

John King Davis is an honoured name in the annals of Antarctic exploration. As Chief Officer of "Nimrod" 1907-09, Master of "Aurora" and second in command of Mawson's expedition 1911-14, Commander of the Ross Sea Relief Expedition 1916-17, and Master of "Discovery" 1929-30, he has had a long and distinguished career as a navigator in Antarctic waters. His skill as a writer was apparent in his "With the Aurora in the Antarctic 1911-14," published in 1919.

Now, a lively and vigorous 78, Captain Davis has published the story of the most eventful years of his life. "High Latitude" is a first-rate book. The consciously literary style of some sections may be due to the collaborator whose assistance Captain Davis warmly acknowledges, but the reminiscences themselves, the salty humour and the generous tributes to associates both famous and little-known reflect the stalwart character of "J.K." himself.

As the story begins with his first introduction to the sailor's life in 1900 and ends with his rescue of the Ross Sea Party in 1917, and in 80 per cent of its pages the Antarctic is never far away, Antarctic enthusiasts here get very good value for their money. Captain Davis aptly summarises his aim as "to condense as much as possible of what is already well known and describe more fully only those personal memories and impressions that have remained with me after the lapse of nearly half a century."

This aim has been admirably carried out, with the result that we have not only an excellent outline of the Shackleton and Mawson expeditions but a gripping first hand account of many incidents about which up till now little or nothing has been made known. The England-Shackleton "fracas", the rescue of David's Magnetic Pole team, the decision to rescue Wild's party and to

leave Mawson at Commonwealth Bay for another winter, the condition of the Ross Sea Party after two years marooned at Cape Evans: of these and other dramatic incidents we now have a responsible eye-witness account which is authentic, vivid, and told with a sympathy and understanding which are wholly admirable.

Captain Davis's story is all the more impressive and moving because he is quick to make fun of his own occasional inexperience, as when, sent the 16 miles from Cape Royds to Hut Point in January, 1909, to leave despatches for the still-missing southern party, he writes, "Seldom were three explorers more grateful to reach their furthest south."

Captain Davis is an extremely vigorous survivor of what he deprecatingly calls "the Stone Age of polar travel", and his book must rank with the best of the first hand accounts of what the rest of us prefer to call the Heroic Age of Antarctic exploration.

—L.B.Q.

PUBLISHED IN NEW ZEALAND

The Fauna of the Ross Sea Part 2. Scleractinian Corals: Donald F. Squires. N.Z.D.S.I.R. Bulletin 147, 1962. 28 pp. ill. maps and charts. Price 3/6.

GEOLOGY OF VICTORIA LAND BETWEEN THE MAWSON AND MULLOCK GLACIERS, ANTARCTICA. B. M. Gunn and G. Warren, N.Z. Dept. of Scientific and Industrial Research, Wellington (N.Z. Geol. Sur. Bull 71) 157 pp., maps and illustrations. 30/- Quarter bound 35/-.

This comprehensive bulletin based on the field work carried out by the authors as members of the Trans-Antarctic Expedition is to be republished subsequently as Scientific Report no. 11 of the Trans-Antarctic Expedition, but has been published as a bulletin of the N.Z. Geological Survey with the generous consent of Sir Vivian Fuchs, because of New Zealand's special interest and continuing regional geological work in the area.

THE ROSS SEA PARTY 1914-17. R.

W. Richards. Scott Polar Research Institute Special Publication Number 2: 44 pages, two ill., map.

Here is the story of one of the most tragic, and least known, episodes in Antarctic history, told straightforwardly and well by one of the four men living today who played a part in it. When in 1917 the "Aurora" brought back to New Zealand the seven survivors of the Ross Sea component of Shackleton's Trans-Antarctic expedition, the world had been locked in strife for over two years, and paid little attention to this grim tale of misadventure, heroic determination, privation and, for three men, death, in the Ross Sea sector of the Antarctic.

Shackleton outlined the tragic sequence of events in his "South", but only as an addendum to the "Endurance" story. Joyce told the tale rather more fully, but, it must be confessed, not very well, in his "The South Polar Trail". And that was all. But now at long last Richards, the sole survivor of the great southern sledge journey to lay the depots, right to the Beardmore Glacier, which were never to be used, has himself told the story. He has told it, as one would expect from him, simply, modestly and movingly. It is the story of how ten men, suddenly, utterly without warning, were left to fend for themselves over two Antarctic winters without fresh stores, with no change of clothing and with no fuel. Yet they had been charged with the duty of laying the depots which could alone give a chance of success—and survival—to the party led by Shackleton himself which, they presumed, would be crossing the continent from the Weddell Sea to the Ross Sea, as Fuchs was to do 40 years later. And they did it, at the cost of three lives.

Mr. Richards was the strong man of the final group of six which laid the depot at Mt. Hope. The story is therefore told at first hand, with a candour and sincerity which carries conviction and with enough of personal experience and remember-

ed emotion to convey much of the tragedy and triumph of this great exploit, the last chapter in the great saga of the "Heroic Age" of Antarctic exploration.

Worthily produced, as the second Special Publication of the Scott Polar Research Institute, it is a little volume which everybody interested in the Antarctic and its story should read without fail.

10/6 plus 1/- postage from Scott Polar Research Institute, Cambridge, England, or from Whitcombe and Tombs.

B.A.N.Z.A.R.E.

"The Winning of Australian Antarctica" is the title of an important book by Dr. A. Grenfell Price just published for the Mawson Institute for Antarctic Research by Angus and Robertson. This is the first full account of the British, Australian and New Zealand Antarctic Research Expedition, 1929-31, based on Mawson's own journals and logs, most competently introduced and annotated by a distinguished Australian historian.

We hope to review this volume in our next issue. The Australian price is 50/-.

"LA ANTARTIDA DE HOY"

The New Zealand Antarctic Society's successful publication "**The Antarctic Today**" has appeared in a new guise. By arrangement with the Society, the Argentine publishers, Editorial Kapelusz of Buenos Aires, have published a Spanish edition of the Society's 1952 publication, complete with illustrations, excellently reproduced, and the map, to which some not unexpected alterations have been made.

The Argentine translation is a handsome volume of 352 pages and represents faithfully the original New Zealand production, including the foreword by Dr. Falla, and the editor's preface. The only addition is a short introduction by Professor Alfredo C. Rampa, who directed the Spanish edition, and one or two short notes.

ONE FOOT AT THE POLE. Jim Henderson. Whitcombe and Tombs. 170 pp. Illustrations by David Kennedy. Price 17/6.

If you want to go on a conducted tour of New Zealand's Ross Dependency, here is Jim Henderson, writer and broadcaster, at your service. And if you accept him as tour-master, you can be assured there will be never a dull moment from the time when you gingerly follow him up the aisle of the Constellation—very much aware of the anti-exposure suits and life-jackets and not at all reassured by the loud-speaker's "ditching drill", till the thrilling moment when you reach the South Pole and go "round the world in eighty seconds."

It is all very light-hearted and quite disarmingly modest. This is no "intrepid Antarctic explorer" talking: we are "just tourists". But if we absorb much of our information necessarily from the Public Relations Officers who guide our unwary footsteps, we do see a great many very interesting things, from pin-ups in a McMurdo hut and a meal in the McMurdo mess with the "jar of toothpicks, a metal container holding paper napkins: and an aluminium dish for cigarette ends", to the seals near Scott Base which "remind you of old colonels with repentant eyes" and the penguins at Cape Royds, "these little jokers about a couple of feet high, silvery breasts, black backs . . . gamely sticking to that greenish-whitish-brownish pathetic precious egg they've got their little dark webbed feet around!"

So if you want to know just what it's like to spend a few days in the Antarctic with your eyes open absorbing all the information you can from anybody who is willing to talk to you, well, here is Jim Henderson willing to take you along with him, and you will assuredly enjoy every minute of it, and learn a great deal about the Antarctic today into the bargain.

THE STORY OF THE HUTS

Publication is expected early in the New Year of **"TWO HUTS IN THE ANTARCTIC"** by L. B. Quartermain.

This 85-page booklet, with many illustrations and maps, is being attractively produced by the Government Printer, and will be on sale at the Government Bookshop, 20 Molesworth St., Wellington, and other bookshops. Price 7/6.

A review by J. H. (Bob) Miller will appear in our next issue.

NEW NAMES

The New Zealand Geographic Board expects to publish before the end of the year the second supplement to the **Provisional Gazetteer of the Ross Dependency**. The original Gazetteer, containing nearly 1,000 names, was published in 1958. The first supplement, published in 1960, contained 200 additional names. Most of the several hundred place names in the forthcoming supplement were suggested by the two field parties which operated north-west and south-east of the Beardmore Glacier during the 1961-62 season.

This supplement, like the Gazetteer and the first supplement, has been compiled by Mr. A. S. Helm.

CINERAMA

When the American film and television producer Mr. Lowell Thomas arrived in Auckland on his way to Antarctica he said that while in Antarctica he would investigate the possibilities of a Cinerama production about work on the ice-bound continent. He said he would like to film all the expeditionary work being conducted at the moment from all bases on the Continent.

THE ADMIRAL'S PLEA

"The whole of Antarctica should now be recognised by all countries as a natural reserve, and even predatory species should receive protection so as not to disturb the natural biological equilibrium of the region. . . . Without this the world at large may soon be deploring the loss of a beautiful and irreplaceable heritage."

—RUDOLFO N. PANZARINI
in Unesco "Courier".

THAT MAN AGAIN!

Bird lovers and many others will hear with mixed feelings that a certain Mr. Marks, Director of the Portland Zoo, Oregon, is on his way south again.

Marks during the 1957 and 1958 summers captured and carried off to America no fewer than 138 penguins. Every single one sent to other zoos and half of those retained at Portland died of aspergillosis, a lung fungus which has killed every attempt to transplant penguins from the Antarctic.

It is claimed that the disease has now been conquered by the use of amphotericin B, administered by a fogging machine, and the zoo is anxious to establish a breeding colony. One wonders, however, why it is necessary to transport from their native habitat the 20 Adelies and 20 Emperors which Marks hopes to capture and take back to America this summer.

Incidentally, these penguins are New Zealand citizens, residents of Cape Royds and Cape Crozier respectively, both in the Ross Dependency.

THIS IS BETTER

Another resident of Portland, Oregon, is Mrs. Ann Starr. Her husband steelworker First Class James R. Starr, wintered over at McMurdo. During his year in the south he received 602 letters from his wife, 328 of them in one special mailbag on the first aircraft to reach McMurdo at the end of September.

THE TRANSPARENT STORM

Writing in the Information Bulletin of the Soviet Antarctic Expeditions, Yu. A. Kruchinin says: "We were compelled to work at Lazarev in very difficult meteorological conditions. It is sufficient to say that during the first six months of the winter stage (from 10 March to 10 September, 1959) 93 days of storms were recorded including 40 days of hurricane, hurricane wind speeds gusting up to 70 metres a second.

"Cyclonic periods usually lasted from 3 to 4 days. It was very difficult to carry out meteorological and glaciological observations in strong winds but worst of all perhaps was the drifting snow. It occurs at a wind speed of 6 to 8 metres per second; at a wind speed of 12 to 15 metres per second, it is followed by a low blizzard and with a further increase in wind speeds by a total blizzard. During total blizzards visibility frequently fell to zero and sometimes it was even difficult to see one's outstretched hand, the flying snow clinging to the face forming a mask of ice.

"All this made it very difficult to carry out observations. Naturally before leaving the hut the polar explorer would look at the indicator needle of the distance hurricanometer and very embittered he would set out for the observation platform knowing what he was faced with.

"Once, on July 3, atmospheric pressure began to fall and the wind speed increased. Judging by all the portents the usual cyclone was upon us. By night the wind speed had reached 20 metres per second and, in gusts, 25 and even 30 metres per second. At that time it was necessary to adjust some defects in the equipment outside. The explorers donned their storm suits and prepared for the blizzard. How surprised they were when having mounted the ladder and opened the exit hatch they discovered that there was neither a blizzard nor even a sign of drifting snow. The sky was spangled with stars. In the light of the moon each sastrugus stood out distinctly on the surface of the ice

shelf and strong wind howled in the rigging of the radio masts.

"What had happened? Why with such strong wind had there been no blizzard?

"The explanation was very simple. The surface of the snow cover during the preceding days had been covered by a crust of sleet. This fine crust (2 to 3 millimetres) was sufficiently solid to withstand the destructive effect of the wind. Snow during this time did not fall and in the space of a few hours whilst the sleet crust remained partially intact, the blizzard could not commence. When, on the following morning, the polar explorers appeared out of the exit hatch, they saw that the 'transparent' storm had finished and been replaced by the usual conditions: through the driving snow nothing was visible beyond two paces."

"INCREDIBLE CITY"

An Australian journalist recently flown from McMurdo to Byrd Station describes the under-snow station.

"All I saw of the city from the air was a flag-marked air-strip, four towers for scientific equipment and two tunnel mouths. The rest was a frozen waste.

"This incredible city has a garage, workshop, fire station, post office, radio station and canteen. Scientists work in laboratories and offices and live in comfortable, two-to-a-room accommodation.

"Everything is linked by a network of tunnels more than a mile and a half long, hacked out of the ice-cap in 224 days."

"ANTARCTIC ISSUES"

Further evidence of re-mounting interest in Antarctic exploration and research is provided by the appearance of special Antarctic issues of the **SCIENTIFIC AMERICAN** and the **UNESCO COURIER**.

The Antarctic issue of the **N.Z. JOURNAL OF GEOLOGY AND GEOPHYSICS** (see last issue p. 98) has just been published. The Antarctic Bibliography will appear with other articles of Antarctic interest in another issue early next year.

THE TOURISTS ARE COMING

Two recent newspaper comments indicate the extent to which tourism is approaching the great white solitudes of the Antarctic.

The first is from the Melbourne "Sun", under the two-column heading "Antarctica may draw tourists."

Mr. Law, director of the Antarctic Division of the External Affairs Department, was speaking at Melbourne University in a series of public lectures organised by the Professional Officers' Association.

He said that the two most likely areas for tourist trade were the Ross Sea area and Graham Land.

The Ross Sea would be of historical interest to many people, and several large Argentine tourist parties would soon see the beauty of Graham Land.

Both these regions had attractive summer climates but neither was in Australian territory.

Mr. Law said that Amundsen Bay was the most attractive spot in Australian territory, but it was inaccessible.

PRE-REQUISITES

A country interested in promoting tourism in the Antarctic would first have to:

Establish an air route to overcome the rough passage by ship across the Southern Ocean.

Build a comfortable hotel close, by either helicopter or snocat, to the interesting places.

Mr. Law said the biggest drawback to the venture would be to find capital to provide amenities.

There would be no great difficulties in finding patrons at \$10,000 each for a three-week stay.

TOURIST HOTEL

The second "pointer" is a "Dominion" report of a speech in the New Zealand Parliament.

The Government should give consideration to establishing a tourist hotel in the Ross Dependency, with suitable transport to enable tourists to visit the Antarctic continent, Mr.

Walker (G., St. Albans) said in Parliament. He was speaking during discussions on the estimates of the Tourist and Publicity Department.

Mr. Walker said Antarctica was the highest, coldest and windiest continent in the world with 95 per cent. of the world's ice—but also most of its sunshine.

HUSKY TRANSPORT

The hotel could be set up near Scott Base, he said. Huskies could provide a means of transportation over short distances.

There could also be helicopter trips to a number of points of interest, from the penguin rookeries to the mighty Beardmore Glacier, which was 120 miles long by 40 miles wide.

"It might seem that such a project would be a mighty long shot," Mr. Walker said, "but one day a nation will open up a tourist hotel on the Antarctic Continent. New Zealand could do worse than be the first in the field."

VIP'S

The Antarctic tourist season is in full swing. When a United States Navy Super Constellation left Christchurch on November 19 for McMurdo Sound it carried the highest-ranking American group ever to visit the Antarctic.

Among the passengers were the Secretary of Commerce, Mr. Luther H. Hodges, Mr. V. Gilmore, director of the United States Travel Service, Lieutenant-General J. H. Doolittle, U.S.A.F., Retired, five congressmen and Mr. Lowell Thomas, the famous author and broadcaster.

"AND A PIANO"

Twenty-five British scientists—and a piano—left Southampton on December 7 for the United Kingdom base at Halley Bay.

Last July Martin Winterton at Halley Bay sent his mother a list of things he would like. Among them was a piano. So Mrs. Winterton is sending him a 50-year-old piano once used by a famous concert pianist.

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

Wellington: W. J. P. Macdonald, Box 2110, Wellington.

Canterbury: J. H. M. Williams, 85 Waimea Terrace, Ch'ch.

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" with the exception of Vol. 1, No. 1, Vol. 2, No. 2, and Vol. 2, No. 4, MAY BE PURCHASED 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, 8-10, 12-20.

Price: 4/- per issue.