ANTARCTIC

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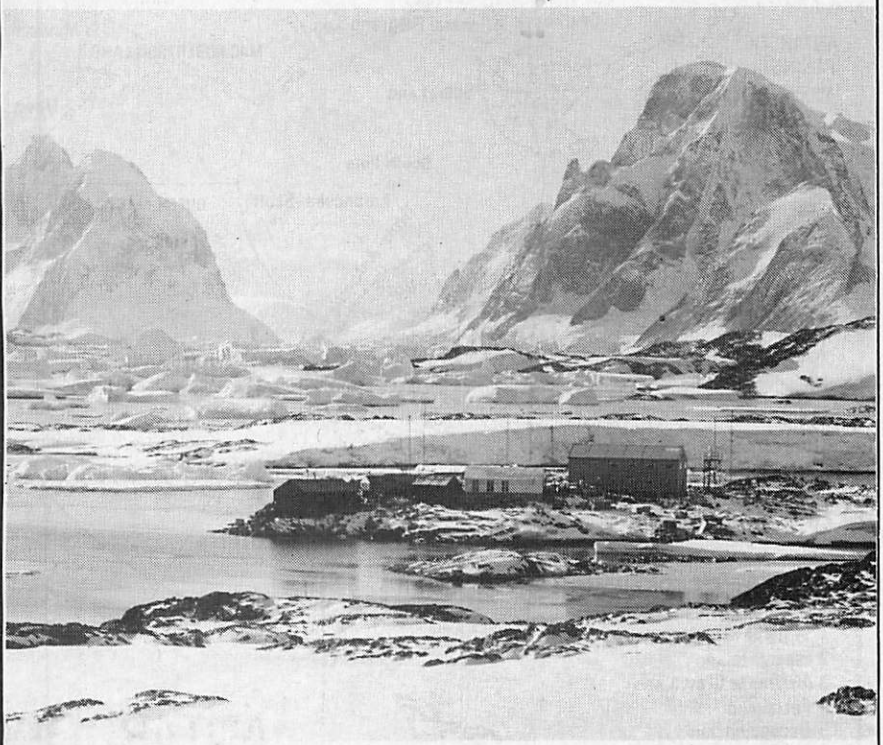

Faraday, the British Antarctic Survey geophysical laboratory on Galindez Island in the Argentine Islands, is now being modernised. Major alterations are being made to the buildings which date back to 1954. On the right is a new two-storey building erected last season to accommodate 42 men.

BAS photo by C. J. Gilbert

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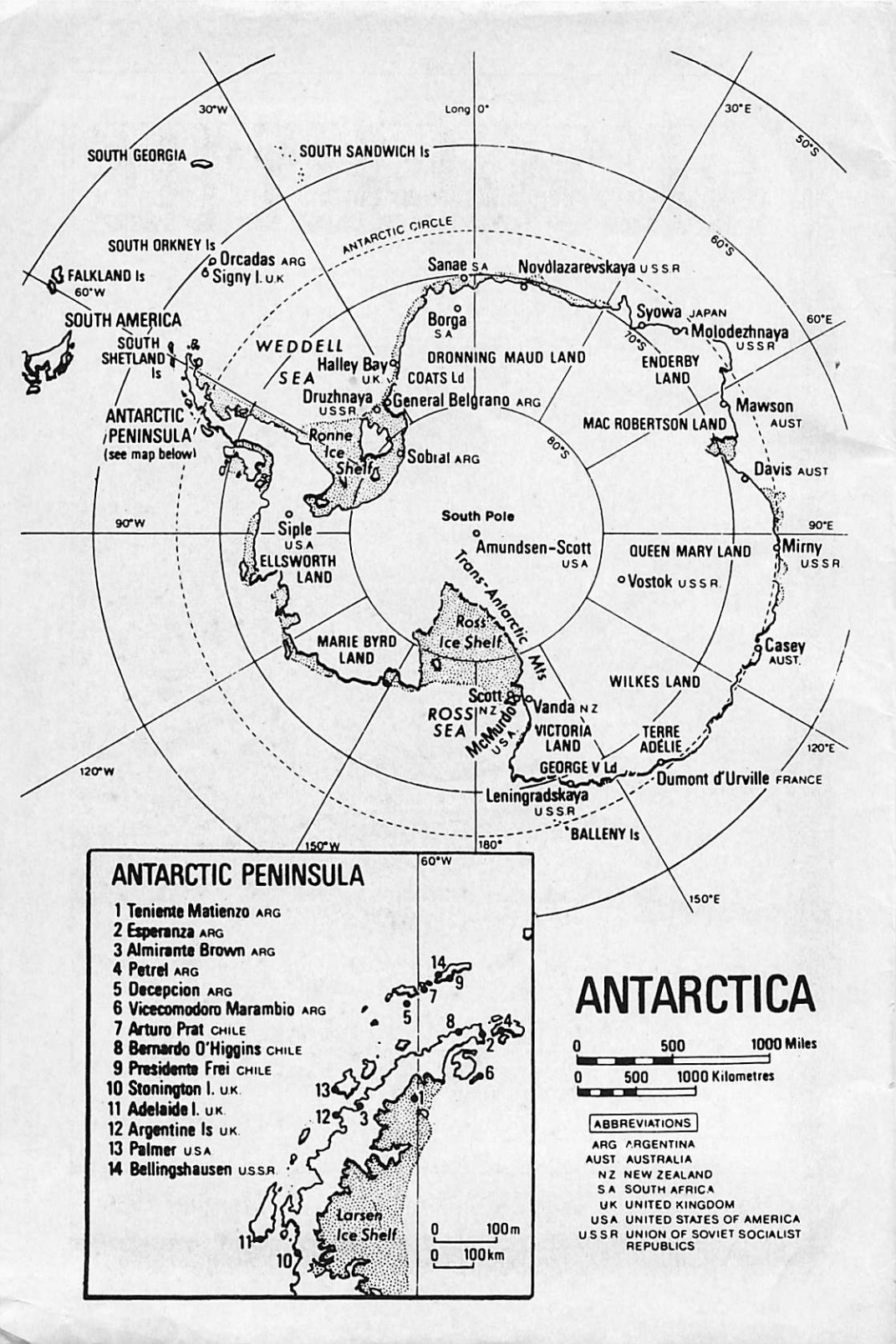
ANTARCTICA
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ABBREVIATIONS
ARG ARGENTINA
AUST AUSTRALIA
NZ NEW ZEALAND
SA SOUTH AFRICA
UK UNITED KINGDOM
USA UNITED STATES OF AMERICA
USSR UNION OF SOVIET SOCIALIST REPUBLICS
ANTARCTIC PENINSULA
1 Teniente Matienzo ARG
2 Esperanza ARG
3 Almirante Brown ARG
4 Petrel ARG
5 Decepcion ARG
6 Vicecomodoro Marambio ARG
7 Arturo Prat CHILE
8 Bernardo O'Higgins CHILE
9 Presidente Frei CHILE
10 Stonington I. UK
11 Adelaide I. UK
12 Argentine Is UK
13 Palmer USA
14 Bellingshausen USSR
Larsen Ice Shelf
0 100m
0 100km
Long 0°
30°W
30°E
50°S
60°S
70°S
80°S
ANTARCTIC CIRCLE
SOUTH GEORGIA
SOUTH SANDWICH Is
SOUTH ORKNEY Is
Orcadas ARG
Signy I. UK
FALKLAND Is
60°W
SOUTH AMERICA
SOUTH SHETLAND Is
ANTARCTIC PENINSULA
(see map below)
WEDDELL SEA
Sanae SA
Novolazarevskaya USSR
Borga SA
Halley Bay UK
DRONNING MAUD LAND
COATS Ld
Druzhnaya USSR
General Belgrano ARG
Ronne Ice Shelf
Sobral ARG
Syowa JAPAN
Molodezhnaya USSR
ENDERBY LAND
60°E
Mawson AUST
MAC ROBERTSON LAND
Davis AUST
90°W
90°E
Siple USA
ELLSWORTH LAND
South Pole
Amundsen-Scott USA
QUEEN MARY LAND
Mirny USSR
Vostok USSR
Trans-Antarctic Mts
Ross Ice Shelf
MARIE BYRD LAND
Casey AUST.
WILKES LAND
Scott NZ
Vanda NZ
ROSS SEA
McMurdo USA
VICTORIA LAND
TERRE ADÉLIE
120°E
120°W
GEORGE V Ld
Dumont d'Urville FRANCE
Leningradskaya USSR
BALLENY Is
150°W
180°
150°E

ANTARCTIC

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NEW ZEALAND PLANS FOR SEASON

New Zealand's Antarctic research programme for 1980-81 includes a major international project — vulcanological studies on Mt Erebus — by United States, Japanese, and New Zealand scientists, and support for other international projects in South Victoria Land and Adelie Land. Plans have been made for a marine geophysical progamme and oceanographic survey in the Ross Sea aboard the British Transglobe Expedition's support ship Benjamin Bowring, and a New Zealand team will take part in an aerial reconnaissance of selected areas in Northern Victoria Land to prepare for a proposed major expedition there in the 1981-82 season.

This season projects of low priority have been excluded from the research programme because of economic restraints, and particularly fuel costs. Eight projects have been cancelled, but all important science projects have been retained, and between 150-160 men and women will take part in the programme during the summer months. All the continuous scientific studies at Scott Base will be maintained, and the programme covers a wide range of disciplines, including glaciology, geology, limnology, vulcanology, geophysics, oceanography, and biology.

Seven scientists from the Geophysics Division, DSIR, New Zealand Oceanographic Institute, and Victoria University of Wellington, will make a 10-day cruise from New Zealand to Ross Island, starting from Lyttelton in January next year. The main aim of their programme is to obtain marine seismic, magnetic, gravity, and bathymetric data to elucidate the tectonic structure of the western Ross Sea.

This offshore research work is planned to be carried out while the Benjamin Bowring is on her way south to pick up members of the Transglobe Expedition after their crossing of Antarctica. The Benjamin Bowring, formerly the Kista Dan, took the expedition to Queen Maud Land earlier this year, and has since been chartered by the Ministry of Foreign Affairs for the Pacific Forum Line to trade between the Pacific island ports.

But plans for the research cruise depend on the progress made by the Transglobe Expedition's ice party in its attempt to cross Antarctic from its base in the Borga Massif area by way of the South Pole, Robert Scott Glacier, Ross Ice Shelf to Scott Base. Sir Ranulph Fiennes, leader of the expedition, hopes to complete the journey by late January, but could arrive when the New Zealand programme is almost over.

WORK ON EREBUS

New Zealanders will return to work on Mt Erebus for a third season in an international project with a United States party which, this year, will include scientists from the Japanese Antarctic Research Expedition. The New Zealand team will have scientists from Victoria University of Wellington and Waikato University, and the Geological Survey, a Lands and Survey Department surveyor, and two Antarctic Division field assistants.

A New Zealand geologist, Dr Philip Kyle, now at Ohio State University, who began his studies of Erebus several years ago, heads the International Mt Erebus Seismic Study (IMESS). The purpose of IMESS is to obtain a longer space-time record of the seismicity of Mt Erebus, to gain insight into the summit magma lake, and to monitor explosive gases from it. Surveillance of the lava lake and the associated eruptive activity as well as petrologic examination of material

After many years of service under charter to the British Antarctic Survey and Australian National Antarctic Research Expeditions the Kista Dan has returned to the Antarctic as the Benjamin Bowring in support of the British Transglobe Expedition. She took the expedition to Queen Maud Land early this year, and has been chartered for a 10-day research cruise in the Ross Sea by New Zealand scientists next January when she will sail to McMurdo Sound to pick up the expedition's ice team which will attempt an Antarctic crossing this summer.

Bowring Magazine photo

ejected from the crater will also be undertaken.

Seismic audio and magnetic studies made by a seismologist from Victoria University of Wellington, Dr Ray Dibble, who was with the 1974-75 and 1978-79 expeditions, will become an integral part of IMESS. A seismic array at three locations on the flanks of the volcano will transmit signals to recorders in Scott Base throughout the summer and for unknown periods on into the winter as long as the power source operates.

Volcanic deformation monitoring and surveying, will be carried out by Mr Peter Otway, of the Geological Survey. The object of the project is to establish a precise survey network across the summit area of Erebus which will be observed annually to determine the nature of earth deformation associated with observed variations in the level of volcanic activity. Another Geological Survey scientist, Dr George Grindley, will conduct paleomagnetic sampling around summit lava flows.

ALGAE SAMPLES

Two Waikato University scientists, Drs Hugh Morgan and Roy Daniel, will study the microbiology of the fumaroles on Erebus. They will take samples of algae in the warm soil and fumarole area during their week's stay on the volcano.

Mapping control of the summit caldera area for the production of a detailed contour map by the Lands and Survey Department will be completed by te surveyor, Gary Neale. The Antarctic Division field assistants, Messrs John Prosser and Roy Parish, will co-ordinate the logistics and safety aspects of the whole project.

New Zealand will also support or take part in two other international projects this season. One is a United States drilling project which will study the stratigraphy and age of surface units in the

lower Taylor Valley and their correlation with strata in the upper part of the old Dry Valley Drilling Project hole No. 8 and 11. The New Zealand programme will provide a drill a crew to operate it, and assistance by a surveyor and two field assistants.

Two New Zealanders will take part in the International Biomedical Expedition to Antarctica (IBEA) which will study human performance and survival in cold and isolation. Mr I. McCormick, a Justice Department psychologist, will take part in the expedition's traverse from the French base, Dumont d'Urville, to D59 in Adelie Land; Professor A. J. W. Taylor, of Victoria University in Wellington, will be involved in the initial testing phase at Sydney University.

FERRAR GLACIER

This season an Antarctic Division geological team will carry out detailed structural and metamorphic geological mapping in the Ferrar Glacier area as part of the systematic Basement mapping programme in the Ross Dependency. This season's work will continue last season's successful project in the Blue Glacier region.

Mr R. H. Findlay, leader of last season's event, and Messrs D. Craw (geologist), G. Ball (field leader) and A. Brown (field assistant) will travel with two motor toboggans towing three sledges from Scott Base to the foothills above the Bower Piedmont. Mapping of some hills on the north side of the Blue Glacier started last season will be completed before the team drops down the Descent Glacier to the Ferrar Glacier.

On the way to the Ferrar Glacier the team will follow the route through Descent Pass taken by Lieutenant Albert Armitage, second-in-command of Scott's 1901-1904 expedition, who was the first to explore the mountains on the western side of McMurdo Sound. After an earlier reconnaissance Armitage's second party reached the summit of the Ferrar Glacier on January 2, 1903, and then went on to discover the ice-cap of the Polar Plateau on January 5.

Field work by the New Zealand team will last from November until mid-January next year, and will be undertaken on both sides of the Ferrar Glacier as far as the Cavendish Icefall at the confluence of the Taylor and Ferrar Glaciers. A food and fuel dump will be established on the Ferrar Glacier early in the season by a United States Navy helicopter.

LAKE LEVELS

Vanda Station in the Wright Valley will be operated for the summer only. A programme of daily meteorological observations and measurements of wind and temperature variations in the free air above the valley floor will be continued by a team of three led by Mr Peter Johnstone. In addition the station will provide support for Messrs T. Chinn and I. Maze, of the Ministry of Works and Development, who will have the help of a field assistant and a surveyor to continue the monitoring programme in the dry valleys documenting long and short term climatic variations, and measuring the flow of the Onyx River.

Support will also be given from Vanda to Dr W. Vincent, of the Ecology Division, DSIR, and his wife, who will make biochemical and limnological studies in Lake Vanda, and Dr Paul Broady, an authority on terrestrial algae, from the University of Melbourne.

United States and Japanese scientists will also work out of Vanda Station. Dr A. Hogan and S. Barnard, of the State University of New York, will study the meteorological variation of Antarctic aerosols, and five Japanese guest scientists led by Dr Tetsuya Torii, will use the station during their biochemical sampling programme in various dry valley locations.

To document short-term climatic variations the levels of Lakes Vida, Vanda, House, Joyce, Bonney, Henderson, Hoare, and Fryxell, will be measured by the MOWD team at the beginning and end of summer. Automatic recording of summer water levels will be continued at Lakes Bonney and Vanda, and ice thickness and ablation measuremens will be made as part of the summer water balance. Flow measurements from automatic water level recorders will be continued on the Onyx River at both the

lower Wright Valley and Vanda weir sites.

Glacier measurements will be made to monitor longer-term climatic variations. Mass balance measurements will be continued on the Heimdall Glacier, and comparative ablation measurements will be made again on inland and coastal glaciers.

ICE MOVEMENT

Most of the work of the surveyors will be in the McMurdo Sound area. They will monitor sea ice movement across the sound, monitor the McMurdo Ice Shelf movement poles, using a dog team from Scott Base, and continue the ice shelf pressure roller study initiated last season. Other projects will take them to Mt Erebus, Lake Fryxell, the Marshall Valley, and the lower Taylor Valley.

Established laboratory research programmes in atmospheric physics and earth sciences will continue at Scott Base and Arrival Heights this season and next winter. During the summer a Meteorological Service technician will continue studies of smaller-scale variations in the Ross Dependency. This programme began last year. Early in the season staff at Scott Base will work with two Japanese geophysicists from Kyoto University, who are studying the gravity connection between New Zealand and Antarctica.

New Zealand will join the United States again to provide logistic support for their respective programmes. This season RNZAF Hercules aircraft of No. 40 Squadron will make 12 flights between Christchurch and McMurdo Station. Two RNZAF helicopter crews will fly on support missions with the United States Navy's VXE-6 Squadron. Air crews and load planners will be provided, and Army cargo handlers will work again at Williams Field near McMurdo Station.

Courses in basic snowcraft and survival techniques will be provided as in past seasons for United States air crews, United States Coast Guard icebreaker crews, and American and New Zealand research and support staff. An Antarctic Division field leader and two field assistants will conduct the courses.

Still sledging at 75

After nearly 50 years Norman D. Vaughan, one of the veterans of Rear-Admiral Richard E. Bryd's first expedition to the Antarctic in 1928-30 has no intention of giving up dog sledge driving. Since 1974, starting at the age of 70, Vaughan has competed five times in the world's longest and toughest dog sledge race — 1688km from Anchorage to Nome, Alaska.

In March this year Vaughan, now 75, entered the race again, and broke his own record as the oldest man ever to finish. He completed the gruelling course over two mountain ranges, through rugged mountain passes, and across two wild rivers in 24 days, 9 hours, 19 minutes, and 25 seconds.

Last year Vaughan achieved his ambition. He finished the race, and was not the last to cross the finish line in Nome. The oldest competitor, he finished a week after the winner, but three seconds ahead of the last man in. He was welcomed by a bluegrass band, and cheered by hundreds of Nome residents.

When Vaughan first entered the race in 1974 his number was the same as his age — 70. Severe frostbitten feet forced him to withdraw from the race in 1975, and in 1976 he lost the trail, ran out of food for himself and his team, and also lost four of his dogs.

Historic huts project

For economic reasons the restoration and maintenance work on Scott's huts at Cape Evans and Hut Point, and Shackleton's hut at Cape Royds, is among the projects which the Antarctic Divison has had to cancel this season. However, basic maintenance work will be carried out by the Scott Base summer staff as part of the works programme.

Two members of the New Zealand Antarctic Society have acted as caretakers of the historic huts on Ross Island since 1969. Last season the two selected, Messrs Alan Wright and Gavin Doughty, were unable to go south because of pressure on facilities at Scott Base as a result of the DC10 crash on Mt Erebus.

Winter team at Scott Base

A 35-year-old English-born production engineer, Mr R. J. Clark, of Darfield, near Christchurch, is the officer-in-charge at Scott Base for the 1980-81 summer season of the New Zealand Antarctic research programme. When the season ends in February Mr Clark will hand over his responsibilities to the base engineer, Mr J. B. Sims who will be in charge for the winter of 1981.

Mr Clark has held a number of posts in industry in New Zealand, Australia, and the United Kingdom. In 1966 he worked in the New Hebrides for Volunteer Service Abroad on school construction, building and bridge repairs, and servicing of plant and equipment.

For many years Mr Clark has been an active mountaineer and skier. He is a member of the Christchurch face rescue team and the Canterbury Mountaineering Club.

Nine men have been selected to winter at Scott Base through 1981 under Mr Sims's leadership. The postmaster, Mr I. D. Johnstone, wintered at Scott Base in 1977. Most of the men are from the North Island. Their ages range from 43 to 22.

Members of the winter team are:

T. H. Earl (32), Wellington. Senior technical officer. He is a technical officer with the Broadcasting Corporation.

J. B. Sims (43), North Auckland. Base engineer. He is a garage proprietor at Broadwood.

J. D. McKnight (25), Wellington. Scientific officer. He is a scientific officer with the Physics and Engineering Laboratory, D.S.I.R.

A. J. Remnant (23). Auckland. Cook. He is a catering chef with the Royal New Zealand Air Force at Whenuapai.

H. J. Mackey (23), Blenheim. Fitter-electrician. He is an electrician in his home town.

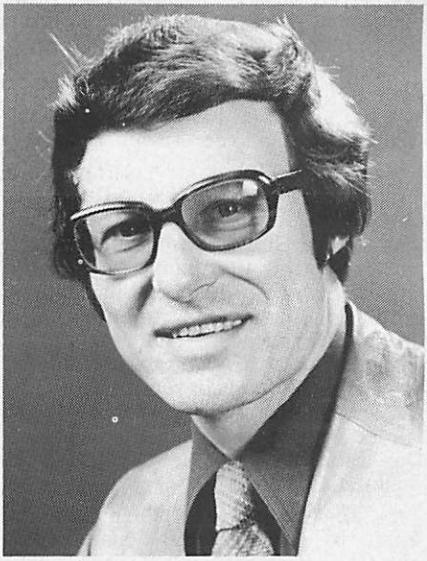
B. G. Scott (25), Duntroon. Fitter-mechanic. He is a Ministry of Works and Development mechanic.

S. J. N. Whitfield (41), Christchurch. Technician. He is a television and radio technician in Christchurch.

I. D. Johnstone (28), Kaeo. Postmaster.

R. L. Hodgson (22), Wellington. Senior Post Office technician.

A. J. Taylor (23), Auckland. Field assistant and dog handler. He is a stockman and farrier.



ROGER CLARK

Two husky pups

Two husky pups born at Scott Base last winter will be ready to take their places in the teams by the end of this summer. Their parents were Cherry and Muff, but because Cherry was a bad mother the pups were cared for by Kiritea during the winter.

Maori names were chosen for the new arrivals by the winter team. The dog was christened Tama (Friend), and the bitch was named Manea (Beautiful). They brought the base husky population to 21.

SUMMER FIELD PROJECTS

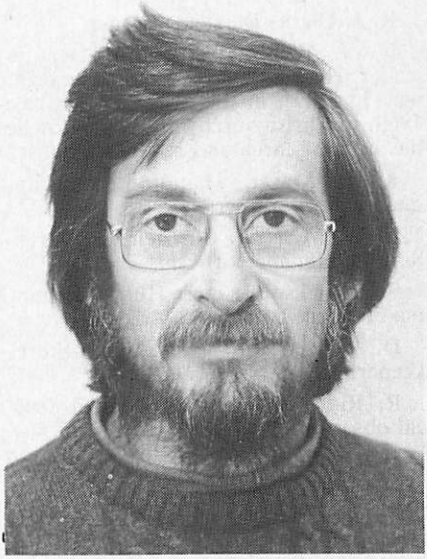
New Zealand scientists will make a reconnaissance flight over Northern Victoria Land this season in preparation for a major research programme in the area in 1981-82. Closer to Scott Base others will work at the summit of Mt Erebus, in the dry valleys of Victoria Land, and on the Ferrar Glacier. They are members of field parties in the Antarctic research programme for the 1980-81 summer which, including support and construction activities, will call on the services of between 150-160 men and women.

Scientists from three New Zealand universities will conduct research projects, and the programme will draw on staff from the Antarctic Division, Ministry of Works and Development, Geophysics Division, Oceanographic Institute, Lands and Survey Department, Physics and Engineering Laboratory, Meterological Service, Ecology Division, Post Office, National Film Unit, New Zealand Army, the Royal New Zealand Air Force. The programme will also include guest scientists from Australia, the United States, and Japan.

Men and women in the programme will work at or from Scott Base, on the McMurdo Ice Shelf, in Victoria Land, and in McMurdo Sound. They will work with Americans and Japanese on Mt Erebus, and with Japanese at Scott Base and in the dry valleys.

Vanda Station in the Wright Valley 130km from Scott Base, is basically a summer station, but parties have wintered there in 1969, 1970, and 1974. This season it will be operated again for the summer only by a team of three men led by Mr Peter Johnstone. They will provide meteorological information, and base support for New Zealand, American, and Japanese field parties in the dry valleys.

There are seven women in the programme this season. One of them, Barbara Ward, is a paleontologist from North Illinois University who is completing her doctoral studies with the geology department of Victoria University of Wellington. She will study the flora and fauna in samples of sediments collected from the floor of McMurdo Sound by a VUW team.



PETER JOHNSTONE

Another woman, Tina Troup is an Antarctic Division field assistant. She will work in the dry valleys on the glaciology and hydrology programme which will be carried out by a team from the Ministry of Works and Development.

Mrs Connie Vincent will work in the Wright Valley for six weeks this season. She and her husband, Dr Warwick Vincent of the Ecology Divsion, DSIR, will make detailed biochemical and limnological studies in Lake Vanda. Later in the season they will be joined by an Australia phycologist, Dr Paul Broady, of the University of Melbourne, who is a guest scientist with the New Zealand programme.

Members of the summer staff at Scott Base are the information officer, Elizabeht Bulleid, Christine Shepherd, and Heather Gilmore. Christine Shepherd's general duties will include running the base canteen. For the first time the Post Office will have a woman clerk at the base during the summer. She is Heather Gilmore. A worker visitor will be Anne Salisbury, of the Antarctic Division's office staff.

SCOTT BASE

R. J. Clark, Darfield. Leader.

H. J. Webb, Wellington. Deputy-leader. He is 29, and is a police sergeant who has been in the Police Force since 1969. In Christchurch and Wellington he has been a search and rescue specialist.

K. E. Meyer, Hamilton. Assistant maintenance officer.

L. W. M. Neal, Christchurch, Assistant maintenance officer.

S. J. Nickson, Lower Hutt. Assistant maintenance office.

D. F. Pollard, Auckland. Storekeeper.

R. Ridley, Wellington. Meteorological observer.

Elizabeth M. Bulleid, Auckland. Information officer.

Christine C. Shepherd, Queenstown. General duties.

W. H. Thomson, Bulls. General duties-assistant cook.

I. A. Russell, Palmerston North. Post Office technician.

Heather A. Gilmore, Christchurch. Post Office clerk.

P. A. McDonald, Wellington. Post Office clerk.

VANDA STATION

P. D. Johnstone, Dunedin. Leader. He is a 41-year-old scientist with the Ministry of Agriculture and Fisheries at the Invermay research station.

A. T. Shaw, Wellington. Meteorological observer.

W. G. Wood, Paremata. Technician.

University projects are outlined elsewhere. Other projects and the participants are:

Ministry of Works and Development. Glaciology and hydrology in the dry valley area. T. Chinn and I. Maze, Tina Troup (field assistant).

Lands and Survey Department. Two surveyors will work on a variety of projects at Scott Base, Lake Fryxell, on the McMurdo Ice Shelf and on Mt. Erebus. C. Fink, G. Neale.

Ecology Division, DSIR. Detailed biochemical-limnological studies in Lake Vanda. Dr Warwick Vincent, Connie Vincent.

Geophysics Division, DSIR, Oceanographic Institute, Victoria University. Marine geophysical programme and oceanographic survey between New Zealand and Ross Island. Drs F. Davey, D. Bennett, and T. Dean, K. Rose (Geophysics Division), Dr D. Burns, K. Grange (Oceanographic Institute), Dr D. A. Christoffel (Victoria University).

Physics and Engineering Laboratory, DSIR, Lands and Survey Department. Remote ice sensing flight over areas of North Victoria Land to provide field reference for ice typing from satellite imagery, and photogrammetric material and mapping for future field operations. Dr I. Thomas (PEL), R. Childs, photogrammetric camera specialist (Lands and Survey). Continuation of upper atmosphere studies at Scott Base and Arrival Heights. Magnetic measurements and servicing of instruments at Scott Base, Vanda Station, and Cape Evans. R. Gabric and M. Molloy.

Meterological Service. Observation programmes at Scott Base and Vanda Station. Scott Base, R. Ridley, Vanda Station, A. Shaw.

Post Office. Check of aerial systems at Scott Base, Arrival Heights and Vanda Station, assistance with Canterbury University ionospheric D-region programme.

National Film Unit. A team of four will visit Scott Base and selected field parties to complete a documentary produced over the last two seasons. L. Diggle, D. Keene, I. Berzins, B. Watson,

and B Garrick, Antarctic Division field assistant.

Antarctic Division. Structural and metamorphic analysis of Basement rocks in Ferrar Glacier in continuance of detailed geological mapping from Koettlitz Glacier-Blue Glacier region northward to dry valleys. R. H. Findlay (leader), D. Craw (geologist), G. Ball (field leader), A. Brown (field assistant).

Adelie penguin census at Cape Royds rookery by Scott Base staff. Continuation of annual census of adult Weddell seals along set flight path from Scott Base to Cape Royds.

Snowcraft and survival training for United States and New Zealand staff. C. Thompson (field leader), J. Prosser, P. Sommerville (field assistants).

Scott Base staff will continue at the base and Arrival Heights the Canterbury University mechanical engineering project to determine the effect and degree of atmospheric corrosion on aluminium.

Antarctic Division-Victoria University. Psychological testing of Scott Base winter teams (1980 and 1981). Professor A. J. W. Taylor, professor of clinical psychology, and Mr Martin Taylor.

International projects. Eight New Zealanders will work around the summit of Mt Erebus with United States and Japanese scientists. They will join Dr Philip Kyle's International Mt Erebus Seismic Study (IMESS). Members of the group are: Dr G. W. Grindley, P. Otway (Geological Survey), Dr R. Dibble (Victoria University), Drs H. Morgan and R. Daniel (Waikato University), G. Neale (Lands and Survey), J. Prosser, R. Parrish (Antarctic Division field assistants).

A New Zealand crew and drill will be provided for a United States project headed by Dr D. Elston (U.S. Geological Survey) which will study the stratigraphy and age of surface units in the lower Taylor Valley. Surveyor assistance will be provided to fix the drill holes, and two field assistants, R. Parrish and J. Jenkins will work with the party. A guest scientist will be Dr Paul Robinson, who has worked with the New Zealand programme for several seasons.

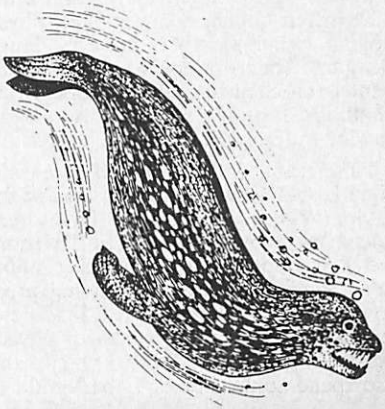
Two New Zealanders will join the International Biomedical Expedition in Antarctica (IBEA) to study human performance and survival in cold and isolation. Professor A. J. W. Taylor will work in the initial testing phase at Sydney University; Mr I. McCormick, a Justice Department psychologist, will take part in the traverse from Dumont d'Urville to D59.

Five Japanese scientists led by Dr Tetsuya Torii will conduct a biochemical sampling programme in various dry valley locations with New Zealand support. Early next month Messrs H. Fujimoto and M. Funaki, of the Geophysical Institute, Kyoto University, will work at Scott Base to study gravity connection between New Zealand and Antarctica as part of their world-wide research in this field.

Uruguay signs treaty

Uruguay, which established an Antarctic Institute 10 years ago, is the 22nd nation to sign the Antarctic Treaty. It became an acceding party this year.

There are eight other acceding parties — Czechoslovakia, Denmark, East Germany, Netherlands, Rumania, Brazil, South Korea, and West Germany. The consultative parties are the original 12 signatories — Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, United Kingdom, United States, Soviet Union — and Poland, which was granted consultative status in 1977.



University projects in McMurdo Sound

Recovery of cores from the floor of McMurdo Sound to study modern micro-organisms is one of the main projects to be carried out by university scientists during the New Zealand Antarctic research programme this season. Other university parties will use a plastic greenhouse to grow vegetables in one of the dry valleys, investigate volcanic activity on Mt Erebus, and study the effects of heavy aircraft landing on the sea ice runway in McMurdo Sound.

Three universities — Waikato, Victoria, and Canterbury — will contribute teams to this season's programme, and will work with scientists from United States, Japanese, and Australian universities. Field parties will make a seismic survey in McMurdo Sound, and check the behaviour of the sea ice. Some scientists will study the microbiology of fumaroles on Mt Erebus, and others will continue long-term studies of penguins and skuas at Cape Bird on Ross Island.

Waikato University's 11th expedition will continue biological studies in the Taylor Valley, and near the crater rim of Mt Erebus. Two physicists will measure ice micro-movements around Ross Island. Later members of the Antarctic research unit will be joined by Dr P. Broady, of Melbourne University's Antarctic research unit, whose studies will be fully supported by the Antarctic Division, DSIR.

Leader of the biological research team is Dr Allan Green, a lower plant physiologist. Other members are Drs. Hugh Morgan (microbiologist), and Ray Daniel (biochemist), and Messrs. Brian Challinor (botany student) and Brian Rawley (microbiology research student).

This team will be based near the Canada Glacier and Lake Fryxell in the Taylor Valley. Two huts have been placed there by the Antarctic Division, and it is hoped to use one as a laboratory, and the other as a living area. Power will be supplied by a 1.5kw diesel generator. Dr Broady, who is a phycologist, will work at Lake Fryxell, and also spend some time at Lake Vanda.

Five major research areas will be covered by the Waikato expedition. The following studies will be carried out in these areas:

HOT SOILS

(a) Microbiology of Mt Erebus fumaroles. This follows a trial visit to the fumaroles near the crater rim of Mt Erebus by Allan Green in 1979-80 when physiological techniques were tested. Dr Morgan and Dr Daniel hope to sample the hot soils and to isolate thermophilic micro-organisms. The fumaroles have not been sampled for these before, but the presence of surface plants indicates the strong possibility of their presence.

(b) Botany of the Canada Glacier meltwater flush. This area is several hectares of a bryophyte and algal dominated community. Preliminary studies by Allan Green in 1979-80 demonstrated that infra-red gas analyser techniques could be successfully carried out on site. These were the first "on-site" determinations of photosynthesis by bryophytes and the results cast doubts on laboratory studies of cultured plants.

The work will be continued in this season and it is hoped that an idea of the productivity and distribution of the plants will be obtained. Dr Paul Broady, who is an expert on Antarctic terrestrial algae, will be of particular help in this study. An on-site study of the nitrogen fixation rates of the blue-green algae in the flush is also to be carried out.

(c) Microbiology of Lake Fryxell. Following successful initial work by Dr Warwick Vincent and Mark Lawrence in

1979-80 further studies of the metabolism of lake micro-organisms are planned. Particular emphasis will be placed on studies of the heterotrophic metabolism of bacteria in the water column and sulphur metabolism at the anaerobic boundary. This work will be carried out by Hugh Morgan, Brian Rawley and Roy Daniel.

PLANT TRIALS

(d) Glasshouse growth trials. It is hoped that a second season of vegetable growing will be carried out. A greenhouse of double-layered bubble plastic is planned together with a more detailed series of plant growth trials. The greenhouse will also be used for some of the field equipment because of the consistent warm temperatures.

(e) Logistic support allowing, a series of trips is planned to sample Don Juan Pond (for isolating micro-organisms) and to set up some long-term lichen growth rate studies along the Taylor Valley.

ICE DYNAMICS

Two members of the physics department, Messrs R. Holdsworth and R. Funnel, will measure ice micro-movements around Ross Island, using invar wire strain meters. Site one will be near the sea ice runway where open sea swell is propagated through the sea ice cover, which is approximately 3.4m thick, to give a typical wave period of six seconds. The effects of heavy aircraft landing on the ice runway will be studied to provide extra information on impacts on ice structures.

A shift will be made to the Erebus Glacier Tongue where a strain rosette will be set up near the suspected ice failure line to monitor mode and period of oscillations in this floating ice tongue. Other tasks will include surveying all previous marker poles, margin depth sounding, and it is hoped to include a pulsed radar ice depth sounding technique to study the bottom profile of the tongue.

Interest in the Erebus Glacier Tongue is heightened by the predicted calving within the next few seasons. Data collected this season will be added to this 1977-78 season's work by G. Holdsworth, D. Goodman, R. Holdsworth, to explain the behaviour of floating ice tongues, source of many icebergs around Antarctica.

CORE RECOVERY

This summer members of the 25th Victoria University of Wellington Antarctic expedition (VUWAE 25) will investigate problems ranging from Ordovician metamorphism to modern micro-organisms in McMurdo Sound, and the volcanic activity on Mt Erebus.

Mr Alex Pyne, a veteran of three previous expeditions, will lead the party of nine, which includes two university staff members, two Ph.D students, two M.Sc students, and three student assistants.

A major part of the expedition this year is the recovery of cores from the floor of McMurdo Sound. A party of four, Alex Pyne, Barbara Ward, Paul Fitzgerald and an Antarctic Division Field assistant, Bruce Garrick will operate from the 2m thick sea ice, using a winch and corer specially designed for the hob. The cores will be processed for micro-organisms, specifically foraminifera, which will be studed by Barbara Ward for her Ph.D thesis. She is a paleontologist from Northern Illinois University, who took part in the McMurdo Sound Sediment and Tectonic Study (MSSTS) last season.

Barbara Ward's principal interest is in the variation in proportions of different species in different parts of McMurdo Sound. However, foraminifera are sensitive to a wide range of pollutants and "baseline" information on their present distribution may well be useful in the event of future developments. The investigation will include a study of the effect of the desalination plant at McMurdo, which discharges a warm brine twice as saline as sea water. This should have a marked effect on the local micro-organism population.

In addition to the core sampling, the party will assist with periodic precise surveys to check the behaviour of the sea ice as the summer breakout approaches, and with a seismic survey by Dr Ray

Dibble and David Iles to determine the precise location and character of the suspected fault offshore from New Harbour. Both of these tasks will help in planning further offshore shallow drilling in the region.

EREBUS STUDIES

Dr Dibble will return to Mt Erebus again this year to join with United States and Japanese scientists in a continuing programme of study. His particular interest is in the character of the seismic and magnetic disturbances caused by the volcano. This year the party hopes to put in instruments that will record continuously over most of the summer period.

The Beacon Sandstone will again be the subject of study, this time for its magnetic properties. Professor Chris Christoffel and Stephen Bannister will collect cores from a number of carefully selected localities to try to determine the magnetic pole position for Devonian — Triassic Times. They will visit Portal Mountain, Alligator Peak, Knobhead, Mt Crean, Mt Fleming and Mt Bastion by helicopter for five days at a time.

Professor Christoffel will also participate in the seismic survey of the Ross Sea, planned by Dr Fred Davey, of the geophysics division, DSIR, which will use the Benjamin Bowring, support ship for the British Transglobe Expedition.

The oldest rocks of South Victoria Land will be the interest of Frank Reid and Steve Simmons who will map and collect in detail in the area between Miers Valley and the Blue Glacier. They will attempt to separate out the effects of regional metamorphism from that of the Ordovician granite and will sample for detailed studies on particular minerals to sort out hte temperature and pressure histories of these rocks.

Some mapping will be carried out by this team, which will include an Antarctic Division geologist, Greg Mortimer. The mapping is part of the project linking the regions from the Koettlitz Glacier to the Ferrar Glacier and dry valleys.

Last season Canterbury University's zoology department continued studies of the marine ecosystem under the permanent ice cover of the Ross Ice Shelf, and made the annual penguin and skua census at Cape Bird. This summer the expedition will consist of only two people, Dr Laurence Greenfield, of the botany department, and Graham Wilson, of the zoology department.

Between November and January the team will work at Cape Bird on Ross Island, and at Lake Fryxell in the lower Taylor Valley. Dr Greenfield and Graham Wilson will fly south in mid-November in time to carry out the penguin census. During their three weeks at Cape Bird Graham Wilson will continue his long-term studies on penguins and skuas, and record the presence and activities of other birds and mammals in the area as he has done in previous seasons.

Dr Greenfield, who studied the biomass of the microbial population at White Island in the 1977-78 season, will carry out various microbiological studies. He will make estimates of microbial biomass in soils and sediments of the lower Taylor Valley and at Cape Bird.

Sites will be prepared to investigate the long-term decomposition of intact biological tissues, including animal waste products. Specimens will be taken from mummified bodies to gain further information on the biochemical aspects of the decomposition process.

Other studies will involve the use of the Nitrogen 15 stable isotope to investigate biological and abiological nitrogen fixation and denitrification in soils. Soil, sediments, plant, animal, and faecal matter will be collected for further investigations concerning the nitrogen distribution analysis of these materials.

SOIL BIOMASS

After they have completed their work at Cape Bird Dr Greenfield and Graham Wilson will be flown by United States Navy helicopter to Lake Fryxell where they will spend another three weeks. Dr Greenfield will compare soil biomass and microbial activity in this biologically stark environment with the biologically richer soils at Cape Bird. He will also

study the biochemical decomposition of mummified tissues.

Dr Andrew von Biel and three technicians from the physics department, Ray Borrell, Graham Lees, and John Welch, will go south again in November to complete the installation of the equipment at Arrival Heights for the station which has been designed for the study of the normal and disturbed ionospheric D-region. Once installed the equipment will be monitored by the Scott Base laboratory staff for 12 months. Observations will be recorded automatically next winter and retrieved during the summer for analysis.

Third stage in rebuilding Scott Base

Work on the third stage of the programme for the rebuilding of Scott Base will be the main construction task in the New Zealand Antarctic research programme this summer. Between November and early February a construction team from the Antarctic Division and the Ministry of Works and Development will erect new sleeping quarters and ablutions facilities for 42 people.

Landscaping of the site for the building which completed last season. Some of the materials for the building will be flown south from Christchurch early in the season so that construction can proceed during the early summer months. The rest will be shipped from Lyttelton later in the season. Mechanical and electrical installations will be carried out by the MOWD.

Ten men from the Antarctic Division, three from the MOWD, and four New Zealand Army storemen-packers will be engaged on the building project this summer. They will work under the direction of an MOWD clerk of works, Mr E. P. Voisin, of Auckland, and Mr G. Varcoe, the Antarctic Division's building and services officer.

Building construction a Scott Base will be no novelty to Mr Voisin although he has not done any there for more than 23 years. He was one of the eight men of the construction unit which erected the original buildings in the 1956-57 season for the use of the New Zealand section of the Commonwealth Trans-Antarctic Expedition and the IGY team.

When he was selected to join the summer support party Mr Voisin was a chief petty officer shipwright in the Royal New Zealand Navy which he had joined after coming from Jersey in the Channel Islands. He returned to Scott Base in the 1957-58 season as a joiner aboard HMNZS Endeavour which brought the members of the Trans-Antarctic Expedition back to New Zealand.

Members of the construction team are: Antarctic Division, Messrs. G. Jackson, M. Fahey, G. Malone, K. Burke, N. Lochhead, D. Miller, G. Owen, R. Ashby, W. McDonald, B. Horner (assistant maintenance officers); MOWD, Messrs. P. Burt, G. Chalklen, R. Dunnachie. The four Army men have still to be named.

Second SCAR meeting in New Zealand

New Zealand will be host for the 16th meeting of the Scientific Committee on Antarctic Research next month. More than 120 representatives of the 14 SCAR member countries will attend which will be held in Queenstown from October 13 to 24. This is the first SCAR meeting to be held in New Zealand since 1961. Delegates will be welcomed officially by the Minister of Science and Technology (Mr W. R. Birch)

Delegates from West Germany, which became a member of SCAR last year, will attend for the first time. East Germany and China will send observers, and delegates from the international unions of biological sciences, geodesy and geophysics, geological sciences, physiological sciences, and the World Meteorological Organisation will also attend.

Professor G. A. Knox, of the zoology department, University of Canterbury, is president of SCAR. The vice-president is G. R. Laclavere (France) and the secretary is Dr G. A. Avsiuk (Soviet Union).

Delegates are: Argentina, R. M. Martinez Abal; Australia, P. G. Law; Belgium, J. van Mieghem; Chile, Pedro J. Romero; F.R.G., G. Hempel; France, G. R. Laclavere; Japan, T. Nagata; New Zealand, G. A. Knox, Norway, T. Gjelsvik; Poland, A. Urbanek; South Africa, F. J. Hewitt; UK, G. de Q. Robin, USA, J. H. Zumberge; USSR, G. A. Avsiuk; IUBS, G. A. Knox; IUGG, T. Nagata, IUGS, C. Craddock; IUPS, J. Bligh; WMO, M. J. Rubin (Representative).

Topics to be discussed at the meeting include reports from SCAR working groups, and reports from specialist groups on seals, living resources of the Southern Ocean, and an environmental impact assessment of mineral resource exploration and exploitation.

Delegates will also discuss SCAR's relations with member bodies of the International Council of Scientific Unions, and inter-governmental bodies, particularly signatories to the Antarctic Treaty. Other subjects include the International Antarctic Glaciological Project, and the world climate research programme.

Research carried out in the Ross Sea region since the International Geophysical Year (1957-58) will be the subject of a symposium which will be held between October 16 and 18. Scientists from New Zealand, United States, United Kingdom, Japan, and West Germany, will present papers on research in the geosciences, marine sciences, and glaciology.

SCAR president honoured

Professor G. A. Knox, president of the Scientific Committee on Antarctic Research, has been awarded the Hutton Medal and Prize of the Royal Society of New Zealand for 1980. The award has been made in recognition of his contributions to zoological research, his sponsorship of biological research, especially in the environmental field, and for his distinguished participation in international science.

Isolation ends for Ross Island teams

Letters from home, bright spring flowers from Christchurch, and fresh fruit and vegetables made August 25 almost a spring day for 78 Americans, 11 New Zealanders, and one Soviet exchange scientist on Ross Island when two ski-equipped Hercules aircraft arrived from New Zealand to bring them their first direct contact with the outside world for nearly six months. Six flights were completed last month by United States Navy VXE-6 Squadron aircraft to prepare for the United States and New Zealand scientific programmes of the 1980-81 season.

Spring still seemed far away when the first aircraft arrived. The sun had appeared over the horizon on August 17, but the temperature on August 25 was minus 38deg Celsius, and there was a wind of 25 to 30 knots. But the Ross Island community, which received an air drop of mail and fresh food on July 28, forgot its four months without the sun when the men saw new faces again, and caught up with more mail from home.

This year all the flights of the operation known to the United States naval support force as Winfly (winter flights) were completed before the southern spring began officially on September 1. There was a break in the flights on August 26 because of minor maintenance problems, but by August 29 the three aircraft used in the operation had completed their task.

In their six flights south the Hercules aircraft carried 19.9 tonnes of cargo. This included 2667kg of mail, 6208kg of fresh food, and 11,049kg of general cargo. Among the 162 passengers on the flights were scientists who will make an early start on summer research projects, and technicians, construction workers, and others, who will prepare for the major airlift by Hercules and Starlifter aircraft which begins early next month.

When the first flights ended the spring population of Ross Island had grown to 246 at McMurdo Station and Scott Base. On the return flights the aircraft brought back 9.6 tonnes of cargo, and six passengers. The tonnage included 7283kg of general cargo, and 2375kg of mail.

GIFT OF FLOWERS

Captain J. M. Pearigen, the new support force commander, flew in the first Hercules to meet the men of the McMurdo Station winter party, and to initiate preparations for the new season. Also on the aircraft, which was flown by VXE-6 Squadron's commanding officer, Commander V. Pesce, were three New Zealanders, Messrs R. B. Thomson, superintendent, Antarctic Divison, M. Taylor, and S. F. Corrigan.

Mr Thomson, who was making his 55th flight to Antarctica, took a box of flowers south. The carnations, daffodils, ranunculi, and orchids, were a gift to Scott Base from a Christchurch florist, and were the first flowers the men had seen for nearly a year.

A social worker at Porirua Hospital, near Wellington, Mr Taylor was on the first flight to continue the psychological testing of the Scott Base winter team which has been done for more than 10 years by his father, Professor A. J. W. Taylor. Mr Corrigan, a New Zealand Army cook, relieved the winter cook, Mr W. Bull, who returned home a month earlier.

Sixty-two of the American passengers on Winfly will prepare for the United States National Research Foundation's research programme this summer. They

were Mr D. Bresnahan, the NSF representative at McMurdo Station, Mr A. Brown, resident manager there for Antarctic Services, contractors to NSF for support services, and 60 members of the contractors's staff.

Six scientists, including two New Zealanders, flew south last month to continue the comparative study of the incidence and severity of respiratory illnesses among the winter teams at McMurdo Station and Scott Base, and the arrivals by Winfly. This study will be carried out in the six weeks before the regular flights begin and break the isolation.

COLD STUDIES

Dr Elliot Dick, who is a virologist at the University of Wisconsin, began the project last season, and also conducted a special experiment to check the transmission of the common cold virus by the use of paper tissues impregnated with iodine.

Associated with the project is a New Zealand virologist, Dr L. C. Jennings, who has set up a respiratory virus research laboratory at the Christchurch Hospital. He returned with Dr Dick to repeat the treated tissues experiment. Also in the team were Dr K. McDonald, of the Christchurch Hospital, Dr F. Wamvoldt and Mrs Wamvoldt, and Mrs S. Gravinski.

Two scientists who will make an early start on catching fish in McMurdo Sound through the ice, Messrs R. Cohen and H. Jannasch, were the first members of a team from Hunter College, New York, to start field work last month. Their project was initiated last season by Dr Audrey Haschemyer.

This season the field team will continue the study of protein synthesis in Antarctic fish as a way to assess their metabolic adaptation to sub-zero temperatures throughout the year. A major objective is to determine rates of protein turnover in living Antarctic fish, and compare them with the rates in temperate fish, and in mammals.

Winter mail and supply drop

More than two tonnes of mail were dropped on July 28 into the winter darkness of Williams Field on the Ross Ice Shelf for the men wintering on Ross Island at McMurdo Station and Scott Base. The winter mail and supply drop — the second in six years — included fresh fruit and vegetables for the 11 New Zealanders at Scott Base.

In the United States Air Force Starlifter's cargo of 4.6 tonnes were 2.26 tonnes of letters and other mail from home, and 1.36 tonnes of fresh fruit and vegetables which the New Zealanders and Americans and one Soviet exchange scientist at McMurdo Station had not tasted for more than four months. There were oranges, apples, and kiwifruit, tomatoes, lettuces, and cucumbers.

All the cargo, which included .9 tonnes of essential spare parts and 110kg pump, was made up into 164 packages and packed into 23 containers at Christchurch by United States and New Zealand Army cargo handlers. Chemical lights were attached to the containers to make them easier to retrieve in the darkness.

In preparation for the drop 914m of the left-hand of the skiway was lit by flares every 76m. With cargo handlers aboard from the U.S. Air Force and Army, and New Zealand Army, and a Royal New Zealand Air Force photographer, the Starlifter left Christchurch at 7 a.m. and arrived over the drop zone at 12.45 p.m.

When the Starlifter came over the skiway it was hidden by fog. There was a 10-knot wind at ground level, and the temperature on the ice was minus 29deg Celsius. The Starlifter spent one hour and 15min in the drop zone, and made five passes over the target.

All the cargo was dropped in 40 minutes. The Starlifter headed back for Christchurch at 2 p.m. and landed at 5.10 p.m.

ANARE REPORTS

Base rebuilding to cost $52,000,000

Australia will spend $A52,000,000 in the next 10 years to rebuild its Antarctic bases, Casey, Mawson, and Davis. The rebuilding, expected to be completed in the 1989-90 season, is needed to replace buildings which have been constructed progressively since 1954 when Mawson Station was established. In many cases the buildings have been used well beyond their design life of 10 to 15 years. The new buildings are of an advanced design and are planned to last much longer.

Since 1948 the Antarctic Division of the Department of Science and the Environment has provided logistic and administrative support for the Australian National Antarctic Research Expeditions (ANARE) and directed its own Antarctic research from Melbourne. After May next year the division's activities will be concentrated at Kingston, south of Hobart. All expeditions to the three Antarctic bases and the sub-Antarctic base on Macquarie Island will leave from Hobart.

Five buildings on the six-hectare site at Kingston, due for completion late this year, will house the entire Antarctic Division, which now occupies premises in different parts of Melbourne. The first stage of the complex, which will cost $A9,000,000 has been officially opened. It houses the Australian Government's Analytical Laboratories. The Antarctic Division's buildings will incorporate laboratories, administration and operations sections, stores and workshops, and display and conference facilities.

Establishment of the new Antarctic Division complex is part of the Australian Government's continuing programme to make Tasmania an internationally recognised centre of Antarctic and marine research. Hobart, which has had an association with Antarctic expeditions since 1840 when James Clark Ross brought the Erebus and Terror into the Derwent River, has been selected as the site for the permanent headquarters of the international commission for the conservation of Antarctic marine living resources.

Other marine research projects for Tasmania include the establishment of the Australian Maritime College at Launceston. The Australian Government also proposes to establish a marine research centre, and transfer the Commonwealth Scientific and Industrial Research Organisation's Division of Fisheries and Oceanography.

Woman doctor at Davis

A 26-year-old doctor will be the first Australian woman to winter on the Antarctic Continent. Dr Louise Halliday has been appointed medical officer at Davis, one of the three Australian Antarctic bases.

Dr Halliday, who will go south by ship in December, will be responsible for the health of the 24 men of the winter team at Davis. She will also do medical research and study the way the human body responds to the Antarctic environment.

Four women visited Casey Station in 1976 with one of the relief expeditions, and two women doctors, a radio operator, and a cook, have wintered on Macquarie Island, the Australian sub-Antarctic station. An Englishwoman, Dr Zoe Gardner, was the first woman doctor to go there for the winter.

Piper's music and tropical fish

Pipe music and movements of tropical fish will relieve the monotony of an Antarctic winter for New Zealanders at Scott Base next year. English-born Robin Hodgson, a senior Post Office technician, has included bagpipes in his luggage, and the dog handler, Allan Taylor, has arranged for an aquarium stocked with tropical fish to be installed at Scott Base this season.

There have been pipers in Antarctica before, and like them, Robin Hodgson may bring the sound of pipes to seals and penguins near Scott Base. The first piper to go south was probably a Scot named Kerr, who was a member of the Scottish National Antarctic Expedition led by Dr William S. Bruce.

One of Kerr's duties was to pipe the expedition ship Scotia in and out of port on the way to the South Orkneys and the Weddell Sea in 1902-04. He also entertained members of the expedition with pibrochs or reels during the voyage from Scotland.

In the Antarctic Kerr piped for the penguins. There is a classic picture in "The Voyage of the Scotia," of Kerr, wearing kilt, sporran, and bonnet, playing the pipes on the ice. The penguin beside him does not seem to be impressed.

Kerr had a sadder duty when the Scotia wintered in the South Orkneys. The chief engineer, Allan Ramsay, died from heart disease on August 6, 1903. He was buried on the north shore of Laurie Island, and the piper headed the funeral procession, playing "The Flowers of the Forest" and "The Old Hundreth".

Support by three air forces

Logistic support for three Antarctic research programmes will be provided again this season by United States, New Zealand, and Australian aircraft. In late November and early December Hercules aircraft of the Royal New Zealand Air Force and Royal Australian Air Force will contribute to the airlift of men and materials from Christchurch to McMurdo Station which United States Starlifters will begin early next month.

This year New Zealand's contribution to the United States-New Zealand logistics pool has been increased. No. 40 Squadron will make 11 flights in Operation Ice Cube, two more than last season. The additional flights will be made early in the season to transport some of the building materials for the Scott Base reconstruction programme.

Australian aircraft will operate through Christchurch again and contribute to the pool under a tripartite agreement whic provides for Australian scientists to be flown from McMurdo Station to Casey Station. This season the RAAF will make six flights from Christchurch to McMurdo Station, two more than last year.

In return for the flights of what the RAAF calls Operation Snowflake the United States naval support force will provide two flights to Casey Station with Australian National Antarctic Research Expeditions scientists and other staff. These flights of 220km will be made in November and January next year by United States Navy ski-equipped Hercules aircraft of VXE-6 Squadron, which will use an ice runway about 12km from Casey Station on the Polar Plateau.

As in past seasons two RNZAF helicopter crews will be attached to VXE-6 Squadron and will fly on support missions. New Zealand will also supply loading crews during the airlift, and Army cargo handlers will work at Williams Field near McMurdo Station.

BAS NEWS

Relief of five winter teams by ship

Relief of the 83 men who wintered this year at the five main British Antarctic Survey stations will begin in October and November when the Royal Research Ships John Biscoe and Bransfield will begin their summer operations in Antarctic waters. Among the first to be relieved are seven men who were stranded on Signy Island in the South Orkneys last summer when the John Biscoe was unable to reach the island because of heavy pack ice. Seventeen members of the winter teams are at Faraday in the Argentine Islands. There are 18 at Grytviken on South Georgia, 16 at Halley, 13 at Rothera on Adelaide Island, and 19 at Signy (including the stranded seven).

First to sail south will be the John Biscoe. She is expected to sail from Southampton on September 23 with 27 passengers on board. The Bransfield, which was damaged at the end of last summer when she ran aground at the approaches to Rothera, has now been repaired, and is expected to leave the shipyard at South Shields at the end of this month. She will be sailing from Southampton on October 21 with 35 passengers. Other summer visitors and field workers will join the ships at Rio de Janeiro and the Falkland Islands.

The John Biscoe will relieve Grytviken, South Georgia, at the end of October, and will land biologists on Bird Island (at the north-western tip of South Georgia) to continue their work on birds and seals. She will then pick up the seven men stranded at Signy, and will proceed to the west coast of the Antarctic Peninsula to land summer field workers at Damoy, Wiencke Island, for transport by air to southern work sites.

Next the ship will support biologists working in the South Orkneys and on South Georgia. After picking up more passengers from Montevideo, she will spend January and February at sea working on the long-term Offshore Biological Programme.

As usual, the Bransfield will be responsible for the major part of the relief of the five main stations. Among the cargo being taken south this year is a new two-storey wooden building for Signy and the advanced ionospheric sounder (AIS) for Halley. The former will house a decompression chamber, a compressor room and additional laboratories, and the latter is being installed at Halley after being test-run at Cambridge for a year. ("Antarctic", September 1979).

AIS programmes will focus first on the main F2-region trough, ionospheric drifts and correlation with "whistler" results. It is hoped that, eventually, it will be possible to establish a geostationary satellite two-way communications link between the United Kingdom and Halley, so that the AIS can be operated from the United Kingdom simultaneously with receiving real-time data from Halley.

The two Twin Otter aircraft which have been on charter in the United Kingdom during the southern winter are now in Calgary, Alberta. There they are having additional fuel tanks fitted to increase their range. They will be returning to the Antarctic at the end of October.

BUILDING WORK

Rebuilding of part of Faraday Station, has made good progress. A two-

Alongside the ice edge at Halley is the Royal Research Ship Bransfield. After relieving the station in January she was damaged at the end of last season when she ran aground at the approaches to Rothera. This season she will sail south late next month.

BAS photo by C. J. Gilbert

storey extension replacing part of the main building was erected during the 1979-80 summer, and the ground floor is now occupied. When interior work on the upper floor has been completed, the four-man building team will turn its attention to modernising the remainder of the old building.

Faraday, one of the two BAS geophysical observatories, was established originally as a meterological station on the neighbouring Winter Island in 1947, but was rebuilt at the present site on Galindez Island in 1954. The main building dates from this time, but a one-storey extension was added to it in 1960. It is constructed of insulated timber panels on a timber frame and is supported by concrete piers on an uneven rock foundation. Additional buildings at the site include a non-magnetic hut, a balloon hut, and a generator shed.

Present scientific programmes cover surface meterology, upper-air soundings (radiosonde and radar wind), geomagnetism, ozone, solar radiation, seismology, ionospheric recording (added when observations at the nearby Port Lockroy, Wiencke Island, ceased in 1962), auroral observations, oceanography (tides) and isotope analysis.

The Argentine Islands form a small archipelago about 4.8km off the west coast of the Antarctic Peninsula in latitude 65deg 15min S. The largest of the islands is only about a mile across and the highest hill is only 53.9m, but a number of the islands have impressive sloping ice-caps which end in spectacular ice cliffs on the southern side. During the winter, sea ice forms over the whole area and sledging between the islands and mainland is possible. Climbing trips to the mainland are a popular form of recreation, and several parties were out in July.

LONG JOURNEY

As usual at this time of year, all stations have been busy with routine programmes, general maintenance and preparations for summer field work interspersed with short local journesy. Midwinter was, of course, celebrated appropriately, the Cambridge headquarters joining in the merry-making. At Halley, the midwinter radiosonde was decorated with ribbons and tinsel before being launched in a 35-knot wind.

One long journey was undertaken in July by two men from Rothera using a

dog team. Although dogs were officially replaced by a fleet of motor toboggans and larger vehicles some years ago, there are still about 40 at the station. Training them and travelling with them is greatly enjoyed by everyone.

They visted the old Stonington Island base, 112.6km to the southeast across Marguerite Bay, stayed three nights with the Argentine team at San Martin in the Debenham Islands, travelled up on to the Antarctic Peninsula plateau, and also visted the old Horseshoe Island base before returning to Rothera two weeks later.

At Signy, higher temperatures and strong winds broke up much of the sea ice at the end of June, which limited travel, but the arrival of unusually large number of crabeater seals to the open water compensated for this. Most of the men took the opportunity of donning wet suits and swimming among the seals. A minke whale and elephant seals were also attracted by the open water. The pack ice returned in July and was soon consolidated by lower temperatures. A number of parties were then able to visit the neighbouring Coronation Island.

Chinese Antarctic research plans

China intends to become a full partner in the Antarctic Treaty within the next 10 years. It is expected to accede to the treaty before the end of this year, and has already begun comprehensive plans for a programme of Antarctic research. These proposed activities were discussed by the Chinese with two New Zealanders. Mr R. B. Thomson, superintendent of the Antarctic Division, and Professor G. A. Knox, president of the Scientific Committee on Antarctic Research, on a recent visit to China.

In the last year China has shown increased interest in joint scientific research in Antarctic, particularly in association with Australia and New Zealand. Scientific and technical information has been provided by New Zealand, and last season an oceanographer and a geologist were guest scientists with the Australian National Antarctic Research Expeditions at Casey Station.

Mr Thomson and Professor Knox were invited to visit China by the Bureau of Oceanography for "academic exchanges of mutual interest". During their two-week stay in Peking, Tsentao, and Shanghai, they gave about two lectures a day on Antarctic research to scientists and directors of scientific institutions. They were also invited to discuss the possibility of China's activities in the Antarctic with Mr Fang Yi, the Vice-Premier for Science and Technology.

China has to have "a significant Antarctic activity" before it can be given consultative status as an Antarctic Treaty nation. Mr Thomson says the Chinese research programme will begin with the establishment of a national committee on Antarctic research. The committee will draw up a detailed plan, based on information supplied by New Zealand.

A Chinese research programme would include plans for a base in Antarctica, means of transport to the continent, research on the way south, and co-ordination of projects. It is likely a base could be established in the next six or seven years, Mr Thomson says. The Chinese have a 4200-tonne oceanographic survey ship which they hope to use in Antarctica after modification. It accommodates 70 scientists and a crew of 74, and has 14 laboratories.

Research in the marine sciences is the main interest of the Chinese. Professor Knox says that these include oceanography, geological surveys, and marine biology. New Zealand could help Chinese scientists with the problems peculiar to polar research.

China plans to send observers to the 16th meeting of the Scientific Committee on Antarctic Research, which will be held in New Zealand next month.

Biomedical expedition in Adelie Land

Scientists of five nations will make a 10-week journey of 800km on the Polar Plateau from Dumont d'Urville this summer. They are members of the International Biomedical Expedition to Antarctica (IBEA) which is the first purely biomedical research expedition to the continent. France has sponsored the project and will provide the major logistic support.

In 1976, Dr Jean Rivolier, secretary of the SCAR working group on human biology and medicine, proposed the first purely biomedical research expedition to Antarctica. At the 15th meeting of SCAR at Chamonix in May, 1978, the permanent delegates endorsed the IBEA proposal, and encouraged the working group to proceed with its plan under appropriate national sponsorship; France accepted this sponsorship, and other SCAR nations agreed to assist. Since then there have been several changes in plan due to the availability of logistic support.

Twelve scientists will sail from Hobart in early December on the Thala Dan with members of Expeditions Polaires Francaises (EPF) and will be flown by helicopter to D10 where the French have assembled the traverse equipment. The IBEA group will sleep in tents, and travel by motorised toboggans along a route from D10 to D21 and D59, returning along the same route to Dumont d'Urville. Thala Dan will return IBEA to Australia in early March.

Members of IBEA are:— J. Bernaldez (Argentina); G. Budd, D. Lugg, D. Parer (Australia); C. Bachelard, J-L. Lecroart, J. Regnard (France); I. McCormick (New Zealand); R. Goldsmith, I. Hampton, D. Layman, S. Smith (United Kingdom). Dr Lugg, senior medical officer of the Australian Antartic Division, will be the scientific leader.

IBEA has been organised by the SCAR working group on human biology and medicine as an international expedition in the tradition of Antarctic scientific co-operation.

IBEA's research program is multidisciplinary, with projects in physiology, biochemistry, microbiology, immunology, behavioural adaptation, sleep, and epidemiology. The expedition's aim is to compare the performance and physiological response of artificially acclimatised and unacclimatised men working in Antarctica. In addition the effects of the environment on other variables) behaviour, sleep patterns, metabolic and biochemical fluctuations, immunological responses and normal body flora) will be determined, and the total environment of the group will be measured.

All the scientists with IBEA will also be the subjects, and they will be assigned at random to control and treated groups. Experiments will be divided into three phases. Preliminary and post-field phases will be carried out at the Commonwealth Institute of Health, University of Sydney, in November and March, to see the affects of the Antarctic traverse on the subjects.

EPF will provide field security and traverse support including an eight-man team, which will also be involved in glaciological studies and deployment of automatic weather stations on the Polar Plateau. The major logistic support will be provided by EPF with considerable assistance from the Australian Antarctic Divison. Additional support is coming from Japan and Argentina. Polar veteran, R. Guillard, will be in charge of the EPF logistic team.

D. Parer, who has filmed and produced prize-winning Antarctic television documentaries for the Australian Broadcasting Commission will be filming the expedition for the IBEA organising group as a joint ABC-Antarctic Division project. He wintered at Mawson as a cosmic ray physicist in 1970 and 1972, and made the films "Antarctic Winter" and "Antarctic Summer", which were screened in the ABC series, "Wild Australia".

SOVIET EXPEDITION

Russkaya established by cargo ship Gizhiga

Russkaya, the new permanent Soviet base at Cape Burks on the Hobbs Coast of Marie Byrd Land, was not established last season by the Mikhail Somov, flagship of the Soviet Antarctic fleet, as originally reported. The operation was assigned to a newcomer, the 9280-tonne ice-class cargo ship Gizhiga, which is normally engaged in Arctic shipping operations.

Late in February this year the Gizhiga, commanded by Captain Yuriy D. Utusikov, approached to within 24km of the planned site for Russkaya. Between the ship and the coast was a belt of fast ice which is used by supply ships off other Soviet stations as an unloading platform.

For establishing Russkaya, however, the Gizhaga used its two Mi-8 helicopters, which ferried prefabricated building modules, supplies, and fuel to the station site. Unloading took 12 days, and was interrupted frequently by snowstorms and gale-force winds.

Russkaya was formally inaugurated on March 10. Nine men, headed by Vladimir Stepanov, an upper atmosphere specialist, remained for the winter.

Six ships took part in the 25th Soviet Antarctic Expedition last season. Five left their home ports of Leningrad and Odessa in October and November, and the last, the Estoniya, sailed from Riga in January.

Of the early ships the Mikhail Somov, out of Leningrad, reopened the summer research station, Druzhnaya, on the Weddell Sea Coast. It took over the mission of the Olenik, which caught fire and burned after a collision with a Soviet tanker off the Danish coast on October 31. The Professor Vize undertook its ninth voyage from Leningrad to Antarctica to take part in the international Polex-South oceanographic research programme.

Bellingshausen Station on King George Island in the South Shetlands was relieved by the Bashkiriya, out of Odessa, early in December. The Bashkiriya then rendezvoused with the Pioner Estonii, out of Leningrad, off Molodezhnaya Station.

Relief staff and supplies were transfered from the two ships at the ice edge to the station 80km away by Mi-8 helicopters and IL-14 aircraft. The two ships then proceeded to Mirny.

In late January the Bashkiriya was the first to head home. On board were 70 members of the 24th Soviet Antarctic Expedition who were the first to complete their tour of duty at Bellingshausen, Molodezhnaya, Vostok, and Mirny.

Two other Soviet ships operated in Antarctic waters last season, but not with the 25th expedition. The production training vessel Professor Kozhin took students from the Sakhalin and Kamchatka navigation schools to the expedition area, and the research ship Milogradov, sailed from Singapore to carry out a scientific programme in Antarctica.

Transglobe team ready for crossing

Three members of the British Transglobe Expedition are expected to begin their crossing of Antarctica from their winter base in the Borga Massif to Scott Base late next month or early in November, depending on the temperatures. The leader of the expedition, Sir Ranulph Fiennes, and the other members of the ice team, Charles Burton and Oliver Shepard, will travel by snowmobile first to the South Pole, then down the Robert Scott Glacier and across the Ross Island Shelf to Scott Base.

With the support of the supply ship Benjamin Bowring, formerly the Kista Dan, and its Twin Otter aircraft the expedition completed the first leg of the Antarctic stage of its planned polar circumnavigation of the world early in February. A base camp was established on the Fimbul Ice Shelf 3.2km inland from the South African base, Sanae, in Queen Maud Land. Fuel and supplies were then flown to the Borga Massif and the winter base was established near Mt Ryvingen (72deg 55min S/3deg 29min W) which is about 233 km south of Sanae.

When the Benjamin Bowring sailed from Cape Town on December 22 she carried 600 45-gallon drums of fuel for the Twin Otter, snow vehicles, generators, cookers, and heaters, and 200 tonnes of supplies. Her passengers included the ice team, Lady Fiennes, who is responsible for communications, Simon Grimes, Anthony Birkbeck, and David Mason, who will be the support team during the crossing, film crew of four, and a photographer. Two scientists from the University of Cape Town made the voyage south to record sea temperatures and salinity, and the density and distribution of plankton.

Early on January 5 after three days in very open pack ice the Benjamin Bowring reached Polarbjorn Buchte, the bay in the Fimbul Ice Shelf used by the South African research and supply sip Agulhas. The first task of the expedition was to mark out depot lines on the ice, and glag a landing strip for the Twin Otter.

Unloading of stores, equipment, and fuel, and their transport from the ice edge went on day and night, the ship's crew and members of the expedition working in shifts. A gale which lasted 36 hours forced the Benjamin Bowring to leave her mooring, and 10 drums of fuel were lost. But several days later the Agulhas arrived on her usual voyage to relieve Sanae with 600 more drums of fuel for the expedition, which had continued its arduous task as soon as the Benjamin Bowring was able to return to the ice edge.

PLANE GROUNDED

While the Benjamin Bowring was riding out the gale the expedition's Twin Otter, which Captain Giles Kershaw and Sergeant Gerry Nicholson had flown from England by way of Iceland, Canada, the United States, Brazil, Paraguay, Argentina and the Falkland Islands, was grounded at the British Antarctic Survey base Halley, 965km to the south-west.

When the Twin Otter arrived on January 10 the establishment of the Borga base began. Sir Ranulph Fiennes and his wife flew to the site, erected a tent and marked out the fuel and stores depot. An airstrip was cleared and marked out, and the cargo flights with essential stores and prefabricated hut sections began.

Flights from Sanae to Borga took an average of 1hr 20min, and the ship's crew and members of the expedition were kept busy refuelling the Twin Otter, loading it, and preparing more

On the ice in Queen Maud Land is the Transglobe Expedition's Twin Otter aircraft which will support the Antarctic crossing this summer. Bowring Magazine photo

loads. Simon Grimes, Anthony Birkbeck, and David Mason replaced Sir Ranulph Fiennes and his wife, and started to erect the huts, unload the stores, and prepare for putting up a radio mast.

Most of the essential supplies had been flown to Borga by the time the Benjamin Bowring sailed for Cape Town on January 17. But the work went on at the Sanae base, and by Feburary 9 Captain Kershaw and Sergeant Nicholson had finished their cargo runs nearly two weeks ahead of schedule. The ice team had driven to Borga on their snowmobiles towing sledges, and the air crew flew there for the last time on February 10, and then started the return flight to England.

SIX AT BASES

Six members of the expedition remained in Antarctic for the winter. Lady Fiennes has shared the ice team's isolation at the Borga base, now named Ryvingen for the last eight months. Simon Grimes and Anthony Birkbeck had wintered at the base near Sanae.

When the ice team begins the journey to the South Pole Lady Fiennes will remain, at Ryvingen with her Jack Russell terrier Bothie to maintain communications. Simon Grimes and Anthony Birkbeck will fly to Ryvingen to assist Captain Kershaw and Sergeant Nicholson, who will lay fuel and food depots for the ice team every 321km on the way to the Pole. They and Lady Fiennes will fly to Scott Base when the ice team reaches the Pole, and will provide support for the second stage of the crossing.

Before the Twin Otter left England on November 23 it was fitted with a long-range ferry fuel system which increased its flight duration to 19hrs. The flight from Gatwick to Sanae, a distance of 20,921km, was completed in 99hrs 5min flying time.

DIRECT FLIGHT

On January 1 the Twin Otter flew from the Falkland Islands to the BAS base Rothera on Adelaide Island, making a mail drop at Faraday in the Argentine Islands on the way. From Rothera the aircraft flew to Halley on January 5, and on the way landed a few kilometres from the old South African base in the Borga Massif at 72deg 50min S/3deg 48min W.

When the Twin Otter left Ryvingen for the last time it flew to Halley and then to Rothera where the ferry fuel system was refitted. A direct flight was made to the Falkland Islands on February 14. Except for a refuelling stop at Goose Bay, Labrador, the aircraft

followed the same route back to England, and arrived at Luton on February 19, having completed the trip in 90hrs flying time.

In the summer Captain Kershaw and Sergeant Nicholson will fly back to the Sanae base to provide air support for the ice team. The Benjamin Bowring is expected to sail from New Zealand to McMurdo Sound in January to await the arrival of the ice team and other members of the expedition at Scott Base.

This report is based on articles in recent issues of "Bowring Magazine" by Antony Bowring, marine co-ordinator, marine co-ordinator for the Transglobe Expedition, and Sergeant Gerry Nicholson. Two photographs in this issue are reproduced by courtesey of the Bowring Group.

Base on Ronne Ice Shelf for West Germany

West Germany's first permanent research station in Antarctica will be established this summer. It will be built on the Ronne Ice Shelf at 77deg S/50 deg W and about 20km inland. About 30 men will work there each summer, and in winter the station will be manned by parties of six to eight.

This season's expedition will concentrate on the construction of the base, which will provide living space in insulated, fully-equipped containers. These will also include laboratories and storerooms, and will be placed inside two corrugated metal tubes 50m long and buried 2m under the ice.

Some scientific work will be carried out this summer, but the full scientific programme, supported by two Twin Otter aircraft, will not begin until the 1981-82 season. Projects will include glaciological studies of the Ronne Ice Shelf, which could reveal information about the origins of West Antarctica, and oceanographic work in the Weddell Sea area.

Among other research projects is an investigation of the dynamics of the sea ice in the Weddell Sea. There will also be meteorological and oceanographic research into the effects of the polar regions on world climate, the formation and spread of bottom water, and heavy metal pollution in Antarctic waters.

Last season the West German reconnaissance expedition, which sailed into the Weddell Sea aboard the chartered Norwegian research vessel Polarsirkel to find a site for the research station, set a record. The Polarsirkel went further west than any ship before it through the pack ice of the Weddell Sea.

An ideal site for the first West German Antarctic base was located at 77deg S/50 deg W on the Ronne Ice Shelf. It met all the major requirements. The pack ice was found to be fairly readily accessible at this point, and the edge of the ice shelf was one seven to 10 metres high, allowing equipment to be landed without undue difficulty.

During its voyage in the Weddell Sea the Polarsirkel sighted the remains of the original British base at Halley Bay, which was established off the Caird Coast of Coats Land in 1956. The base was buried 25m beneath the ice and had reached its outer edge.

Captain Lothar Suhrmeyer, who was a nautical adviser aboard the Polarsirkel, recalled the sighting when the ship returned to Bremerhaven. He said that half the base had already been broken up and carried out to sea as an iceberg, while the remainder still clung to the edge of the ice shelf. It was possible to sail alongside the old base and crawl inside its ice-clad remains.

Helicopters rescue sick man from Sanae

A rescue flight was made on April 26 by two South African Air Force helicopters to Sanae III, the new South African base in Queen Maud Land, to bring out a member of the winter team who had contracted tuberculosis. The helicopters operated from the Department of Transport research and supply ship Agulhas, which battled heavy season on its voyage into the Weddell Sea to bring the sick man back to Cape Town.

In a special report to "Antarctic" Mr R. van Mazijk, of the Department of Transport, who acted as survival instructor to the helicopter crews, says that a telephone call was received on April 8 from the doctor at Sanae, indicating that the diesel mechanic, Mr B. P. Botha, had contracted tuberculosis. As the occurrence of tuberculosis is highly unlikely in Antarctica, the doctor did not have enough of the right medicine to administer to the patient, and also for preventive medication of the other members of the winter team.

After several alternatives were considered, it was decided to send the Agulhas to Antarctica, and to fly the much-needed medicine to Sanae by helicopters operating from the ship. The 19th Squadron, SAAF, which operates Puma SA330 helicopters, agreed to supply two for the operation. This was the first time the South African Government had undertaken such an operation, and the middle of April was late for Antarctic flying operations.

Original satellite ice reports indicated that the pack ice extended 120km from the Fimbul Ice Shelf. This gap was still with the limits of the flying endurance of the Puma helicopters. At that stage Sanae still had about 10 hours of daylight left. The sun sets normally during the middle of May for the long polar night.

Provision was made for survival on the ice in the event of something going wrong during the flight. Mr van Mazijk, who has wintered at Sanae, acted as survival instructor on the rescue flight because only one member of the helicopter crews had been to Antarctica before.

As could be expected, the "Roaring Forties" were not the best place to be, especially during the winter months. Huge seas were experienced on the trip south, but these were nothing compared to the 19m swells encountered on the return voyage. At that stage a couple of rolls in excess of 50deg were also recorded. Luckily, the helicopters were tied down well enough not to sustain any damage.

When the Agulhas arrived off the Fimbul Ice Shelf, it was discovered that the pack ice was only an incredible 8km wide. A blizzard blew for three days, making flying operations impossible. The highest wind gust recorded was 84 knots, and even in the pack ice swells of up to 12m were experienced. Sanae reported that the blizzard was the first severe one the winter team had encountered.

Finally, on Saturday, April 26, the weather improved, and a beautiful clear morning promised excellent flying conditions. With the participation of Puma helicopters in future South African Antarctic operations in mind, the rescue operation provided excellent experience for the flight crews.

From the Agulhas to Sanae the actual flying distance was about 45 nautical miles. Visibility was absolutely perfect, and the base could be seen about 30 miles away. Although the air temperature was minus 24deg Celsius all the winter team turned out to bid farewell to Mr Botha.

In the 15 minutes the helicopters were on the ice fresh fruit and vegetables and the much-needed medicine were unloaded, and the flight crews were able to exchange pleasantries with the winter team. The pilots left the helicopter engines to idle during the short time they were on the ice.

On the return flight it was found that the landing areas where the Agulhas docks annually were still completely free of ice. In the past it was always assumed that the sea was frozen over for many miles to the north by the end of April.

Except for the heavy seas described earlier the return trip to Cape Town was uneventful. The Agulhas finally docked on Sunday, May 4, and concluded a highly memorable and successful operation. Mr Botha is now responding well to treatment in Pretoria.

Foreign fishing catches in sub-Antarctic

Soviet, Japanese, and South Korean trawlers took nearly 50,000 tonnes of fin fish, excluding tuna, from New Zealand's sub-Antarctic waters in the year ended March 31. Of the 165,700 tonnes allocated to the three nations licensed to fish in New Zealand's exclusive economic zone 109,000 tonnes were caught in area E, which includes the Auckland, Bounty, and Antipodes Islands, and Campbell Island.

In area E the Soviet Union had a quota of 52,000 tonnes and its catch was 33,836 tonnes. Japanese trawlers took 15,600 tonnes of the 50,000 tonnes allocated in area E, but the South Koreans caught only 436 tonnes out of an allocation of 7000 tonnes because they did not bring enough suitable vessels into the area.

Last winter most of the foreign fishing activity in New Zealand's sub-Antarctic waters was off the Auckland Islands. Twenty-nine trawlers were reported in the area during mid-April — seven Soviet vessels, six Japanese, and 16 joint venture trawlers.

In mid-May there were 22 trawlers in the area. Five were Soviet vessels, and 17 joint venture trawlers. Two Soviet trawlers were reported working north-east of Campbell Island.

By mid-June only one Japanese trawler and two joint venture vessels remained in the Auckland Islands area. North-east and south-east of Campbell Island six Soviet trawlers and one Japanese were reported.

Activity in mid-July was limited to three Japanese trawlers about halfway between the Auckland Islands and the Snares, which are in area F, and two Soviet trawlers east of Campbell Island. Just below 45deg S and north-west of the Bounty Islands two joint venture vessels were reported.

Polish trawlers are expected to begin fishing in New Zealand's sub-Antarctic waters later this year. The New Zealand Government has approved a joint venture by two New Zealand companies, R. and W. Hellaby Ltd and Mauri Bros and Thomson (NZ) Ltd with the Central Fisheries Board of Poland.

Poland is one of the world's largest fishing nations, and the Central Fisheries Board is the controlling organisation for its fishing companies. Dalmor Deepsea Fishing and Fishing Service Enterprises is the biggest of these, and is expected to provide two 88-metre trawlers for the joint venture.

Dalmor is associated with Mauri Bros and Thomson (Aust) Pty Ltd in a two-year feasability fishing project in waters south of Australia. Two 88-metre trawlers will operate off the coasts of South Australia, Victoria, and Tasmania, and within 200 miles of Macquarie, Heard, and McDonald Islands in the sub-Antarctic.

For the New Zealand joint venture two trawlers will be used, one of 2690 tonnes and the other of 2260 tonnes. Both vessels will have on-board processing facilities, and each will carry a crew of 90, including processing workers.

Move to ban all whaling unsuccessful

Proposals for an immediate moratorium on all commercial whaling or alternatively a ban starting in 1982-83 were rejected by the 24 member nations of the International Whaling Commission at their 32nd annual meeting in Brighton from July 21 to 26 this year. Delegates also rejected a proposed moratorium on sperm whaling and an amended proposal to have the ban begin in 1981-82. All the proposals failed to obtain the necessary 75 per cent majority.

But the commission did reduce the worldwide catch of all species from 15,883 to 14,107, and cut the quotas for sperm whales from 2203 to 1320. The meeting also established a working group to examine the problem of pirate whalers operating from countries outside the IWC. It will recommend measures to restrict such operations for consideration at the IWC meeting next year.

Last year the commission agreed to a proposal by the Republic of Seychelles for the establishment of an international whale sanctuary extending to 55deg South in the Indian Ocean. The Seychelles proposed this year that the sanctuary should be extended to Antarctic waters, but the question was not pressed to a vote.

A ban on killing orcas (killer whales) from factory ships was imposed by the IWC last year, but it also recommended limits on catches by other means. The Soviet Union's recommended limit was 24, but 906 orcas were killed in the Antarctic. Now the ICW has made the ban explicit.

A move to bring small cetaceans like dolphins and porpoises within the scope of the International Whaling Convention was deferred for consideraton later. At present these smaller species can be hunted indiscriminately.

Humane killing of whales, and particularly the cold harpooning method (use of unarmed grenades) have been studied by a working group of the ICW and its technical committee. As a result the commission has imposed a ban to take effect in 1981 on the use of unarmed grenades for all species except minke. A proposal to include minke failed to achieve the necessary three-quarters majority.

Although the cut in sperm whale catch quotas was not large this year, the quotas set for the Southern Hemisphere and the North Atlantic caused three of the 10 whaling nations — Chile, Peru, Spain — to serve notice that they intend to cease sperm whaling. The Southern Hemisphere quota has been reduced from 580 to 300, and the North Atlantic figure from 273 to 130.

Chile and Peru have announced that they will cease sperm whaling by 1982, and Spain no longer intends to catch the species. The Spanish decision was the result of an increase in its quota for fin whales. It had objected to a figure of 143 for its North Atlantic catch in 1980. This was altered to 440 over two years.

Subsistence whaling has been a contentious question at ICW meetings for several years, and particularly the catching of bowhead whales by Alaskan Eskimos. Last year the IWC fixed the take at 65 whales struck or 45 landed over a three-year period with a maximum of 17 landed in one year. The United States announced that it expected a progressive reduction in this catch.

Detailed catch limits set for the 1980-81 pelagic season and the 1981 coastal season, compared with last year's figures (in brackets) are:—

North Atlantic: Sperm, 130 (273); minke, 2554 (2543); sei 100 (100); fin, 701 (624).

North Pacific; Bryde's, 529 (479); sperm, 890 (1350); minke, 1361 (1361); gray, 179 (179).

Southern Hemisphere: Bryde's, 264 (264); sperm, 300 (580); minke, 7072 (8102).

Others: Bowhead, 17 (18); humpback, 10 (10). Totals, 14,107 (15,883).

Since last year another non-whaling nation, Oman, has joined the IWC, bringing the full membership to 14 non-whaling nations and 10 commercial whaling nations. Brazil will join the non-whaling nations, having decided to ban whaling, close factories, and halt trade in whale products from January 1, 1981.

More Antarctic cruises this season

Two cruise ships, the World Discoverer, operated by a West German shipping line based in Hamburg, and the veteran Lindblad Explorer, will be back in the Antarctic this season. Each ship is expected to make one cruise to the Ross Dependency, ending at Lyttelton between February and March next year.

Last season the World Discoverer, which entered the Antarctic cruise business in the 1977 — 78 season, made two 24-day cruises in December and January, calling at Coronation Island in the South Orkneys, Grytviken, South Georgia, and Antarctic Peninsula bases. This season four cruises are planned. The last, between January 17 and February 17, will continue from the Antarctic Peninsula to McMurdo Sound and on to Lyttelton.

Between November 22 and December 14 the World Discoverer will sail from Montevideo to the Falkland Islands (Islas Malvinas), and then to Hope Bay, King George Island, Fildes Peninsula, Admiralty Bay, Paradise Bay, Port Lockroy, Anvers Island, Deception Island, and Punta Arenas. For the second the third cruises, which will begin and end in Punta Arenas, passengers will fly from Santiago to join the ship.

On the December-January cruises the ship will sail first to Port Stanley, Falkland Islands, and then on to South Georgia and the South Orkney Islands. From there the cruises will follow the same itinerary as the first.

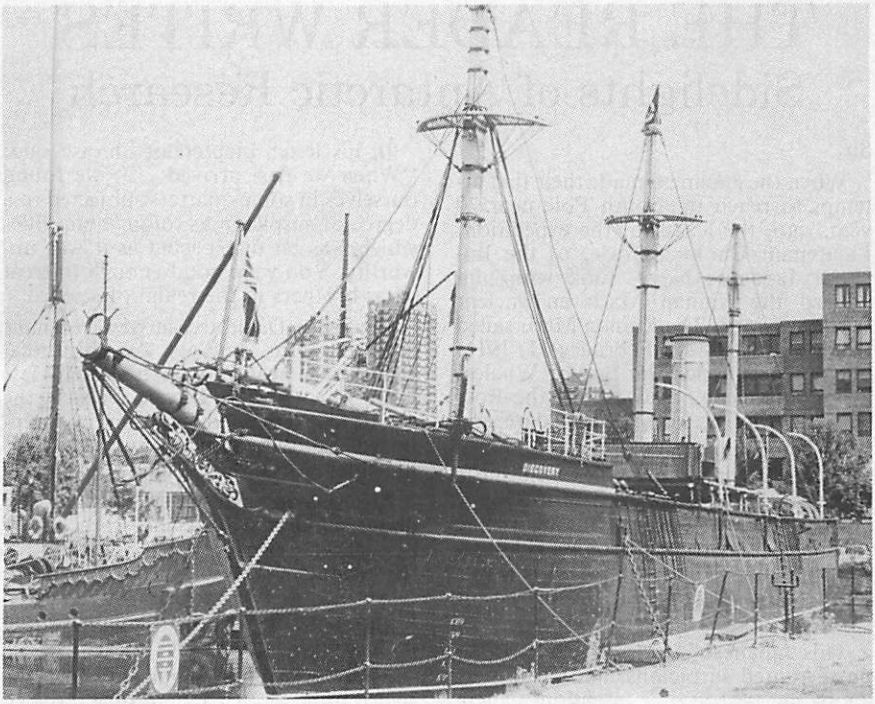
In the middle of January the World Discoverer will sail from Punta Arenas and cruise in the Antarctic Peninsula area. She will then proceed to McMurdo Sound where the tourists are expected to visit McMurdo Station and Scott Base.

When the World Discoverer is in McMurdo Sound she is expected to make calls at Cape Royds and Cape Evans to enable her passengers to visit the historic huts. Then she will sail for Lyttelton, and depending on the weather and ice conditions, will call at Cape Hallett, Cape Adare, Balleny Islands, Macquarie Island, and Campbell Island, arriving at Lyttelton about February 17.

Last season two cruises by the Swedish-owned Lindblad Explorer, one to the Antarctic Peninsula area, and one to the Ross Dependency, were abandoned after the ship ran aground off Wiencke Island in Gerlache Strait on December 24, and had to be towed to the Chilean port of Talcahuano for repairs. At the time she was under charter to a Japanese film company making a science fiction film with an Antarctic setting.

This season the Lindblad Explorer is expected to make two cruises in southern waters. The first has been listed as an 11,000-mile sub-Antarctic cruise, starting at Singapore about the middle of November, and ending at Buenos Aires early next year. There are no details of the route to be followed.

In February and early March the Lindblad Explorer is expected to make the cruise to the Ross Dependency which was abandoned last season. The voyage is planned to begin from Ushaia on February 1, and end at Lyttelton about March 8.



A New Zealander, Liz Brook, who is illustrations editor of the "Dominion", Wellington, took this picture of the Discovery under refit while she was in London this year.

Discovery refit now under way

Another stage in the repair and preservation of H.M.S. Discovery has been completed. The little barque-rigged ship which took Scott's first expedition to Antarctica in 1901 is back in the Thames after being towed back from Sheerness where she had been placed in dry dock for repairs to the timbers of her inner hull which had deteriorated because of a fungus growth.

Now the 79-year-old ship is in St Katharine Dock. Shipwrights and riggers employed by the Maritime Trust are busy above and below decks, using the original plans and specifications, to refit the Discovery so that she can be preserved for many more years. The work is expected to be completed by the end of this year.

Originally, the Maritime Trust to which ownership of the Discovery was transferred from the Ministry of Defence last year, planned to place the ship with its collection of other historic ships in the east basin of St Katharine Dock. However, the trust has now chosen a berth on the South Bank of the Thames some time next year the Discovery is expected to be moored permanently at St Mary Overy Dock near Southwark Cathedral. She will be included in a plan to make part of Southwark attractive to tourists.

THE READER WRITES

Sidelights of Antarctic Research

Sir,

When the Japanese made their first attempt to reach the South Pole near 70 years ago, the leader of the expedition, Lieutenant Choku Shirase, of the Imperial Japanese Navy, took with him aboard the Kainan Maru an ancient samurai sword. The Kainan Maru sailed from Wellington on February 11, 1911, but failed to reach the Bay of Whales, being checked by heavy ice in the Ross Sea half-way between Cape Adare and Ross Island.

Fifty days later, on May 1, the little wooden schooner steamed into Sydney Harbour much the worse for wear. She remained there for six months, although the expedition's unexpected arrival was not entirely welcome to the people of Sydney.

This Japanese "invasion" gave rise to unwarranted suspicions, and uneasiness about the expedition's intentions. There were protest meetings of local residents when the scientists were given permission to erect their Antarctic hut on shore and live in it. The military authorities did not like the idea of a Japanese camp close to the forts which guarded the South Head of Sydney Harbour, and kept armed patrols in the area during the expedition's stay.

But some Australians were interested in the expedition and friendly to its members. One was Sir Tannatt William Edgeworth David, now regarded as Australia's greatest geologist and geographer. Then Professor David, he willingly helped the Japanese with their problems of stores and equipment, drawing on his experience as Shackleton's chief scientist in 1907—09, and leader of the party which was first to reach the South Magnetic Pole.

Lieutenant Shirase was grateful for Professor David's help. Before he sailed south again, having abandoned the plan to reach the South Pole, he wrote to Professor David and presented him with a samurai sword.

In his letter Lieutenant Shirase said: "When we first arrived . . . we found ourselves in some quarters subjected to a degree of suspicion as to our bona fides which was an unexpected as it was unworthy. You were good enough to treat us as brothers in the realm of science."

Professor David treasured Lieutenant Shirase's gift, but its full historical significance was not realised until last year. For 45 years after his death the sword had remained forgotten in a cupboard at the Sydney home of his daughter, Miss Mary David, now 91.

Miss David read a newspaper article about samurai swords and searched for her father's sword. When she found it the blade was tinted with rust, but an Australian Army expert on swords, Major Ian Brookes, saw it and realised its historical importance.

Major Brookes arranged for the sword to be sent to Japan to be restored by Kotoken Kajihara, one of his country's finest sword craftsmen. After many days in Antarctica and 68 years in Australia, the sword was returned to Miss David as sharp and shining as if it had just left the workshop of the master swordmaker Kaneyasu 335 years ago for its dedication to a feudal lord named Matsuno-kani.

Mr Kajihara was so impressed by the sword and its history that he came to Sydney to return it personally to Miss David. He worked eight hours a day for two weeks on restoring the sword, and considered that it had renewed a long-lasting friendship between Australia and Japan.

Miss David, author of a biography of her distinguished father, hopes that eventually the sword will be displayed in the Australian Museum. She believes it should be there not only as a memorial to her father but also because of the friendship it represents after nearly 70 years. — Yours etc.,

"JAMES PIGG"

OBITUARY

Jack Bursey, veteran of three expeditions

One of the most experienced dog drivers in Byrd's first expedition (1928-30) was a young Newfoundlander, Jacob J. Bursey, who came from the little village of St Lunaire. Jack Bursey, as he was known to all who served with him on three Antarctic expeditions, died in the United States earlier this year. He was 77.

In a village of less than 60 people on the bleak north-east coast of Newfoundland Bursey grew up without ever having seen a tractor, a horse, a train or an automobile. But he was a dog driver from the age of 10, and learned to hunt seals and travel over the ice in the hard winters.

Bursey was in his early twenties when he left St Lunaire to gain an education in Boston. He was studying to be a machinist when he realised his boyhood dream of going to the Antarctic, although he was among 50,000 other applicants to Byrd. His knowledge of ice and snow, and of ships, enabled him to gain a place in the expedition.

On his first expedition Bursey became known for his intense pride in his dog team, and for his affection for his lead dog, a brown Labrador husky which he named St Lunaire. To Bursey dogs were the heart and soul of Antarctic exploration and he had no faith in mechanised transport for trail work in those early days.

In the spring of 1929 Bursey drove one of the dog teams in the Supporting Party which blazed a 321km trail from Little America towards the Queen Maud Range. The party's task was to lay down a series of depots every 80km for the use of the Geological Party on the way out and back. Bursey and his three companions encountered dangerously-crevassed areas on the last stage of their journey, but were able to reach 81deg 45min S, and build the last depot.

In the June issue of "Antarctic" we reported in error the death of Captain Alan Innes-Taylor, one of the veterans of Byrd's first two expeditions. We offer our sincere apologies to Captain Innes-Taylor for the erroneous report which was based in information given to the editor of the Antarctican Society's newsletter by another Byrd veteran.

New Zealanders who still remember Captain Innes-Taylor will be pleased to learn that he and his wife are alive and well. Their address is 301A Hanson Street, Whitehorse, Yukon Territory, Canada.

Two years after Bursey returned from Little America, bringing his great lead dog St Lunaire with him, he became an American citizen. In 1939 he went south again as a member of the 1939-41 United Stated Antarctic Service Expedition. As he had experience of sailing ships, and held a third officer's ticket, his first job was sail master of the U.S.S. Bear, then 68 years old.

Bursey's skills as a dog driver were given full rein during his second expedition. He was at West Base (Little America III), and from there made, with two companions, a round-trip sledge journey of 1963km in 83 days. In 1940 this was the longest sledging trip ever made in Antarctica next to Amundsen's polar journey.

A surveyor, Leonard Berlin, and two dog drivers, Bursey and Richard Moulton, penetrated deep into Marie

Byrd Land as far as the west end of the Hal Flood Range. The mission of the Pacific Coast Survey Party, which was led by Berlin, was to determine ground control positions in the mountain area and make a survey en route.

In 1942 Bursey joined the United States Coast Guard, and commanded a ship for three years in the North Atlantic and the Pacific. He was recalled to active duty from the reserve in 1951 and accompanied three Arctic missions as navigating officer of the icebreaker Northwind.

Then at the age of 52 Lieutenant-Commander Bursey went back to Antarctic for the third time. He was loaned to the United States Navy as a technical adviser in the first phase of Operation Deepfreeze (1955-57). This time he led a reconnaissance party into Marie Byrd with two snocats and a weasel instead of dog teams.

Bursey's mission was to blaze a 965km trail for the tractor train that would follow to construct Byrd Station. He made the change from dogs to machines successfully, and took his team of six Seabees 643km from Little America V in Kainan Bay. The party was instructed to return after covering those 643km, and Bursey, having made a round trip of 1480km in 27 days, wintered in Marie Byrd Land for the third time.

When he returned home Bursey wrote "Antarctic Night", the story of his experiences with three expeditions, which appeared in 1957. He never forgot his beloved lead dogs, St Lunaire (1929) and King (1940), and in the last years of his life wrote "St Lunaire: Antarctic Lead Dog".

F. D. Ommaney, Discovery scientist

A marine biologist and author, Dr Francis Downes Ommaney, who was on the scientific staff of the Discovery Committee for Antarctic Research from 1929 to 1939, died in England on June 30 at the age of 77. He made several voyages in the Discovery II during his investigations of the natural history of polar waters.

After naval service in the Second World War Dr Ommaney worked in warmer waters with the Mauritius-Seychelles Fisheries Survey. Later he was a reader in marine biology at the University of Hong Kong.

Dr Ommaney is remembered best as an author for "South Latitude", published in 1938. He also wrote "Lost Leviathan", a book about whales and whaling, two volumes of autobiography, and scientific reports for the Discovery Committee.

Japanese krill research

Seven or eight Japanese fishing companies are reported to have sent krill harvesting ships to Antarctic waters last season. Two research programmes were also conducted by government and semi-government agencies.

Most of the ships fished off the coasts of East Antarctica south of 65deg and in latitudes between 61deg and 120deg East. They were in southern waters for two or three months.

A two-month study of the potential of commercial krill fishing was made by the factory ship Shinano Maru. The study was sponsored by the semi-governmental Marine Fisheries Resources Research Centre. Ten medium-sized trawlers accompanied the Shinano Maru.

There have been no reports of where the fishing was done, but the results were good. When the Shinano Maru called at Fremantle on her way back to Japan she had an 18,000-tonne catch deep frozen in her hold.

A new krill research ship, the Kaiyo Maru, began the first stage of a three-year programme last season. She worked off the Knox, Budd, and Sabrina Coasts of Wilkes Land between December 12 and March 10. The area within which she operated was between 61deg and 65deg South, and 100deg and 120deg East.

Scott relics go to Australian buyer

Three relics of Captain Scott's last expedition were sold to an Australian hotel proprietor for $NZ1750 at an auction in Christchurch on June 26. The relics were Scott's cabin chair from the Terra Nova, a bag of geological specimens left behind at Cape Evans by Dr Edward Wilson, and a brass pocket compass said to have been given by Captain Oates to Sir Joseph Kinsey's daughter before he sailed south.

For financial reasons the Canterbury Museum, which is the national repository for Antarctic relics in New Zealand, was unable to bid for the relics. The purchaser, Mr John Taylor, who owns an hotel in Georgetown, Tasmania, plans to put the relics on permanent loan in an Australian museum.

Originally the relics were kept for several years in a small house next to Sir Joseph Kinsey's home on Clifton Hill. Kinsey acted for both Scott and Shackleton in New Zealand, and his home was well known to the officers and scientists of the three Antarctic expeditions.

But the small house next to Kinsey's home has an even closer association with Scott's last expedition. It was once a special hut designed and pre-fabricated in England for use at Cape Evans. But it was never used, and Kinsey bought it and turned it into a smoking room.

Later "The Cabin", as it has been known for more than 60 years, was converted into a home, and was occupied for many years by Kinsey's head gardener. And for some time Scott's Russian dog driver, Demetri Gerof, also lived there, being employed as an assistant to the head gardener.

Scott's cabin chair remained in Lyttelton when the Terra Nova sailed on November 26, 1910. It was given to Mr J. F. Stanley, who worked for Kinsey's shipping company, by Lieutenant Bowers when the ship was being lightened in preparation for the voyage south. Several years ago it was passed on to a former owner of the Kinsey property and placed in "The Cabin".

Wilson's geological specimen bag began life as part of a damask tablecloth familiar to all who have seen the photographs in Ponting's book, "The Great White South". There is no definite evidence, however, that the specimens it contained were collected by Wilson or where they came from.

Sir Raymond Priestley, who served with Shackleton, and was with the Northern Party of Scott's last expedition, saw the bag when he visited Christchurch in 1959. He identified it as having been made from the tablecloth used at Cape Evans for special occasions. It is the cloth shown in Ponting's photograph of the first Midwinter's Day dinner in 1911, and was cut up for specimen bags when supplies of calico became short.

Little is known about the pocket compass which Captain Oates is said to have given to Kinsey's daughter, Mrs M. K. Moore. The compass is inscribed inside the lid, and also on the base "Frederick Oates, Angler's Lodge, Spofforth". It is believed to have belonged to a member of the Oates family who lived in Spofforth, a village in the West Riding of Yorkshire.

There is also no record of when Captain Oates gave the compass to Mrs Moore. It could have been during the month the Terra Nova was at Lyttelton being overhauled and equipped for the Antactic. In his diary of the expedition Wilson records that he and his wife went to a dinner party in Dunedin given by Mr and Mrs Moore. Among the guests were the Scotts and other friends of the Wilsons. There was also a dance for the officers and men of the Terra Nova on the same night.

ANTARCTIC BOOKSHELF

Two books on the crash of an Air New Zealand DC-10 on Mt Erebus in November last year have been written for publication in New Zealand. Both are by journalists who have no personal knowledge of Antarctica. "White Out!" appeared in paperback last month; the second book, "Flight 901 to Erebus", will be published in hardback early in November.

"White Out!" was written by an Australian journalist, Michael Guy, and includes the report on the crash by the Chief Inspector of Air Accidents (Mr R. Chippindale). But its secondary title, "Michael Guy's true account of Air New Zealand's DC-10 crash on Mount Erebus", has been questioned by some of those closely associated with the recovery operations on Erebus.

Apart from typographical errors, explained by the haste with which "White Out!" was produced to be first in the field, there are errors of fact in the book which could have been corrected. Two examples will suffice. On the first page the writer describes the DC-10 heading for Erebus over the Ross Ice Shelf. In a later chapter the same ice shelf, which is several hundred feet thick in places, is said to be composed of pack ice.

One chapter is a largely imaginary account of the DC-10 flight from Auckland to Ross Island. This can have little foundation in fact when nobody aboard the aircraft survived to tell what happened. There is no justification for such dramatic licence in a book which claims to be a "true" account of the crash.

This chapter contains errors like others in the book. Some might be regarded as minor; when all are taken together they diminish any authority the book and its writer might possess.

"White Out!" could not be a "true" account of the DC-10 disaster even if all its errors and omissions were corrected. It was conceived before a commission of inquiry was appointed to investigate the circumstances of the crash. The commission has been sitting for three months, and more facts have come to light almost every week. After the commission's report is published another writer may be able to give us a fuller and more factual account of what happened on November 28, 1979.

"Flight 901 to Erebus" has been written by a former television journalist Ken Hickson, who has edited an air safety magazine. Its publishers say it will be an authoritative, objective, and non-sensational account of all aspects of the crash.

J.M.C.

Thriller writers have turned their attention to Antarctica in recent years. Since 1967 we have had "Monday at McMurdo", "The Ice Admiral", "A Victim of the Aurora", "Icequake", and "White for Danger".

Now the English writer, Desmond Bagley, who has produced more than a dozen best-sellers, is writing another thriller inspired by his visit to McMurdo Station and Scott Base in 1968. His explanation for waiting 11 years before starting the book is that a novel is rather like a herring, and the longer you allow it to marinate the better the result.

One of the veterans of the British-Australian-New Zealand Antarctic Research Expedition led by Sir Douglas Mawson in 1929-31 is reported to be putting his memories into book form. Now living in retirement near Sydney, Harold Fletcher was assistant biologist on the BANZARE voyages in the Discovery.

Before his retirement in 1967 Harold Fletcher was deputy-director and curator of palaeontology at the Australian Museum in Sydney. Cape Fletcher on the Lars Christensen Coast of Mac-Robertson Land marks his service with BANZARE.

ANTARCTIC

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NEW ZEALAND ANTARCTIC SOCIETY (INC.)

The New Zealand Antarctic Society was formed in 1933. It comprises New Zealanders and overseas friends, many of whom have seen Antarctica for themselves, and all of whom are vitally interested in some phase of Antarctic exploration, development, or research.

You are invited to become a member, South Island residents should write to the Canterbury secretary, North Islanders should write to the Wellington secretary, and overseas residents to the secretary of the New Zealand Society. For addresses, see below. The yearly membership fee is NZ$5.00 (or equivalent local currency). Membership fee, overseas and local, including "Antarctic", NZ$11.00.

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