

# ANTARCTIC

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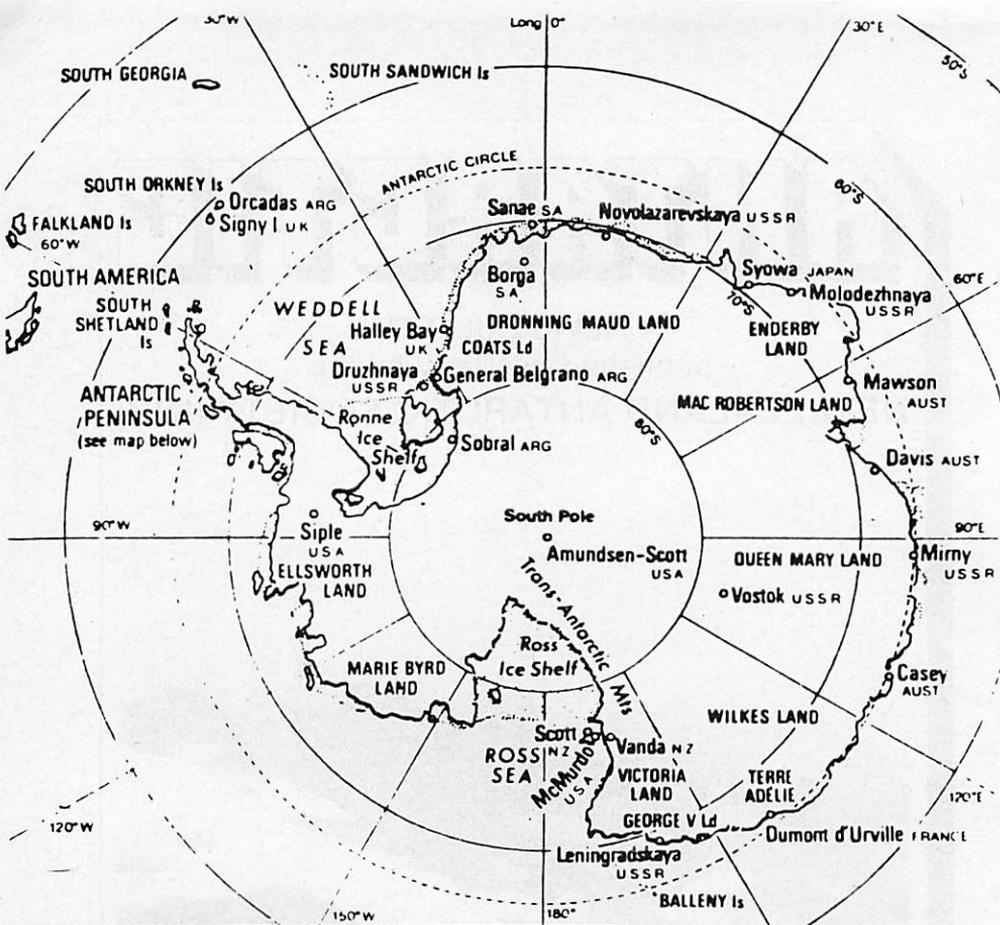
One of Argentina's oldest Antarctic stations, Almirante Brown, which was destroyed by fire on April 12. Situated in picturesque Paradise Bay on the west coast of the Antarctic Peninsula, it was manned first in 1951 by an Argentine Navy detachment, and became a scientific station in 1955.

Photo by Colin Monteath

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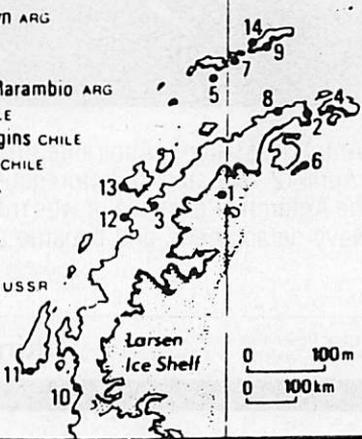
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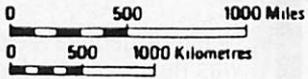


### ANTARCTIC PENINSULA

- 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 Bernardino 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



### ANTARCTICA



#### ABBREVIATIONS

- ARG ARGENTINA
- AUST AUSTRALIA
- SA SOUTH AFRICA
- UK UNITED KINGDOM
- USA UNITED STATES OF AMERICA
- USSR UNION OF SOVIET SOCIALIST REPUBLICS

# ANTARCTIC

(successor to 'Antarctic News Bulletin')

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# China offered base site in Ross Dependency

New Zealand has offered the People's Republic of China a choice of seven sites in the Ross Sea region of the Ross Dependency for the establishment of a permanent research station in Antarctica. The offer was made through the Minister of Science and Technology (Dr Ian Shearer) when he visited China early in April. He told a New Zealand Press Association correspondent in Hong Kong by telephone from Shanghai that a prerequisite for any final agreement on a permanent base would be Chinese recognition that New Zealand has special rights in the Ross Dependency.

When Dr Shearer returned to New Zealand he gave general details of the seven sites which ranged from the North coast of Northern Victoria Land to the Eastern Ross Sea. All are between 160deg E and 150deg W, the limits of New Zealand's territorial claims in Antarctica. More detailed information now indicates that the sites were first suggested, not offered, in July last year to assist the Chinese in their long-term planning of an Antarctic research programme. The People's Republic of China acceded to the Antarctic Treaty in June last year, and intends to seek consultative status.

Three months ago Dr Shearer suggested in a public statement that the Chinese Government should consider siting any base it plans to build in Antarctica next to Scott Base on Ross Island. He said the idea had been raised by the Chinese Ambassador in Wellington, and he planned to discuss it with Chinese officials during his visit to China.

Of the seven suggested sites three are in Northern Victoria Land, three in the Western Ross Sea and one in the Eastern Ross Sea. Cape Adare and Duke of York Island in Robertson Bay (170deg 20min E/71deg 30min S) are two of the Northern Victoria Land sites. The other on the northern coast is Yule Bay (160deg 30min E/70deg 30min S) which has been used as an anchorage by West German expeditions in recent seasons.

One sector of Australia's territorial claims is between 142deg E and 160deg E.

In the Western Ross Sea area the sites are Inexpressible Island (163deg 30min E/75deg 54min S) in Terra Nova Bay; the Granite Harbour region (162deg 44min E/76deg 53min S) in the approaches to McMurdo Sound where there are also possible sites in the north near Cape Archer and in the south at Cape Roberts; and Marble Point (163deg 50min E/77 26min S) on the Victoria Land coast in western McMurdo Sound.

## SMALL AIRSTRIP

Marble Point is used each summer by the United States and New Zealand as a staging point for research activities in the dry valleys and beyond to the Polar Plateau. It has a 914m gravel airstrip now used by helicopters and able to take aircraft like the Twin Otter.

There is also a suitable site for a station to be built at the Bay of Whales (164deg 20min W/78 30min S) which is just north of ice-covered Roosevelt Island (162deg W/79deg 25min S). This area is within the Ross Dependency and gives access to the Ross Ice Shelf. Shackleton named the bay in 1908. Amundsen began his journey to the South Pole from there in 1911, and for the last 55 years, beginning with Byrd's first expedition (1928-30) has been regarded as a United States scientific sphere of special interest.

Dr Shearer said in China that the offer of sites was based on the assumption that the Chinese would be servicing their scientists by ship rather than aircraft, and would want a permanent base on solid ground rather than the ice shelf. He indicated also that New Zealand would be willing to provide staging facilities for ships and other logistic support. In return it would be interested in co-operative marine research.

When Mr Wu Heng, director of the Chinese National Antarctic Research Committee, gave notice in May last year of China's intention to seek Antarctic Treaty membership he said that his country planned to set up its own research station "when conditions permit." After its accession New Zealand provided the information on the seven suggested sites in the Ross Dependency. These suggestions, repeated in the form of an offer by Dr Shearer, will be considered as part of China's long-term plans to achieve consultative status as an Antarctic Treaty nation by 1987, but an early decision is unlikely.

### LONG-TERM PLANS

China has been interested in Antarctic affairs since 1977, and since 1979 has had discussions with Australia and New Zealand on scientific and logistic questions. Chinese scientists have worked with the Australian and New Zealand research programmes since 1980, and this winter there are three at two Australian bases, Davis (2) and Casey (1), and a fourth is at an Argentine base. China has also received support and co-operation from Japan, Chile, and Argentina.

New Zealand's active association with China's long-term plans began in 1980 after Mr R. B. Thomson, director of the Antarctic Division, and Professor G. A. Knox, then president of the Scientific Committee on Antarctic Research, lectured on Antarctic research to scientists and directors of scientific institutions in Peiping, Shanghai, and Tsingtao, and had discussions with the Vice-Premier of Science and Technology. Chinese observers attended the 1980 and 1982

meetings of SCAR, which co-ordinates international Antarctic research, in Queenstown and Leningrad.

China also sent observers to last year's meeting of the Antarctic Treaty consultative members in Canberra. It is expected to send observers to this year's meeting of SCAR in Bremerhaven, West Germany.

In 1980 Mr Thomson expected China to establish a permanent base in six or seven years. Since then he has been back to China, and has had discussions with the director of the Chinese National Antarctic Research Committee. Mr Wu has visited Wellington and Christchurch, and spent some time at Scott Base, McMurdo Station, and Vanda Station in the Wright Valley. Now, as a result of Dr Shearer's visit, Mr Thomson believes the Chinese are likely in the long term to take up the New Zealand offer of a base site, but such a move is several years away.

China's preparations for acceptance as a consultative party to the Antarctic Treaty have included the formation of the national research committee in 1981, and sending scientists to the Japanese National Institute of Polar Research in 1982 for a course on building and running an Antarctic base, and conducting research projects. In addition more specialist scientists are being trained, and the number of scientists who have worked in Antarctic since 1980 has risen from two to 32.

### MARINE SCIENCES

Mr Thomson's earlier forecast of the time it will take for China to establish a research programme in Antarctica was reinforced early this month by an announcement from Peiping that a Chinese Institute on Polar Research Regions will be set up to plan long-term research and investigate polar resources. The official Xinhua News Agency says that a building to house the institute will be completed in 1987.

China has sent glaciologists, physicists, geologists, and biologists to work in Antarctica, but its main interest is research in the marine sciences.

Oceanographers and biologists have worked with Australian scientists on marine research cruises, and in 1982 two senior marine biologists discussed a co-operative marine research project with United States scientists.

Mr Thomson believes the Chinese will want to undertake a marine research programme first. Back in 1980 he and Professor Knox discussed with the Chinese a 4200-tonne oceanographic survey ship which could be ice-strengthened for use in Antarctica. It accommodates 70 scientists and a crew of 74, and has 14 laboratories.

This is the same ship Dr Shearer was

told of in Peiping but did not see when he was in Shanghai as it was not in port. He believes New Zealand could get access to this ship for its marine research if the two countries can reach a full agreement.

Recognition by China that New Zealand has special rights in the Ross Dependency may still present some problems in the future. Dr Shearer does not agree. He claims that joint research agreements with the United States and West Germany contain such recognition, and dismisses the problem as one for future discussions between diplomatic representatives from New Zealand and China.

## OF MEN AND ICE MOVEMENTS

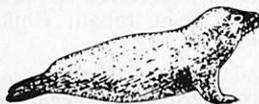
**Dr Trevor Hatherton**, chairman of the Ross Dependency Research Committee, and director of the Geophysics Division, Department of Scientific and Industrial Research, has stepped down from his administrative position to resume his scientific research. He was New Zealand's chief scientist with the International Geophysical Year Antarctic expeditions from 1955 to 1959.

**Professor George Knox**, past president of the Scientific Committee on Antarctic Research, retired from the University of Canterbury at the end of March this year after 36 years in the zoology department, and nearly 20 of them as its head. His association with New Zealand's Antarctic research began in 1960 through the department's biological research unit at Cape Royds and later Cape Bird, Ross Island, which he fostered over the years. He took part in 10 field expeditions, and in 1965 began his association with international Antarctic research as a member of the SCAR working group on biology, then as secretary of the committee, and later as New Zealand's delegate. In 1978 he was appointed president, a post which he held until this year. He remains on the executive as past president.

**Mr James Barker**, a retired New Zealand Army officer, has been

appointed project manager in the Antarctic Division, D.S.I.R. He was seconded from the Army to serve at Scott Base as deputy officer-in-charge for the 1971-72 season, and was in charge of the winter party in 1972.

**Dr Bernard Stonehouse** who began a distinguished career in Antarctic research 37 years ago, is now editor of "Polar Record," the Scott Polar Research Institute's journal. He worked in the zoology department of the University of Canterbury from 1961 to 1969, and initiated the department's biological research in Antarctica. A life member of the New Zealand Antarctic Society, he served on the Canterbury branch committee for several years.



### “Antarctic” Index

In future the index to each volume of “Antarctic” will be issued free to all subscribers. The index for Volume 9 which covers from 1980 to 1982 is enclosed in this issue. Subscribers who wish to obtain additional copies can write to the Treasurer, N.Z. Antarctic Society, P.O. Box 1223, Christchurch, N.Z.

# Polar Medal awards to six New Zealanders

Six New Zealanders have been awarded the Polar Medal by the Queen for their services with New Zealand Antarctic research programmes in the field or at Scott Base. One is a geologist, Dr D. N. B. Skinner, who began his Antarctic research in 1960; five, Messrs J. S. Rankin, J. R. Thomson, K. M. Weatherall, A. J. Dawrant, and M. R. Wing, have all wintered twice at Scott Base, Mr Rankin was officer-in-charge of the winter team in 1977.

Polar Medals are awarded by the Queen from time to time, under the terms of a Royal Warrant, in recognition of individual merit arising from enterprise and hardship, outstanding personal contribution in exploration, scientific research or general service on polar expeditions (both in the Arctic and Antarctic). The medal was first awarded for service on an Arctic expedition in 1818, and until 1904 was known as the Arctic Medal. In that year it became the Polar Medal, and the first awards for Antarctic service were made to members of Scott's first expedition (1901-04).

Since 1957 68 New Zealanders have received the Polar Medal, which is

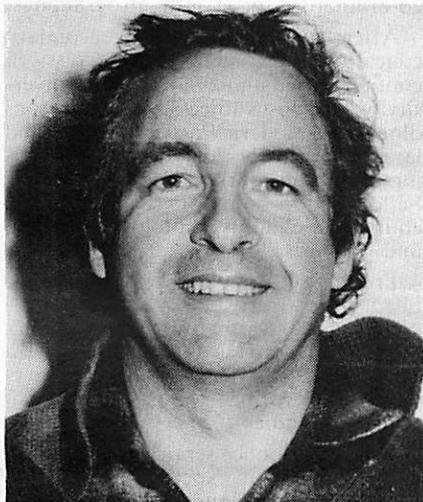
awarded on recommendations from the British, Australian, and New Zealand Governments. The latest awards for service in the Ross Dependency were the first to be made since 1978, and were the fifth since the awards to 24 New Zealanders who wintered at Scott Base and Cape Hallett in 1957.

Dr David Skinner, of Auckland, who is the district geologist, New Zealand Geological Survey, first went to Antarctica in the 1960-61 season with a geological survey team which explored an area of the Victoria land coast between Barne Inlet (Byrd Glacier) 80deg 15min S and Shackleton Inlet (Nimrod Glacier) 82deg 22min S. The team was in the field for nearly three months and covered 965km by dog sledge.

In the 1962-63 season Dr Skinner was with a southern geological survey party which continued the mapping of the Ross Dependency. This time the team was in the field for 111 days and sledged more than 1287km.

On his third season in Antarctica Dr Skinner led a geological mapping expedition which worked in the Koettlitz Glacier area between October and December, 1975. There were two women in the team, Anne Wright and Margaret Clark.

Dr Skinner's fourth summer took him to North Victoria Land in the 1977-78 season as a guest scientist with the first West German expedition to the area (GANOVEX I). In the 1982-83 season he led another expedition to Terra Nova

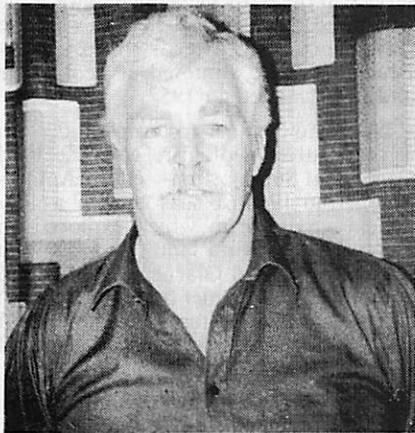


DR SKINNER

Bay and for part of the time worked with his team on Inexpressible Island where Scott's Northern Party spent the winter of 1912 in an ice cave. He had been on the island previously early in 1963.

Mr James Rankin, of Kumara, first served as base engineer at Scott Base in the 1970-71 season and wintered there in 1971. He returned to do the same job in the 1976-77 season, and was officer-in-charge for the 1977 winter.

Mr Kevin Weatherall, of Dunedin, was a science technician at Scott Base in the 1971-72 season and wintered there in 1972. He returned in the 1976-77 season as senior science technician and spent his second winter at Scott Base.



**MR RANKIN**

A former Post Office radio technician, Mr Allan Dawrant, of Christchurch, went to Scott Base first in the 1972-73 season and wintered there in 1973. He spent his second winter there in 1976 again on Post Office radio duties after the 1975-76 summer season ended.

In the 1973-74 season Mr Michael Wing, of Auckland, went south as a drilling assistant for the summer but remained at Scott Base for the 1974 winter, and was responsible for the base huskies. He wintered again at Scott Base in 1976, having worked as a field assistant during the 1975-76 summer. Once again he was responsible for the huskies.

Mr John Thomson, of Christchurch, who wintered at Scott Base in 1976 and 1978, was a fitter mechanic there in the 1975-76 season. He returned in the 1977-76 season as base engineer. During the winter he was deputy officer-in-charge.

## New Scott Base O.I.C.

A former police inspector, Mr Peter Lewis Cresswell, of Collingwood, who is regarded as an authority on New Zealand micro-molluscs, will be in the officer-in-charge of the New Zealand Antarctic research programme in the 1984-85 summer season and through the winter of 1985. He will be the first officer-in-charge since 1979 to occupy the position from one summer to the next.

Mr Cresswell, who is 46, lives near Takaka where he has been associated with farming interests in recent years. He was born in Christchurch and joined the Police Force in 1959. Before he left the force in 1976 he was an inspector at headquarters in Wellington and national co-ordinator for youth programmes.

After completing his secondary education in Christchurch Mr Cresswell continued his studies at Otago University where his subjects were anthropology and modern Pacific history, and later at Victoria University of Wellington. In the course of his police duties he lectured in criminology and directed courses on child psychology, sociology, and human relations.

From anthropology and Pacific history Mr Cresswell turned to conchology, concentrating on New Zealand's micro-molluscs. He is an authority on his subject and has published papers which have formed the basis for scientific field studies.

During his police service Mr Cresswell gained extensive experience in search and rescue operations. He was also concerned with civil defence operations.

## MICROLITES AND COPEPODS

Everyone who is familiar with Shackleton's exploits knows he took the first motor-car to Antarctica in 1908. More than 20 years later his example was followed by one of the men who served with him on his last expedition. On November 11, 1929 the Australian explorer, Sir Hubert Wilkins, wrote of driving a Baby Austin sedan to work each morning. He was then on Deception Island preparing for flights over Graham Land.

★ ★ ★ ★

Thirty men at Casey Station will have to make do with powdered egg this winter until fresh eggs arrive later in the year. The winter stock of 900 dozen shipped from Tasmania had to be incinerated because a variety of penicillin moulds had grown on some of them.

The Casey kitchen has been the scene of some strange activities in past seasons. Perhaps the strangest was the scrubbing and cleaning of all the 10,800 eggs to rid them of the mould in the vain hope that they might still be edible.

★ ★ ★ ★

Mawson, one of the three Australian stations in Antarctica, has a woman doctor this winter for the third successive year. She is 29-year-old Dr Lyn Williams, of East Lindfield, a New South Wales. One of the 35 men in the winter team is her husband, Warwick, a 36-year-old cosmic ray physicist.

★ ★ ★ ★

Microscopic fungus spores frozen in Antarctic ice 12,000 years ago were found in cores taken from a depth of about 400m at the Soviet station, Vostok, last year. Nine months ago the Soviet newspaper "Pravda" reported that the spores had started to germinate when thawed out and placed in a nutrient solution. Micro-organisms about 50,000 years old were retrieved from another hole drilled to 2000m in the ice cap, but "Pravda" reported only that the scientists were hoping to revive them also.

A New Zealand scientist awarded the Polar Medal last month has been able to combine opera with geological research in Antarctica. Dr David Skinner has played baritone roles with a regional opera company and in past seasons has rehearsed some of them with the aid of a tape recorder while in the field. On one expedition he was confined to his tent for several days by a blizzard, and his tentmate was treated to rehearsals of his role in Mozart's "Cosi Fan Tutti" for two to three hours daily. Early this month Dr Skinner played Dr Falke, one of the leading roles in a TVNZ production of the Strauss opera, "Der Rosenkavalier."

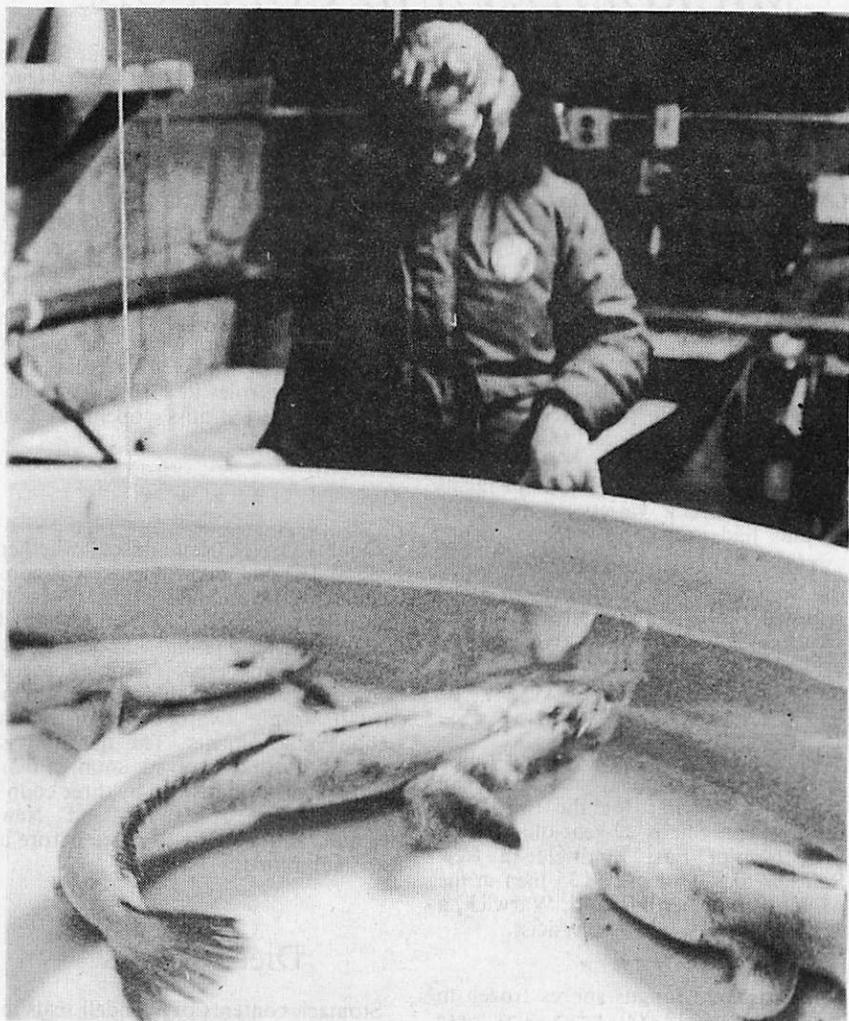
★ ★ ★ ★

Doubts have been raised whether Federal Labour governments will continue to recommend Polar Medal awards to Australians who have served in Antarctica. Present Labour Party policy means that British-based honours (which include the Polar Medal) are not awarded by Australian Labour governments. The question is expected to be resolved soon. Polar Medals are recommended by three countries, Britain, Australia, and New Zealand, and all have to agree before a list is submitted.

## Diet of seals

Stomach contents of Weddell seals in the Scott Base area were flown to Australia at the end of last season for study by an Antarctic Division biologist, Mr H. Burton, who is studying the diet of seals.

Arrangements to send the stomach contents to Hobart were made with the New Zealand Antarctic Division by Mr Burton. Details of the food found in the stomachs of seals in McMurdo Sound will complement similar studies of seals near Mawson.



*For science, not restaurants. Lady Muldoon, wife of New Zealand's Prime Minister, who visited Antarctica last season, examines Antarctic cod (*Dissostichus mawsonii*) in the Eklund Biological Laboratory at McMurdo Station. The cod, weighing up to 50kg, are caught in McMurdo Sound. Most return there; some are eaten.*

*Photo by W. Hopper*

## U.S. joint projects with three nations

Two major projects of the United States Antarctic Research Programme (USARP) in the coming season will be joint investigations with scientists of three other countries—New Zealand, Britain, and West Germany. In North Victoria Land United States geologists will work with New Zealand and West German scientists in a geophysical and geological programme, and in the Ellsworth and Thiel Mountains of Ellsworth Land they will continue studies with British Antarctic Survey scientists of the tectonic development of West Antarctica and its relationship to East Antarctic.

A three-year study of the West Antarctic Ice Sheet along the Siple Coast on the east side of the Ross Ice Shelf, which began in the 1983-84 season, will be continued with aircraft support in the 1984-85 season. With icebreaker support research will also be continued along the coasts of Marie Byrd Land and Ellsworth Land.

Scientific projects and the scale of the logistic support for the new season are related to the funds allocated to the United States National Science Foundation for the fiscal year which runs from October 1 this year to October 1, 1985. For the 1984 fiscal year the foundation, which finances and co-ordinates the whole programme, received \$US102.1 million. Of this \$10 million was for science projects, and \$92.1 million for support.

Most of the new budget, which still has to be approved by Congressional committees, will be used as in past seasons to pay for support of research projects by the United States Navy and Air Force aircraft, and Coast Guard icebreakers, fuel supplies, maintenance of inland and coastal stations, and contract services. One inland station, Siple, in Ellsworth Land, was closed in January this year and will be opened again in November next year.

Support by sea of the 1984-85 research programme will be provided by two Coast Guard icebreakers, one young and one old. They are the Polar

Star and the Glacier which worked together in the 1982-83 season. A ship will be chartered to replace the research vessel Hero which has been used for marine and coastal studies in the Antarctic Peninsula area since 1968. She made her last transit of Drake Passage between the Antarctic Peninsula and South America last season.

### AGE OF SHIP

Age and dry rot are among the reasons for replacement of the Hero, a diesel-driven wooden ship equipped with sails and designed for work in ice-filled waters. She was used until 1974 in conjunction with Palmer Station on Anvers Island as a floating laboratory for a variety of science projects. She had a major overhaul in 1974 because of dry rot but the damage was not as extensive as first believed and repairs cost less than the \$1.1 million allocated.

In the northern summer of 1980 the Hero went back to dry dock for repairs to areas of the hull where dry rot had been discovered. Her machinery was overhauled and modernised and she returned to service in the 1980-81 season.

This year neither the Polar Star nor the Glacier will call at New Zealand ports. The Polar Star on her fourth voyage south will relieve Palmer Station and then proceed to McMurdo Station where she will cut a channel in the

seasonal ice to Winter Quarters Bay and escort from the fast ice the fleet tanker Maumee and the cargo ship Southern Cross. In addition she will support science projects in the Western Ross Sea, and off the coasts of Marie Byrd Land and Ellsworth Land.

### VETERAN BACK

Once again the Coast Guard will bring back a veteran icebreaker which first went south in 1955. This will be the Glacier's 23rd voyage to Antarctica. She provided support with the Polar Star in the 1982-83 season, and was used for United States and New Zealand science projects in January and February while the younger ship continued one of the

first circumnavigations of the Antarctic Continent by way of the coast of East Antarctica.

Planning for the number of flights to be made in support of the United States and New Zealand science programmes are expected to be completed next month. Late in August U.S. Navy VXE-6 Squadron Hercules aircraft will make several winter flights in the Winfly operation to prepare for the summer airlift of men and materials between the first week of October and early December. These flights which mark the opening of the summer research season will be made by the United States Air Force Starlifters and Hercules aircraft of the Navy and Royal New Zealand Air Force.

## Mid-winter drop

Two mid-winter flights to drop mail, fresh food, and urgently needed spare parts to 19 Americans at the Amundsen-Scott South Pole Station, and the 92 Americans and New Zealanders at McMurdo Station and Scott Base on Ross Island were made between June 21 and 23 by a United States Air Force Stalifter. This was the sixth such mail and supply drop in nine years, and the fourth to the South Pole.

On the first flight from Christchurch the Starlifter, which was refuelled in mid-air by a KC10 tanker dropped its load by parachute at McMurdo Station and the Pole Station. The second flight was made to McMurdo Station.

Because of the extension of the Christchurch runway the KC10 tanker was able to take off with an unrestricted load of fuel. On earlier flights the tanker had to fly from Auckland and rendezvous with the Starlifter just north of McMurdo Station.

Mail from home was the first priority for the winter population at the United States and New Zealand bases in the Ross Dependency. Since February 18 men and one woman at the Pole, 79 men and two women at McMurdo Station, and 11 New Zealanders at Scott Base have had only radio and telephone links with the outside world.

## Byrd Veterans

Of the 41 men who wintered with Byrd at Little America I in 1929 only six remain. Kennard F. Bubier, aviation mechanic, died in California on July 2 last year. He retired as lieutenant-colonel from the United States Marine Corps in 1953 and then worked another 11 years for Lockheed Aircraft.

Survivors of the shore party are: Dr Laurence Gould (geologist and second-in-command), Henry Harrison (meteorologist), Howard Mason (radio engineer) whose name was omitted from a note in the June, 1983 issue of "Antarctic", Edward Goodale and Norman Vaughan (dog drivers) and Dean Smith (pilot). There are also four other veterans of the 1928-30 expedition, Carrol Foster, Ed Roos, John Bird and Leland Barter.

Also entitled to be listed as veterans, although often omitted from American reports, are three New Zealanders, Percy J. Wallis (Auckland), Norman Shrimpton (Nelson) and John Morrison (Dunedin). Percy Wallis made two trips south in the City of New York, Norman Shrimpton was radio operator on the Eleanor Bolling's first voyage, and John Morrison, who served in the same ship, went south again on the Jacob Rupper's second voyage to the Bay of Whales in 1935.

# Antarctic marine fossils and evolution

Fossil remains of 11 species of invertebrate marine animals were discovered last summer by United States scientists who worked on Seymour Island in the Weddell Sea at the north-eastern tip of the Antarctic Peninsula. Some were found for the first time; others were known previously to exist only at mid-latitudes.

These unexpected findings on the steep slopes of the La Meseta Formation, a plateau which makes up most of ice-free Seymour Island, includes the first records of a certain class of starfish, crabs, and crinoids. Crinoids are curious flower-like marine animals, some of which are anchored by a stalk, and others which are free swimming.

Last season's expedition, which was supported by the United States Coast Guard icebreaker *Westwind*, was led by Dr William J. Zinsmeister, formerly of the Institute of Polar Studies, Ohio State University, and now of Purdue University. In a report to the National Science Foundation which finances and organises all United States activities in Antarctica, he and Dr Rodney M. Feldmann, of Kent State University, say that their discoveries suggest that the region around Antarctica acted as a "holding tank" for a wide variety of animals. These originated and evolved there for millions of years and then dispersed northward when conditions allowed.

According to the scientists their observations of Antarctic marine invertebrates corroborate those made recently about terrestrial mammals and plants in the Arctic. Because of recent discoveries in the polar regions ideas about evolution will have to be modified. Previously scientists have believed that most evolution took place in the tropics or in low or mid-latitudes, and the polar regions have been looked on as unimportant. But it is now apparent that evolution has been taking place in the polar regions which may have been a source for many groups of animals and plants.

For many years scientists have known

that some marine animals have been widely scattered around the southern continents. The latest evidence shows that these evolved over millions of years in the high latitudes — above 60deg latitude — until conditions allowed them to move northward. In a number of cases species recently described from high latitude polar regions predate their descendants in the middle and low latitudes by as much as 40 million years.

Recognition that there was a variety of terrestrial and marine groups in both the Northern and Southern Hemisphere indicates, according to the scientists, that the polar regions have played a more important role in the development and diversity of Cenozoic fauna and flora than had been recognised previously. The Cenozoic Period began some 65 million years ago and still continues.

A general expansion of cooler conditions during the Cenozoic Period may have been responsible for the sudden appearance of some of these marine animals in lower latitudes. Some, however, were able to move northward by adapting to warmer habitats. Among them were the penguins on the Galapagos Islands on the Equator west of South America.

A mystery that has baffled scientists for more than a century — the abrupt appearance of new groups of invertebrates found in the fossil records of the southern continents — appears to have been solved by the work done on Seymour Island. The evidence now suggests that these animal groups have had a long period of evolutionary development around Antarctica before moving northward.

## ANARE REPORTS

# Future marine geoscience plans

Although the Australian Government has decided that at present it is unable to increase the level of the Antarctic summer research programme geological and geophysical research work around the coast of Antarctica may be undertaken by a vessel chartered by the Bureau of Mineral Resources during several seasons in the next five years. For financial reasons the Government earlier this year called for a review of plans for a new Antarctic transport system, including the acquisition of an ice-breaking research vessel.

Last year the Antarctic Division had to drop its plans to obtain a vessel for marine geoscience voyages to Antarctica each year. Now, because of the urgent need for marine geoscience research in Australia's high Exclusive Economic Zone the Bureau of Mineral Resources has been able to convince the Government of the importance of obtaining a vessel for this work.

Present plans are for a three-year charter from the middle of this year with an option to extend the contract for another two years. Primary aim of the charter scheme is to conduct marine geoscience around the Australian continental shelf, and the BMR hopes that the vessel will be used also for a research cruise in the Southern Ocean off Antarctica although not every summer.

Initial indications are that survey work will be carried out in the vicinity of the Kerguelen-Gaussberg undersea ridge north-east of Davis Station next summer. Preliminary geoscience work was carried out on an Australian National Antarctic Research Expeditions (ANARE) voyage to the region in the 1981-82 season. Another survey may be made by the BMR vessel in 1986-87, possibly in the Shackleton Ice Shelf area.

While preparations for the 1984-85 summer progress are being made in Australia the winter parties at the three Antarctic bases, Mawson, Casey, and Davis, and on sub-Antarctic Macquarie

Island are engaged in research in the fields of upper atmosphere physics, geology, biology, and glaciology. They are also maintaining routine observations covering geophysics, ionosphere physics, cosmic ray physics, and meteorology.

This year there are 87 men and one woman at Casey (30), Davis (22) and Mawson (36) and 18 men and one woman on Macquarie Island. The medical officer at Mawson is Dr Lyn Williams, who is with her husband, Warwick, a cosmic ray physicist. They wintered together previously on Macquarie Island, and Warwick Williams also wintered at Scott Base as senior science technician in 1978. Wendy Prohasky is a geophysicist at Macquarie Station.

There are three scientists from the People's Republic of China at two of the three Antarctic bases. Davis has Cao Chang, a 43-year-old physicist and Wang Zipan, a 38-year-old biologist. One of the two glaciologists at Casey is 37-year-old Qin Da He.

Mawson also has two New Zealanders, Andre Phillips, a physicist from the University of Canterbury, and Gerry Hamilton, a diesel mechanic from Havelock North. Switzerland is also represented in the winter teams by Dr Erwin Erb, medical officer at Davis. He comes from Winterthur in the Zurich canton.

Early in March preparations began at

Casey for the autumn traverse to continue glaciological research of the East Antarctic ice-sheet inland from the station which began in the early 1970s. With one D7 and two D6 tractors towing workshop and living vans and sledges, the traverse party left the station on March 8.

With the leader, Rick Thwaites (glaciologist) were Rowan Butler (electronics engineer), Jim Clarke (surveyor), Gary Burton (plant inspector), and Russell Brand and Andrew Wood (diesel mechanics). They reached a point 400km inland towards the end of the month, and in April reported they were within sight of the Law Dome, and expected to be back at Casey early in May.

Before the team settled down for the winter Mawson had a six-hour visit on March 29 from the South African research and supply ship Agulhas which was engaged in the first phase of the Second International Biomass Experiment (SIBEX-I) along the western edges of the oceanic gyre north-west of Prydz-Bay. In addition scientists aboard were also conducting a census of birds in the region between the northern tip of Enderby Land and Cape Darnley just north of the western end of the Amery Ice Shelf.

Seventeen South Africans flew into Mawson at 1 p.m. aboard two Aero-spatiale Puma helicopters from the ship which was then some 65km offshore. One helicopter left Mawson at 2.15 p.m. for Taylor Glacier and Fold Island some 100km and 160km respectively west of the station. The main purpose of the visits was to observe penguins at both locations which are the sites of large Emperor penguin colonies in winter. Fifty-one Emperors were counted at Fold Island and 171 at Taylor. Adelie penguin, and snow and Antarctic petrel colonies were also observed.

South African staff who did not make the survey flight were shown around the station and then driven to nearby Mount Henderson (970m). Some 600 litres of fuel were supplied to the helicopters and

a radio equipment fault was fixed by Mawson staff.

Before 7 p.m., the helicopters had left Mawson and the Agulhas was ready to resume her cruise. She took mail for Australia which was to be posted when the ship returned to Cape Town at the end of April.

When the Mikhail Somov, flagship of the 29th Soviet Antarctic Expedition sailed from Leningrad in late November last year "Pravda" reported that visits to Davis Station and the abandoned joint U.S.-N.Z. station at Cape Hallett were planned. But when a helicopter from the ship flew to Davis on January 19 to inspect its facilities the Australian Minister for Science and Technology (Mr Barry Jones) suggested in Parliament nearly a month later that the visit had been made because the Soviet Union might be thinking of buying the station for East Germany which had asked for financial help to set up a base not far from Davis.

Mr Jones described the visit as having been unannounced, made "with little warning," and not an official inspection under Article VII of the Antarctic Treaty. He also suggested that the visit had been provoked by rumours that Australia intended to close the base.

But visits by Soviet ships and aircraft to Australian and other bases are no novelty. They have been made for many seasons. Before the Mikhail Somov's helicopter called at Davis the station had been assisting the Soviet aircraft operating between Molodezhnaya and Mirny, and at the summer station, Soyuz, on Beaver Lake in the Prince Charles Mountains.

Heading the Soviet party on this occasion was Dr Boris Krutskikh, leader of SAE-29, who is director of the Arctic and Antarctic Research Institute in Leningrad. With him were Captain Mihailov, master of the Mikhail Somov, Dr Nikolai Tyabin, an interpreter, two pilots, two engineers, and a radio operator. After a tour of the station the officer-in-charge, Captain Philip Elliott, and two members of the Davis team were flown to the ship to inspect her.

# Frozen sea international expedition

After more than 10 months locked in the ice of Prydz Bay, East Antarctica, the Oceanic Research Foundation's 21m auxiliary schooner Dick Smith Explorer returned to Sydney on March 11. Led by Dr David Lewis, the expedition was away from Australia for more than 15 months and in Antarctica for more than a year.

This was the third and longest Antarctica expedition organised by the ORF and led by David Lewis. The first in the yacht Solo sailed to the Balleny Islands and Cape Adare in the 1977-78 season, and the second aboard the Dick Smith Explorer worked during the 1981-82 summer in Commonwealth Bay and along the coast of Adelie Land to the French station, Dumont d'Urville.

With an international group of four men and two women the Dick Smith Explorer left Sydney on November 14, 1982 and sailed from Albany, Western Australia on December 13 for Prydz Bay, the deep embayment between the Lars and Ingrid Christensen Coasts of East Antarctica. The ship arrived at Davis, the Australian mainland base in the Vestfold Hills area on February 9 last year and left on February 16 for the Rauer Islands in the south-east part of Prydz Bay to find suitable winter quarters.

Late in February winter quarters were established in a small shallow bay 35m offshore from Filla Island, the largest of the Rauer Islands about 35km from Davis. The ship was frozen in on March 4 and was released from her winter prison when the ice around her broke out on January 12.

For another fortnight members of the expedition waited anxiously for 2km of fast ice outside the bay to break up and be driven out by the wind. By January 28 the DSE was at Davis awaiting a favourable ice report. She left for Sydney by way of the Soviet station, Mirny, on the evening of February 2.

Dangerous drifting ice, gales, and snowstorms, made a call at Mirny impossible. A Soviet radio report to the ship said that ice conditions were very

hard and the ice-strengthened Mikhail Somov, flagship of the Soviet Antarctic fleet, was unable to pick its way to Haswell Island.

## SHIP IN DANGER

After nearly a week of winds and gales the Dick Smith Explorer zigzagged her way through bergs and pack ice, most of it broken away by gales, to Haswell Island about three nautical miles from Mirny, and at noon on February 8 made fast with two anchors to a grounded berg. But the berg suddenly floated free at high tide and threatened to crush the ship against a wall of consolidated pack.

When the DSE was out of danger she was finally secured to a reasonably stable berg. But the ice between Haswell Island and the base was impassible either for the DSE or the rugged Beaufort inflatable. Floes and leads were equally impassible on foot.

Mirny was tantalizingly visible and the Soviet team while anxious to meet the expedition was concerned at the evident danger in the drifting ice. Also the station helicopter had left in the Mikhail Somov. So the DSE and her regretful crew headed for Sydney on the evening of February 8 in a snowstorm accompanied by gales.

On February 11 the snow stopped and the DSE under full sail in fair winds appeared to be clear of Antarctica's grip apart from bergs which were visible on the radar. But Antarctica was still reluctant to release the expedition. The DSE had to thread her way cautiously between fields of pack ice. Her deck and rigging were snow-covered and her sheets frozen. She passed one berg more than 4.8km long which seemed to be on Drygalski Island (65deg 45min S/92 deg 30min E).

As the ship headed for home David Lewis reported that despite winter blizzards her sails were in great shape and setting perfectly. Everyone was in good heart for the last leg of nearly 3000nm to Sydney.

When the ORF expedition returned David Lewis described it as a success. He said that the project had shown that a small low-budget expedition could survive a winter in Antarctica.

One of the main purposes of the expedition was to pioneer the use of a ship deliberately frozen into suitable ice as a base that could be removed, unlike highly-expensive land-based huts, at the end of the season without leaving an effect on the environment. Unlike earlier explorers, however, David Lewis and his companions did not remain aboard the Dick Smith Explorer all the time she was locked in the ice.

Between March 4 last year and the middle of January four members of the expedition spent nearly four months in the field on winter and spring journeys mainly south of the Rauer Islands. David Lewis and the American anthropologist, Mimi George, who was deputy leader, made the first field trip at the end of March.

With Gill Cracknell, the English geomorphologist, and the Danish naturalist, Jannik Schou, the leader and his deputy covered 582km by snowmobile and 496km on foot or hauling sledges, much of the distance over sea ice south of the Rauer Islands. They worked along a 100km coastal stretch and 25km offshore on frozen sea.

Science projects on these journeys included Emperor and Adelie penguin counts, tagging Weddell seals, collection of lichens and moss, and observations of seabirds. David Lewis and Mimi George, who were away from the ship every month, spent 122 days in the field, Gill Cracknell 116, and Jannik Schou 115.

Although the two Australians, Norman Linton Smith, radio operator and base engineer, and the zoologist, Jamie Miller, were in the field for only 31 and 19 days respectively, they contributed to the scientific programme of seal tagging, meteorological observations, and other projects carried out from the ship and in the field. They helped to sledge supplies to field depots for later use, and during a 50-day major spring journey by David, Mimi, Gill, and Jannik, they had the responsibility of keeping open a trench cut in the ice to ease ice pressure on the ship.

In addition to gaining valuable experience of travelling over sea ice the expedition did important work with Weddell seals, tagging 720 of them (Jannik was responsible for 700), making the first underwater recording of seal noises in East Antarctica and observing the birth of pups. Ice formations were measured and krill and fish samples were collected for later study.

### SMALL GROUP

A major product of the expedition's winter stay will be a doctoral thesis by Mimi George, who is a graduate of the University of Virginia. During her many months at sea and on the ice she obtained material for a detailed study of the interactions of members of a small group confined under trying circumstances for more than a year.

Because of communications difficulties the chronicle of the expedition's work could not be continued in the March issue of "Antarctic." Later reports to the ORF from David Lewis take up the story from October 28 onwards.

In the last week of October systematic day trips were made to count and observe seabirds in the Filla and Hop Islands rookeries. Gill Cracknell and Jamie Miller demarcated and mapped four penguin rookery areas for population study, and Mimi George photographed mating displays of Cape pigeons, fulmars, and penguins.

On November 1 the team began excavating the port quarter and stern of the Dick Smith Explorer, digging straight down through 1.5m of sea ice to free the hull from its ice cradle. Ice pressure had raised the bow more than a metre and the propeller, rudder, and jury rudder were ice-encased.

All field trips in November were done by hauling sledges as petrol supplies were only sufficient for emergency. On November 4 Jannik Schou and Jamie Miller tagged 158 Weddell seals in a major pupping congregation near Cape Drakon. Later Jamie tagged 14 more.

Between November 7 and 14 David Lewis and Mimi George prospected two snowmobile routes on to the Polar Plateau, the first to 250m above Cape Drakon. Mimi collected lichens from a nunatak, recorded seals on the sea ice and then sledged 13km along fiords below the plateau edge. A second route to 500m up slopes of blue ice provided a magnificent 100km view of the Vestfold Hills to the Larsemann Hills.

On November 18 Gill, Jannik, Norman, and Jamie, left Hop Island south of the Rauer Islands. During their six-day trip they estimated the penguin population of the area at 88,000 plus. David and Mimi left on November 23 for the Adelie penguin rookery on Filla Island where they camped for six days. They observed the nesting penguins and estimated the population at nearly 23,000.

In preparation for the melting and breaking up of the ice all rubbish was taken to the ice edge and burnt. Food dumps set up at the beginning of winter were returned to firm ice near the ship ready for re-loading.

Seal tagging for November and early December reached 226, including 97 pups. The total figure was 709 (272 pups). Adelie penguin rookeries were

monitored each week, and trips were made to bluffs north-east of the Rauer for lichens, and to Hop Island to count seabirds.

Because of heavy pack ice the ANARE relief ship Nella Dan was unable to reach Davis in the middle of December, and her cargo was ferried to the base by helicopter. Two helicopters later brought the expedition's first home mail and packages from Davis.

About this time David Lewis decided that it was necessary for Jamie Miller to return to Australia for personal reasons. He was transferred to Davis by helicopter after a request to the Antarctic Division by the leader, and returned to Melbourne aboard the Nanok S on January 24.

By the end of December the DSE was still frozen in among deteriorating ice in her winter quarters on the lee side of Filla Island. Two kilometres away was the open pack-strewn sea. Then on January 12 the ship floated free in the bay when the ice cradle split, forming floes. The propeller and rudder were intact, and one month later the expedition was sailing home to the delights of civilisation.

## Antarctic telex voting

Australians serving at Antarctic bases have been unable to vote in their Federal elections since 1954 when the first permanent station, Mawson, was established, because of infrequent mail services. Now they have gained the right to vote, and their votes will be transmitted from Mawson, Casey, and Davis by telex.

Postal voting has not been possible for 30 years because Australian National Antarctic Research Expeditions (ANARE) has had to depend on chartered ships between October and March each season. Amendments in the Commonwealth Electoral Legislation Bill passed last year will give the vote to about 120 men and women who winter in Antarctica, and 100 to 150 on voyages and summer expeditions on any polling days falling between October and March.

## Project Blizzard will restore Mawson's hut

Project Blizzard, a private Australian expedition, will sail south from Hobart late in November this year to the home of the blizzard, Commonwealth Bay. There it will begin the first stage of restoring Mawson's hut at Cape Denison, built for his 1911-13 Australasian Antarctic Expedition. The expedition will work at Cape Denison for eight weeks between December and early March and will return to complete the project in late 1985.

Organisers of Project Blizzard, which is expected to cost about \$A250,000, are members of the group which formed the core of the 1983 expedition to Australia's sub-Antarctic Heard Island aboard the ketch *Anaconda II*. The leader is William Blunt, a Sydney architect and mountaineer, and the chairman is Dr Ross Vining. They were joint leaders of the Heard Island expedition.

For the 1984-85 season the expedition will use the 21m auxiliary schooner *Dick Smith Explorer* which has made two voyages to Antarctica with Oceanic Research Foundation expeditions to Commonwealth Bay and Prydz Bay led by Dr David Lewis. The vessel to be used in the 1985-86 season will depend on the quantity of material needed at Cape Denison. It will take a party of up to 20, including carpenters.

Project Blizzard's objective in the restoration project will be to return Mawson's hut to a state similar to its original condition when it was first occupied by the men of AAE. Work planned includes repair of structural members; weatherproofing by replacing the external cladding with Baltic pine boards similar to the original timber; preservation and documentation of existing materials and historic items; and clearing the hut of snow and ice.

Recladding of the hut is regarded as the best option for protection of the hut which has withstood the ravages of Antarctic gales, extreme temperatures, and the accumulation of snow and ice

for 73 years. The first season's work will be largely exploratory to identify the hut's contents, determine the materials needed for restoration, and to make essential repairs. A start may be made on recladding.

While working on the hut the team will carry out a series of scientific projects. These include a detailed meteorological programme to supplement Mawson's original data; a magnetic study for the Bureau of Mineral Resources on the original 1911-13 magnetic survey site; a continuation of the studies of hormonal adaptation to cold climate which Dr Vining began on Heard Island; and a continuation of previous biological surveys in the area.

In addition Project Blizzard plans to retrace part of the famous eastern journey from Cape Denison by Mawson, the only survivor after his companions, Merz and Ninnis, died. The traverse will be made in the 1985-86 season by Jonathan Chester, Robert Easter and Stephen McDowell. They will haul their sledges 200km out from the base hut and 200km back.

### SUMMER TEAM

When the *Dick Smith Explorer* leaves Sydney about November 3 on the first stage of the voyage south her skipper will be an ORF director, Don Richards, who was radio operator with the 1981-82 expedition to Commonwealth Bay and the French Dumont d'Urville Station. Two positions with the expedition had not been filled when this issue of "Antarctic" went to press.

There are three architects in the expedition, William Blunt, his wife, Meg Thornton, who went to Heard Island, and Helmut Rhode, who specialises in cold weather building design. Dr Vining, who is a medical doctor, will continue his scientific studies; the medical officer is Dr Paul Mara.

Two members of the Heard Island expedition, Jonathan Chester and Robert Easter, will have with them a New Zealander who went to Heard Island nearly 20 years ago. He is an ORF director, Colin Putt, who has lived in Sydney for many years. The carpenter is Patrick Honey. Still to be selected are an archaeologist and a representative of the ANARE Club, which provided a man for the Australian Antarctic Division team which worked on the hut in the 1977-78 season.

## Finland now 31st treaty nation

Sweden, one of the first countries to send an expedition to Antarctica in the Heroic Age of exploration, acceded to the Antarctic Treaty on April 24 this year. It was followed late in May by Finland. There are now 31 treaty members, 16 consultative parties, and 15 acceding nations. Hungary was the 29th country to accede on January 27 this year.

Otto Nordenskjöld's Swedish Antarctic Expedition (1901-03) was one of five to winter in Antarctica during the first 10 years of this century. It went south at the same time as Scott's Discovery expedition (1901-04) and was the first to land on the South American side of the continent.

Among the members of the expedition which wintered were an Argentine Navy officer, Sub-lieutenant Jose M. Sobral, and two Norwegians, C. A. Larsen, captain of the Antarctic, and a deckhand, Toralf Grunden. An American landscape artist, F. W. Stokes, who had wintered with Peary's Greenland expedition in 1893-94, returned to Buenos Aires after the expedition established its winter base on Snow Hill Island off the east coast of the Antarctic Peninsula in the Weddell Sea. When the Antarctic was crushed in the ice and sank the expedition was broken up into three winter parties at Hope Bay, on Paulet Island and Snow Hill Island.

Forty-six years after the rescue of Nordenskjöld's expedition Swedish scientists and airmen were in Antarctica

Project Blizzard's budget for the two Antarctic voyages includes \$A50,000 for the restoration work. The main cost will be chartering and refitting vessels. To meet the cost of the restoration the expedition has appealed to supporters to pay \$A25 each, the cost of replacing a single board on the hut. About 2000 Baltic pine boards are needed for the complete job.

as members of the Norwegian-British-Swedish Expedition which worked in Queen Maud land from 1949 to 1952. Inspired by the noted Swedish glaciologist, Professor Hans Ahlmann, the project was the first large-scale international expedition. A Swedish scientist, Valter Schytt, was chief glaciologist and second-in-command of the expedition.

Three other Swedish members of the winter party were Dr Ove Wilson, Bertil Ekstrom (mechanical engineer) and Gosta H. Liljequist (assistant meteorologist). Air support was provided in the first summer by a Royal Air Force unit, and in the final summer a Swedish unit commanded by Captain R. von Essen made an aerial survey, operating from the expedition base, Maudheim.

## 44 historic sites

A plaque erected at Dakshin Gangotri, the summer station for India's first expedition in the 1981-82 season, brings to 44 the number of historic sites and monuments listed in Antarctica. Inclusion of the plaque in the list originally established in 1972 was approved at the 12th meeting of the Antarctic Treaty consultative members in Canberra last year. The plaque, which lists the names of members of the first expedition, was attached to a rock on January 9, 1982, at 70deg 45min S/11deg 38deg E on the coast of Queen Maud Land.

# Norwegian expedition to Queen Maud Land

Ornithological studies in the Gjelsvik Mountains of Queen Maud Land and investigations of seabed sediments in the Crary Delta in the Weddell Sea which will work in Antarctica during the first two months of 1985. Twenty-five scientists will take part in the expedition which will be the third since the 1976-77 season. Another expedition is planned in three years' time.

Organised by the Norwegian Polar Institute and a scientific committee at the University of Bergen the expedition will be led by Dr Olav Orheim, one of the institute's glaciologists. He has been south 11 times before and next year his main field of study will be glaciers, and particularly the way they disintegrate when they reach the open sea.

Other study sectors will be marine geology, marine geophysics, and oceanography. Scientists from the Polar Institute and the Institute for Continental Shelf Studies will jointly investigate what is known as glacier ploughing and the changes that occur on the seabed when it is scraped up by a giant glacier. This study will, among other things, contribute towards greater understanding of seabed developments on the continental shelf in the northern regions.

A research group will study the seabed sediments in the Crary Delta of the Weddell Sea. These sediments provide an indication of the area's geological history. Research so far shows that the area became completely ice-covered 4.5 million years ago. Another group will make water temperature and current measurements in the Weddell Sea.

In the Gjelsvik Mountains (72deg 09min S/2deg 36min E) ornithologists living in tents will carry out behavioural studies of petrels which nest in the area 200km away from the coast and their food sources. Other studies will cover invertebrates and the outer limits for plants.

Other projects will include microclimatic studies of the vegetation on nunataks, measurements of the content of sulphates and heavy metals in snow

samples, and detailed studies of freezing on the underside of an ice shelf.

Two geologists will continue their previous studies of continental drift, based on the knowledge that Africa, Antarctica, India, and Australia formed the single continent of Gondwanaland. The scientists will continue to study the rocks in the western mountains of Queen Maud Land in order to determine whether they are of the same type as those found in south-east Africa.

Topographic measurements will be taken for new satellite maps of the Gjelsvik Mountains area and geological mapping will also be done. The Gjelsvik Mountains form a range 40km long which lies between the Sverdrup and Muhlig-Hoffman Mountains.

## High winds at Russkaya

Meteorologists at Russkaya, the Soviet station at Cape Burks (74deg 46min /136deg 51.7min W) on the Ruppert Coast of Marie Byrd Land, reported wind speeds of up to 116.36 knots (215.65km) an hour early this year. Tass, the official Soviet news agency, claimed that wind strengths were the highest recorded anywhere.

A permanent station since 1980, Russkaya has a winter team of 10 men, including four scientists, headed by Vladimir Vasil'yevich Kiselev. He reported that the gales had buckled steel-framed huts and torn a generator weighing three-quarters of a ton off its steel mounting.

## Norwegian-British Pole expedition

A Norwegian-British private scientific expedition plans to follow Amundsen's route to the South Pole in the 1985-86 season. The leader will be a glaciologist, Dr Monica Kristensen, of the Norwegian Polar Institute. With her will be Dr Neil McIntyre, of the Mullard Space Laboratory, University College, London, Bjorn Wold, head of glaciology for the Norwegian Water Board, and Nick Cox, formerly of the British Antarctic Survey.

Funds for the joint expedition, which has the support of the Royal Society and the European Space Agency, will be raised privately in Britain and Norway. The cost is estimated at 254,000 sterling.

Predictably, when the expedition's plans were first announced in London on May 24 press reports were more concerned with its leadership by a woman than basic information about research and logistics. Claims were made apparently not by the British organiser, Dr McIntyre, about the first polar expedition to be led by a woman, the first to retrace Amundsen's route, and the first to attempt to reach the Pole overland without mechanised transport since Fuchs in 1958.

Glaciology is the main purpose of the expedition which expects to spend about 40 days in 80 on research. It will study the effects of tides and storms on the Ross Ice Shelf, and the formation of icebergs. Observations on the ice and snow sampling will complement satellite photographs, and may indicate changes in the West Antarctic ice-sheet.

Dr McIntyre told a staff correspondent of the New Zealand Press Association in London that the expedition, expected to take 80 days, is most likely to leave from Christchurch. The first stage of the proposed route will be across the Ross Ice Shelf from Scott Base to the Bay of Whales — a distance of more than 400 nautical miles on the map.

New Zealand is one of the few countries which still operate dogs in the Antarctic, according to Dr McIntyre. "These are what we need for the expedi-

tion," he told the correspondent. But so far no approach has been made to the New Zealand authorities for the use of Scott Base facilities or the huskies. Scott Base keeps about 18 (enough for two teams). A French private expedition of up to 15 men plans to winter at the Bay of Whales next year and also follow Amundsen's route to the Pole in the 1985-86 season. It intends to take 60 dogs.

Dr McIntyre says it is hoped the expedition will draw together international links and industrial enterprises in the Antarctic area. "We do not plan to promote companies' interests in mineral exploitation and offshore drilling but want to draw them into the arena of Antarctic activities."

Dr Kristensen is known in polar scientific circles for her research on Antarctic tabular icebergs. In the 1980-81 season she worked with Dr Olav Orheim, of the Norwegian Polar Institute, and Dr Peter Wadhams, of the Scott Polar Research Institute, from the British ice patrol ship, H.M.S. Endurance, off South Georgia, the South Sandwich Islands, and Signy Island in the South Orkneys.

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## New director

Australia's Antarctic Division has a new acting director. He is Mr James Bleasel, formerly director of the National Materials Handling Bureau in Sydney. Mr Clarrie McCue, who has been director for the last five years, has been appointed special adviser on Antarctic matters to the Secretary of the Department of Science and Technology in Canberra.

Mr Bleasel, who took over as acting director on February 20, spent nine years with the National Materials Handling Bureau, a national development agency concerned broadly with the physical movements of goods. The bureau publishes reports on the pitfalls and benefits of present technology to assist private enterprise, and is developing a code in association with industry for the transport of dangerous goods.

## BAS NEWS

# Geologists work towards South Pole

With more money to spend — its annual budget was increased by four million sterling to about 10 million — the British Antarctic Survey's 1983-84 summer season was extremely successful and almost all projects were completed without serious delays or mishaps. The field work programme was the most ambitious ever undertaken by BAS both in scale and extent. It extended to remote rock outcrops south to within 200km of the South Pole and west to about 105deg W.

Three Twin Otter aircraft supported the field workers, one making three flights to the Pole, and, as usual, the Royal Research Ships John Biscoe and Bransfield carried out the annual relief of the stations. In addition the John Biscoe supported geologists making a series of landings in remote areas, and the Bransfield stood by for seven weeks to assist in the changeover from the old station to the new. The old station was closed in mid-February.

This winter there are 62 men at BAS stations. Of these three are at Bird Island, South Georgia, 11 at Faraday in the Argentine Islands, 13 at Rothera on Adelaide Island, 19 at the new Halley Station and 16 at Signy in the South Orkneys.

Chile now has a centre for its air operations south of Adelaide Island. Last season the old British station which had been occupied only intermittently since BAS transferred to Rothera in 1977, was made available. The Chileans had been using a snow runway on the ice piedmont above Rothera (where they had established a mobile hut) since the 1981-82 summer and frequent flights were made at the end of last year.

Equipment was moved to the Adelaide airstrip at the beginning of January. The final flight of the season to Rothera was in mid-January, and the Chileans reported a few days later that Adelaide had been closed for the winter.

In one of the joint BAS-American projects the most southerly field party

— two BAS geologists with two USARP geologists from Lamont-Doherty Geological Observatory — was based at the Martin Hills. With BAS air support and snowmobiles the geologists worked in the outcrops south of the Ellsworth Mountains and west to the Whitmore Mountains, and also visited the Sentinel Range and Patuxent Mountains for comparison. Their programme was completed by the end of January and they were then flown out by United States Hercules aircraft by way of McMurdo Station and New Zealand. One BAS aircraft flew to the South Pole three times, ferrying geological specimens from the joint project in the Thiel Mountains.

This work was supplemented by aeromagnetic flights by a BAS aircraft. Two-thirds of them constituted a joint science foundation project in the Martin Hills area and included flights north to Siple Station and between the Ellsworth and Sweeney Mountains. Other BAS flights were undertaken across the Antarctic Peninsula and over Alexander Island. There were also flights over ground traverses out of the main Ronne Ice Shelf depot west of Berkner Island and on to the Lassiter Coast.

Fuel for the joint BAS—US flights had been provided in various depots set up by the Americans in the 1982-83 summer. The BAS-USARP geological programme will be continued in 1984-85 and the BAS-NSF geophysics programme in 1985-86.

Geologists with air support also worked on the stratigraphy and structure of central Alexander Island, the geochronology of plutonic rocks on the eastern side of the Antarctic Peninsula, and mapped exposures in north-western Palmer Land. The east coast party was flown out to Rothera Station, Adelaide Island, after eight weeks because of continuing bad weather, and joined HMS Endurance at the end of January for two weeks' helicopter landings on the west coast of the Antarctic Peninsula. This was very valuable: 92 gravity stations were occupied and ties established between Rothera, Faraday (Argentine Islands), Damoy (Wiencke Island) and the American Palmer station (Anvers Island).

Two men working on the Palmer Land plateau were flown back to Rothera a few days early, at the end of February, after one of them had fallen 15m into a crevasse with his snowmobile. Fortunately, his fall was broken by the collapsed snow bridge and he sustained only minor injuries and was able to climb out unaided.

Geomorphologists and a palaeontologist worked north of Fossil Bluff on the west side of George VI Sound. A four-man surface geophysics party worked for a month in the Sound before continuing its 1982-83 work on the Ronne Ice Shelf. In the latter area gravity and radio-echo ice-depth measurements were carried out every 9km and seismic depth-to-bedrock determinations every 36km, using a satellite navigation system. The traverses covered 1600km over the western half of the ice shelf and south to the Heritage Range. The party was airlifted back to Rothera by way of the Sweeney Mountains at the end of February.

### SNOW STUDIES

Glaciologists and oceanographers continued work on the sea water/ice shelf boundary at both ends of George VI Sound. Automatic tide gauges and current meters were positioned near the Eklund Islands to remain throughout the 1984 winter. The resulting

measurements will supplement those obtained at the northern end of the Sound in 1981-82. Snow samples were also collected for continuing isotope studies.

This group then sledged north to Fossil Bluff and continued work in eastern Alexander Island until the beginning of March. Another glaciological party worked on the Ronne Ice Shelf measuring flow, strain, velocity and tidal flexing in the area between the Korff and Henry Ice Rises.

All field parties were back at Rothera (the centre for BAS air-supported earth sciences) by the beginning of March and the Fossil Bluff hut was closed for the winter. Flights continued for a few more days: more fuel was flown to Fossil Bluff, ice observations made over Marguerite Bay and a second reconnaissance of the Ronne Entrance (the south-western end of George VI Sound) carried out. The latter project was an attempt to find a possible site, accessible by sea, for a depot for field operations.

BAS Antarctic flights in 1983-84 reached almost 1000 hours.

The three Twin Otter aircraft left Rothera in mid-March and flew to the Chilean Rodolfo Marsh Station, King George Island, on the first stage of their ferry flight north, arriving back in Britain two weeks later. All three had supported field parties throughout the summer and one also carried out aeromagnetic flights.

Two parties were ferried from Halley to Rodolfo Marsh by way of Rothera (on one occasion the aircraft had come from the South Pole), and a third flight was made to Marsh from Rothera to evacuate an injured man from HMS Endurance. The Chileans readily gave permission for an RAF Hercules transport plane to land at Marsh to take the man to the Falkland Islands.

After an eight-month voyage the John Biscoe arrived back at Southampton on March 12. She sailed south on June 21, 1983 and resumed marine biology off South Georgia at the end of July. In mid-October she began the summer relief operations and also transported

geologists who were making a series of landings on the west coast of the Antarctic Peninsula and the off-lying islands.

RRS Bransfield arrived at Halley at the end of December and remained there until the transfer from the old (1973) station to the new (1983) had been completed. She was able to unload on to fast ice in an inlet in the ice front where there was a convenient ramp up to the ice shelf, but gales in mid-January removed much of the fast ice and made access to the ice shelf difficult. The gales also hindered work at the new station (18km inland) — including erection of the 45m aerials for the advanced ionospheric sounder, and transfer of equipment from the old station.

While work was in progress, 25 men lived at the new station, 24 at the old (15 commuting 9km to work at the new) and 12 men lived on the ship. All available man-power was needed to complete the work and to ensure the minimum interruption of the geophysics programme during the transfer. There was, therefore, no time for the ship to replenish the Ronne Ice Shelf depot.

New Halley became operational as a geophysical observatory in mid-February, after interruptions in the programmes of only two to three weeks, an achievement made possible by all concerned working extremely hard, often in very difficult conditions. Those who wintered in 1983 had contended with bad weather before the ship's arrival.

Severe gales in mid-December (after which it took four days to remove snow drifts from around the new site) restricted outside work and travel between the two stations. In addition, severe melt problems were contended with at the old station (now 20m below the surface) when differential movements in the ice dislodged part of the boiler flue.

Bransfield sailed from Halley on February 14 and revisited Signy (South Orkney Islands), Bird Island (off the north-western end of South Georgia) biological stations and Grytviken. The Leith Harbour and Stromness whaling stations were inspected en route. Home-

bound winter parties were taken to Montevideo, where the ship's co-master assumed command for the second half of the voyage, and the ship then headed for the Antarctic Peninsula via the Falkland Islands.

Cargo was taken to the Faraday geophysical observatory and Rothera in mid-March. This included equipment for the new satellite communications system, similar to that set up at Halley and Signy and on the two ships in 1983. With the new installations at Faraday and Rothera the network was complete and was fully operational by mid-April. The teleprinter circuit was closed down at the end of the month.

From Rothera, the Bransfield proceeded to the Ronne Entrance, but high winds, rough seas and poor visibility thwarted the search for a new depot site and the ship sustained some damage in old pack ice. After returning to Rothera to deliver fuel, including 1,400 drums of aviation fuel, she finally left on March 24 to rendezvous with HMS Endurance near Deception Island, before taking men to King George Island to be flown home by way of Rodolfo Marsh Station.

Meanwhile, the Endurance ran aground while surveying, and was towed off by the Bransfield. Her damage was not serious and she was able to return to the Falkland Islands for repairs.

### FINAL VISITS

A few days later the Bransfield returned to the Argentine Islands and constructed and stocked a refuge hut nearby on the mainland at Rasmussen Point. After calling at Faraday, Palmer and Rodolfo Marsh stations the ship proceeded to the Falklands.

Two unoccupied buildings, observed adjacent to the old BAS station buildings on King George Island, were presumed to have been built by the Brazilians who had expressed an interest in wintering there from 1985 onwards. (A Brazilian party from the research ship Barao de Teffe had also inspected the Port Lockroy area on the west coast of the Antarctic Peninsula, and visited Damoy, the BAS summer air facility.)

Final visits were made by Bransfield to Signy, Bird Island and Grytviken in the first half of March and, as usual, stormy conditions caused delays at Bird Island. The ship then returned home by way of Rio de Janeiro and arrived at Southampton on May 15.

Two West German Dornier aircraft refuelled at Rothera and Halley in January and February en route from Rodolfo Marsh to Filchner summer camp by way of Fossil Bluff) and Neumayer Station and returned by the same route. One delivered some equipment to Halley. A West German helicopter also visited Halley in January after working in the Kraul Mountains near Neumayer.

While assisting BAS field parties, HMS Endurance visited several stations. Sir Rex Hunt, High Commissioner for the British Antarctic Territory, and Lady Hunt, and also the BBC correspondent Robert Fox, spent some time on board. Helicopters from several British naval vessels visited Bird Island throughout the summer, while en route between the Falkland Islands and South Georgia.

West Germany's research ship Polarstern visited Signy in December and January, and her helicopters called at Halley in February while en route between Neumayer station and the Filchner camp. The Chilean transport ship Piloto Pardo arrived at Rothera in mid-January to deliver fuel. Two Soviet ships, Kapitan Gotski and Pioner Estonii, left fuel near Halley in December and collected BAS fuel to be depoted on the Ronne Ice Shelf.

Several yachts and the tourists ships, Lindblad Explorer and World Discoverer, were also in the Antarctic. The Lindblad Explorer visited Faraday and Signy twice, and World Discoverer visited Faraday twice and Signy once. Sea ice and bergs prevented the ships from mooring close to Faraday.

A regular visitor to the Antarctic Peninsula area, the French yacht Damien II, called at Faraday and Rothera in January, and a second French yacht, F'Murr, visited Faraday

in February. The Swedish yacht Northern Light was also at Faraday in January.

Numerous East European trawlers were fishing around the South Orkney Islands and South Georgia throughout the season. Some were close in to Signy in April.

In the early stages of winter several parties from Rothera undertook 10 day dog-sledge or snowmobile journeys to various parts of Adelaide Island in April and May, but the April journeys were restricted by bad weather. From Halley, parties travelling by snocat or snowmobiles visited the coast and attempted to re-establish the route inland from the ice shelf to the inland ice before the onset of winter darkness.

## Brabant Island

A British Joint Services expedition to Brabant Island, the largest unexplored island in Antarctica, off the west coast of the Antarctic Peninsula, worked on the island last season. Eight men are spending the winter on the island in tents, and others will join them for the 1984/85 summer.

Under the leadership of Commander Chris Furse, R.N., who has been with services expeditions to the Elephant Island group in 1970/71 and 1976/77, the expedition travelled south aboard H.M.S. Endurance, the Royal Navy's ice patrol ship.

Four men manned the base, established in January at Metchnikoff Point in the north-west of the island, and carried out meteorological observations and a physiological programme. The remainder of the summer party explored the precipitous north coast and made the first ascent of Mt. Hunter, 1590m. Geological and botanical specimens were collected.

One of the field party fell with his man-haul sledge into a crevasse, but was fortunately held by his companion and was unhurt, though shocked. The party remained in a snow-hole for three days while the rescued man recovered.

## Fire destroys Argentine station

One of Argentina's oldest Antarctic stations, Almirante Brown, on the west coast of the Antarctic Peninsula, was destroyed by fire on April 12. Six of the seven residents were unharmed in the early morning fire; the seventh sustained minor burns and smoke inhalation.

An emergency hut 183m from the main buildings was used for shelter by the winter team until help arrived. In response to a request for assistance from the Argentine Antarctic Institute which has owned and operated the base as a scientific station since 1955 the United States National Science Foundation sent its research ship Hero to evacuate the seven men.

On its last call to pick up the summer team from Palmer Station on Anvers Island about 64km west of Almirante Brown the Hero broke off operations and reached the Argentine station at 5.17 p.m. on April 12. She picked up the men and was on her way to Palmer Station within 20 minutes.

After completing her mission to Palmer Station the Hero sailed on April 16 with the summer team of 10 and the seven Argentinians. The party from

Almirante Brown was disembarked at the Argentine winter station, Jubany, on King George Island, South Shetlands, and the Hero ended her summer programme when she arrived at the Chilean port of Punta Arenas, Tierra del Fuego.

Almirante Brown (65deg 53min S/62deg 53min W) is in Paradise Bay. Its picturesque setting has been a familiar sight to passengers on Antarctic cruises ships which called at Paradise Bay for a number of years.

In 1951 the Argentine Navy placed a small detachment at Almirante Brown. The station was established for scientific purposes on February 17, 1955. Before the fire it consisted of seven interconnected wooden buildings and an emergency camp. The station has been occupied each year by a winter team of up to 12 men, and another 12 during the summer season.

## Uruguay sends first expedition

Uruguay, which plans to establish a station to accommodate 12 to 15 people, probably on King George Island, South Shetlands, next November, sent its first scientific expedition south late in January. A party of nine, including a biologist, geologist, and meteorologist, and representatives of the Uruguayan Army, Navy, and Air Force, flew to the Chilean Rodolfo Marsh Station in a Uruguayan Air Force aircraft.

Uruguayan scientists have gained Antarctic experience with the Chilean research programme and in 1981-82 season two Uruguayan Air Force officers visited McMurdo Station and the Amundsen-Scott South Pole Station. Last November a Uruguayan Army officer, Lieutenant-Colonel Omar Porciuncula y Lamar, who was seconded to

the Uruguayan Antarctic Institute, studied the logistics of the New Zealand programme at Scott Base and Vanda Station.

In 1968 Uruguay established an Antarctic institute, and two years later a Commission for Antarctic Studies was set up by decree under the Foreign Ministry. Uruguay acceded to the Antarctic Treaty in 1980.

When Uruguay asked to join the Scientific Committee on Antarctic Research last year it was told that full membership could be considered only after the establishment of a scientific research programme. However, SCAR invited Uruguay to send an observer to its 18th meeting in Bremerhaven, West Germany, between September and October this year.

# Minke whale survey in southern waters

A survey of minke and other whales in the waters around Antarctica, which began in 1978, ended on March 1 this year when three Japanese whalers, Shonan Maru I, Kyo Maru 27, and Shonan Maru II, returned to the New Zealand port of Wellington. With the Soviet whale research ship Vdumchiviy 34 the three whalers sailed from Wellington at the end of December to carry out a two month research programme in Area VI (120deg W-170deg W). When the survey ended the Soviet ship remained in Antarctica for further research.

Thirteen scientists from seven nations — Argentina, Chile, Japan, New Zealand, United Kingdom, Soviet Union, and United States, took part in last season's cruise, the sixth in the International Whaling Commission's programme which is part of the International Decade of Cetacean Research (IDCR). The main purpose of the research has been to obtain accurate scientific data on minke whale numbers in the Antarctic region and gather detailed information on all other species of cetaceans sighted.

Working along the edge of the pack ice and offshore in the Ross and Bellingshausen Seas and off the coast of Marie Byrd Land the ships encountered generally good weather, but ice conditions were difficult during the second half of the cruise. Area V (130deg E-170deg W) was not surveyed this year as indicated in the December issue of "Antarctic."

As expected, the number of minke whales seen throughout the cruise was lower than in previous cruises because Area VI is known to contain fewer whales than other areas. In the 1982-83 survey of Area I (60deg W/120 W) 4113 minke whales were sighted from three ships.

Whale sightings during the cruise included 20 blue whales, 72 fin, 63 sei, 2925 minke, 107 sperm, 51 humpback, 323 killer, 204 beaked, 368 pilot whales and 270 dolphins. The scientists were impressed with the numbers of large whales sighted. They were able to carry

out important behavioural observations as a result. The tail flukes of seven humpback whales were photographed to assist with future identification.

Modified Discovery streamer marks were used to mark 133 minke whales. These assist in determining the fate of the mark when fired and recognising marked whales. Each mark has an attached stopper to limit penetration and avoid injury when it is applied to a whale.

All results from the cruise were presented to the International Whaling Commission at the annual meeting of the scientific committee in England last month. A report will be presented at the commission's annual meeting in Buenos Aires this month.

Of the five United States scientists in the programme three, Gerald Joyce, Richard Rowlett, and Barry Troutman, were from the National Marine Mammals Laboratory, National Marine Fisheries Service. The others were C.Edward Bowlby and Shannon Fitzgerald.

Others in the team were Toshio Hata and Fujio Kasamatsu (Japanese Whaling Association) and Tomio Miyashita (Far Seas Fisheries Laboratory), David Thompson (Sea Mammal Research Unit), British Natural Environment Research Council), A. Karpenko (Soviet Union), Luis Pastene (University of Concepcion, Chile), and Jorge F. Mermoz (Sub-secretariat of Marine Resources, Argentina). New Zealand's

representative was Paul Ensor, of Christchurch, who took part in the 1980-81 survey of Area V and the 1982-83 cruise in Area I. Local organiser for the cruise was Mr Martin Cawthorn, Fisheries Research Division, Ministry of Agriculture and Fisheries, Wellington).

Leader of the cruise and senior scientist on the Shonan Maru II was Gerald Joyce. Paul Ensor was senior scientist on the Shonan Maru II, Fujio Kasamatsu on the Kyo Maru 27, and Richard Rowlett on the Vdumchiviyi 34.

## Polar ship Kista Dan sold to Greeks

After more than 30 years of Arctic and Antarctic service the former Danish 1250-tonne ice-strengthened ship Kista Dan, now the Arctic Gael, has been sold to a Greek company. She was the first in the line of Dan ships owned by J. Lauritzen and Company, and over the years carried Australian and British expeditions to Antarctic, and traded to Greenland for her owners during the northern summer. After two changes of ownership she spent three summers in Arctic and Antarctic waters as support ship for the British Transglobe Expedition led by Sir Ranulph Fiennes.

Arctic Gael's new owners are Freighters and Tankers Ltd, of Bermuda. The company is one of a group controlled by N. J. Goulandris.

As the Kista Dan the veteran's first character was to help make the film "Hell Below Zero" (based on the novel "The White South" by Hammond Innes). Between the 1953-54 and 1965-66 seasons she was chartered to Australian National Antarctic Research Expeditions (ANARE) and then for several seasons to the British Antarctic Survey. Later she was sold to Karlsen Shipping, renamed the Martin Karlsen, and used for survey work in the Canadian Arctic by the Bedford Institute of Oceanography, and in trading to north-eastern Canadian ports.

Early in 1979 the Kista Dan was bought for the Transglobe Expedition by a leading British insurance group, C. T. Bowring and Company, and its American associate, Marsh and McLennan Companies. She was named Benjamin Bowring after the company's founder. In the 1979-80 summer the ship took the expedition to Queen Maud Land, and after six months carrying

cargo between Pacific islands, sailed to the Ross Sea from Lyttelton in the 1980-81 season to pick up Fiennes, Charles Burton, and Oliver Shepard who had completed their Antarctic crossing.

Then the Benjamin Bowring took the expedition to Alaska for the final stage-crossing the ice of the Antarctic Ocean to Spotsbergen by way of the North Pole. The ship returned to the Arctic in May, 1982, and on August 4 picked up Fiennes and Burton who had been drifting south on an ice flow for 99 days.

Early in January last year the chief engineer of the Benjamin Bowring, Ken Cameron, was reported to have bought the ship for 85,000 sterling, not much more than her value as scrap. He changed her name to Arctic Gael and planned to provide a complete package of training, logistic support, and supply services, to organisations working in distant and difficult regions.

Towards the end of last year the ship was offered to the Australian Government for \$A200,000. Dr Phillip Law, director of the Australian Antarctic Division from 1949 to 1966, who chartered the Kista Dan in the 1953-54 season to establish Mawson, the first Australian Antarctic base, and for other ANARE expeditions, suggested the ship should be bought by the Government and moored permanently in Melbourne's Yarra River as a marine annex to an Australian Antarctic museum.

Then in its December issue "Aurora," the ANARE Club's journal, reported the sale of the Arctic Gael to a Greek company. The transaction was completed within a few hours of the expiry time of the selling offer made to the Australian Government.

## TOURISM

# Lindblad Explorer under new flag

Next year the veteran Antarctic cruise ship Lindblad Explorer will complete five cruises for the last time under the name she has borne since 1970. She has been acquired by a United States travel firm, Society Expeditions, of Seattle, will be renamed Society Explorer after extensive reconstruction, and will begin an entirely new cruising schedule, including Antarctica, in 1985-86.

This year the West German ship World Discoverer will not cruise to Antarctica for the first time since 1977-78. She is now being operated by Heritage Cruises, New York, for the Hamburg Shipping firm, Reederei de Vries and Co., which owns her.

For logistic reasons the Lindblad Explorer will not visit New Zealand or Australia during the 1984-85 season. Because of the change of ownership the charter cruise from Hobart in January next year, organised by the Sydney electronics millionaire, Dick Smith, will not take place. This cruise was to have taken tourists to Commonwealth Bay where Mawson's 1911-13 expedition was based, and the French station, Dumont d'Urville.

Between November 21 and February 11 the Lindblad Explorer will cruise in Antarctic and sub-Antarctic waters and among the islands off the Antarctic Peninsula. The first cruise will begin from Cape Town and will end at the Argentine port of Ushuaia, Tierra del Fuego. Early in February next year the last cruise to the South Orkney Islands, South Georgia, and the Falkland Islands will end at the Chilean port of Punta Arenas, Tierra del Fuego.

Then the Lindblad Explorer's cruising schedule will take her to the Chilean fiords, Easter Island, and across the South Pacific. From Suva she will sail to Port Moresby and the Solomon Islands. Her season will end at Bali later in April.

Last season the Lindblad Explorer was the only Antarctic cruise ship to bring tourists to the Ross Dependency.

The World Discoverer cruised generally in the Antarctic Peninsula region and calls were also made to the Falkland Islands, South Atlantic.

Both ships made four cruises last season. Passengers aboard the Lindblad Explorer were able to visit the Polish station, Arctowski, on King George Island, South Shetlands, the British Antarctic Survey base, Faraday in the Argentine Islands, and the United States Palmer Station on Anvers Island. Ice conditions prevented two attempts to enter Hope Bay and visit the Argentine station, Esperanza, but the ship called at Paulet Island where part of the Swedish expedition led by Otto Nordenskjöld spent two winters. Visits were made also to the Argentine station Almirante Brown in Paradise Bay, and the Chilean station Presidente Gabriel Gonzalez Videla.

Late in January the Lindblad Explorer began her final cruise into the Ross Sea from Punta Arenas. Her last call was at Palmer Station on February 6, and then she headed for the Bellingshause Sea.

On the night of February 7, 22 of the passengers became the first tourists to land on Peter I. Island (68deg 47min S/deg 35min W) about 240 nautical miles off the Eights Coast of Ellsworth Land. This was only the eighth landing

since 1929. The captain of the World Discoverer and members of his crew made the sixth landing on January 29, 1982. The seventh landing is reported elsewhere in this issue.

### SOVIET PLAQUE

Altogether 44 men and women (22 passengers, 11 officers and crew, 11 staff) spent just over two hours on the island, going ashore in the Antarctic moonlight. On the landing beach they found a plaque marking an earlier landing on March 9, 1960 by a party from the veteran Soviet supply ship *Ob*.

News of the landing was sent to Norway — the first landing was made on February 2, 1929 from the Norwegian research ship *Norvegia*. In turn all aboard the *Lindblad Explorer* received a congratulatory message from King Olav of Norway.

Cape Crozier, Ross Island, was the ship's first landfall after more than a week cruising in the Ross Sea. In McMurdo Sound the *Lindblad Explorer* sailed into New Harbour as she did in the 1982-83 season, and on February 16, because of the extensive breakout of ice she was able to proceed three nautical miles south of Cape Armitage and anchor in front of Black and White Islands.

Between February 16 and 18 the tourists visited Scott Base and McMurdo Station, climbed Observation Hill, and were conducted through the historic huts at Hut Point, Cape Evans and Cape Reyds. On the voyage north passengers also went ashore on Inexpressible Island in Terra Nova Bay and saw the site of the snow cave where six members of Scott's Northern Party wintered in 1912.

On February 26 a call was made at the former joint U.S.—N.Z. station at Cape Hallett which was closed as a summer station in 1973. The next day the ship was off Cape Adare, but heavy surf made it unsafe to land passengers on Ridley Beach. Two New Zealanders, John Charles and Colin Monteath, however, took a Zodiac through the surf to inspect the hut built in 1899 by Borzhgrevink's South Cross Expedition (1899-1901). There they sprayed inside a

fungicide designed to arrest the growth of mould and fungus on the floor boards of the hut which has been exposed to the Antarctic elements for 75 years.

Tourist activity in the Ross Dependency and on New Zealand sub-Antarctic islands has been controlled and monitored for several years to protect historic sites and buildings, and the flora and fauna. Mr Charles, a senior park ranger and former deputy officer-in-charge at Scott Base, was aboard the ship to represent the Lands and Survey Department and the Antarctic Division. Mr Monteath, a former field operations officer with the Antarctic Division, who did a similar job for the division in 1982-83, joined the ship at Punta Arenas as a staff lecturer, guide, and Zodiac boat operator.

In the last week of February the *Lindblad Explorer* completed the sub-Antarctic section of the cruise with calls at Campbell Island, the Auckland Islands where passengers went ashore on Enderby Island to view the Hooker's sea lion colony, and the Snares group. A New Zealand National Film Unit team was pick up from Campbell Island, and Martin Cawthorn, of the Fisheries Research Division, and two assistants, Simon Mitchell and Chris Thomas, went aboard at Enderby Island, after two months studying the Hooker's sea lion colony. Four more passengers, Mrs Gillian Eller, Colin Miskelly, Peter Wilson, and Peter Carey, who had been with a University of Canterbury biological and entomological expedition on the Snares since January were the last to leave the sub-Antarctic.

After a call at Bluff to land her New Zealand passengers and take on supplies the *Lindblad Explorer* called at Stewart Island where passengers were entertained and given a taste of the deep south — salmon, crayfish, blue cod, pua, and venison. She then sailed for Wellington, arriving on February 29.

Built in Finland in 1969 the *Lindblad Explorer* was specially designed for *Lindblad Travel* to operate in the less accessible parts of the world, and was

ice-strengthened and equipped to operate in Arctic and Antarctic pack ice. Under the energetic direction of Lars-Eric Lindblad the company began its association with Antarctic cruises in 1966.

For the first cruise Lindblad chartered the Argentine naval cruise ship *Lapataia*. In 1968 he used the Chilean passenger ship *Navarino*, and the Danish polar ship, *Magga Dan*. For the 1968-69 season a Chilean naval cargo ship *Aquiles* was used.

On her first voyage south the *Lindblad Explorer* was under Norwegian registry. She was re-registered in Panama in 1972-73, and after a brief period of Singapore registration was registered in Stockholm until the end of last year. She was then owned by Salen Lindblad.

Until the 1977-78 season Lindblad Travel was the main Antarctic cruise operator. Then the Singapore-registered *World Discoverer* with 193 berths against the Lindblad *Discoverer's* 92, entered the field, being operated by a

Frankfurt travel firm until 1978-79, Society Expeditions sponsored the last cruise of 1979, and since then the tour operators have been listed as the ship's owners. They were associated with Lindblad Travel on the first cruise of the 1979-80 season.

Antarctic tourist cruises even in the summer by specially equipped ice-strengthened ships have not been free of hazard in the last 17 years but there have been no fatalities. A party from the *Lapataia* was stranded on Half Moon Island, South Shetlands, in 1967, the *Navarino* had steering engine failure in 1968, and in the same year the *Magga Dan* ran aground in Winter Quarters Bay on her first voyage south from New Zealand.

Passengers from the *Aquiles* were stranded in 1969, and the *Libertad*, operated by the Argentine national tourist organisation, suffered damage in 1973. The *Lindblad Explorer* ran aground twice — in Admiralty Bay, King George Island, South Shetlands, in 1972, and in 1980 off Wiencke Island in the Palmer Archipelago.

## Seven landings on Peter I Island

Since Bellingshausen discovered Peter I Island on the afternoon of January 22, 1821, landings have been made on it since 1929 by parties from Norwegian, United States, Chilean, and West German ships. The claim made in 1982 by the captain of the West German cruise ship *World Discoverer* that his landing with members of his crew on January 29 was only the second in 53 years was quickly disproved. It was the sixth.

Overlooked in the complete list which appeared in the December, 1982 issue of "Antarctic" was the seventh landing since the first by a party from the Norwegian research ship *Norvegia* on February 2, 1929. Appropriately it was by a party from the veteran Soviet supply ship *Ob*. The date was March 9, 1960, and the landing was noted briefly in the June issue of "Antarctic" in the same year.

Peter I Island is at 68deg 47min S/90deg 35min W about 240 nautical miles off the Eights Coast. Heavy pack ice has kept visitors away but there have been reports in recent seasons of landings from yachts that have ventured south of Marguerite Bay.

## Peruvian plans

Peru, which acceded to the Antarctic Treaty in 1981, is making preparations for an Antarctic research programme. This winter it has a guest scientist at the Argentine station, General San Martin, on the west coast of Graham Land. In the 1982-83 season it sent observers south with Australian, Chilean, and Brazilian expeditions.



# THE READER WRITES

## Sidelights of Antarctic Research

### Reader Writes

Sir, — I read with much interest in "Antarctic," September, 1983, that a British Joint Services expedition will work on Brabant Island from November, 1983 to March, 1985. I would like to point to a fact which, I believe, is unique in Antarctic expeditions' history: among the winter party of this British expedition (March, 1984 — December, 1984) we find the name of Francois de Gerlache, son of Baron Gaston de Gerlache, commander of the Belgian Antarctic Expedition in 1958-1959, and grandson of Baron Adrien de Gerlache, commander of the Belgian Antarctic Expedition in 1898-1899. He was the discoverer of Brabant Island (1898) and with members of his crew, including Roald Amundsen, Frederick Cook, and Henryk Arctowski, was among the first men in history to winter in the Antarctic.

This means that Belgium will be very proud when Francois de Gerlache returns home in February, 1985, to have an explorer's family from which three

succeeding generations have passed a full winter in the Antarctic. This has, so far as I know, never been done before.

— Yours etc,  
 COMMANDER ROGER PLANCHAR  
 Belgian Navy (retd)

**Footnote:** Another son of the second Baron de Gerlache, of the Belgian Navy, was the guest of the United States Navy in the 1972-73 season.

Ensign de Gerlache acted as an observer for the Belgian Navy and the Belgian-Netherlands Antarctic Committee. He gained a doctor's degree in law and economics before doing his naval service. In spite of his family association with the Antarctic he did not follow in the footsteps of his grandfather and his father, but went into business in Belgium when he returned early in 1973.

In 1958 Baron de Gerlache and Prince de Ligne made the first landing in Antarctic territory since the Belgica expedition. The second expedition established Roi Baudouin on the Prince Ragnhild Coast of Queen Maud Land.

## Five Australian Polar Medals sold

Five Polar Medals awarded to Australians who served with expeditions led by Shackleton and Mawson were sold at auction in Sydney on November 16. Nine medals (including war medals) which belonged to the noted photographer, Frank Hurley, who went south three times with Mawson, and once with Shackleton, realised \$A16,000.

Hurley was awarded the Polar Medal in silver for his service as official photographer with Mawson's 1911-14 Australasian Antarctic Expedition. With the New Zealand chief magnetician, Eric Webb, and Robert Bage, he sledged to within 80km of the South Magnetic Pole. He received the Polar Medal in bronze when he served with Shackleton's Imperial Trans-Antarctic Expedition of 1914-17. Between 1929

and 1931 he made two voyages south aboard the Discovery

Eight members of Mawson's 1911-14 expedition established a western base in Queen Mary Land on the Shackleton Ice Shelf where they spent a year. The magnetician was A. L. Kennedy, who was awarded the Polar Medal in silver. He also received the Polar Medal in bronze for his work as a physicist on the second of the two BANZARE voyages. These medals were in a group of six, (including war medals), which went for \$5,300.

A flag from Mawson's first expedition and the Polar Medal in silver awarded to the taxidermist, Charles F. Laseron, were the final Antarctic lot offered. It included three war medals, and realised \$A5,100.

# Trophy award for work on Hooker's sea lion

A New Zealand marine biologist, Mr Martin Cawthorn, has been awarded the New Zealand Antarctic Society's Conservation Trophy for 1984 — an Emperor penguin carved in walnut. The award has been made in recognition of Mr Cawthorn's contribution to the preservation and conservation of Hooker's sea lion in the sub-Antarctic Auckland Islands, and Antarctic and Arctic whaling stocks.

Mr Cawthorn is a marine mammal biologist with the Fisheries Research Division, Ministry of Agriculture and Fisheries in Wellington. Since 1975 his research has concentrated on Hooker's sea lion, one of only five sea lion species in the world which breeds mainly on Enderby Island in the north of the Auckland groups.

Because of the growth of the trawl fishery for squid around the islands which began in 1979 fisheries research scientists have been concerned about the effect of fishing on the Hooker's sea lion estimated population of 6000 to 7000. One purpose of Mr Cawthorn's research has been to monitor the immediate and potential effects of accidental deaths of sea lions caught in trawler's nets.

Since 1977 Mr Cawthorn has been New Zealand's permanent representative on the scientific committee of the International Whaling Commission. He has done research in New Zealand and Canada on the biology of whales and in 1979-80 took part in a joint New Zealand-Tongan survey of humpback whales in Tongan waters which was sponsored by the International Whaling Commission.

There have been 11 previous awards of the conservation trophy since 1972. It is awarded to any person or organisation contributing significantly to any aspect of Antarctic or sub-Antarctic conservation. This covers preservation of flora and fauna, historic buildings, sites, artefacts, and the natural features of the continent and islands.

Squadron Leader W. Hopper, presi-

dent of the society, who announced the award said that council members agreed that Mr Cawthorn's research has been and will continue to be a most valuable contribution to the preservation and conservation of Antarctic and sub-Antarctic fauna.

In spite of bad weather and transport difficulties he and his field assistants had missed only one summer of research since 1977.

Mr Cawthorn, who is now writing a thesis on Hooker's sea lion for his doctorate, gained his M.Sc. degree from Victoria University of Wellington. He joined the Marine Department's Fisheries Division in 1962 and did research on commercial whaling biology. In 1966 he joined the Canadian Fisheries Research Board and worked for five years with its Arctic biology unit on whales and seals.

When he returned to New Zealand in 1971 Mr Cawthorn worked on biological surveys and wrote scientific papers. In 1975 he worked under contract to the Canadian Government on an investigation of the tuna/porpoise problem in the Eastern Tropical Pacific yellow fin tuna fishery, based in Panama.

Mr Cawthorn rejoined the Fisheries and Research Division in 1976 to work on deep water trawling and marine mammals. In the same year he was sponsored by the United Nations Food and Agriculture Organisation as New Zealand representative to the Mammals in the Seas Conference in Bergen, Norway.

In 1975 Mr Cawthorn began

preliminary work on Hooker's sea lion with an investigation of its feeding and the effects of a tranquilising drug and a veterinary emetic. This work was continued in 1976 with emphasis shifted to a population census and breeding biology.

Pup tagging began in the '1980-81 summer for a detailed study of the population status, distribution, biology and behaviour of New Zealand sea lions with special reference to feeding and fisheries interactions. This programme

was continued the next summer but not in 1982-83 because of lack of transport. But in April, 1983, an assessment was made of predation and the life of the tags placed on pups.

Last summer Mr Cawthorn and two assistants, Simon Mitchell and Chris Thomas, spent two months on Enderby Island. They carried out extensive tagging of sea lion pups and adults, studied their biology and behaviour, growth rate, and age at maturity.

## Hooker's sea lion research on Enderby Island

Research in the Auckland Islands on Hooker's sea lion last summer was concentrated on two aspects — population studies (mortality, fecundity, censuses etc) and pup growth. Once again the work was done on Enderby Island in January and February by Mr Martin Cawthorn, Fisheries Research Division, Ministry of Agriculture and Fisheries,

and two assistants, Simon Mitchell and Chris Thomas.

More than 1200 pups have now been tagged and reweighed to measure growth. Mother/pup pairs were marked last summer and the team found females first tagged in 1980 with their first pups. Foetuses retrieved from dead females provided an insight into gestation.



A painting by Maurice Conly of Scott Base as it was in 1958 was presented to the base last season to mark the New Zealand Antarctic Society's 50th anniversary (1933-83). Left and right are the society's president (Squadron Leader W. Hopper) who made the presentation, and the summer officer-in-charge, Mr N.D. Hardie.

Antarctic Division photo.

## Ritchie Simmers served with BANZARE

Ritchie Gibson Simmers, one of the veterans of Sir Douglas Mawson's British, Australian, and New Zealand Antarctic Research Expedition, died in Wellington on April 22, aged 78. He was a young New Zealand meteorologist when he first went south and his association with Antarctic and sub-Antarctic lasted more than 50 years. In that time he gained world-wide recognition for his meteorological research, became director of the New Zealand Meteorological Service, and was chairman of the Ross Dependency Research Committee for seven years.

Born in Timaru and educated at Canterbury University College where he gained his M.Sc. degree in physics in 1928. Simmers was one of two New Zealand scientists seconded by the New Zealand Government to Mawson's expedition in the Royal Research Ship *Discovery*. His colleague was an ornithologist, Robert Falla, who died in 1979. Both were awarded the Polar Medal in bronze for their work with BANZARE.

Simmers joined the Meteorological Service in 1929, and after his return from Antarctica worked in the aviation section. Between 1936 and 1938 he was in the United States on a Commonwealth Fund fellowship, and gained a doctorate in meteorology at the Massachusetts Institute of Technology.

Early in the Second World War evidence of enemy raiders in New Zealand waters resulted in the organisation of the secret Cape Expedition which established bases for coast watchers in the Auckland Islands and on Campbell Island. Simmers, who became assistant director of the Meteorological Service in 1940, and Falla, were called on for advice on sub-polar living conditions.

Between 1941 and 1945 members of the Cape Expedition did scientific and meteorological work. Simmers was then serving in the Royal New Zealand Air Force as his service had become part of the Air Department. His duties embraced the sub-Antarctic islands, and when the Campbell Island base was retained as a permanent meteorological station after

the war his sub-Antarctic association continued for another 20 years.

When the first Cape Expedition party landed on Campbell Island it attempted to grow vegetables as instructed but without result because of the damp peaty soil, insufficient sunlight, and rats. J. H. Sorensen, who did three tours of duty on the island, and was there again in 1946 and 1947, managed to force a few greens in tins of sandy soil and sheep droppings from the old sheepyards, but roving sheep ended the experiment.

Campbell Island's present vegetable island, which provides green vegetables for several months of the year, owes its existence to Sorensen's perseverance in the early years and later to the enthusiasm of Simmers. In 1953 he began the present system of sending seedling plants to the island. Seedlings grown in Wellington are transplanted to shallow metal trays about the end of August and are fairly large and hardened when taken south in October.

With the establishment of United States and New Zealand bases on Ross Island, and the world-wide co-operative research for the International Geophysical Year (1957-58) which included meteorology, New Zealand's Meteorological Service extended its operations to Antarctica. Between 1955 and 1965 Simmers played a leading part in arrangements for meteorological observations at Scott Base and the joint U.S.—N.Z. station at Cape Hallett, and New Zealand's contribution to climatic research in Antarctica.

In 1958 the 11 nations which co-

operated in Antarctica during the I.G.Y. agreed to extend their research programme for another year. The New Zealand Government approved the continuation of exploration and research in the Ross Dependency and a Ross Dependency Research Committee was appointed to advise and assist the responsible Minister in the co-ordination of all New Zealand activity in the Ross Dependency and the conversation of Scott Base to a permanent scientific association. The committee's first chairman was Ritchie Simmers who held the position until he retired from the Meteorological Service in 1965, having been its director since 1963.

It was appropriate that Simmers should be the first RDRC chairman. As a founding father of the New Zealand Antarctic Society 50 years ago, and one of its first four vice-presidents, he was among those far-sighted men who kept pressing for New Zealand participation in Antarctic exploration and research.

A research sub-committee of the society produced in 1950 a report which called on the Government to set up an Antarctic research committee which would plan a field expedition or permanent station in the Ross Dependency with the co-operation of other nations if

necessary. Members of the committee were Falla, Simmers, Charles Fleming, of the Geological Survey, and a journalist, Frank Simpson.

Simmers served on the society's council in its early years and after his retirement was one of its patrons. When the society celebrated its 50th anniversary last year it recognised his services by making him a life member.

Regrettably neither Simmers nor Falla found time in their busy lives to write of their experiences with Mawson's expedition. But in Professor A. Grenfell Price's book on the BANZARE voyages "The Winning of Australian Antarctica" there are several references to both the New Zealanders. Professor Grenfell Price mentions and also quotes from what he calls the cheerful diary kept by Ritchie Simmers and the New Zealander's considerable capacity for setting doggerel to popular tunes for the amusement of members of the expedition.

Both men left their names on the expedition's maps and those of East Antarctica. Simmers Peaks are a group of four rocky peaks about 19km south-east of Cape Close in Enderby Land. They were discovered on January 13, 1930.

## OBITUARIES

### Veterans pass from polar scene

Leaders of the first French party in Adelie Land and the first Australian team on sub-Antarctic Heard Island have passed from the polar scene in the last two years. Others who died last year were the first scientific leader at Cape Hallett and a French glaciologist who studied the katabatic winds of East Antarctica.

**Andre-Franck Liotard** died in January, 1982, aged 76, but this was not widely known even to many French Antarctic veterans until last year. He worked first with a Falkland Islands Dependencies Survey party on Deception Island, and then was selected by Paul-Emile Victor to organise the first

expedition dispatched to Adelie Land by Expeditions Polaires Francaises in the 1948-49 season.

Heavy pack ice in the summer of 1948 forced the expedition ship Commandant Charcot to return to Brest. She went south again next season and landed a party of 11 men. This party, led by Liotard, covered more than 1931km with dog teams and tracked vehicles in 1950. It penetrated 96km inland, and made trips over the sea ice along the entire eastern half of the Adelie Land coast.

Australian expeditions to Heard and Macquarie Islands were a prelude to the establishment of Antarctic bases. The

first officer-in-charge and senior meteorologist on Heard Island in 1947-49 was **Aubrey V. Gotley**, who died in South Australia late last year, aged 67.

A quiet and reserved man, Gotley was in charge of 13 men who spent more than 12 months on the island. A glacier which descends from the ice-covered slopes of Big Ben to south-west side of the island bears his name, and on maps of Antarctica there is a Cape Gotley, the eastern extremity of the Austnes Peninsula at the south-east end of the Edward VII Plateau.

**Professor Andre Poggi**, of the Glaciological Laboratory, Grenoble, who died in March last year, spent several summers at Dumont d'Urville. He was

responsible for the IAGO (interaction of atmosphere, ice, and ocean) programme, and worked with United States scientists on the installation of automatic weather stations and katabatic wind projects.

A United States geographer, **Professor James A. Shear**, who was the scientific leader at the joint U.S. — N.Z. Hallett Station in 1957, died in November last year aged 64. He gained his doctorate at Clark University, served in the United States Army Air Corps from 1941 to 1946, and was professor of geography at the University of Kentucky before he went to Cape Hallett. Three New Zealanders, J. G. Humphries, C. E. Ingham, and M. W. Langevad, were in his scientific team.

*Polar Medals awarded posthumously to Captain Oates and Lieutenant Bowers, two of the four men who died with Scott on the way back from the South Pole in 1912, were offered at auction by Sotheby's in London on June 28. Also for sale were medals awarded posthumously to the two men by the Royal Geographical Society and the Royal Italian Geographical Society.*

*Sotheby's medals department received the Oates medals from the estate of an English collector who had owned them for the last 20 to 25 years. The Bowers medals had been passed down through a number of relatives to one with no children who passed them on to a lifelong friend.*

## ADVERTISING RATES

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# ANTARCTIC

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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\$7 (or equivalent local currency). Membership fee, overseas and local, including "Antarctic", NZ\$15.

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