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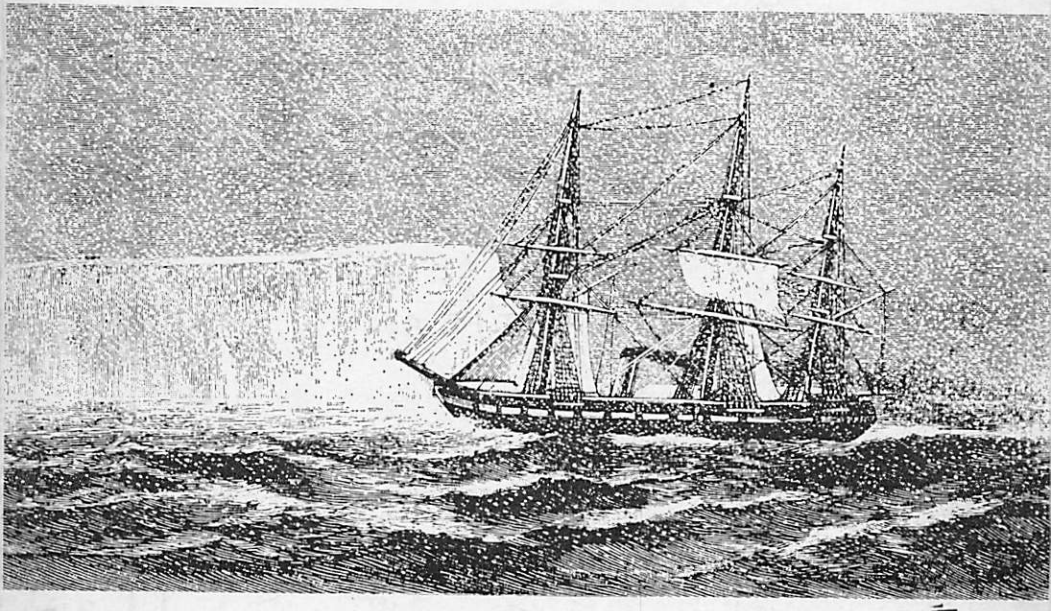

ICE TO STARBOARD. H.M.S. CHALLENGER ENCOUNTERS A TABULAR BERG DURING HER VOYAGE IN THE ANTARCTIC SEAS.

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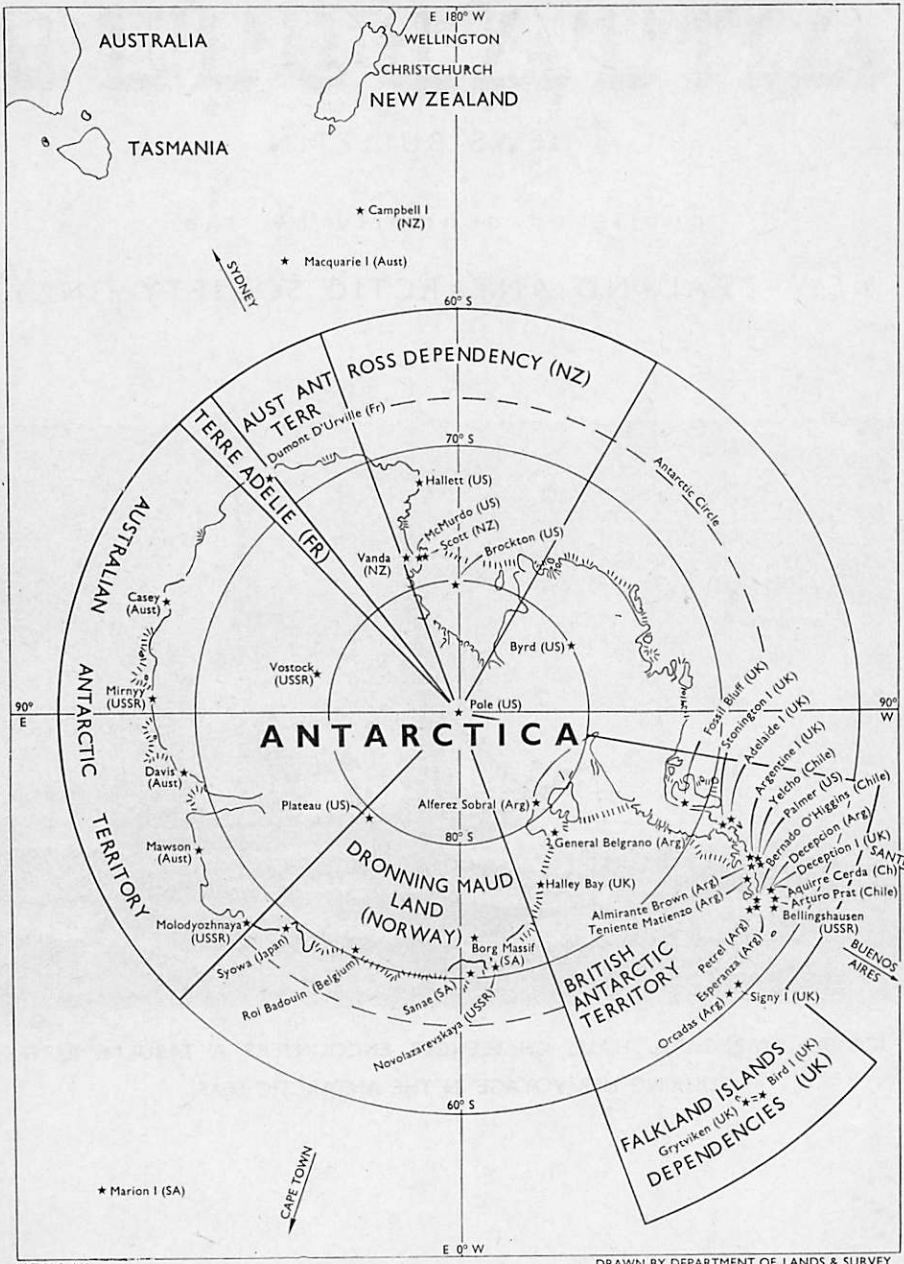

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It is with deep regret that we record the death on April 28 of Leslie Bowden Quartermain, Antarctic historian, founder and long-time Editor of this journal.

Having been associated with "L.B.Q.", as he so often signed himself, over a period of twenty years, the present Editor wishes to pay a personal tribute to the memory of a very remarkable man whom it was a pleasure to have known and to have worked with.

Throughout his life he was devoted to the cause of New Zealand's participation in Antarctic exploration and research, and his many books on the subject will be his lasting memorial.

VANDA STATION TO BE USED NEXT WINTER

Vanda Station, in the Wright Valley, which has been a summer station since 1970, will be occupied next winter by staff of the New Zealand Antarctic Research Programme for 1973-74. This summer it will be used as a staging station for field parties working in the dry valleys.

New Zealand's main field project in the coming season will be the continued participation with the United States and Japan in the dry valley drilling project. New Zealand will provide drilling crews and field support staff to work the drilling rig, and specialist scientists will work with their American and Japanese counterparts in analysing the core samples.

The Minister of Science (Mr C. J. Moyle) who announced the programme last month, said that Scott Base would continue to be New Zealand's main base for supporting all activities, and for observatory studies of the upper atmosphere, meteorology, and earth sciences, as part of Antarctic and international networks.

Increasing interest in the climate and other unique features of the dry valleys, and conflicting data obtained from only two previous winter expeditions has led to the need for at least another full year of continuous observations. To meet this need Vanda Station will be occupied through the winter of 1974.

Shortage of ski-equipped aircraft has restricted field projects to those within helicopter or land transport range. Government field parties will undertake research on the hydrology, glaciology, geology and geochemistry of the dry valleys, nuclear sampling of atmospheric carbon dioxide at selected sites, and will also study currents along the ice edge in McMurdo Sound.

Field parties from five New Zealand universities—Auckland, Waikato, Victoria, Canterbury, and Otago—will study Weddell seals, penguins, and skuas around Ross Island, and the microbiology and sedimentology of dry valley lakes, and wind-blown dust in the dry valleys.

Projects involving international cooperation will be continued with the United States, the Soviet Union, and Japan. New Zealand plans also to provide support to a research team from the National Research Council of Italy.

Assistance with logistic support will be provided by the Royal New Zealand Air Force with aircraft, air crews, and load planners; by the New Zealand Army with cargo handlers; and by the United States Navy with aircraft and ships.

Geological and chemical studies in the Trans-Antarctic Mountains west of Scott Base will be carried out by the Victoria University of Wellington expedition to the Ross Dependency. The party of eight, which will spend three months in the Antarctic, will be led by Mrs Janet Crump, who worked with last season's expedition.

Five members of the party are continuing research for their doctorates. They are Mrs Crump, Messrs J. McPherson (deputy leader), J. Keys, P. Kyle, and Mrs Rosemary Kyle. Mrs Kyle, formerly Miss Rosemary Askin, worked in the Shapeless Mountain area, and around the Skelton Neve, in the university's 16th expedition which went south in the 1971-72 season. Geological assistants are three third-year geology students, Messrs P. Luckman, R. Plume and G. Rowe.

The 18th expedition will leave towards the end of October ,and will be flown into the field by United States Navy helicopters. It will work from small tent camps, and move around by motor toboggan or on foot.

The rocks under study range in age from 350,000,000 years to very recent times. Mr McPherson is studying the oldest rocks—compacted red-coloured silts and sands which he believes were deposited in lakes and streams. Some beds contain well-preserved fossil fish. Mr McPherson is particularly interested in features that appear to be ancient soil profiles, and which might thus indicate the climate of the time.

Mrs Crump will continue work on the Mawson brecchia, a peculiar fragmented rock that appears to have formed as a result of a huge volcanic explosion about 150,000,000 years ago in the area around Shapeless Mountain. One question to be answered here is why the lava exploded instead of coming out as flows on the land service as it did in most other parts of Antarctica.

Mrs Kyle will complete a study of fossil pollen grains and associated coal deposits which are extensive in the Trans-Antarctic Mountains. The pollen grains provide much more precise ages than the fossil leaves already studied for coal-bearing strata, which are very similar to those in Tasmania, Eastern Australia, and South Africa.

Mr Kyle has been studying the volcanics of the Ross Dependency, including the active cones of Mounts Erebus and Melbourne. He will continue this work as site geologist with the International Dry Valley Drilling Project. In addition he will continue mapping and collecting slats that form on exposed rock surfaces in the dry valleys region. He will be trying to establish what determines the type of salt present and its abundance.

Caretakers at Cape Royds

Two members of the New Zealand Antarctic Society will have the opportunity to go south next season to act as caretakers at Cape Royds. Applications are now being called for two men to spend three weeks in the Antarctic, starting early in December. There have been caretakers at Cape Royds for the last four summers.

The Antarctic Division of the Department of Scientific and Industrial Research, which will provide special clothing, transport, food, and accommodation, has suggested certain qualifications of value to anyone applying.

These qualifications include interest in one or more of the Antarctic research projects, particularly biology or meteorology, and knowledge of and interest in the historic huts at Cape Royds and Cape Evans, and the conservation of fauna and flora. Other suggestions are that applicants should have practical experience in some trade or profession, and mountaineering and or tramping experience.

The two caretakers will be selected by a panel of representatives from the society, the superintendent of the Antarctic Division, and the leader at Scott Base for the 1973-74 season. Applications can be sent by South Island members to the secretary of the Canterbury branch, P.O. Box 404, Christchurch. North Island members can apply to the Wellington branch secretary, P.O. Box 2110.

Last season the caretakers were Messrs V. J. Wilson (Christchurch) and P. Wilson (Wellington). The first caretakers in the 1969-70 season were Messrs P. J. Skellerup and M. Orchard. Messrs S. Smith and C. M. Satterthwaite went in the 1970-71 season, and the 1971-72 season's caretakers were Messrs R. G. McElrea and H. Burson.

Scott Base Men Exchange Midwinter's Day Gifts

New Zealanders at Scott Base are beginning to look forward already to the return of the sun in August, and also the possible arrival of husky pups. One of the bitches, appropriately named Lady, is expected to deliver this month.

Mid-winter's Day was celebrated twice by the 12 members of the winter party. On June 22 there was a dinner at which each man gave a present he had made to a colleague. The next night Americans from McMurdo Station were entertained at another dinner. In addition the New Zealanders took part in the Americans' celebrations.

In April the days were mainly fine and clear, with only moderate winds, and the men made the most of the fast-fading daylight. Each man was able to make a two-day field trip—the last chance to get away from the base before the winter darkness descended.

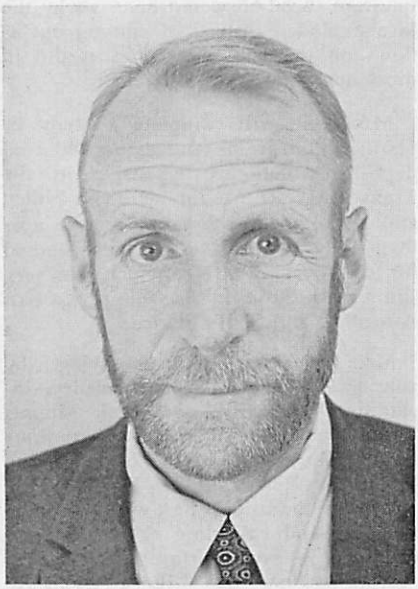
Messrs R. N. Copeland, R. W. Reeves, G. Turner, and P. Scothern, spent their two days hauling a 600lb sledge along the heights above Scott Base towards Mount Erebus. The going was hard; during the trip the men averaged a steady mile an hour.

The other parties—Messrs J. P. Housiaux, A. J. Dawrant, J. Williams, and P. Owens, and Major P. G. Fraser, Messrs J. R. Bitters, J. Halewood, and J. Prill, used more modern transport. Each team, with a tracked vehicle and a toboggan, made the 70-mile wide circuit from Scott Base to Black Island and White Island and back. Particularly rough terrain was encountered between the islands.

When the sun set, marking the beginning of four months of darkness, a special service was held at the base. It also commemorated Anzac Day. The New Zealand flag was lowered to "Last Post" and raised again to "Reveille" by Mr Bitters, a Territorial Force member of the Special Air Service. Then it was lowered for the last time until the sun returns in August by Mr Dawrant, the youngest man at the base. Forty men from McMurdo Station attended the ceremony.

In the last week of May the good weather experienced previously deteriorated. Temperatures ranged from minus 7.4deg Fahrenheit to minus 44.7 deg Fahrenheit. The peak gust of wind for the month reached 66 knots.

RESEARCH TEAM LEADER



A 47-year-old former New Zealand Army officer, Mr H. W. E. Jones, will lead New Zealand's Antarctic team in the 1973-74 season. His appointment was announced last month by the Minister of Science (Mr C. J. Moyle). He will fly

south early in October to relieve the present leader (Major P. G. Frazer).

Mr Jones retired from the New Zealand Army in 1970 after 24 years service with the rank of lieutenant-colonel. Since then he has managed a motor firm in Auckland. He is a chartered accountant and a registered mechanical engineer.

In 1943 Mr Jones joined the Royal New Zealand Air Force, and became a second pilot on Lancaster bombers in Britain. He was posted to No. 75 (N.Z.) Squadron on the day the war in the Pacific ended but did not fly operationally.

About 12 years ago Mr Jones applied to go to the Antarctic as a field assistant. In the intervening years he has served at various Army establishments within New Zealand, in Australia, and in South-East Asia. For a time he was a military liaison officer on the staff of the New Zealand High Commission in London. His last Army appointment was as controller of programmes at the Ministry of Defence, Wellington. He was responsible for the introduction of planned programming and budgeting within the ministry.

Pollution threat to penguins

Pollution near two research stations off the Antarctic Peninsula is threatening penguins and sea animals which have no natural immunity to man-made contamination. A Chilean scientist, Dr Hugo Campos, director of the zoology institute at Austral University, Valdivia, found last season the beginning of contamination in two lagoons near King George Island, where Chile operates Presidente Frei Station, and the Soviet Union operates Bellingshausen Station.

Dr Campos, who will publish his findings in a few months, predicts that the penguin population will be substantially reduced unless the contamination around King George Island and other areas is swiftly checked. He says that the penguins are almost virgin species, which have lived isolated from man for centuries. They have no resistance to man's germs, and their extermination could be extremely rapid.

The present situation in the Antarctic can be compared to the arrival of the Spanish conquistadors in Latin America in the 16th century, according to Dr Campos. He says that the Spaniards brought diseases from Europe which killed many Indians who had no natural defences. Man is doing the same thing to Antarctic plants and marine life in the 20th century.

REPAIRS TO ICE BIRD

Ten men at Palmer Station, the United States base on Anvers Island, off the Antarctic Peninsula, will repair the 32ft steel sloop Ice Bird this winter as a recreational project in their spare time. The New Zealand-born adventurer, Dr David Lewis, reached Palmer Station on January 28, completing the second stage of his single-handed attempt to circumnavigate the Antarctic Continent.

Dr Lewis was unable to continue his voyage because the Ice Bird was damaged in two gales and capsized twice, and he suffered frostbitten hands and feet. He called off his voyage early in February, and went to the United States in the Antarctic cruise ship Lindblad Explorer. He is now in Australia and plans to return to Palmer Station in November or December. Then he hopes to sail the Ice Bird into Sydney Harbour in July, 1974.

Lieutenant L. A. Jukkola, officer in charge of Palmer Station, has advised Captain A. N. Fowler, commander of the United States Naval Support Force, Antarctic, that his men are willing and eager to repair the Ice Bird in their spare time. The emergency repairs, although not extensive, are required because of the battering the sloop received in the harsh weather she met on the voyage from Stewart Island through the Southern Ocean.

B.A.S. ACTIVITIES

Collapse of Ice Cliffs Checks Halley Bay Base Relief

Repeated collapses of ice cliffs in Halley Bay made this year's relief of the base by the Royal Research Ship Bransfield a hazardous operation. When a 500ft section of one cliff collapsed (about half a million tons of ice) large quantities fell on the Bransfield. She was damaged, put to sea with a heavy list until the ice was moved from the fore-deck, and then had to load her cargo near the Dawson-Lambton Glacier 35 miles south of the base.

The relief of Halley Bay is never easy because the sea ice in the eastern part of the Weddell Sea clears only for a short period each summer and can close in again very rapidly, and also because of the instability of the ice front at Halley Bay. This year's relief in February was even more difficult than usual.

As the base was to be completely rebuilt, unusually large quantities of material had to be unloaded. The snow ramps beside which the ship usually moors had broken back and the Bransfield had to secure against a 30ft ice cliff. Soon after unloading began this cliff collapsed; two men who were standing on it at the time fortunately landed on pieces of ice and were recovered by the ship's crane without even getting their feet wet!

The ship then moved to a cliff about 35ft high, but this also collapsed and a number of sledges was lost in the mêlée of heaving ice. Finally, the Bransfield had to move to a 45ft cliff—the maximum height that the ship's crane could reach. Soon after the completion of unloading but before loading had started, a 500ft section of this cliff collapsed and large quantities of it fell on the ship.

Considerable damage was done to the bulwarks and stand pipes forward of the bridge front, and the ship heeled over alarmingly, flooding the crew's quarters. She then put to sea with a heavy list until large quantities of ice were moved from the fore-deck.

Construction of the new base inside steel tubes went according to plan. All five tubes, the inter-connecting steel tunnels, and the shells of the main buildings within, were completed in 27 days. New electric generators were installed and running before the ship left. A team of builders is wintering at the base and the new complex should be ready for occupation next summer.

On February 14 (not February 15 as originally reported), the director, Sir Vivian Fuchs, the logistics officer, Mr Derek Gipps and the assistant logistics officer, Mr Barry Peters, were flown from Halley Bay to Adelaide Island, 1000 miles to the west, to join the R.R.S. John Biscoe. The two B.A.S. Twin Otters had made their pioneer flight on this route two days previously, homing on to the Bransfield to land at Halley Bay through patchy low cloud. At take-off the snow was soft and sticky and several attempts were made before they were airborne.

After a few final supply flights the aircraft left Adelaide Island on February 26 and arrived in Toronto for their annual overhaul on March 4.

The Biscoe then returned to the Falkland Islands, calling on the Americans at Palmer Station, the Chileans at O'Higgins and the Argentinians at Esperanza on the way, and eventually arrived back at Southampton on April 10. Sir Vivian Fuchs and Messrs Gipps and Peters returned from South America by air.

Steel culverts nearing completion at Halley Bay in February. The main buildings of the rebuilt base will be housed in the culverts.

—British Antarctic Survey Photo

Early in the season, the Biscoe went into dock at Puerto Belgrano for repairs. Later, she only just escaped serious damage when a large iceberg bore down on her one night while she was anchored to sea ice off Adelaide Island. Fortunately, the berg was spotted by the look-outs, and there was just time to cut the ropes and get clear stern first as the berg moved past, towering over the ship and scraping its side as it went.

Apart from relieving the bases, the Biscoe spent three weeks trawling for marine specimens in the vicinity of South Georgia and also landed a number of field parties at various localities around South Georgia.

The Bransfield left Halley Bay at the end of February, called at Signy Island and South Georgia and then sailed for the west coast of the Antarctic Peninsula. Final calls were made at Adelaide Island and Stonington Island at the end of March, before the ship returned to South Georgia to pick up the field parties.

Bad weather and heavy seas delayed this last operation and ten days elapsed before it was possible to pick up the last party who were on Annekov Island. The Bransfield then began her homeward voyage via the Falkland Islands and arrived at Southampton on May 18.

The French yacht Damien revisited South Georgia and Adelaide Island in April after visiting a number of sub-Antarctic bases. Her previous visit had been in 1971. The Russian stern-trawler Granat also visited South Georgia. The Lindblad Explorer called five times at the Argentine Islands during the season, her first visit being at the end of March.

A summer group of four geologists was flown to south-east Alexander Island where a number of outstanding problems concerning the local Cretaceous succession were successfully solved.

After the departure of the ships and aircraft, geophysical, geological and topographical surveys were resumed in a number of localities by parties from Stonington Island and Fossil Bluff. Glaciologists have continued the detailed study of Spartan Glacier from their field hut north of Fossil Bluff.

Some geophysical field work was also carried out from Halley Bay, in spite of intermittent bad weather with winds gusting to 100 knots. Glaciological and biological programmes have been continued on South Georgia, and the reindeer study now in progress produced a welcome supplement to the base diet.

Programmes at all bases have been maintained. Scientific work on South Georgia is still being expanded, and during the 1972-73 summer additional radiation equipment and new magnetometers were installed, and a new glaciological laboratory occupied. The new botanical greenhouse and biological wet laboratory have also been brought into use, but temperature control in the greenhouse is proving difficult. The two automatic weather stations established at Hodges Glacier two years ago have presented numerous problems but continue to function.

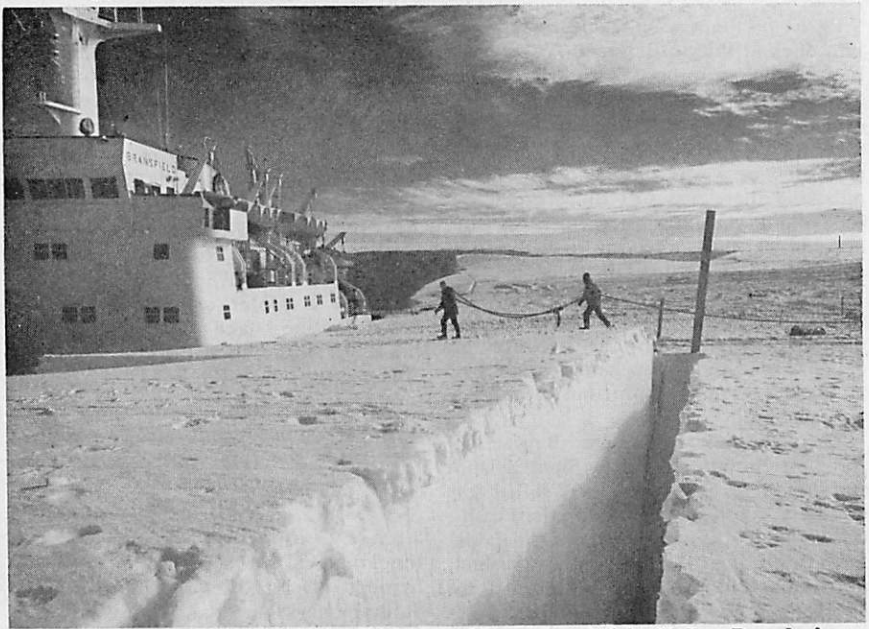
There are 97 men wintering at seven bases. From time to time some of them will occupy field huts during the winter.

FISHING SEASON FOR SCIENCE

Preparations for the Antarctic fishing season, which will open on September 1, are being made already by the men who are spending this winter at McMurdo Station. But the season is not like those in temperate climates; the fishing is for science, not sport.

Scientists of the National Science Foundation will need seven "fish huts" rehabilitated and prepared for use in the summer, and they will have to be placed on the sea ice in McMurdo Sound by September 1. The scientists will fish through holes in the ice in the hopes of catching the Antarctic cod (Nototheniidae) from depths to about 300ft under the ice which can be up to 6ft or 8ft thick.

The scientists are investigating a biochemical "anti-freeze" in the fishes' blood which allows them to exist in the sub-zero temperatures of the Antarctic waters.



The Royal Research Ship Bransfield alongside an ice cliff in Halley Bay during the relief of the base in February. The ice cliff is about to calve.

—British Antarctic Survey Photo

Specimens Thrown Overboard

Specimens representing two years' research work in the Antarctic were apparently thrown overboard from the Royal Research Ship Bransfield on her voyage home. When she reached Southampton last month two members of the crew were interviewed by the police, who had been called in by the British Antarctic Survey to investigate the disapearance of blood samples, prawns, shrimp-like amphipodes, moss and peat specimens, birds, and fish.

Sir Vivian Fuchs, director of the British Antarctic Survey, told journalists that the loss represented two years of field work. He said that either the particular work had to be abandoned or all the collecting of samples would have to be repeated.

Trouble began on board the Bransfield when she left the Antarctic with 41 scientists and support staff and headed for home. Inside the refrigerator in the ship's laboratory were deep-frozen blood samples and specimens collected by men who had spent more than two years in the Antarctic.

CHILLED BEER

As the ship steamed through the tropics members of the crew decided to cool their cans of beer by keeping some next to the prawns and amphipodes in the refrigerator. This upset the scientists who explained that constant opening of the door lowered the temperature below the required level of minus 40deg Centigrade.

Captain T. Woodfield, master of the Bransfield, ordered the beer removed and placed the refrigerator out of bounds to the crew. The next night someone forced the lock on the laboratory door, removed the samples, and threw them overboard.

What the police described as "a minor domestic upset," represents, according to Sir Vivian Fuchs, a cost of between £20,000 and £25,000 when the scientists' salaries and all the preparations are considered. One marine zoologist, Mr A. Clarke, will return to the Antarctic to collect more prawns; the other, Mr M. Richardson, will wait for new samples of amphipodes to be sent to him.

Personal relics for museum

Letters from members of Scott's two expeditions, relics from the Discovery, and even a plug of tobacco issued to the men of Shackleton's last expedition aboard the Quest in 1921 are among recent additions to the growing collection of personal relics in the Canterbury Museum. Eventually they will be housed in the National Antarctic Centre, which will be the heart of the new centennial wing.

The earliest letter in the latest additions was written by L. C. Bernacchi, physicist with Scott's 1901-1904 expedition, and also a member of Berchgrevink's Southern Cross Expedition of 1899-1900. Bernacchi wrote the letter to Mrs A. E. G. Rhodes, of Christchurch, wife of the Mayor at that time. Mr Rhodes and his wife gave both private and public hospitality to members of the expedition. Bernacchi's son, Mr M. L. Bernacchi, who lives in Christchurch, has deposited the letter in the museum.

Other letters were written by men who were members of Scott's two expeditions, Petty Officers Edgar Evans and Thomas S. Williamson. A framed Shackleton autograph given in 1907 has come from Wellington.

Mr P. Williams has presented the plug of tobacco issued on Shackleton's last expedition, and a pocket knife carried on Scott's last expedition. Mr L. S. Carter's bequest to the museum includes the Evans and Williamson letters, and a silver napkin ring, wine measure, knife, fork, and spoon from the Discovery.

SOVIET NEWS

Ob Held Fast in Pack Ice off King George V Coast

Soviet ships seem to remain longer in Antarctic waters than those of other nations. Early last month the veteran research and supply ship Ob was still in the Antarctic, but helplessly trapped in pack ice off the King George V Coast. Her Mi8 helicopter lifted 50 scientists and 10 members of the crew off the ship on June 11 to the icebreaker Navarin, which went to her assistance. The Ob's Antonov 2 aircraft was also used to transfer men.

The Navarin, also icebound about 150 miles from the Ob, but able to control her course, then awaited the arrival of the research ship Professor Subov, sent from Leningrad in mid-May to assist in rescue operations. On June 12 the Ob's position was described as difficult but not hopeless. It seemed likely, however, that the 50 men still aboard might remain there another two months if their ship joined the company of the Belgica, the Deutschland, and the Aurora, and remained locked in the ice until spring.

Since the first Soviet expedition in 1956 the Ob has made annual supply trips to Antarctic bases. She sailed from Murmansk on December 4 last year, and was involved in the establishment of the new station Russkaya at Cape Burks on the Hobbs Coast. In March she called at Lyttelton, and then sailed south again to pick up scientists of the 18th expedition at Mirny.

The Ob was on her way back to Leningrad when she ran into a severe storm in the Indian Ocean sector. Ice floes up to 16ft high began to pile up around the ship, locking her in.

The Navarin, which had completed her Antarctic operations, was at Fremantle when the Ob got into difficulties. She sailed south again, having picked up fuel and fresh food, but two days after sailing she received a radio message from the Ob (on May 15) reporting that she was trapped in drifting pack ice 185 miles from the nearest clear water, and running short of helicopter fuel. The Navarin then returned to Fremantle.

After taking on about 17,000 gallons of fuel for the Ob's helicopter, the Navarin sailed from Fremantle on May 22. Her master, Captain Yuri Karlov, expected to reach the pack ice in about 10 days. Before departure he said that a skeleton crew would be left on the Ob to sit out the winter while the ship drifted in the ice pack.

A special committee was set up in Moscow to determine how to get the Ob out of her trap. It included representatives of the Northern Sea Route Administration, which is responsible for all ice-bound routes and icebreaker operations, the Arctic and Antarctic Institute in Leningrad, and meteorological and civil aviation officials.

When the Navarin reached the pack ice she delivered two tons of fresh fruit and vegetables to the Ob by helicopter. She then awaited the arrival of the Professor Subov, which was expected about June 20.

At mid-day on June 13 the Ob was about 160 miles off King George V Coast, firmly wedged in pack ice up to 20ft high, and drifting at the rate of two to three miles a day towards the north. The crew was reported to have done everything possible to reinforce the ship against the tremendous pressure of the ice. Ilyushin 14 aircraft

from Mirny had been using the limited hours of winter daylight to try and find a route in the pack for the Ob to break out to clear water.

By June 22 the Ob was reported to have drifted 275 miles since the ice closed in around her early last month. The small group of scientists left aboard was taking advantage of the ship's plight to study the winter weather and plot the complex pattern of ice drift.

TRAVERSE PARTY

A 440-mile tractor and sledge journey from the Pravda Coast towards the South Pole was the final operation of the 18th Soviet expedition. The traverse party, which left Mirny in the middle of February, returned in time to be picked up by the Ob and the Navarin.

For most of the seven weeks of the traverse the weather was not good, but the party, which included scientists from practically every discipline, studied glaciers, and the earth's magnetic field, drilled into the ice-cap, and took radar soundings. Instruments were left at interesting spots along the route to record ice changes.

Other members of the expedition surveyed areas of Queen Maud Land, the Prince Charles Mountains, and a number of Antarctic islands.

A Soviet meteorological rocket launching programme began in the Kerguelen Islands at the end of February, and was planned to end on May 31. The first rocket was launched on February 27 and reached an altitude of 92 kilometres (57 miles). Two more rockets were launched on March 2 and March 7.

The programme, which involves the firing of 20 rockets, is part of a campaign of rocket launchings from the North Pole in the direction of the South Pole along the same meridian. Its purpose is to determine the profile of the upper atmosphere.

Between January 27 and February 2 ten Soviet experts arrived in the Kerguelen Islands aboard the Professor Zubov and the icebreaker Navarin, which also brought various equipment, including radar and telemetering stations.

The first three rockets were launched in collaboration with the French Weather Bureau. Four to six rockets were to be launched each month until the end of the programme.

The launching pad was the one originally built for French Dragon rockets. It was slightly modified and placed at the disposal of the Soviet scientists along with the installations and buildings of the small base which forms part of the French Austral and Antarctic Territory (T.A.A.F.).

OATES MEMORIAL

A Greater London Council blue plaque marking the boyhood home of Captain Laurence Edward Grace Oates (see "Antarctic," Volume 6, No. 5, March, 1972, pp. 172-173) who died at the age of 32 on Captain Scott's 1912 South Pole expedition was unveiled on March 17 at Stroud House, Upper Richmond Road, Putney, London.

The unveiling took place on the anniversary of Oates' birth and death. The building is now a Church Army hostel.

Winter Party at Syowa Has Minor 'Heat Wave' in May

Warm weather in the middle of May surprised the 30 men of the 14th Japanese Antarctic Research Expedition (JARE 14) who are wintering at Syowa Station. The temperature rose above freezing point for two hours and a half from May 11 to May 12, and at 2 a.m. on May 12 the recording was 1.4deg Celsius. It was the first time a May temperature had been above freezing point since Japan sent its first expedition to the Antarctic in 1957.

Snow around the station buildings began melting during the warm night. Three hundred kilometres away there was a rare fall of rain at the Soviet Molodezhnaya Station. In May last year the average temperature at Syowa Station was minus 16.8deg, and the maximum was 2.1deg below freezing.

News of the minor "heat wave" came from Syowa Station to the Japanese Ministry of Education in Tokyo on May 28, two days before the sun disappeared below the horizon to leave the winter party in darkness until about July 14. In spite of the winter darkness research activities are continuing, and morale is reported to be high.

The summer relief operation ended on February 24 when the last helicopter flight was made from the station to the icebreaker Fuji. The official changeover was held at the station on February 20. Dr Takeo Hirasawa, the new leader, and the JARE 14 party were already active in their duties.

Although the Fuji was checked 30 nautical miles from the station, the 1972-73 relief operation was completed on schedule. The Fuji encountered fast ice, perhaps two years old, about 40 miles from Syowa, and could move only one mile in 24 hours because the ice was so hard. However, 473 tons of cargo were airlifted by the ship's two helicopters between January 1 and February 12.

Between December 31 last year and February 20 about a dozen field parties were sent to various sites to make field observations in geology, surveying, geomorphology, biology, limnology, glaciology, and geochemistry. On February 15 one S-210 sounding rocket was launched successfully to a height of 103km for the observation of electron density, electron temperature, and the intensity of auroral X-rays in the lower part of the ionosphere. Two more successful launchings were on March 25 (114km) and April 23 (124km).

The Fuji left the ice edge on February 24 and sailed to the west, then to the north, occupying oceanographic stations. She called at Cape Town on March 9; 30 men of JARE 13 and Dr W. L. Hofmeyr, deputy-director of the South African Weather Bureau, disembarked. Members of JARE 13, led by Mr Sadao Kawaguchi, arrived by air in Tokyo on March 21.

On March 15 the Fuji sailed from Cape Town for Tokyo. She arrived on April 20, having called at Singapore from April 4 to April 9, and completing a 147-day trip. Ten men of the JARE 14 summer party, led by Dr Kou Kusunoki, returned aboard the Fuji. Oceanographic observations were carried out during the voyage.

During the summer season a full construction programme was completed at Syowa Station. A new weather hut of about 100 square metres was erected, and a radar dome and equipment were installed on the roof. A machine shop was added to the garage, and a small green-house was erected.

Eight men led by Mr Renji Naruse, a glaciologist who wintered at Syowa in 1969, left the station on April 1 for Mizuho Camp, the small inland station about 300km to the south-east. The

party stayed there from April 14 to April 25, storing supplies and making glaciological observations. It returned to Syowa on April 30.

Four men led by Mr Kunio Omoto, a geomorphologist who also wintered at Syowa in 1969, made surveys of fresh and saline lakes, and also made geomorphological observations in the area south of the station between April 29 and May 12.

In January this year the Fuji picked up at Fremantle a transponder beacon provided by the French National Space Research Committee as part of the international programme to study weather and ocean currents round the Antarctic Continent, using the EOLE satellite. This transponder was set on an iceberg off the Prince Olav Coast on January 5. Its signal stopped at the end of January. The movement of the iceberg during this period was not recognised, suggesting that it had grounded on the ocean floor.

Selection of members of the 15th Japanese Antarctic Research Expedition is now in progress. It is expected that a meeting will be held at expedition headquarters on June 22 to appoint some members, including leaders.

Formal approval by the Japanese Diet of the inauguration of an independent national polar research institute ("Antarctic," March, 1973, page 325) is still awaited. It is likely that the Polar Research Centre at the National Science Museum will be transferred to the new organisation.

Japanese Royal Visit to "Mini-Antarctica"

New Zealand's first association with Japan in Antarctic affairs was early in 1911 when Lieutenant Choku Shirase's expedition in the Kainan Maru called at Wellington on its way south. Since then scientists of the two countries have co-operated in Antarctic research.

When the Crown Prince of Japan and Princess Michiko were in New Zealand last month, he asked specifically to visit the Antarctic Division, Department of Scientific and Industrial Research, in Christchurch, to acknowledge personally the good relations existing between Japanese and New Zealand scientists on the Antarctic Continent.

Crown Prince Akihito and Princess Michiko visited the Antarctic Division's headquarters to find a suite of offices that had been transformed into a mini-Antarctic, complete with "snow," penguins, toboggans, a field camp where dinner was being prepared, clothing, equipment, literature, paintings, and photographs. They were met by Mr R. B. Thomson, superintendent of the division, and Mrs Thomson, and then were shown colour slides assembled to describe something of the history, research, and natural beauty of the Antarctic.

When the Royal couple inspected the exhibits, Prince Akihito showed particular interest in a display of geological specimens. Princess Michiko was more concerned with Antarctic "housekeeping." She asked about the stew that was being prepared, and the primus stove on which it was being cooked, woollen cold-weather clothing, and Japanese-made boots used by New Zealand research teams.

Before the party left, Mr Thomson presented a painting of Scott Base with Mt. Erebus in the background to the Crown Prince. Princess Michiko received a copy of Mr Thomson's book, "The Coldest Place on Earth," the story of the Australian Wilkes-Vostok traverse in 1962. The painting was by a Christchurch artist, R. M. Conly, who flew to the Antarctic in 1972 to do a series of paintings on the role of the Royal New Zealand Air Force and the work of New Zealanders on the continent.

Man-made Iceberg will be McMurdo Station Wharf

A man-made iceberg is being created for use as an ice wharf in Winter Quarters Bay near McMurdo Station by a method which, if successful, could be used widely in polar areas where ships operate. The wharf is being built by filling with sea water an area enclosed by water-filled lengths of 8in diameter plastic tubing, and allowing the water to freeze.

To build the wharf up to the required thickness the entire 600ft-long, 150ft-wide area is flooded in 3in lifts and the water is allowed to freeze again. This cycle is constantly repeated and the weight created by the build up of layers of ice will slowly cause the wharf to sink down to the ocean floor and create a solid area which can cope with the largest of ships.

The ice wharf scheme, originally considered by many as a "pie in the sky" project, originated from a meeting on a social occasion between Commander T. Kirkpatrick, ship operations officer on the staff of the United States Navy Antarctic support force, and a Christchurch engineer, Mr B. T. Andrews. They discussed the wharf problem, which had been created because of shoaling and storm damage to the timber and steel wharf in 1971.

Late last season an experimental mini-wharf was built, using bales of New Zealand hay and straw which were bound together and flooded with sea water so that layers of ice would be built up through and round them. The scheme was inspired by ice-bound hay bales outside Scott's hut at Cape Evans. Further tests were carried out by the United States Navy's cold weather laboratory.

Eventually the scheme devised by Commander Kirkpatrick and Mr Andrews was approved by the United States Navy, and $8000 was spent in the purchase of 15 miles of plastic "sausages" and six small petrol-driven pumps in Christchurch. These were sent to McMurdo Station on the last three flights last season.

On April 27 a construction team of 140 men at McMurdo Station began work on the wharf. By the middle of last month they reported that the ice was more than 6ft thick. By next season it is expected that the wharf will be 25ft thick and ready for berthing of supply ships.

The pumps, which are kept heated, are placed on the surface of the wharf area. They are used to draw water from the ocean floor through holes bored in the ice on Winter Quarters Bay. This water is then pumped into the area enclosed by the plastic tubing.

The team building the ice wharf are enthusiastic about it, but not because of the new construction technique. It has become an ideal rink for winter skating.

Chief Petty Officer J. Wallace, who is spending his fourth winter in the Antarctic, has reported from McMurdo Station that he has managed to obtain a pair of ice skates. The construction team is working in bad weather and low temperatures; Chief Petty Officer Wallace and his friends relax by skating as each wharf section freezes.

But the brain child of the naval officer and the engineer can be used for more than wharves or skating rinks. Theoretically, there is nothing to prevent the construction technique being used for building an offshore ice runway in the Antarctic.

U.S. SUPPORT FORCE REDUCES SPENDING IN NEW ZEALAND

This year the United States Navy's Antarctic support force will spend about $1.8 on purchases in New Zealand. Last year it spent about $2.6m under its "key-buy" programme. Expenditure will be reduced because of the devaluation of the United States dollar.

Purchases this year will include beef, lamb, honey, fish, dairy products, and television dinners. Between 20 and 30 food lines bought last year have been dropped from the list mainly because since devaluation it is more economic to buy them in the United States and ship them to the Antarctic than to buy them in New Zealand.

Negotiations are now under way to buy 150,000lb of grain-fed beef as distinct from ordinary New Zealand beef. Last year purchases of New Zealand beef amounted to 68,000lb.

A trial shipment of prime lamb was sent to the Antarctic, and was sufficient to provide one meal for most of the Americans stationed at the various bases. This year about 1600lb will be ordered. A considerable quantity of fish may be ordered this year for the first time.

About $55,000 worth of dairy products will be bought for use this season, compared with $20,000 worth last year. A trial shipment of milk powder was sent south last year; a substantial order has been placed this year.

Two years ago a sample consignment of New Zealand honey was sent to the Antarctic, and this year a substantial order for more has been placed. Also 14,000 cans of fruit juice will be bought from the Apple and Pear Marketing Board.

Other items to be bought include 9000 television dinners used on flights between Christchurch and the Antarctic, and between inland stations on the continent; 6000 boxes of biscuits, 40,000lb of frozen vegetables, and a range of builders' hardware.

VETERAN ANTARCTIC PILOT FLEW WITH BYRD IN 1929

One of the two surviving pilots of Rear-Admiral R. E. Byrd's first expedition to the Antarctic visited Christchurch in April. He was 73-year-old Dean C. Smith, who played a significant part in the first flight over the South Pole by Byrd in November, 1929.

Smith was the pilot of the aircraft which established the southernmost base in the world at that time—a fuel depot at the foot of the Liv Glacier for Byrd to use on his return to Little America from the historic South Pole flight. Byrd named the depot Josephine Ford—the same name given to the aircraft which flew over the North Pole.

During the expedition—the total energies of which were devoted to the South Pole flight—the flying was, in the

main, done by Bernt Balchen, the other surviving pilot, and Smith. In his story of the expedition, "Little America," Byrd has high praise for Smith. He said that he had great faith in these splendid pilots—Balchen and Smith—and both had superb records.

When he went south Smith was 31 years old. He was a pioneer pilot in the mail service established by the United States Post Office in 1920, and according to Byrd, was one of the four survivors of the 32 pilots who opened the mail service between New York and Cleveland.

Before his air mail service Smith was a First World War pilot. Later he flew for United Airlines and then American Airlines. During the Second World War he did some test flying in the United States on the Liberator aircraft later used on the flights "over the hump" from India to China.

Byrd's expedition took three aircraft to the Antarctic. The largest was the Ford tri-motored all-metal monoplane used on the flight to the South Pole. A small Fokker Universal single-engined monoplane was wrecked beyond repair in a gale after it had flown a geological party led by Dr Laurence Gould to the foot of the Rockefeller Mountains. Dean Smith was pilot of the Fairchild folding wing monoplane which flew from Little America to rescue the party.

When he was in Christchurch Smith said that during the 14 months the expedition was in the Antarctic he doubted that more than a dozen flights were made. The Fokker Universal and the Fairchild had to be used for local flights at first because the Ford tri-motor was not in flying condition.

Dean Smith came to New Zealand as guest of Air New Zealand on the inaugural flight of the airline's first DC10. He was naturally disappointed because he could not return to the Antarctic after more than 40 years. But he said he had no burning ambition to return. He had followed Antarctic exploration from books and films, and had found it all most exciting.

But Dean Smith did see ice, snow, and mountains on his brief New Zealand visit. He flew to Milford Sound, and later went to Mount Cook. He made a ski-plane landing—as a passenger—on the Tasman Glacier before coming back to Christchurch.

POLAR PHILATELIC SOCIETY

The American Society of Polar Philatelists is an international organisation of polar enthusiasts engaged in the collection, exchange and study of items of Arctic and Antarctic postal history, and world-wide postage stamps depicting a polar theme.

The society's bimonthly journal, "Ice-cap News," keeps the membership informed on past, present and future polar activity, exploring and scientific expeditions, tourist cruises, whaling, the navies of the world which operate in ice-filled waters, polar flights, drifting ice stations, icebreakers and supply ships, to name a few areas of its interest.

As the periodical of record for this specialised type of philatelic endeavour, "Ice Cap News" carries a variety of articles and reports profusely illustrated with cachets and postal markings which have originated with ships, aircraft and basses in the polar and sub-polar regions. It is the only American philatelic publication which carries a regular column on the philately of the island of Tristan da Cunha.

A long-cherished goal of the society is to produce a handbook of polar philately. Efforts are now well under way to achieve this objective in the not too distant future.

The annual subscription to the society is $US5. A copy of the current issue of "Ice Cap News," and detailed information about membership benefits may be had by writing to the secretary, Mrs Audrey McComas, 5836 Compass Drive, Los Angeles, California 90045. The cost is $1 which is credited against continuing subscription or membership in the society.

Winter Mail Delivery to 152 Men on Ross Island

Twelve New Zealanders at Scott Base and 140 sailors and scientists at McMurdo Station will receive a surprise winter mail delivery on July 31. A Royal New Zealand Air Force Orion will drop about 500lb of first-class mail at McMurdo Station.

New Zealand Orions, used for long-range maritime patrols, have made mail drops in the past to men at the weather stations on Campbell Island in the sub-Antarctic, and on Raoul Island in the Kermadecs, and also have flown to the edge of the pack ice. But next month's delivery will be the first to the Antarctic in winter.

The Orion will pick up the mail at Christchurch and fly it 2300 miles to Mc Murdo Station. It will not land because Antarctica has been in darkness since the sun dropped below the horizon on April 24, but will make low passes over the station to drop the mail into a specially lighted area.

The idea of a winter mail delivery came from Captain A. N. Fowler, commander of the United States Navy's Antarctic support force. He discussed it with Commander R. G. Davis, commander of the Navy detachment at Christchurch Airport, who made the arrangements with the R.N.Z.A.F.

Because too much mail might be received priorities were fixed. Top priority was given to essentially needed small packages of medical supplies. First-class and air mail letters had second priority, and tape-recorded cassettes, large envelope mail, magazines, and official mail came next.

Philatelic Mail Plans

Philatelic mail collectors who send covers this year to be cancelled and posted with a station cachet at United State Antarctic bases will get them back much quicker than in previous years. The mail will be handled only at McMurdo Station and the Amundsen-Scott South Pole Station, but it will be processed daily and placed in the mail system immediately instead of being held for processing by the men who winter at the stations.

This year collectors are limited to two covers each. These must bear United States postage or have an international reply coupon enclosed for the cost of postage to overseas countries. Coupons cannot be used for mail to the United States.

Covers will be returned unprocessed when there is insufficient postage to cover the forwarding to the address listed. The same action will be taken if foreign postage is used, if more than two covers are submitted or if there appears to be a commercial motive.

In the coming season the United States Navy will end its Antarctic operations by the end of February, 1974. Covers mailed after that date will be held until next year's operations begin about the first week of October. The first flight to the Amundsen-Scott South Pole Station next season will be early in November.

Covers this year must be clearly marked in the lower left-hand corner with either McMurdo Station or South Pole Station, and sent to the following addresses:—

Philatelic Mail Clerk.
McMurdo Station,
U.S. Naval Support Force, Antarctica,
c/o FPO San Francisco, California,
96692.

Philatelic Mail Orderly,
Amundsen-Scott South Pole Station,
U.S. Naval Support Force, Antarctica,
c/o FPO San Francisco, California,
96692.

A.N.A.R.E.

Fuel depot laid at Moore Pyramid by Mawson party

A supply of fuel has been established at Moore Pyramid, about 200 miles south of Mawson, by a depot-laying party of six men from the station. It will be used for further exploration in the Prince Charles Mountains, which has been planned for the summer early in 1974.

The depot-laying party left Mawson on March 18, travelling in three D-4 tractors. Its objective was to deliver 169 drums of fuel (44-gallon drums) to the Moore Pyramid depot. Fifteen miles short of their destination, the men were weatherbound for a fortnight because of unusually strong and persistent blizzards, but eventually the mission was accomplished. The party was expected to return to Mawson by the end of May.

Based on Casey, a glaciological traverse party left on March 15 to make observations along the Casey-Vostok line.

The work was planned as part of the International Antarctic Geological Project, one of the aims of which is to study glacial flow lines.

Marker poles, placed about 10km apart, are being arranged as a double-line traverse of quadrilaterals for future measurement of their changes of position. Ice-radar measurements of ice depth are being made along both lines and gravity measurements along one line. There will also be a collection of ice-core samples for isotope ratio studies in Australia.

An interesting part of the work includes the use of a geoceiver technique for which two Americans, stationed this year at Casey, are responsible. The geoceiver enables the position of various points on the traverse to be fixed by means of satellite. There is thus an opportunity for double-check of position.

This year the geoceiver's performance is being evaluated for this work. The automatic geophysical station, 10 miles south of station S2, is also being checked.

The Casey field party so far has made measurements from the valley between the local ice dome and the main ice-cap, and will continue beyond this to establish field depots in preparation for the spring traverse.

The field party hopes to proceed as far as 140 miles from the dome summit, with the possibility of another 50 miles further inland. It was expected to turn back for Casey before the end of May.

CABIN CRUISERS

Two fibreglass half-cabin cruisers are being used at Davis for a new biology programme involving visits to nearby islands in the summer, and some sampling of seawater and marine organisms in coastal waters and the fjords. The boats are 17ft and 15ft long, and each is powered by a 40hp outboard motor.

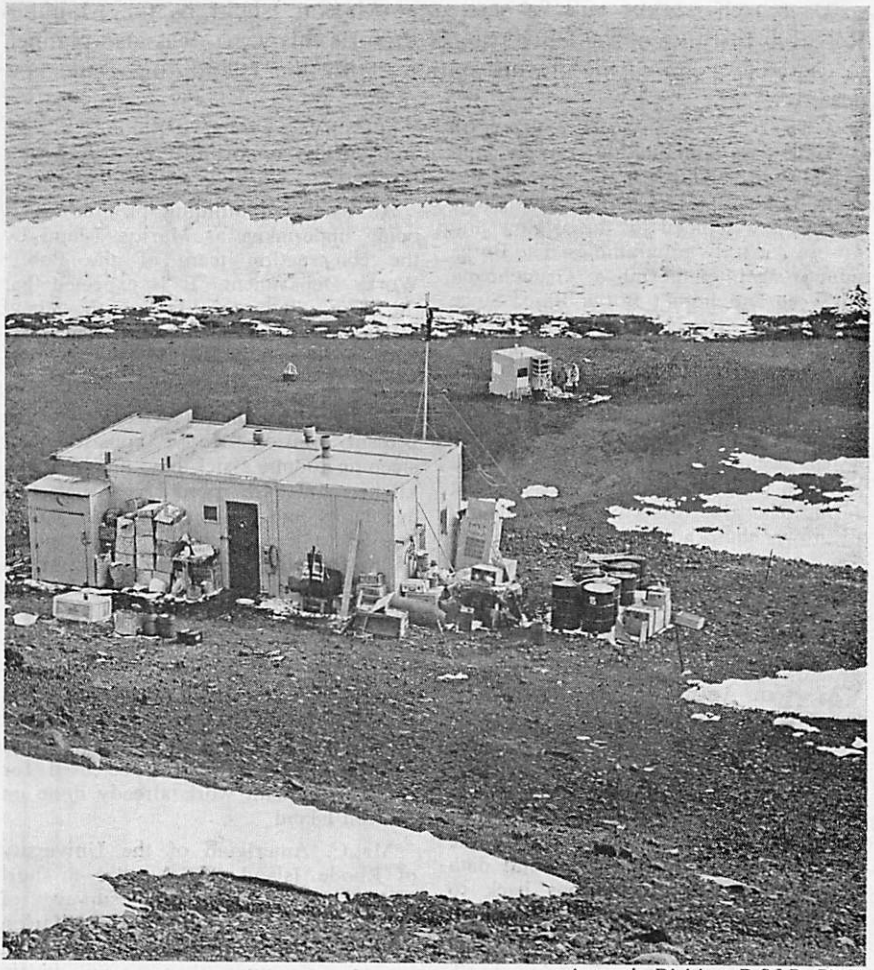
Only one boat is out at a time and carries a 9½hp outboard as a spare; the second boat remains ashore for use in an emergency. Both boats performed well when tested towards the end of last summer.

A 12ft-aluminium dinghy carried five men for use in the very saline lakes of the Vestfold Hills. Chemical analyses of the waters of these lakes are being carried out, and several forms of animal life have been discovered in them. Other biological work at Davis concerns the terrestrial invertebrates, including studies of the distribution and life cycles of mites.

Two members of the A.N.A.R.E. wintering team on Macquarie Island made an interesting "archaeological" find early in March. The find was made after they had done a fur-seal count at Hurd Point and an inspection of Wandering Albatross chicks at Caroline Base.

Messrs R. Thompson and P. Hill were returning home from their tasks and off the beaten track when they discovered some wreckage from an old sailing ship in Sellick Bay on the west coast, including a headless figure-head. Later, with four other colleagues, they set out to recover the wooden female torso.

The torso weighs several hundredweight, so the enthusiasts had quite a struggle to get it up the steep slopes to the plateau. Stage by stage they hope to get it home to the station some day. With about five miles to go, this may take quite a while, during off-duty breaks from time to time.



—Antarctic Division, D.S.I.R. Photo

Bird Station, near Cape Bird, which marks the entrance to McMurdo Sound, was built in the 1965-66 season. It has been used since each summer by the University of Canterbury Antarctic biological unit.

SANAE REPORTS

South Africa Begins New Programme of Research

South Africa entered its third five-year programme of Antarctic research on April 1. All the present programmes will be continued. A seal research project will be started at Marion Island by the Mammal Research Institute of the University of Pretoria this year. It is also planned to establish a global monitoring station at Marion Island during the new period.

Winter is approaching rapidly and virtually all field work at SANAE has come to a stop. The long, cold night is of course welcomed by the airglow and Aurora Australis programmes. The Borga team is again wintering at Grunehogna this year and not at Borga Base. Since arriving at Grunehogna the team has experienced almost a continuous storm.

Even at Gough Island, which lies only 40deg S, the days are getting very short and the weather worse. The migratory system seems to have started its cycle with the penguins and the seals moving north. The albatross chicks have nearly all grown their adult plumage and are ready for the flight northwards.

The Gough Island team had a very unusual rainfall in March. It totalled 5.118 points, of which 1.893 points were recorded on a single day.

As from April 2 the South African and Argentine Airways are making twice a week flights across the Atlantic between Cape Town and Buenos Aires. The meteorological station at Gough Island acts as a radio beacon and the radio operator has a schedule with the planes to pass on upper air wind data and to report their positions back to South Africa.

Two frigates, H.M.S. Rhyl and Apollo also visited Gough Island during April. Members of the crew of the Rhyl visited the base by helicopter and gemini life-boat. The Gough Islanders thoroughly enjoyed this opportunity of seeing new faces.

An extensive building programme is being undertaken at Marion Island by the construction team of the Public Works Department. It is expected that the team will be working on the island at least until the end of July. The RSA will make a separate journey to the island to return them to South Africa.

Changes include an extension to the present Marion House consisting of sleeping rooms, a sick bay, dining room, kitchen and dark room. New fuel storage tanks and a store room are to be erected to cope with the greater needs of the future. Some of the old buildings like Governor's House and Tristan House are to be demolished.

During the take-over period the biologists visited the neighbouring Prince Edward Island, which lies 22km north-north-east of Marion, for a couple of days. Valuable scientific information was acquired which will be used for comparison with work already done on Marion Island.

Mr C. Amerigian of the University of Rhode Island, U.S.A., did a short intensive paleomagnetic survey of brunches epoch lavas from Marion Island during the take-over period. An average of more than seven widely spaced samples from three separate lavas were taken with the use of a portable powered drill.

THE CHALLENGER IN ANTARCTIC SEAS

By A. G. E. JONES

In our December issue we reviewed a new publication "The Voyage of the Challenger" by Eric Linklater. This book was written to commemorate the centenary of the sailing of the Challenger in December, 1872, on a four-year voyage round the world which in effect laid the foundations of modern oceanographical research.

The Antarctic part of that voyage took no more than two months, but in that time the Challenger made a survey of Marion, Prince Edward, and the Crozet Islands, Kerguelen and Heard Island and sailed through pack ice and icebergs to latitude 66 deg. 40 min. This was not an unusually high latitude, but it was the first time that a steam vessel had crossed the Antarctic Circle.

When Captain Sir James Clark Ross returned to England after his three great voyages to the south polar regions in the Erebus and Terror in 1839-43 the attention of the Admiralty was directed to the North-west Passage and the search for Franklin. It felt there was no need for another Antarctic expedition until the Hydrographer and the Royal Geographical Society put forward a plan for a voyage of research "as far as the neighbourhood of the great Ice Barrier," visiting the Marion and Crozet Islands, Kerguelen and Heard Island on the way. It placed more emphasis on science than any previous expedition[1]. To this proposal the Government eventually agreed and plans were put in hand for its implementation.

The Admiralty chose the surveying and discovery ship, Challenger, 14 guns, 2306 tons, which had auxiliary steam engines of 1234 horse-power. She was a roomy corvette, specially equipped to take the scientific staff of five men under Professor Wyville Thomson and their equipment[2].

To take command the Admiralty chose Captain George Strong Nares, R.N., and it could not have found a better man. Born at Straloch, Aberdeenshire, the son of Commander W. H. Nares, R.N., he was now a man of 41. As a young officer he had served in 1852-54 in the Resolute (Captain Henry Kellett) in the Franklin search, achieving some good sledge journeys for those days.

From 1865 onward Nares commanded surveying ships in Torres Strait, inside the Barrier Reef, off the coast of Sicily and Tunis, and in the Gulf of Suez. He was not only a good hydrographic surveyor but was also—as his albums show—an outstanding photographer. He was striking in appearance and was a popular officer who ran a happy ship.

The navigating sub-lieutenant, Herbert Swire, who served under Nares, said of him: "Captain Nares is generally considered to be a devilish good fellow and one of the best captains in H.M.'s Service . . . a clever man by the shape of his head, most people would say."

During the course of the voyage of the Challenger Nares was recalled to take command of the Arctic expedition of 1875-76 in the Alert and Discovery. Latterly he was Hydrographer of the Royal Navy. He was well known for his book on seamanship which passed through many editons[3].

Many of the officers, all competent in their field, became well known in the Hydrographic Department. Two of them achieved some subsequent fame. Lieutenant Pelham Aldrich, first lieutenant

in the Challenger—and nephew of Lieutenant Robert Dawes Aldrich who served in the Resolute in the Franklin search—was recalled with Nares for the Arctic expedition, during the course of which he charted the north coast of Ellesmere Land. Lord George Campbell, sub-lieutenant, published "Log Letters from the Challenger" in 1876 when he returned home. It was a light, readable book among the many volumes and scientific reports which were the outcome of the voyage.

The Challenger sailed from Portsmouth on December 21, 1872, and left Cape Town on December 17, 1873. On Christmas Day Marion Island was sighted on the weather bow and soon afterwards Prince Edward Island showed up on the lee bow. Next day, in clearer weather, after the cutter had pulled through the kelp, a landing was made on Marion Island and the biologists went ashore. The island was largely covered in snow and the summit was covered in clouds for much of the time. Hence Nares's estimate of the height was 4250ft instead of the correct 3890ft.

While the biologists were ashore, the marine surveyors sounded and dredged the channel between the two islands, finding 75-100 fathoms. Steering careful courses and registering the distance sailed by patent log they fixed the relative positions of the islands and made a running survey[4].

It was planned to land on Prince Edward Island the next day, but there was only one landing place, and the unfavourable appearance of the weather led Nares to give up the idea. The navigating officers took equal altitudes, circum-meridian altitudes, true bearings and magnetic observations. The information about the group in the "Antarctic Pilot" today is derived very largely from this visit and the present-day Admiralty chart is based partly on Nares's survey[5].

The Challenger on December 27, 1873, took a direct course for the Crozet Islands and helped by a succession of strong north-westerly winds reached them on December 31. Nares had hoped to land on Hog Island, the westernmost island, and although he lay off it for a couple of days dense fog prevented a landing. He gave up and stood on under double-reefed topsails during the night for Possession Island. He ran in between Possession Island and East Island; through the fog he could see breakers on the coast of Possession Island and the cliffs, but the higher parts of the island were covered in fog, except for two sharp peaks which peeped out of a dense mass of rolled white clouds.

The Challenger passed south of Hog Island and Penguin Island, and on January 1, 1874, in foggy, rainy and tempestuous weather, was obliged to tack clear of the land. She stood on for Possession Island on January 2, with a good breeze. Tall pinnacles of rock appeared above a dense mass of vapour which concealed most of the island. When Ship Bay (or Navire Bay as it is now called) was reached Nares had a clear view of that end of the island.

A landing was frustrated by the surf and the prospect of fog. Likewise, the strong north-westerly winds and heavy seas made it impossible to stay in America Bay. A hut and a store of oil barrels were sighted ashore, but no men were seen. Nares found Possession Island to lie five miles north-west by west of the position assigned to it by Captain Cecille, and his observations were later confirmed by H.M.S. Wolverine[6].

On January 3 the islands were nowhere to be seen, although the Challenger could not be more than 20 miles from them, and Nares gave up the idea of going to Possession Island.

Strong north-westerly winds helped the Challenger towards Kerguelen. which was already tolerably well known through the surveys of Captain Robert Rhodes and Sir James Clark Ross. Bligh's Cap was sighted in the evening of January 6. Nearly a month was spent at Kerguelen, surveying and making observations for the many scientific reports[7].

On February 2, 1874, the Challenger sailed south from Christmas Harbour for Heard Island, finding on the way

220-421 fathoms at times and less than 100 fathoms at others. For three days the expedition experienced very light winds with fog and rain, and was far from happy at the prospect of meeting icebergs in the night.

For some time patches of seaweed indicated, as they had told Cook, that the ship was not far from land. On February 6 after beating about in the fog for some days, Meyer Rock was sighted and the Macdonald Islands right ahead. These were closed, the Challenger running down the eastern side which presented a truly rough and rugged scene, with no landing place. Twenty miles farther on, Rogers Head was sighted and with the help of steam to fight against the squalls the Challenger reached the well-known anchorage in Corinthian Bay (or Whisky Bay as the whalers called it), anchoring in 10 fathoms, at 4.30 p.m.[8]

Captain Nares, Buchanan and Moseley landed in the afternoon, but they had only three hours ashore before being recalled because of a considerable sea that was getting up. They found it a depressing place. "All the places previously visited, however inhospitable, really seemed paradise, compared with the wretched mountain of ice rising from a base of black lava cinder. This largest island . . . is said to have a mountainous peak some 7000ft high: we had no means, however, of judging, for the top was never free from cloud or mist during our stay." The cloud base was 1000-1500ft. The survey which Nares made was therefore inaccurate[9].

When they went ashore they found 40 or 50 men living on the island in small parties. sealing parties left by Captain Swain of the barque Roman, waiting for the sea elephants to come ashore, to slaughter them and try out the oil from the blubber.

Nares commented:

"What a miserable affair a sealer's life evidently must be, hard and monotonous, living in those desolate regions, completely isolated from the world! Here they remain for three years at a time, when, if they are lucky, they return home, with perhaps £50 or £60 in their pockets. This is probably spent in a couple of months, and they again return to their voluntary exile and live on penguins, young albatrosses, and seabirds' eggs for another period.

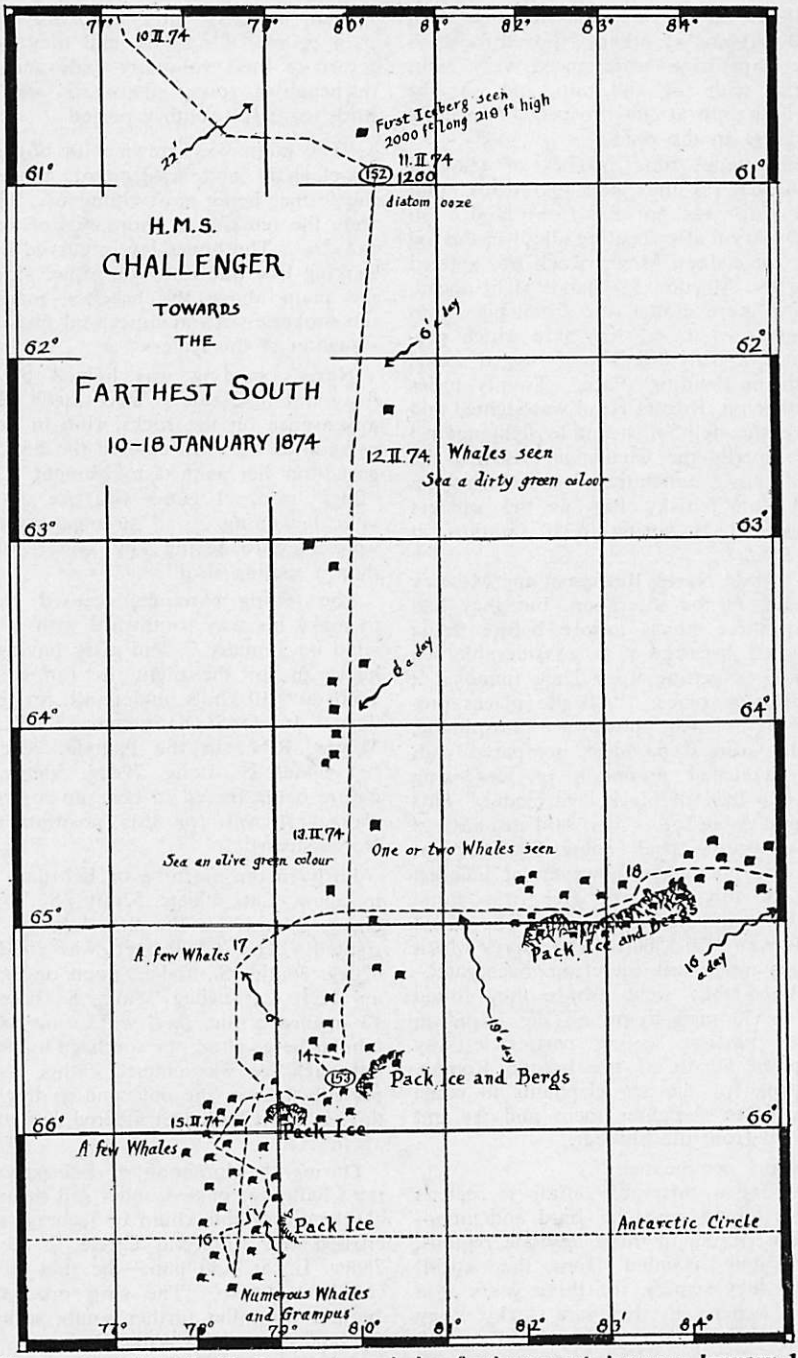
"The plain was strewn with bones of sea-elephant and sea-leopard, those of the former being most abundant. There were the remains of thousands of skeletons . . . The bones lay in curved lines, looking like tide lines, on either side of the plain above the beaches, marking the rookeries of old times and tracks of slaughter of the sealers."

Nares's landing was helped by six dirty-looking sealers who made their appearance on the rocks, rifle in hand, as soon as the ship entered the bay and gazed on her with astonishment. The "Boss" said, "I guess you are out of your reckoning . . ." so unaccustomed were they to seeing any vessels other than a sealing ship[10].

The falling barometer caused Nares to make his way southward with a fair wind on January 7, and after having to heave to for the night, he ran to the south at 9-10 knots, under sail, for three days. In 1845, Lieutenant T. E. L. Moore, R.N., in the Pagoda, reached Lat. 64deg. S., Long. 79deg. 50min. E. before being forced to bear up for Australia. It was for this position that Nares steered.

Early in the morning of February 11, in about Lat. 60deg. 52min. S., Long. 80deg. 20min. E., the first iceberg was sighted. The Challenger was in Lat. 62deg. 36min. S., and at noon on January 12 in Lat. 64deg. 38min. S. January 13 opened a fine day, with some large tabular bergs along the southern horizon, but pack ice was entered rather unexpectedly late in the day. and as it grew thicker the Challenger steered out of it again[11].

During the forenoon of February 16 the Challenger passed under sail through a splendid double chain of icebergs and crossed the Antarctic Circle in Long. 78deg. E., at 1.30 p.m.—the first steam vessel to do so. The ship proceeded another ten miles farther south, seeking the land charted by Wilkes[12].



The track of H.M.S. Challenger towards her farthest south between January 10 and January 18, 1874.

"The sight was indeed a grand one and we threaded our way through the pack ice and up through avenues of vast bergs, over a course never before taken by explorers . . . Proceeding on to Lat. 66deg. 40min. S., the course was altered, and the horizon scanned in all directions for land; the weather was unusually clear, so that we should certainly have seen it if any existed within a considerable distance: none however was visible."

Those were the words of W. J. J. Spry, one of the engineers. Wyville Thomson thought that any land could have been seen at a distance of 50 or 60 miles.

Herbert Swire noted in his journal: "We have been inside the Antarctic Circle and are now out of it again . . . All the forenoon we lay almost becalmed . . . on the horizon to the southeast there was an appearance very much resembling land . . . but the Captain decided that it was only a large iceberg. The pack has not been seen all day, and to all appearances there was nothing to prevent us pushing to the south if there had been anything to be gained by doing so . . ."

Moseley made a sketch from the foretop on the morning of February 14. Nares's photographic album unfortunately has no photograph at his "farthest south"[13].

Even though there was open water ahead in what was taken to be a deep opening in the pack ice, the season was advancing. Nares's orders had warned him not to press his explorations too far in a single unfortified ship, and therefore he retraced his steps.

"The Circle was recrossed, and we proceeded east along the margin of the great pack. Icebergs had now become so numerous that it was not unusual to be able to count over 150 from the deck and many of them appeared to be miles in length."

The weather had been fine all day, calm in the forenoon, and easterly breeze in the afternoon, which gradually freshened; the barometer steady at 28.800 inches till noon, after which it fell; the mean temperature of the air 29deg., and of the surface water 30.5deg. At 8 p.m. the topsails were reefed, and at 11 p.m. the ship hove to, the weather having become misty and snow squalls passing over[15]. The prevailing wind and current would probably have taken Nares north and west away from the ice tongue. but Nares was not in a position to know that, and made a sound decision.

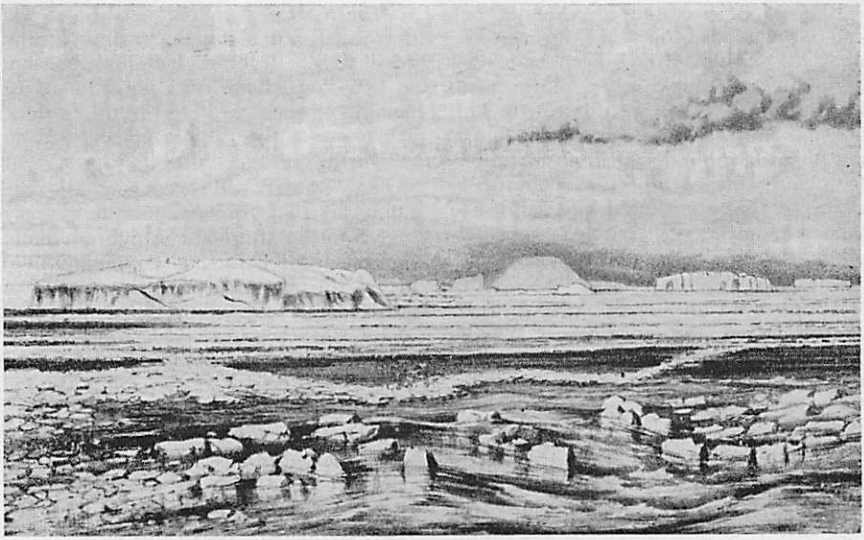
The nearest land was the Ingrid Christensen Coast of Princess Elizabeth Land, where the coast of the continent takes a wide southward sweep at Prydz Bay and the Amery Ice Shelf. Since the land was two degrees in latitude farther south than Nares's "farthest south", and since the Vestfold Hills are only 1000ft. high, the coast was well beyond the range of Nares and his officers[16].

If Nares had taken his southward course more to the east or more to the west he might have sighted the continent. Even so, he pushed the frontiers of the unknown back by some 160 nautical miles, while the deep sounding which he took suggested that the coast was still some distance away.

In January and February, 1840, Lieutenant Charles Wilkes, U.S.N., sighted

This outstanding event is recounted in the log book of the Challenger in a prosaic fashion:

Time	Speed Knots	Tenths	Course	Remarks
11.00	1	0	SW & W	Pack ice to SEd and numerous
Noon	3	5	SW & W	bergs in sight—Open sea to SWd
Course	Distance Good	Water	Latitude	Longitude. True bearing and distance DR 78.0. Termination Land
S 18 W	32	55	DR 66.29	N64 E. 476min.
1.00	3	8	SWbW	2.30 Up mainsail, set spanker.
2.00	4	8	SWbW¼W	No pack in sight from mast head.
3.00	2	5	WSW	4.50 Lat. by Dble. alt. 66deg. 32min.
	–	5	NE	S. Long. 78deg. 22min. E. [14].



Pack ice and icebergs sighted in the Southern Ocean.

"land" near the Antarctic Circle, from Long. 160deg. E. to Long. 93deg. E. Some of this was expunged by Captain Dumont D'Urville and by Sir James Clark Ross, but a considerable extent was still shown on the charts, and it was for Termination Land that Nares went in search[17].

February 17 was very squally and hazy, with frequent snow storms, as Nares steered for Termination Land which was then distant 440 miles. There was no pack ice but there were any number of icebergs. On February 19 the Challenger was skirting along the edge of the pack ice in search of the land which Wilkes had charted[18].

At noon on February 22 the Challenger was in Lat. 63deg. 30min. S., Long. 90deg. 47min. E., about 120 miles from Termination Land. On the next morning Lord George Campbell wrote:

"At daylight 'land on the starboard bow' [was] reported by the look-out man. A high dark range of broken mountains it looked like; but watching carefully . . . we knew from the first that it was only a cloud. But cloud like land I never before saw."

There was clear, blue sky during the day, the weather calm and pleasant, and the Challenger steamed among vast numbers of magnificent icebergs as she skirted along the edge of the pack ice off Termination Land. The ship was within 20 miles of the position assigned by Wilkes, but with a clear horizon no land could be seen. A sounding was obtained in 1300 fathoms. blue mud, making the presence of land even less likely and then the ship lay to for the night under gaff mainsail and jib[19]. It was fairly evident that Wilkes had been deceived, like so many others before and after him, by the cloud formations.

The morning of February 23 opened with a fearful gale of wind with constant snow which hid the vast number of icebergs 200-300 yards in length. All four boilers were used to drive the engines, to keep station in a position safe from the ice as the wind rose to force 10. At 7.30 p.m. the log book noted, "No sign of Termination Land."

The Challenger closed the pack in the evening, being stopped by it from getting farther east. Nares was then about six miles to the west of the reported position of the land, but there were no signs of being near land[20].

On February 24 a sounding in 1300 fathoms was obtained, but the Challenger failed to dredge because she drifted too fast before the wind. In attempting to steam under the lee of a large iceberg, she collided with it and carried away her jib-boom and head gear. The supposed position of Termination Land was N 64deg. E., 48 miles[21].

The wind moderated towards darkness, and all felt glad on the morning of February 25 when the Challenger was able to shape a course under sail for the pack ice. The wind had scattered the ice at the edge of the pack which opened sufficiently to allow the ship to push on to within 15 miles of the supposed position. Although there was a clear horizon, there was still no indication of land. The pack was loose, there was a long swell and there were hundreds of icebergs to be seen from the mast-head: Nares made a course for open water, having gone as far as practicable in an unprotected ship.

The weather became unsettled and Nares took advantage of the southerly breeze to make good progress towards the north. He had decided to waste no more time in search of Termination Land. Moseley commented: "Wilkes no doubt was deceived by the land-like appearance of distant icebergs. It is to be noted that he merely says that he saw appearance of land here, 60 miles distant, but high and mountainous. Others have named it for him and placed it on the charts."

All the same, it is shown on the tracing that he sent to Sir James Clark Ross, although he applied no name[22].

On the morning of February 29 the Challenger was about 15 miles from the position of Termination Land. but with a clear sky southward and eastward nothing was to be seen, and there was no trace of land debris on any of the icebergs. A sounding of 1300 fathoms told its own story. Nares then ran on steadily in a north-easterly direction, passing the parallel of 60deg. S. in Long. 99deg. E. (in much the same position as Moore in 1845). There were then 40 icebergs in sight[23].

The Challenger had been south of Lat. 60deg. S. for 18 days, during which she had sailed through 22deg. of longitude. Moore had sailed though through 95deg. of longitude in 40 days; but Nares's voyage was more productive because steam gave him greater freedom of movement and because (unlike Moore) he carried scientific specialists as well as chosen and highly-qualified navigating officers.

The achievements were summarised by H. R. Mill, who knew many of the officers.

" . . . the study of the deposits showed conclusively that the Antarctic Continent exists and though, as Cook asserted, it is eternally frost-bound it is a real continent, the rocks of which carried northward by the icebergs and dropped on the floor of the ocean are of a kind only found on continental land . . . This is the discovery which gives to the voyage of the Challenger its chief geographical importance, and it shows how unexpected are the lights which scientific research is always throwing on questions that seem at first sight very remote . . . It is not too much to say that the work of the Challenger and the discussions of that work by various men of science, brought about the still greater expeditions of the beginning of the 20th century."[24]

The Challenger was broken up long ago, and Nares died in 1915, but the 80 volumes of the Challenger Reports are a monument to the industry and careful research of a small band of seamen and scientists.

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ADELIE ANNUAL RAREST OF ANTARCTIC PAPERS

In 1911 two young scientists of Scott's last expedition were engaged on similar tasks although they were hundreds of miles apart. Apsley Cherry-Garrard, the assistant geologist, was busy at Cape Evans preparing copy for the "South Polar Times," following in the footsteps of Shackleton, the first editor during the 1901-1904 expedition. Far to the north at Cape Adare Raymond Priestley, a geologist, was working on the first and only issue of the "Adelie Annual and Cape Adare Sporting Life," produced for the amusement of the northern party.

There are frequent references to the "South Polar Times" in the books written about Scott's two expeditions, and the publication is well known in Antarctic literature because all three volumes were published commercially in London. But the "Adelie Annual and Cape Adare Sporting Life" is probably the least known and rarest of all Antarctic publications. Priestley made a passing reference to the publication in his story of the northern party, "Antarctic Adventure," and only six copies were produced, one for each member of the party.

Only one copy of the "Adelie Annual" survives in the Scott Polar Research Institute. It is the editor's copy; the whereabouts of the other five copies are not known. Lieutenant V. L. Campbell, leader of the northern party, Dr G. M. Levick, Petty Officers G. P. Abbott, F. V. Browning, and Seaman H. Dickason, are all dead.

The last survivor of the northern party is Sir Raymond Priestley, now 86. When the editor of "Antarctic" wrote to him, he kindly provided information about the "Adelie Annual," extracts from his diary relating to it, and agreed to publication of an article from the paper. A copy of the article was provided for "Antarctic" by Mr H. G. R. King,

librarian at the Scott Polar Research Institute.

Scott's northern party spent 10 months on Ridley Beach at Cape Adare. The men were landed there from the Terra Nova on February 18, 1911, and camped first in Borchgrevink's hut built in 1899 until they built their own. They were picked up by the Terra Nova on January 3, 1912.

In his letters to "Antarctic" Sir Raymond Priestley says that the "Adelie Annual" was typed by him at Cape Adare. The 20 unnumbered pages were a single issue. He does not know where the other five copies are. He believes the typewriter he used went back in the Terra Nova in January, 1912. It was not there when he returned to Cape Adare in 1959 as a United Kingdom observer with the United States Antarctic operation.

Sir Raymond Priestley tells a little more of the history of the "Adelie Annual" in the following extracts from his 1911 diary.

November 25.—We are beginning to write a small paper and already Abbott and Levick have sent in contributions. I am Editor and am going to type the six copies required.

November 26.—The rest of the day has been used up in compiling and editing, including typewriting the Adelie Monthly up-to-date. This is a task to which I intend to devote Sundays in future until it is finished. Campbell does the illustrations, Levick does most of the poetry while the men contribute articles of prose, and I put the paper out. I think the paper is going to be rather hot stuff.

November 27.—We (Levick and I) have been writing a scientific and abusive controversy for the Adelie Mail.

December 1.—Copy of a poem from Levick. "Pygoscelis went swimming one quiet summer's day." (References to Pygoscelis Adeliae, Orca gladiator and Euphausia.) Signed "Bluebell."

December 4.—This morning I typed out a few more pages of the Adelie Annual and Cape Adare Sporting Life as we have finally decided to call the paper.

December 5.—This morning I labelled my specimens and put in a couple of hours at the typewriter bringing the magazine up-to-date with Dickason's help. I have composed a cookery column to which he has contributed an excellent article on sledging cookery.

December 7.—A copy of an advertisement of the hut written for the Adelie Annual by Levick. "It is quite up to standard and amusing, especially to anyone who, like myself, is a very amateur carpenter and helped to put up the hut. I don't know that I endorse his statement about next winter, but I give it about three if left to itself, in spite of wire stays, lean-to, and cases."

Sir Raymond Priestley's introduction to the cookery column, and Dickason's "excellent article" on sledging cookery, are as follows.

OUR COOKERY COLUMN

In our anxiety to cater for all classes of readers, we have this week instructed our chief reporter in cooking as carried out in its most primitive modern form, mainly whilst Spring sledging along the coast of Victoria Land. As the sledge party have returned with no very aggravated symptoms of indigestion we presume that the experience has been more or less successful, and we here insert his description of the trip from a cookery point of view.

It must be borne in mind that a hot meal is necessary for those who undergo the hardships of sledging. (They don't always get it, either. Ed.) And as there are no restaurants to supply us with the same we have to have something with us that will cook a meal in the smallest amount of time possible, also with the smallest consumption of fuel.

What we have is a Primus lamp which consumes oil and is worked by a pump which compresses the air in the body of the lamp so that a stream of oil vapour is forced up through the nozzle of the lamp.

On top of this is placed a cooker filled with ice or snow which has to be melted

before anything like a meal is started.

Our meals to be cooked are pemmican and cocoa or tea twice a day, at breakfast and dinner, and if, as sometimes happened (That "sometimes" is drawing things a bit mild I think. Ed.) we had heavy work during the forenoon, we had hot cocoa and tea for lunch.

I will now explain as fully as possible the proceedings before a meal is cooked. As soon as the tent is up I hop inside with the primus and box of small parts (repair outfit and spares) fix the lamp in a round shallow tray which is a part of the aluminium cooker, fill the cup attached to the lamp with alcohol, or with oil if we have no spirit with us, light it and wait until the nipple of the lamp is properly warmed.

Then the air pressure is increased slowly by means of the pump until a good flame is produced, and the cooker is placed on top, having been previously filled by one of the other men with snow or ice, ice for preference because it yields more water in proportion to the bulk melted. Now a wait of some minutes follows until the ice is melted. When the water is ready, if pemmican is required first, I next see to the amount of the water left in the inner cooker, pouring any extra water into the outer cooker, place inside the pemmican, powdered biscuit and salt to taste, replace the covers, and anxiously wait for the pemmican to just come to the boil when a nice hot steaming meal is ready.

The next thing is to prepare either tea or cocoa and that and biscuits which, thank heaven, do not require any cooking, completes the meal.

Now all this may seem to the reader so easy that he wants at once to go and be cook on a Spring sledging expedition himself, but let him wait a minute before he packs his sledge and moves off amidst the rejoicings of his friends and neighbours. To prove to him that it is not as easy as it sounds I will detail to him what happened at my first attempt.

I got inside the tent with the lamp all right (I have known men fail to do this. Ed.) and as far as the alcohol stage (Shame!! It must have been the medicine brandy) when unfortunately I started pumping up before the nipple was sufficiently warmed, thereby causing a high flame which gave me a fright as I thought the tent had caught fire. After overcoming this difficulty and getting the lamp to burn properly, my sledging companions having by this time entered the tent looking very hungry and adding their quota to the blueness and haziness of the atmosphere, I in my excitement made a grab for the cooker with my bare hands, and found the cold metal sticking to my fingers. Giving a shout of pain I endeavoured to release them and in doing so I knocked over the lamp which had been burning excellently until then and (we were obliged to cut the next paragraph out. Ed. Students of Antarctic language will be able to obtain a copy of it by sending their name and address and an asbestos envelope to the Editor of the Adelie Annual, 17 Frosbite Place, Cape Adare) thus giving me the extra work of starting over again. However, by going along carefully, I got things as far as the melting stage, and after putting in the pemmican, etc., I put the outside cover on too quickly thereby causing the lamp to go out. I was now past the Christian stage, and the names I called the whole concern are unprintable.

(I wonder what stage he called the one just now, I should think the Mahommedan. In justice to him, however, I must say that he has surpassed himself in this second stage which will require a fireproof safe before it can be trusted in the office buildings.)

I now relit the lamp. (It probably didn't want any heating. Ed.) and after a while, it seemed to me like hours, as my companions sat eating their biscuits and looking as if they would like to eat me, but refraining from an audible comment because they knew that I was only waiting an excuse to throw the whole business up, my heart gave a quick jump when I saw steam arising and knew that in a short time the hash would be ready. Carefully lifting the various covers, by the way there are three, I peeped in the pot but the mess

was not cooked, so I carefully replaced them and awaited further results. These came sooner than I expected, and as it never rains but it pours, I heard a hissing sound accompanied by the combined healthy but, to say the least, disagreeable smell of pemmican and oil, and the lamp was put out, the tent filled with steam, and the whole neigbhourhood with sulphurous language of the most aggravated sort, for now that there was no fear of their being called to do any cooking my solo was accompanied by a hearty chorus by the other members of the party.

The longed-for pemmican had boiled over. I was now feeling desperate, and lifting the various covers off very discarefully I extracted the inner pot containing the "hoosh," and proceeded to put the contents into four pots. Having done this I was handing the pots round to my companions when accidentally I dropped one, which caused a little mild comment from the wouldbe diner (the comment was no doubt like the Bishop's ale, "Mild but Still Bitter").

The contents were not wasted, being scraped off the floor with a spoon, and the reindeer hairs which accompanied the hoosh were a welcome variant. The steam had not yet cleared away and the one candle-power, properly called, dark lantern did not throw much light on the scene, happily for me I thought at the time as it hid my blushes. (He couldn't blush.) On asking my companions if they would like tea or cocoa to follow I was told that pemmican was quite enough tonight so I accordingly got on with my own meal thankful that I did not have to light the lamp again. (I find this hard to believe about the refusal of the second course, and I advise my readers to take it with a pinch of salt as we take the pemmican. Ed.)

When the meal was finished I proceeded to pack up the various things belonging to my department, and in attempting to rise I lifted the floor cloth with me, capsizing the water that was in the outside cooker. The pemmican that was previously spilt had frozen to my trousers. . . . (A comparatively feeble effort this time, I even hesitated whether I could with propriety print it, but after consultation with the Editor of the "Children's Home" I have decided that after all it is better left out if only for consistency. Ed.)

To this I did not pay much heed as I was feeling just about done up and longing to get inside my sleeping bag. When I eventually did manage to get in bed I was dreading the morning to come as I knew I would have to be quick preparing breakfast on account of having to put in a good day's work. Is it to be wondered that I had awful dreams of the lamp exploding, the tent catching fire, the pemmican boiling over, etc., etc. I may safely say that I had very little sleep that night.

Turning out at 6 a.m. I was determined that I would prepare breakfast without a single accident, having previously received a gentle hint that I had not all day to do it in. I lit the lamp all right, put the cooker in, and reached the boiling stage without a single mishap, excepting that I forgot to put the salt in the pemmican, a mistake that was soon put to rights. I was now quite pleased with myself and started on the cocoa, but, after a long wait, the lamp having gone out once, it was decided to give it a miss as we had already wasted a good deal of time, so we struck camp and proceeded on our march along the coast.

From this time, however, I steadily improved, until at times I often thought how clumsy I was at my first attempt. By the time that the first trip was finished I could manage the whole concern successfully.

I could write several paragraphs on the subject of the inconvenience due solely and simply to the low temperatures, and I had even gone so far as to submit some sheets to the Editor, but my respected chief is a strict churchman and he said that while he admired the essay immensely that it was incompatible with the politics of the paper to publish illustrated tales, even true ones. I have not forgotten the blisters on my fingers, the result of grabbing the cooker with my bare hands.

PRIMUS

SUB-ANTARCTIC

NEWS FROM CAMPBELL ISLAND

Our last news from this sub-Antarctic outpost appeared in "Antarctic" Volume 6, No. 7, September 1972. This report from the new officer-in-charge takes up the story from the changeover in October.

The annual changeocer in October introduced new members of the expedition to the vagaries of this much maligned island.

The party, consisting of G. Camfield, officer-in-charge, A. J. Veitch, senior meteorological observer, P. C. Frost, P. R. J. Wood, meteorological observers, R. Van Der Staal, ionosphere observer, M. J. Wade, cook, and P. G. Goodman, telecommunications technician, met B. Plummer, electronics technician, and W. Clark, mechanic, who are serving their second year. For the summer support party M. B. Crompton and J. Wilkinson, meteorological observers, also remained over from the 1971-72 party.

Stores sorting completed, the station maintenance started. To facilitate travel over the peat—which quickly changes to clinging mud with constant use—a section of road was constructed using sleepers laid end to end. An unusual proportion of easterly gales destroyed the old concrete boat slip, forcing the use of concrete intended for reconstruction of an area near the hostel to be diverted to a more pressing need.

Early in December failure of both the central heating units on the station brought home the rigours of the climate. New units were brought in on the United States Coast Guard icebreaker Burton Island en route to Antarctica in January. Aboard the Burton Island were two members of the Department of Scientific and Industrial Research. With the aid of party members they corrected two corner reflector riometer aerials, upgrading the present system by two more channels. Also on the Burton Island was a G.M.D. radar tracking device which replaces the original machine installed in 1960.

SHIPS' VISITS

Before the arrival of the Burton Island we had received visits from three other vessels. For the second year the Aquatic Explorer conducting seismic survey work on the Campbell Plateau put in to shelter from heavy seas. During the visit it was arranged for the island to relay weather forecasts. On a short return call, Money, a member of the 1971-72 party standing in for B. Plummer who had returned to New Zealand for medical attention, was taken aboard to be repatriated.

The 21ft plywood yacht Ketiga, skippered by G. Clark, of Kerikeri, entered the harbour at 3 a.m. on December 24 during his single handed circumnavigation of New Zealand and its outlying islands.

An unexpected appearance was the Russian research trawler Professor Deryugin on New Year's Eve. Her visit for engine repairs during a cruise to Antarctic waters to investigate small crustacea, heralded a night of revelry aboard. During her stay, the station launch broke away from its moorings alongside the ship. Driven by a westerly gale it was swept to the rocks of Del-La-Vire Point. A Russian lifeboat was swung out and got under way by the most unusual pre-heating mechanism yet witnessed, a lighted paper applied to the air intake. In a response to the comments made on numerous occasions by visiting captains the lead light beacons have been moved to the south into an area where they do not mingle with the lighting of the camp.

BIRD BANDING

Several expeditions in early November banded Royal albatrosses. Crompton continued his studies of the sooty albatrosses. Several giant petrels on Complex Point and Six Foot Lake have been banded. Five whales thought to be right whales were observed in North West Bay in May. The departure of the skuas, sea elephants and rock-hopper penguins heralded true winter.

On a day trip four of the party visited North East Harbour to examine the site of one of two whaling stations established at the turn of the century. The other is located in North West Bay, where the site is still marked by the drum of an old windlass. Three trypots and several pieces of iron work, along with remnants of an old wharf serve as a reminder that our conditions are exceptional by comparison. The single wall of the hut which once stood on the site give an indication of the rigours of their existence. Its exterior is corrugated iron lined with a type of felt for insulation. Heating was apparently from a coal or wood fire in one end of the building. A breakwater erected to retain storage and work areas bears the marks of years of wallowing by sea elephants. To serve as a grim reminder of its predecessors the bones of a recently dead sealion lay alongside the trypots.

On an inspection visit to the Sorensen hut, an A-frame shelter at the northern end of the island, during January, it was found that rats had penetrated the lining, wreaking havoc among the contents. Most unfortunate was the consumption of the irreplaceable hut log. A subsequent expedition rat-proofed the hut but this work prevented any banding of mollyhawks.

The hut erected in north-west bay by the 1970/71 party has proved a superb recreational retreat. The hut is constructed on the A-frame principle and is 1½ hours tramp from the camp.

En route to New Zealand the Northwind uplifted Messrs Johnstone, O'Neill, Wilkinson and Crompton. Several members of the Scott Base and Vanda parties were given a rest on shore from their stormy return voyage.

A literal battening down for the winter occurred the day after the Northwind departed with the wayward tropical cyclones sending easterly winds gusting to 84 knots tearing at the camp. Winter routines have been established with maintenance dominating the works programme.

An air drop by a Bristol Freighter on April 27 delivered 12 chutes of supplies, mail and eagerly-awaited films. The winds in the morning gusted up to 60 knots and it appeared that the drop would have been aborted but the predicted low occurred with the plane arriving overhead at 4.45 p.m. with winds to 20 knots. In failing light the packs were consolidated into a more accessible area. The whole party worked until midnight in the rising westerly with heavy rain squelching through calf deep swamps to bring the perishables and mail to the back from where it could be more easily transported by boat to camp. Recovery of packs was completed on the following day.

Midwinter's Day is almost upon us, emphasised by the brief passage of the sun. We are now preparing (mentally) for the traditional midwinter's swim.

THE READER WRITES

Sidelights of Antarctic Research

Letters, preferably not longer than 500 to 600 words, are invited from readers who have observed some little-known facet of Antarctic life or have reached conclusions of interest on some Antarctic problem.—Editor.

SQUIRRELS

Sir,—Much has been written about the dogs and ponies taken to the Antarctic by the early expeditions. Little has been said, however, about the pets which travelled south aboard the Discovery, the Fram, and the Terra Nova.

Amundsen does tell us that there was a canary called Fridtjof Nansen on the Fram; we know nothing about the parrot on the Discovery. Scott refers to magnetic observations being upset by the presence of a parrot's cage below decks. But there is not another word about the bird in "The Voyage of the Discovery." Who owned the parrot, and did it die on the voyage south? We shall never know.

It is not surprising that there are few references to pets in the official accounts of Scott's two expeditions. He was concerned with more important matters, and was not aware of everything done by his crews. To learn more of expedition pets like Nigger the cat, and Tom Crean's rabbits, we have to go to the books by Griffith Taylor and Apsley Cherry Garrard.

Cherry Garrard has most to say about the pets aboard the Terra Nova. But one statement in "The Worst Journey in the World" has remained uncorrected for many years. Cherry Garrard says there were squirrels, Persian kittens, and rabbits, on the ship when she sailed from Lyttelton. There were rabbits, and perhaps kittens, but no squirrels.

The man who knows there were no squirrels is William Burton, one of the two survivors of the crew of the Terra Nova, who lives in Christchurch. When the ship called at Cape Town on the way to New Zealand, Burton went up country to Rondebosch, and was given a squirrel which he took aboard.

No doubt Cherry Garrard knew there was a squirrel on the Terra Nova, and remembered it when he came to write "The Worst Journey in the World." What he did not know then was that the squirrel never reached the Antarctic. Burton left it behind with a friend. Teddie Evans also referred to the squirrels, Persian kittens, and rabbits, in "South With Scott," and until now these pets have been part of the history of Scott's last expedition.

Yours, etc.,
"JAMES PIGG"

ISOLATED PARTIES

30 Brook Street,
Lower Hutt,
New Zealand.

Sir,—I wish to draw your attention to the article "Isolated for Nine Months", in the March, 1973, issue of "Antarctic".

The article states that four American scientists at Siple Station will be the smallest completely isolated group to winter in the Antarctic since 1934.

In 1970, four New Zealanders—Harold Lowe, Bob McKerrow, Tony Bromley, and Gary Lewis—wintered at Vanda Station and were isolated for nine months. Judging from the article, it appears that conditions were less luxurious at Vanda by comparison with those at Siple Station.

Yours, etc.,
R. J. McKERROW

[An Australian reader has also pointed out that the A.N.A.R.E. party which wintered on the Amery Ice Shelf in 1968 also comprised only four men. (See "Antarctic," Volume 5, No. 1, March, 1968, p. 22.). We stand corrected.]

ANTARCTIC BOOKSHELF

SAGA OF THE WHITE HORIZON

By Magnus L. Olsen

Nautical Publishing Co. Ltd., Lymington, England, 1972. pp. 5-199 Illustrations, Maps, Index. N.Z. price, $7.65.

During the years 1933-1935 the American explorer, Lincoln Ellsworth, led three expeditions to Antarctica with the intention of making a trans-Antarctic flight across the continent. The first attempt was thwarted when the aircraft was damaged by ice break-up, the second was prevented by bad weather, but Ellsworth accomplished his objective on the third expedition in 1935.

Magnus Olsen was a 19-year-old sub-lieutenant in the Norwegian Navy when he was selected to be spare pilot and second mate of Ellsworth's ship, the Wyatt Earp, in 1933. By the time the third expedition was over he had risen to captain.

One of the conditions of joining the expedition was that nothing should be published for 20 years. So we have had only Ellsworth's book "Beyond Horizons" until now, 40 years later, when Olsen tells the story again.

The author came from seafaring stock, like so many of his countrymen, and his book carries the tang of the sea in its pages.

This reviewer has a special interest in the Ellsworth venture, for he well remembers as a young man seeing the Wyatt Earp sailing up Otago (Dunedin) Harbour early in 1934 and thinking: "What a small ship to be tackling Antarctic ice!" Later it was his privilege to meet Ellsworth and Sir Hubert Wilkins.

Olsen tells a good story but one gets the impression that he has written a great deal from memory, which has let him down on several occasions. He speaks of going ashore at Cape Adare where on the flat beach there are three huts close together, two built by Borchgrevink in 1899, and the other by Scott's northern party in 1911. Yet Olsen can write (after discovering a pit which had probably housed a meteorological screen), "We were unable to discover any other evidence of previous exploration." He goes on to relate how Borchgrevink's ship Southern Cross "had been beset by the ice and screwed up for a whole winter." Actually the ship suffered no damage during two seasons in the Antarctic.

There are other minor errors of fact but one should read Olsen's book as a stirring sailor's yarn, spiced with humour and anecdote.

Among the illustrations is one of the Wyatt Earp in the ice which makes the little ship look like a table-top model.

—H.F.G.

KERGUELEN. THE DISCOVERER AND HIS ISLANDS

By Rear-Admiral Maurice R. de Brossard

Editions France-Empire, Paris. Two vols., 1970. English price, $2 each volume.

Kerguelen was discovered in 1772 and visited in the following year by James Cook who aptly named it the Island of Desolation. From that date onwards it was charted by Robert Rhodes, James Clark Ross, Nares and by other less noted expeditions. Consequently its history has been scattered. (See "Antarc-

tic", Volume 6, No. 1, March, 1971, pp. 22-26).

Rear-Admiral Brossard was engaged in the International Geophysical Year, 1957-58, and a visit to the Antarctic aroused his interest in this French possession. When he returned to France he studied the letters and journals of Yves-Joseph de Kerguelen-Tremarec at Kerguelen's home at Tremarec. The bibliography shows that he based his studies not only on the printed books of the time, and more recent printed sources, but also on the records of the Ministry of the Marine (and its records in the naval ports), and on the Archives Nationales, the Bibliotheque Nationale and various departmental archives. Very little material can have escaped his searches.

From this vast amount of fact Rear-Admiral de Brossard has written a very full account of the life of Kerguelen at sea and in the political troubles of France in the latter part of the 18th century. From the narratives and documents he has prepared a detailed account of his voyages to Iceland in 1767-68 as well as his Antarctic discoveries. The maps specially prepared for this work show in detail the tracks of his two vessels in the neighbourhood of the Island of Desolation. The illustrations throw light on his private and service life and his discoveries.

There will be no need for any other historian to attempt this task again, and this book may well become a much-used quarry for other Antarctic historians. In view of his special knowledge of the service it would be good if Rear-Admiral de Brossard could do the same for Bouvet and Marion Dufresne.

In the second volume the author fills in the history of the island after its discovery. Even though he has thrown light on many hidden aspects, this section is necessarily incomplete, largely because all but a few facts about the whalers and sealers have long since been lost for good. In the future other authors may be able to fill in small details but there will certainly be no need for another full-length "biography" of this desolate island.

The index is well up to the standard of the text and the format of the book makes it easy to read. No polar library can afford to be without this scholarly work.—A. G. E. JONES.

LA ANTARTIDA

Edited by Trevor Hatherton. Translated by Luis Jorda.

Barcelona, 1972. pp. 5-591.

This book is a Spanish edition of "Antarctica" first published by Methven and Co. Ltd., London, in 1965. As we said when the book was first reviewed in "Antarctic" (Volume 4, No. 1, March, 1965, pp. 50-51) it is a "masterly summary of our present day knowledge of Antarctica."

This Spanish edition is slightly smaller in format than the original, but it retains all the textual matter, illustrations and maps. No attempt seems to have been made to bring the volume up-to-date, as the list of national stations in Antarctica since 1957 (Appendix 2) shows the years maintained only up to 1962, as does the original.

We wish the book the success it deserves among all Spanish-speaking people.—H.F.G.

ANTARCTIC CHALLENGE: PROBING THE MYSTERIES OF THE WHITE CONTINENT

By Terry Shannon and Charles Payzant

A Golden Gate junior book. Children's Press, Chicago, 1973, pp. 9-78. Illustration, Maps. U.S. price, $4.79.

This little book sets out to tell the story of Antarctica from the earliest times to the present day. Within the limits they have set themselves the authors have done well. As the publishers' title implies, the book is intended for young people, and with its large number of maps and illustrations it cannot fail to have a wide appeal.

The authors have not fallen into the trap of slanting their book too much in the direction of American readers, but have given due praise to the explorers of all nations. Thus Cook, Ross, Scott, Shackleton and Fuchs receive adequate coverage and the I.G.Y. and the Antarctic Treaty enables them to mention, even if briefly, the other nationals which are carrying out continuing scientific programmes on the "White Continent".

The illustrations are up-to-date and several of them show women scientists at work in an environment which until recently has been strictly reserved for men.

This is a book which teachers will find most useful and at its modest price it should have a place in every school library.—H.F.G.

BOOKS RECEIVED.—Antarctic Map Folio, Series No. 16. Morphology of the Earth in the Antarctic and Sub-Antarctic. American Geographic Society, New York, 1972. U.S. price $13.00 plus $1.00 postage.

We hope to publish a full review of this latest volume in the map folio series in our next issue.

The March, 1973, number of "Audubon," the magazine of the Audubon Society of America, is devoted almost entirely to Antarctic fauna and the need for conservation of the environment.

The special issue is beautifully illustrated, outstanding being two fold-out paintings, one showing birds of the Antarctic seas and the other all the species of penguins.

OBITUARY

L. B. Quartermain, Editor and Historian

Few New Zealanders have done more to promote interest in the Antarctic and its affairs than Leslie Bowden Quartermain who died in Wellington on April 28 at the age of 77. He was New Zealand's leading Antarctic historian, was associated with the New Zealand Antarctic Society for more than 40 years, and edited "Antarctic," now internationally known, for nearly 20 years.

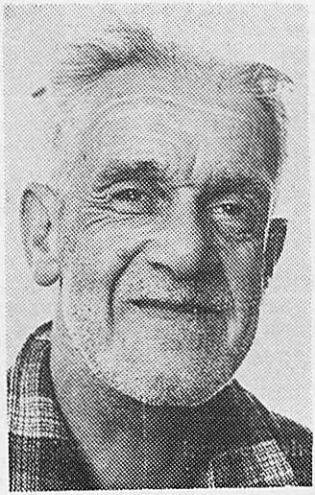
Quartermain wrote extensively on the early expeditions in the Ross Dependency, and when he was 65 led a party which restored the two historic huts occupied by Scott's last expedition at Cape Evans, and Shackleton's first expedition at Cape Royds.

For his contribution to the restoration of the huts Quartermain was nominated this year to receive the trophy awarded each year by the Canterbury branch of the Antarctic Society to recognise conservation work in the Antarctic. Unfortunately the trophy—a miniature Emperor penguin carved in African walnut——had to be awarded posthumously.

Quartermain's writings on Antarctica brought him in close touch with many explorers and scientists from early expeditions through to the present day. Among his friends were men of Scott's expeditions, and Shackleton's expedition, and modern leaders such as Dr Laurence Gould and Paul-Emile Victor.

As a schoolboy Quartermain watched the return of the Nimrod to Lyttelton, and the departure of the Terra Nova. He gained an M.A. at Canterbury University College, taught at a high school in Christchurch, and then from 1930 to 1956 was head of the English department at Wellington College.

In Wellington Quartermain became one of the foundation members of the New Zealand Antarctic Society and was elected to the first council in 1933. He was president of the society from 1957 to 1959, and was also one of its patrons.



Quartermain suggested in 1950 that the society publish a periodic newssheet for members. The "Antarctic News Bulletin" began as a two-page cyclostyled publication; since 1956 as "Antarctic" it has become a magazine which

circulates in many countries. Quartermain retired as editor in 1968.

When he retired from teaching, Quartermain was appointed information officer for the Antarctic Division of the Department of Scientific and Industrial Research, a position he held from 1959 to 1969. He visited the Antarctic three times, first as the guest of the United States Navy's Antarctic Support Force, second as leader of the hut restoration party, and in 1968 as the guest of the Antarctic Division. He was 73 when he visited the South Pole Station.

Quartermain's Antarctic publications included booklets for schools, "Into the Antarctic" and "Down to the Ice," and the books "Two Huts in the Antarctic," "South from New Zealand," and "The Ross Dependency in Pictures." His major works were "South to the Pole," a history of exploration in the Ross Dependency from the time of Captain Cook, and "New Zealand in the Antarctic," a history of New Zealand's association with Antarctic exploration and research.

At the time of his death he was writing a book about lesser-known members of the early expeditions.

In 1967 Quartermain was awarded the M.B.E. for his work as a specialist in Antarctic affairs.

He is survived by his wife, son, and two daughters.

Posthumous Award of Conservation Trophy

This year the Canterbury branch of the New Zealand Antarctic Society decided to award its Antarctic conservation trophy to Mr L. B. Quartermain, who was associated with the society from the beginning, and was known both in New Zealand and overseas for his dedicated interest in Antarctic affairs. He was nominated for the award particularly for his outstanding contribution to the preservation of the historic huts on Ross Island.

Mr Quartermain was ill when the nomination was made, and died before he could receive the trophy—a miniature Emperor penguin carved in African walnut. A posthumous award was made to his widow at a private ceremony in Wellington last month.

The trophy was presented on behalf of the Canterbury branch by Mr L. S. Donnelley, president of the Wellington branch, and immediate past president of the society. With him were Mr J. H. Miller, chairman of the Ross Dependency Research Committee, and Mr G. W. Markham, a former superintendent of the Antarctic Division, Department of Scientific and Industrial Research, with whom Mr Quartermain worked as information officer for several years.

Mr Donnelley referred to Mr Quartermain's devoted work in the interests of Antarctica over so many years. He said that Mr Quartermain's work on the restoration of the historic huts made the award, although posthumous, richly deserved and appropriate.

Mr Markham, who is vice-president of the society, referred particularly to Mr Quartermain's writings, and to his dedicated work as editor of "Antarctic" for many years.

"ANTARCTIC"

is published quarterly in March, June, September, and December. It is the only periodical in the world which gives regular up-to-date news of the Antarctic activities of all the nations at work in the far South. It has a world-wide circulation.

Yearly subscription for non-members of the Antarctic Society NZ$3.50. Overseas NZ$4.50, includes postage (air mail postage extra), single copies $1.00. Details of back issues available may be obtained from the Secretary, New Zealand Antarctic Society (Inc.), P.O. Box 1223, Christchurch, New Zealand.

Overseas subscribers are asked to ensure that their remittances are converted to New Zealand currency.

The New Zealand Antarctic Society (Inc.)

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

The society has taken an active part in restoring and maintaining the historic huts in the Ross Dependency, and plans to co-operate in securing suitable locations as repositories of Polar material of unique interest.

There are two branches of the society and functions are arranged throughout the year.

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$3.00 (or equivalent local currency). Membership fee, including "Antarctic", NZ$5.00.

New Zealand Secretary

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