

ANTARCTIC

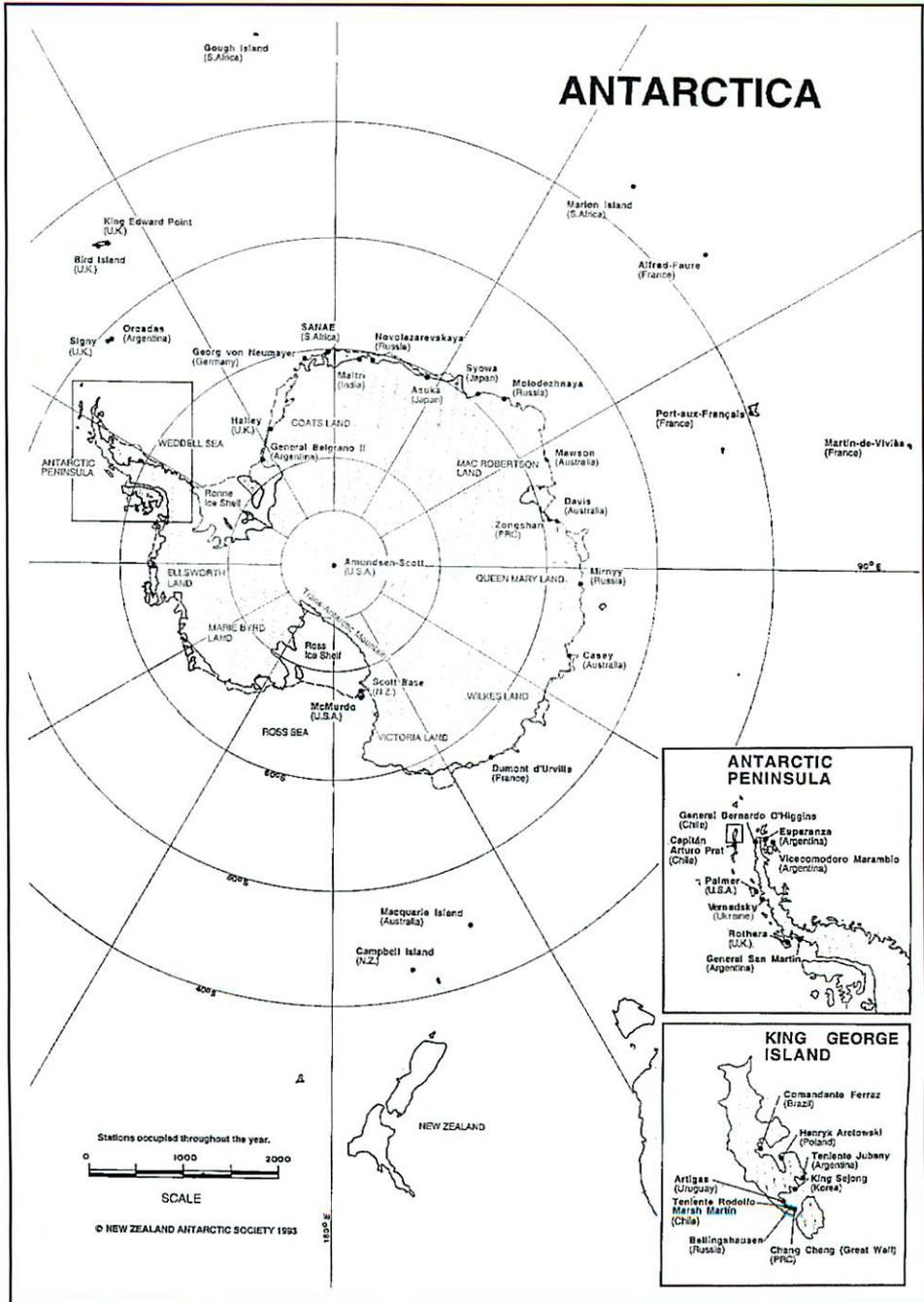


Bulletin Vol 14. No. 4, December 1996



40th Anniversary
of Scott Base

ANTARCTICA



Stations occupied throughout the year.

0 1000 2000

SCALE

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ANTARCTIC PENINSULA

- General Bernardo O'Higgins (Chile)
- Esperanza (Argentina)
- Capitan Arturo Prat (Chile)
- Vicecomodoro Marambio (Argentina)
- Palmer (U.S.A.)
- Vernadsk (Ukraine)
- Rothera (U.K.)
- General San Martin (Argentina)

KING GEORGE ISLAND

- Comandante Ferraz (Brazil)
- Henryk Arctowski (Poland)
- Teniente Jubany (Argentina)
- King Sejong (Korea)
- Artigas (Uruguay)
- Teniente Rodolfo Marsh Martin (Chile)
- Bellingshausen (Russia)
- Cheng Cheng (Great Wall) (PRC)



Cover:

Main: How Scott Base looks today.

Photo — Courtesy of Antarctica New Zealand Library.



Insert: Scott Base during its final building stage 1957.

Photo — Courtesy of Guyon Warren.

December 1996,

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FOREWORD BY SIR VIVIAN FUCHS

All the world's Antarcticans will wish to congratulate New Zealand on maintaining Scott Base for the last forty years, and for the valuable scientific work which has been accomplished. First established to receive the Crossing Party of the Commonwealth Trans-Antarctic Expedition 1955-58, it also housed the New Zealand Party working for the International Geophysical Year.

Today the original huts have been replaced by a more modern and extensive base; but chancing to arrive there on my 86th birthday in 1996, I was happy to find that one of the huts I knew in the fifties had been preserved as a museum.

I know that Sir Edmund Hillary, the first leader at Scott Base, will join in recognising the sense of pride which all New Zealanders can feel about their nation's Antarctic work — long may it continue



Sir Edmund Hillary and Dr. V E. Fuchs join forces at Depot 700, established by the New Zealand party 700 miles south of Scott Base. Photo from Antarctic Bulletin No. 9, March 1958.

Sir Vivian and Sir Edmund are both life members of the New Zealand Antarctic Society.

FORTHCOMING EVENTS

Scott Base 40th Anniversary Events, arranged for early 1997 in Christchurch, will include:

- Business function at Antarctic Visitor Centre (Chamber of Commerce)
- Antarctic fancy dress ball for public (Visitor Centre).
- Opening of the Antarctic Heritage Trail (Antarctic Heritage Trust/ Christchurch City Council)
- Historic display and book on Scott Base (Antarctic Society)
- Children's Antarctic Treaty Consultative Meeting (ICAIR/Learnz)
- Art Auction (Antarctic Heritage Trust)
- Book Launch (Warren Herrick)
- Antarctic Gateways Sister Cities Conference (Christchurch City Council)

Working Group Coordinator — Clive Pearson, MFAT

20-22 January 1997 — TAE/IGY reunion in Christchurch in celebration of Scott Base 40th Anniversary. Organiser — John Claydon

20-22 January 1997 — Antarctic New Zealand hosts visit to Scott Base for 40th Anniversary. Guests to include the Prime Minister and Sir Edmund Hillary. (A TVNZ crew will be making a documentary about Sir Edmund's life).

April 1997

- Antarctic Heritage Trust 10th Anniversary
- Opening of Photographic Exhibition outlining New Zealand's involvement in TAE/IGY. Organised by New Zealand Antarctic Society.
- Launch of "Scott Base — New Zealand's Frozen Frontier", Outlining the history of Scott Base. Written by David Harrowfield for the New Zealand Antarctic Society.

16-18 April 1997 — "Antarctic Science Beyond 2000". New Zealand Antarctic Science Strategy Workshop

19 April 1997 — Scott Base Grand Reunion Dinner. Organiser — Jim McGregor, New Zealand Antarctic Society

COVER STORY

40 YEARS AGO — THE ESTABLISHMENT OF SCOTT BASE

By Margaret Bradshaw

For over 30 years following New Zealand's acceptance of responsibility for the Ross Dependency from Britain in 1923, the government showed little interest in mounting its own national programme.

In the early 1950's, the second International Geophysical Year (IGY) was being planned, and an idea was sparked by a British Antarctic scientist, Dr Vivian Fuchs, for a Commonwealth Trans-Antarctic crossing similar to that first attempted by Shackleton in 1914.

Early in 1955, New Zealand finally committed itself to provide an Antarctic base from which scientific measurements could be made over the IGY period, and which would also be the terminal point for a Trans-Antarctic Expedition (TAE).

With Sir Edmund Hillary as leader, New Zealand would play a major support role by establishing a route on the Ross Sea side for the crossing party and laying depots for them.

The Ross Sea Committee was set up to organise New Zealand's involvement, and 32 men were selected from 665 applicants. Two other New Zealanders, George Lowe and Brian Haslop, were invited by the British to join the crossing party.

During the southern summer of 1955-56,

preliminary Antarctic experience was gained by some members of the New Zealand team. Trevor Hatherton, geophysicist and leader of the five man IGY team who would share the base with the TAE party, together with Lt Commander Bill Smith (Royal NZ Navy) and geologist Bernie Gunn, went south with US Deep Freeze 1 to select a site for the New Zealand base in McMurdo Sound, a site that would allow access onto the Polar Plateau, as well as be easily approached by shipping. Following the route pioneered by Scott's 1902 party, and with no prior experience of polar travel, the three New Zealanders hauled up the Ferrar and upper Taylor Glaciers and climbed Beehive Mountain. Valuable lessons were learned over the 320 kilometres covered, not the least being that stronger crampons were needed for the hard blue ice, for they had broken eight



The Endeavour leaving Bluff 11.30pm, 21 December 1956, with winter and summer staff suitably dressed for the preceding Civic Farewell Banquet.

sets on the journey. A base site was selected near Butter Point.

During the same summer, Ed Hillary, his deputy Bob Miller and Squadron Leader John Claydon, travelled south to the Weddell Sea with Vivian Fuchs aboard the *Theron*, a Canadian arctic sealer chartered by the TAE. Their objective was to establish Shackleton Base as the starting point for the following year's crossing. Gordon Haslop and George Lowe were also on board. The plan was to leave an advance party of eight men who would erect a prefab hut and live in it over the winter. Five tracked vehicles, 20 huskies with their kennels and a large quantity of stores were also left.

The notoriously unpredictable Weddell Sea ice provided the New Zealand party with some valuable experi-

ence. The ship became trapped in the ice for a frustrating three weeks. When a small pool opened, John Claydon made a difficult take-off in the float-equipped Auster and successfully searched for a lead into open water. Once the proposed base site was selected and unloading began, the ship was torn from its moorings in a sudden blizzard and blown away from the ice edge, leaving five people, one of them Bob Miller, stranded with minimal shelter and little food. The men had to wait 24 anxious hours before the *Theron* was able to return to take them back on board.

On the other side of the continent, mountain guide Harry Ayres was attached to the Australian programme for the relief of Mawson Base, and also visited the Russian Mirny Base. When he returned to New Zealand, Ayres brought with him 26 sledge dogs that had been bred at Mawson and generously presented to the New Zealand team.

It was now time to raise funds, plan logistics and train the team. A great deal more money was required than the £50,000 granted by the government, and the nation rallied round with all manner of fund raising ideas, ranging from selling guinea pigs and tadpoles to giving very well attended lectures.

Many firms gave help in kind. BP New Zealand donated all the oil, petrol and lubricants the party would need, while Massey-Ferguson gave five Ferguson farm tractors, three of which reached the pole. The government purchased an Auster aircraft and the Falkland Island ship *John Biscoe*, which was renamed *Endeavour*. Personnel were seconded from the Navy, Army and Air Force to support the expedition.

SCOTT BASE PERSONNEL — TAE/IGY TEAM WINTERING OVER

Sir Edmund Hillary, Leader.
 (Bob) Holmes Miller, Deputy Leader, Stores.
 George Marsh, Medical officer, Dog handler.
 Harry Ayres, Ice expert, Dog handler.
 Murray Ellis, Engineer Officer.
 Bernie Gunn, Geologist, Photographer.
 Richard Brooke, Dog handler, Surveyor.
 Roy Carlyon, Surveyor, Navigator.
 Murray Douglas, Mountaineer, Dog handler.
 Guyon Warren, Geologist.
 Ron Balham, Meteorologist, Biologist.
 Jim Bates, Mechanic.
 Ernest Bucknell, Cook.
 Trevor Hatherton, Leader IGY science party.
 Peter Macdonald, Geophysicist.
 Vern Gerrard, Geophysicist.
 "Herbie" Orr, Geophysical Technician.
 Neil Sandford, Mechanician.
 John Claydon, Commanding Officer RNZAF.
 Bill Cranfield, Pilot.
 Wally Tarr, Engineer.
 Peter Mulgrew, Senior Radio Operator.
 John Gawn, Radio Operator.

In May 1956, the RNZAF Antarctic Flight was formed at Wigram, with Squadron Leader John Claydon and Flying Officer Bill Canfield as pilots, and Sergeant Wally Tarr as engine fitter. A second plane, a Beaver, was provided by the Ross Sea Committee and aptly named City of Auckland as most of the purchase money had been raised in Auckland.

The Mawson dogs, now totalling 34 in number, were increased by a further 12 from Greenland which were brought over on the *Endeavour*. The plan was to train both dogs and the men at Mount Cook, with George Marsh and Richard Brooke from Britain having the responsibility of producing three working dog teams.

In August the 18 men selected for the TAE team (base and field) and the five selected for the IGY group assembled on the upper Tasman Glacier, using the old Malte Brun hut as their base. All aspects of training had to be covered, the most important being the interaction of dog-teams, aircraft, men, radio communication and supply drops.

Both aeroplanes were taken to Mount Cook, but the first landing by Claydon, accompanied by Hillary, showed up an assembly fault which caused the ski to retract when landing on snow. Claydon later had an even more uncomfortable moment in the Auster while testing a special wheel-ski. The ski failed and the plane did a spectacular flip, causing considerable damage to the plane.

After being repaired on site, then buried by a snow storm, the Auster was successfully flown out for further modifications. Bomb racks had been fitted to the Beaver, and bundles of sheep carcasses and horse meat for the dogs were dropped on to the glacier as practice for

SUMMER STAFF

Derek Wright, Cine-cameraman.
 Peter Tate, RNZ Antarctic Flight.
 Arthur Helm, Administration & postal.
 Geoffrey Martin, Journalist.
 Ron Barwick, Biologist, artist.
 Arnold Heine, Toolmaker, Mountaineer.
 J. Findlay, Medical Officer.
 Jim Hoffman, Explosives & drilling.
 Randal Heke, Foreman building team.
 Ron Mitchell, Architectural Assistant.
 CPO Zane Price, Shipwright artificer.
 CPO Eric Voison, Shipwright artificer.
 EM K. Boyd, Electrician.
 L-C Noel Sinclair, Carpenter-joiner.
 L-C Ernie Becconsell, Electrician.
 L-C Albert Edwards, Carpenter-joiner.

Antarctic supply drops. A problem was experienced when bundles on one side only released, causing unequal drag, but this was eventually cured.

Meanwhile, New Zealand's Antarctic base was being designed. Frank Ponder, architect with the Ministry of Works, was given the difficult job of fast drafting a design, acquiring the materials from overseas, and prefabricating the building. He rose magnificently to the occasion, though it is doubtful if he would wish to repeat that ten months experience.

Ponder's design was for six huts, separated by covered ways of corrugated iron to allow access in even the worst of weathers and to lessen the risk of fire spreading. The insulated walls, manufactured in Australia, had an aluminium outer skin and an "Asbestolux" fireproof inner surface.

All huts were connected by telephone and an alarm system. Although intended for only three years use, Ponder was confident that the base buildings would be in "first-class order in 100 years time". His confidence proved to be justified, for

the buildings provided a cosy home for New Zealanders on the ice for nearly 30 years before they were replaced by larger, continuous, and perhaps less appealing structures. The original mess hut remains, although moved a short distance from its original site.

Three Army and three Navy men were seconded to erect the buildings in Antarctica, overseen by Randall Heke and Ron Mitchell. The base was assembled in Wellington to make sure everything was present and in good working order. On the last day, the buildings were opened to an interested public, but the schedule was so tight that dismantling had to begin before the last person had left. Each component of the huts, down to bags of nuts and bolts, was carefully marked to help re-assembly in Antarctica.

By the end of October 1956, the *Endeavour* had arrived in Wellington, unfortunately with serious water damage to stores destined for the New Zealand programme, which had to be quickly replaced. Sixteen New Zealanders went south on the US icebreaker *Glacier*, and three were aboard the *John R. Towle* along with a huge amount of New Zealand cargo and 24 of the dogs.

In the same US convoy was the icebreaker *Northwind* and the cargo ship *Arneb*, the latter carrying three New Zealand scientists Bill Ingham, John Humphries and Mike Langevad, who were to be part of the first joint American-New Zealand IGY winter-over team at the new Hallett Station.

Originally this base was planned for Ridley Beach near Cape Adare and called Adare Station, but this site was found to be unsuitable, and the Cape Hallett Spit was selected instead. During the

approach to Hallett, the *Arneb* became holed and suffered propeller damage when it was pinched between two ice flows. Afterwards, the party was off loaded and 12 buildings were erected following the displacement of some 8000 Adélie penguins.

On 15 December, a week after the US convoy had departed, the *Endeavour* left Wellington with the balance of the New Zealand team, including all the summer staff. The ship first visited Lyttelton where it received a visit from Prince Philip and Antarctic veteran Sir Raymond Priestly, geologist with Scott's last expedition. The *Endeavour* cast off on the night of 16 December, but when leaving dock, the wing of the Auster stored on deck, caught the side of an adjacent ship and was badly damaged. The ship stopped again in Dunedin to take on the remainder of the dogs, and the plane was left for repairs. After a final stop at Bluff to pick up dog mutton, the *Endeavour* turned its bow towards the south on 21 December.

The New Zealand frigates *Hawea* and *Pukaki* accompanied the *Endeavour* shortly after the Antarctic Circle which was crossed on 27 December and the first pack ice was encountered. Once through the pack, the *Endeavour* met heavy seas. A nasty roll of 47 degrees and a huge wave smashed six dog cages without injuries to the dogs. The front of the Beaver crate was also stove in, saturating the plane with sea water. When fast sea ice was met near Beaufort Island, the *Glacier* came out to clear a way, and on 3 January the *Endeavour* moored 13 kilometres east of Butter Point.

Three days of ground reconnaissance made it clear that Butter Point would be



Scott Base under construction, December 1956.

impossible to reach from the ship with cargo, so Admiral Dufek of the US Navy flew Ed Hillary and Bob Miller by helicopter to inspect an alternative site at Pram Point on Ross Island. The site had good access over the sea ice from the ice edge, and there appeared to be an easy route onto the McMurdo ice shelf southwards. The decision was made to establish the base on the relatively level ground of Pram point at about 15 metres above sea level.

After leaving George Marsh, Harry Ayres, Richard Brooke and Murray Ellis at Butter Point to acclimatise the dogs and make a recce up the Ferrar, the *Endeavour* moved across McMurdo Sound and tied up at the ice edge about 13 kilometres north of the base site. Cargo was unloaded and transported by the New Zealand weasels and tractors, but it was nearing the end of the summer, the ice was becoming thin, and the work was not without its mishaps. A weasel carrying Ed Hillary, Trevor Hatherton and Peter Mulgrew broke through the ice, and though the cab was awash, the vehicle

was fortuitously jammed by the sledge behind, and didn't sink. They were lucky; only five days before an American had been drowned in a similar mishap.

Once the *Endeavour* had been unloaded, the men were kept busy moving the large quantity of New Zealand cargo from the *Towle*. At Pram Point, once the New Zealanders had blasted their way into the hard permafrost with low temperature explosives, Admiral Dufek arranged for a 35 tonne bulldozer and a team of US Seabees to level the Scott Base site under the able supervision of Lt. Dick Bowers who had just finished building South Pole Station. Bob Miller, Randall Heke and Jim Hoffman, a New Zealand explosives expert, spent the night of 12 January in tents at the site, and the construction of the base started the following day.

In just two days "A" hut was finished. Destined to be the party's mess hut, it initially served as sleeping quarters for the builders. Everyone was busy, not the least John Claydon, Bill Cranfield and Wally Tarr who had cleaned and assem-

bled the Beaver plane which made its first ice flight on 15 January.

On 20 January Scott Base was officially dedicated by Captain Harold Ruegg, Administrator for the Ross Dependency. The New Zealand flag was hoisted for the first time, raised by the youngest New Zealander, Able Seaman Ramon Tito, on

the same flagpole that Scott had used outside his Discovery Hut in 1903. The ceremony was a special occasion, attended by the ever helpful Admiral Dufek and other US officers. New Zealand, at last, had a firm presence in Antarctica.

To be continued in the March and June issues of Antarctic.



INTERNATIONAL

THREE ATTEMPT A WORLD RECORD SOLO-ANTARCTIC CROSSING



In the last issue of Antarctic we revealed that the world-renowned explorer Sir Ranulph Fiennes would attempt a solo crossing of the Antarctic this summer. It is now confirmed that on 15 November 1996, after three weekends waiting for an improvement in the weather, Ran did indeed embark on his lone challenge to cross the Antarctic continent unsupported and single-handed. But he is not the only man attempting to create a new world record.

Anne Kershaw from Adventure Network International, based in Chile this season, revealed that Borge Ousland (Norwegian), and Marek Kaminski (Polish) will be racing against Fiennes for the record. Roger Mears (British), who made a valiant though unsuccessful attempt last year, and Peter Valusiak (Slovakian) were unable to compete in this race because of insufficient funds.

The route that the three men will follow independently will be from sea level at Berkner Island across the Filchner ice shelf and via the South Pole to a finish at New Zealand's Scott Base. The total distance covered will be 1,800 statute miles/2,900 km/1,500 nautical miles, and the journey is expected to take 90 to 110 days. They are currently all doing well and making good progress.

*(Right) Photos of Sir Ranulph Fiennes training in the snow
Courtesy of Dyson Antarctic Solo Expedition*



MORE EXPEDITION NEWS FROM THE ICE

Anne Kershaw and her team from Adventure Network International are in constant contact via radio and satellite link with three other expeditions from Korea, Britain and France.

The six person Korean Group, 'Dream and Adventure', is lead by Ho Young Heo — who previously reached all three poles (North, South and Mount Everest). They will cross Antarctica along the same route as Fiennes and will also be unsupported. The British group, 'Scott II Expedition' has two former British Antarctic Survey team members and is lead by former leukemia sufferer, Lloyd Scott. And, last but not least, a French woman, Laurence de la Ferriere, is walking solo and unsupported from Hercules Inlet, at the head of the Ronne Iceshift near the Ellsworth mountains, to the South Pole. Both the British group and de la Ferriere will leave from Hercules Inlet and will be picked up by air from the Pole.

Another group will be attempting to cross the Antarctic, from McMurdo via the South Pole to Patriot Hills, the reverse direction to that of Fiennes and the Korean group. The three men are Jeff Summers, Crispin Day and Robert Swan. This is Robert's first Antarctic expedition since his 'In the Footsteps of Scott Expedition' 10 years ago. They will, however, be supported with a mid way drop at the Pole.

PROTOCOL ENDORSEMENT FOR THE ANTARCTIC

Environmental issues will be the main topic of discussion at the Antarctic

Treaty Consultative Meeting to be held in Christchurch from 19-30 May 1997. At the meeting — the first of its kind held in New Zealand in 25 years — three hundred delegates from 43 countries are expected to endorse an environmental protocol for the Antarctic. This would prohibit mining on the continent for 50 years and establish new standards of environmental protection.

The Antarctic Environmental Protocol, otherwise known as the Madrid Protocol, is one of several agreements adopted under the Antarctic Treaty System. It contains a series of rules on waste disposal, environmental impact assessment, marine pollution, the conservation of plants, wildlife and protected areas, plus recommendations to eliminate the excesses of the past. These rules will further be discussed at the meeting.

The protocol was adopted by 26 countries in 1991, but ratification by all the countries is required for the protocol to come into force. On 1 October President Bill Clinton committed the United States to the protocol leaving Japan, Russia and Finland as the only three nations with Antarctic activities who have not signed the agreement.

JAPAN CULLS MORE MINKE WHALES

Early November saw the departure of a Japanese whaling vessel, Nisshin Maru, to hunt a further 440 minke whales in the Antarctic under the name of 'science'.

In September, a Japanese whaling fleet has already returned with 77 whales and

the previous April they returned with 440 whales.

Japan has annually hunted whales for research purposes in a government programme that began in 1987, a year after the International Whaling Commission (IWC) voted to ban commercial whaling. The kills, though widely criticised, are considered legal because the ban left each nation with the option of conducting research.

Japan claims that the research is needed to accurately gauge whale populations, ages and migrations and

argues that cutting open the whales is essential to study their reproductive rate and age, as well as to investigate how they have been affected by marine pollution. Once the research is complete on each whale the meat is processed and distributed to restaurants and other markets.

The Greenpeace and World Wide Fund for Nature is calling for international pressure to halt Japan's whaling activities as many say the research programme is an attempt by Japan to keep the whaling industry alive.

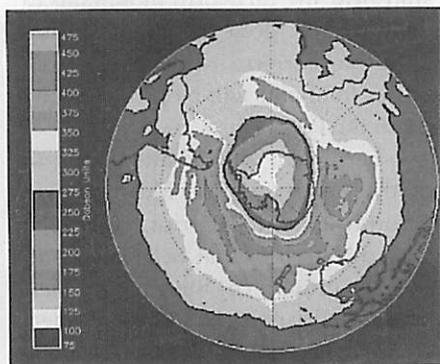
CHLORINE POLLUTANTS WORSEN ANTARCTIC OZONE DEPLETION

In October 1996 the spring ozone hole recorded by the National Institute of Water and Atmospheric Research (NIWA) reached a low of 140 Dobson units. Record low for Arrival Heights was 129 units in 1995. Satellite data from NASA revealed a circular area of very low ozone concentration of 25 million square kilometres covering the Antarctic. Readings at the centre of the hole were about 115 Dobson units, near last year's minimum, which represented a 60% loss on pre-1980 levels. The ozone depletion over Antarctica had developed exceptionally rapidly since September but was of similar size and intensity to the record holes of the last three years.

The depletion of the normally 300 Dobson unit thick ozone layer is triggered by sunlight, cold spring temperatures and chlorine pollutants from CFC's. Despite international legislation designed to phase out the use of CFC's, including the Montreal



The 1996 Antarctic Ozone Hole



6 October 1996

- This Hole is similar to the record Hole of 1993.
- It has reached its greatest size and depth for 1996.
- 65% of South Pole ozone has vanished.

Protocol and New Zealand's Ozone Layer Protection Act 1991, the 70 million tonnes of CFC gasses already present in the atmosphere is expected to affect the ozone for at least another 20 years.

OUT OF THE COLD AND INTO A NET

It was once thought that young emperor penguins spent their whole lives in Antarctic waters.

But evidence from radio transmitters attached to the young birds now show that they prefer the warmer waters — where fishermen roam and beyond the protection of international treaties.

The birds were thought to be confined largely to the Ross Sea that cuts deep into the Antarctic continent. But, when US zoologist, Gerald Kooyman, was trying to solve where the young birds go in their early years, he noticed they took a hard left and headed due north towards the Southern Ocean — an area outside the protection of the Antarctic Treaty which ends at 60° South. One bird even travelled as far as 2800 kilometres in the three months before the transmitter failed.

Although the penguins may not be in imminent danger, this could change as global fishing fleets expand their search for fish. Kooyman's work reinforces growing concerns that no species is entirely protected by agreements such as the Antarctic Treaty and the Conservation of Antarctic Marine Living Resources.

CHAINS & STANCHIONS UNDER THREAT AT DISCOVERY HUT

As part of a US waste disposal programme fuel tanks, pump house and the fuel pipe line from the pier to the pump house have been removed from Hut Point. Decisions to block off the road to Hut Point and the possible removal of the chain and stanchions surrounding Discovery Hut, are currently under consideration. The clean-up, which was approved by the Antarctic Heritage Trust, will enable a view of Scott's Discovery Hut in the more remote context it was first built in'.

Only a couple of utility poles and a transformer from the fuel system will remain as these are required to provide electricity to a small science project involving an air quality monitoring station. When this project is complete in one or two years, these will also be removed. The present clean-up effort will be completed in January once the monitoring project is shut down for the season.

EFFECTS OF CANCELLED US MIDWINTER AIRDROP

The first US Air Force flight, in preparation for the 1996-7 Antarctic season, set off from Christchurch on the 20 August. As the National Science Foundation's US Antarctic Program (USAP) cancelled the midwinter drop earlier this year, the flight was the first outside human contact for wintering over parties at McMurdo and Scott Base since February.

Since 1980, a US Air Force C-141 transport aeroplane has delivered fresh food, mail, supplies and equipment via a much welcomed midwinter airdrop to the wintering populations on Ross Island. Due to a reduced budget, this is now no longer the case.

The two day airdrop usually occurred on or around Midwinter's Day, the austral winter solstice, in late June. At this time of year temperatures are too low for aeroplanes to land at either McMurdo or the South Pole so refuelling is not possible. A tanker aeroplane used

to accompany the C-141 to refuel it in flight. Materials for the drop, packed in sturdy corrugated cardboard containers with low altitude, high velocity' parachutes attached, were loaded into the cargo hold of the aeroplane while personnel at Amundsen-Scott South Pole Station marked an area near the station as a target for the drop. Flying low over the marked area, the air crew pushed the containers out of the aeroplane hitting the ground at 60 mph to the waiting crew on the ground.

Biologists studying emperor penguins also used the flights to study the only penguin species that breeds during the austral winter. By using a night-vision intensifier' the biologists were able to observe one of the six emperor colonies along the western Ross Sea. The winter lives of these penguins were little known until now because the harsh conditions of winter restricted scientists to ground observations at sites near a few rookeries.

The scientists had hoped to utilise the supply flights again to learn more about this important part of the penguin breeding cycle.

**BBC HORIZON FILMS LIFE
IN THE ANTARCTIC**

This month a film crew from the BBC will be on the ice to shoot three one-hour shows on Antarctic science and scientists' lives during deployments with both USAP and the British Antarctic Survey. The team will film McMurdo biology projects, South Pole science and tourism, projects at the ice edge, Scott's Hut, Ralph Harvey at Allan Hills, Siple Dome, Phil Kyle at Boomerang Range and Mt. Erebus, and Dave Merchant, Diana Freckman and

**COMMEMORATIVE PLAQUE FOR
SCOTT BASE**

In January 1997 a plaque commemorating the 40th anniversary of Scott Base will be mounted on a rock cairn by Antarctica New Zealand. Organised by Bill Cranfield, aircraft pilot with the New Zealand part of the Commonwealth Trans-Antarctic Expedition, and designed by Christchurch art student, Harriet Bailey, the stainless steel plaque commemorates the raising of the New Zealand flag back in 1957. It also lists wintering members of the New Zealand Support Party of the British Commonwealth Trans-Antarctic Expedition and New Zealand scientists supporting International Geophysical Year.

Bob Wharton in The Dry Valleys, among other sites and individuals.

**THE LAST NASU
COMMANDING OFFICER**

By March 1998, after the Antarctic season, US Antarctic support will become the responsibility of the Air National Guard due to a cost cutting measure. Commander John Stoz, who was appointed in July, is therefore likely to be the last commanding officer for the US Naval Antarctic Support Unit (NASU). According to Commander Stoz, the move would not have any bearing on America's future involvement in Antarctica as most of the units operations would be contracted out.

NASU is part of Operation Deep Freeze, a joint military operation of the US armed Forces and the New Zealand

Defence Force which provides logistic support for the US National Science Foundation's Antarctic Programme, the New Zealand Antarctic programme and the Italian Antarctic Programme. As part of the gradual take over process of

the Navy by the Air National Guard, a newly manufactured Hercules LC-130 aircraft was flown to Antarctica on 2 December. A ceremony was held to christen the plane City of Christchurch'.

NATIONAL PROGRAMMES



NEW ZEALAND

1996/7 SUMMER RESEARCH IS UNDERWAY

On 2 October the first flight of the summer Antarctic research season left for McMurdo Sound. On board the US Air Force C141 Starlifter were the first New Zealand scientists, physicists from Canterbury University, who will use radar equipment to study the poorly understood Antarctic atmosphere 40 and 100 kilometres above Scott Base.

Twenty-seven research projects will be co-ordinated from Scott Base this season, spanning biological, geological, atmospheric and environmental sciences.

BIOLOGY AND GEOLOGY IN LA GORCE MOUNTAINS

Currently there is little knowledge of life at the highest southern latitudes. However, this month Dr Paul Broady of the University of Canterbury hopes to correct this balance by leading an international team of four to make the first detailed survey of the biology of La Gorce Mountains. The team, which includes Richard Weinstien of Cambridge University, Trevor Ireland of the National University of Australia and Eric Saxby of Antarctica New Zealand, will be located at Scott Base and La Gorce Mountains which lie 60km north of Mt Howe.

Previous botanical and microbiological studies at La Gorce Mountains are few. In 1969, the New Zealand soil

scientists Graeme Claridge and Iain Campbell spent six days examining soils. They collected just two samples for microbiological analysis but when cultured these produced no growths. Also, they recorded no lichens or mosses although sparse lichens were found further north at 86 deg 20 min South.

In 1971, the U.S. microbiologist Roy Cameron made a brief two and a half hour visit by helicopter. He found a number of frozen ponds which supported meagre growths of algae. These indications of the existence of life suggest that a thorough survey of the region would be worthwhile. Mt Howe is the most southerly rock outcrop in

the world and, unfortunately, inaccessible due to extensive crevasse fields.

The major focus of this study will be on algae and fungi which grow in this extreme environment. Geological studies will also be made with an aim to provide reliable dates and geochemical analysis for granites which intrude La Gorce Mountains and adjacent nunataks.

The algae studies will be part of a long-term programme of understanding the taxonomy and ecology of terrestrial algae in the Ross Sea regions. Similar investigations have been carried out at lower latitudes, such as those progressing from northern to southern Victoria Land, Ross Island and Marie Byrd Land.

The proposed work is a logical progression to high latitudes and is part of a long-term aim to produce an algal flora for the Ross Sea regions. The fungal studies will form an integral part of a more general investigation of the role of soil fungi in niche formation.

ADÉLIE PENGUIN MATING AND MIGRATION

In November, Dr Lloyd Davis and Sue Heath of University of Otago, Rob Harcourt of Waikato University and Fiona Hunter of Cambridge University, returned from a month's expedition at Scott Base and Cape Bird to study female behaviour and mechanisms of sperm competition in the Adélie penguin.

The aim of the project was to investigate theories of sexual selection in the Adélie penguin. Previous theories suggested that males should compete for females and that females should choose males.

As sperm competition is one aspect of this, it was predicted that sperm choice should also occur. For a monogamous female, constrained in her choice of partner, this may mean copulating with a high quality male, either prior to re-pairing with her mate of a previous season, or during the time she is paired, while maintaining her partner's help in raising her offspring.

Dr Davis had hoped to complete a second objective, namely the satellite tracking the winter migration of Adélie penguins. The penguins feed almost exclusively on krill but, with a dramatic reduction in krill stocks caused by global warming, they are most vulnerable during their winter migration, when over 25% of adults and 75% of chicks die. Satellite telemetry for monitoring the penguin migration was expected to potentially provide an indirect biological indicator of the health of the Antarctic ecosystem. Owing to logistical difficulties this unfortunately will now be postponed until next year.

ANTARCTIC PENGUIN LIVER ENZYMES

Two scientists from University of Otago will be on the ice this month to study how Antarctic penguins metabolise or detoxify foreign compounds to which they may be exposed.

Accordingly, P450 enzymes are involved in the metabolism and detoxification of many endogenous and foreign compounds, including drugs and environmental pollutants. There is extensive evidence showing at least 30 forms of P450 in human liver and 47 in rat liver. Different forms of P450 are

responsible for biotransformation or detoxification of certain classes of drugs and xenobiotics (foreign compounds). The activities of a particular P450 enzyme in terms of metabolising these foreign compounds, were found to be different among species.

Dr Wanwimolruk and his colleague Peter Coville propose to study and identify P450 enzymes in penguin liver. Substrate selectivity and specificity of each P450 enzyme will be characterised and the information gained from this study would provide a valuable guide

for susceptibility to environmental contaminants exposure of Adélie penguins.

EDITORS NOTE:

If you are an honours student interested in conducting this research as part of your MSc/PhD Programme please contact either Dr Sompon Wanwimolruk Ph.D (Clinical Pharmacology), Senior Lecturer, School of Pharmacy, University of Otago, PO Box 913, Dunedin, New Zealand, Phone +64 3 479 7293, or Receptionist, School of Pharmacy, at the University of Otago, Phone +64 3 479 7275.

PREDICTING CONTAMINANT IMPACTS IN ANTARCTICA

Apparently, the level of Lake Vanda is rising and scientists fear that it will shortly flood contaminated sites such as the helicopter pad, fuel storage area, and a gully used for greywater disposal throughout the operation of Vanda Station as a New Zealand base.

At the end of this month, Jenny and Kerry Webster and Peter Nelson of Institute of Environmental Science and Research in Auckland will return to Lake Vanda, in the Wright Valley, to continue identifying the processes by which specific pollutants released into an Antarctic Dry Valley environment are redistributed and interact with indigenous microbial communities.

Part of a collaborative programme between ESR, NIWA and the University of Western Ontario in Canada, the two year research will focus on understanding how cyanobacteria obtain, process, accumulate or restrict the mobility of nutrients, heavy metals and hydrocarbons derived from contaminated soils.

BIODEGRADATION OF OIL IN ANTARCTICA

Biodegradation of oil in the environment depends on microbial activity, particularly that of bacteria. However, since human activity started in Antarctica, significant pollution caused by oil spills and its effects of biota have been reported.

Jackie Aislabie of Landcare Research NZ Ltd, Megan Balks of Waikato University and Julia Foght of University of Alberta will spend the first two weeks

of January at Scott Base investigating the use of bioremediation for cleanup of oil contaminated soil in Antarctica.

The team hope to isolate both cold-tolerant oil degrading bacteria, and the genes involved in oil degradation, directly from Antarctic soils that have been chronically contaminated with hydrocarbons. The environmental parameters that limit biodegradative activity in situ will also be investigated.

THIRD QUARTER PHENOMENA

In August and October this year, scientists from Lincoln University visited Scott Base to investigate the possible existence of what is called the "third quarter" phenomenon (Bechtel) — where mood and morale reaches a low ebb shortly after the mid-way point of the winter season.

Dr Gary Steele, Rachele Allan and Emma Stewart used multiple techniques (ie interviews, standardised, non-clinical psychological scales, and written self-reports) to monitor mood and morale over the course of training, deployment, and re-entry of individuals

wintering-over at Scott Base. The purpose of this programme, which is still on-going, is to investigate the relationship between personality variables and fluctuations in mood, morale and group cohesiveness occurring in isolated groups over the course of an Antarctic year.

The team hope that the results of this research will address fundamental questions regarding the temporal processes of emotions and motivation, and will aid both station managers and staff in planning for the challenges of long-term stays on ice.



UNITED STATES

ANTARCTIC SCIENCE SEASON GEARS UP WITH SEARCHES FOR METEORITES, NEUTRINOS, AND NEW LIFE FORMS

This season the National Science Foundation is supporting approximately 145 Antarctic investigations. The programmes include a series of cruises in the Southern Ocean to trace carbon cycling associated with plankton blooms; drilling to assess the stability of the massive ice sheets; and an expedition to search for more meteorites on the continent that yielded ALH84001, the now-famous meteorite from Mars that may contain fossil life.

CARBON AND CLIMATE IN THE SOUTHERN OCEAN

Scientists led by Robert Anderson of Columbia University and Walker Smith of the University of Tennessee are

attempting to understand the role of the Southern Ocean in the global cycle of carbon, and ultimately to predict the ocean's response to climate change.

Thirteen cruises aboard two ships will take place from September 1996 to March 1998 as part of a decade-long Joint Global Ocean Flux Study (JGOFS), a study of carbon in the world's oceans. This season's cruises will center mainly on the Ross Sea to study Antarctica's largest and most predictable spring bloom of phytoplankton in these waters, and its role in the carbon cycle. Two subsequent cruises will track carbon over the season, and investigate how trace metals, especially iron, affect plant production.

ICE DYNAMICS OF SEA LIFE

The seasonal growth and retreat of sea ice around Antarctica raises questions about how ice dynamics affect zooplankton and other animals in the ocean's topmost waters (the upper 100 metres).

Three cruises in the Weddell Sea and associated studies, under a project led by Kenneth Smith of the Scripps Institution of Oceanography, will track the ecology of zooplankton and micronekton over one year to capture how dramatic changes in sea-ice cover affect the animal populations. The project will develop an instrument to monitor populations at different depths and will launch a remotely-operated vehicle to sample and observe animals beneath the sea ice.

ANTARCTIC MARTIANS

The possibility that the Mars meteorite, ALH84001, found in Antarctica's Allan Hills may contain fossils of early life have attracted researchers to search for more. The team led by Ralph Harvey of Case Western Reserve University will return to the Allan Hills and will investigate other locations as well.

VOSTOK: THE WORLD'S DEEPEST AND OLDEST ICE CORE

Drilling to complete the world's deepest and oldest ice core will continue at Russia's Vostok Station in East Antarctica this season. Some 30 researchers from the United States, France, and Russia study the ice record which is expected to stretch back perhaps half a million years.

Studies of Vostok's ice have already shown a close link between climate over

THE EXTREMES OF ARCHEOBACTERIA

According to biologists, archeobacteria, which live in harsh environments, are one of the three major branches of life, in addition to bacteria and eukaryotes (the latter embracing plants, animals, and humans). Archea can live in places where no other life can endure such as very hot, salty or low oxygen environments. Recent studies, however, reveal that archea comprise more than 30 percent of biomass in waters off Palmer Station, the highest rates measured in the ocean. Edward DeLong of the University of California will lead a team to study the ecology and biology of archea in the region.

Antarctica is unrivaled in its abundance of meteorites. Since 1976, the Antarctic Search for Meteorites program has found more than 7800 specimens, including samples of the Moon and Mars, expanding knowledge of the primeval nebula that gave birth to the solar system.

the past 200,000 years and changing concentrations of greenhouse gasses in the atmosphere.

The drillers plan to halt at approximately 3650 metres depth, stopping above Lake Vostok, the subglacial lake beneath Vostok Station that is comparable in size to Lake Ontario with an average depth of 125 kilometres.

The lake, and any life it may harbor, have apparently been sealed off from the atmosphere for hundreds of thousands of years. According to the Montreal Antarctic Society newsletter some scien-

tists believe that if living organisms are found in the freezing temperatures and high pressures of the lake then this may indicate the possibility of the survival of microbial life in Mars.



FRANCE

FRANCE ASSISTS THE US TO RETRIEVE LOST \$10 MILLION TELESCOPE

Last year one of the world's largest solar telescopes circled over Antarctica, taking advantage of the 24-hour light, to image sunspots and to map associated magnetic fields which are believed to cause solar flares. The telescope, suspended from a giant balloon, was cut down above the

Adélie Coast, 1400 kilometres from McMurdo Station, but bad weather permitted only the data recorder to be retrieved. This season, the French Antarctic programme will assist the US by mounting a traverse to recover the balloon and the \$10-million telescope.



AUSTRALIA

AUSTRALIA'S ANTARCTIC PROGRAMME UNDER REVIEW

During the Tasmanian Governor's Forum on the Antarctic in Hobart in September, the new parliamentary secretary responsible for the Antarctic, Senator Ian Campbell, announced a review of Australia's Antarctic programme. He mentioned that there was considerable scope for more private sector involvement.

Monies raised by allowing companies to market Australian Antarctic products could be put back into research to help save and better understand the last great frontier. The AAPIS Mawson Huts Foundation (mentioned below) is an

example of how the private sector could contribute.

The Antarctic Science Advisory Committee (ASAC) has been asked to develop strategic options under the review, as well as to develop policies that will ensure the growth in Antarctic tourism is managed properly.

PLANS UNDERWAY TO CONSERVE MAWSON'S HUTS

March next year will see the official launch of a \$2m Australian appeal to conserve Mawson's Huts in the

Commonwealth Bay region. The initiative, which will be launched by Prime Minister Howard, was created by Australia's news, information and communications group, AAP. Funds for the AAP Mawson's Huts

Foundation' are being raised to take a 12 person team to the site in December 1997. These include the sale of a special bank note with Sir Douglas Mawson's portrait, a special one ounce gold coin and silver medallions.

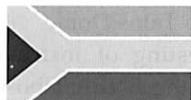
ANTARCTIC VOYAGE FOCUSES ON OCEAN CURRENTS' EFFECT ON WORLD CLIMATE

Australia's first Antarctic voyage of the season was a 34 day international study during September on the effect of global ocean currents on the Earth's climate. On board *Aurora Australis* were 57 passengers, including 16 members of wintering party for Macquarie Island. The voyage not only saw the annual station changeover and resupply but also important research programs, including bathymetric work, continuing monitoring of seals and penguins, and studies of ozone-depleted stratospheric air — of relevance to ozone-depleted air now found over southern Australia.

The voyage also represented the final stage of Australia's contribution to the World Ocean Current Experiment

(WOCE) which has seen scientists from 40 nations collaborate in a global study of oceans. Scientists from the CSIRO Division of Oceanography, the Australian Antarctic Division, the Antarctic CRC and other Australian and overseas institutions undertook a series of experiments aimed at determining currents and properties of the waters of the Southern Ocean between Australian and Antarctica.

Other experiments carried out on the ship included a survey of fish and plankton, measurements of carbon dioxide in the Southern Ocean, together with a survey of floating ocean debris to determine their origin, ecological significance and fate..



SOUTH AFRICA

SOUTH AFRICA NEW ZEALAND ANTARCTIC CRUISE (SANZAC) PLANNED FOR SUMMER 1998/9

Dr Denzil Miller of the Sea Fisheries Institute in Cape Town South Africa visited Christchurch last month to outline plans for a joint research cruise using the South African ice-breaker *MV Agulhas*.

The 90 day South Africa New

Zealand Antarctic Cruise (SANZAC) expedition results directly from a joint statement of Antarctic cooperation signed a year ago by South African President Nelson Mandela and New Zealand Prime Minister Jim Bolger.

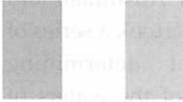
The expedition will involve scientists

from New Zealand universities and Crown research institutes in collaborative studies of Southern Ocean fronts and predator-prey relationships in the sea ice ecosystem, concentrating on krill, penguins and seals. It has been 16 years since New Zealand scientists last operated an Antarctic research ship.

South Africa has three bases on the continent plus an ice-breaker, two aircraft and 85 scientists dedicated to its programme. SANAE IV, South Africa's new base in East Antarctica which

opens next month, will be the first South African Antarctic base with facilities for women.

A large expense for South Africa in Antarctica is the removal of SANAE III. Since its establishment in 1979, Sanae III has sunk 20 metres into the snow and ice making its removal a difficult and expensive task. The joint venture between South Africa and New Zealand will enable both countries to share Antarctic scientific expertise and help reduce costs.



ITALY

ITALIAN NATIONAL ANTARCTIC RESEARCH PROGRAMME

There will be a few firsts in this seasons 46.3 billion Lire (NZ\$425,000) funded Italian programme.

In October an Italian Military Airforce C-130 aircraft flew to Antarctica to start up operations with a turnover of staff.

Scientists will implement an important geological research programme as well as other research activities in the Terra Nova Bay area. And, for the first time in an Italian expedition, a light aircraft will be used to support scientific research and logistics.

On-going activities will increase during the establishment of the drilling camp for the European Polar Ice Coring in Antarctica programme at Dome C

and the creation of the joint Italian-French Concordia Station. It is hoped that this base will become a European Station.

The first season of the ITASE (International Trans-Antarctic Scientific Expedition) Programme will be carried out with an initial leg of over 600 km from Terra Nova Bay to Talos Dome.

Finally, real-scale testing of instrumentation, certified at the ENEA laboratories, will be carried out on board the Russian Geophysika stratospheric aircraft for the Airborne Polar Experiment project. Over the next two months the tests will be followed by the main programme in both the Arctic and Antarctic.

EDUCATION

ANTARCTIC SCHOLARS BREAK 25 YEAR TRADITION

Over 200 people visiting the ice this summer have broken a 25 year tradition of holding training near Tekapo, New Zealand. Instead they are attending the University of Canterbury for orientation and theoretical lectures, and the Antarctic Centre for training in communications, fire fighting, first aid and field work.

Tim Higham at Antarctica New Zealand explained that the changes were made to focus training on areas where it was most needed and give it a more scientific focus. "Trainee scientists especially appreciate the change", he said, "such as the three science graduates who won scholarships from

Canterbury and Auckland Universities this year".

Canterbury University graduate, Edward Butler, and Auckland University graduates, Cindy Baker and Hilary Miller, all won scholarships to conduct research in Antarctica this summer.

Edward will use the \$20,000 New Zealand Post sponsored award to determine the past extent of the Antarctic ice sheet; Cindy will use her \$10,000 Kelly Tarlton's award to study how Antarctic fish sense water currents; and Hilary will use her \$10,000 Antarctica New Zealand award to detect low levels of marine pollution through changes in fish genes.

CANADIAN ARCTIC-ANTARCTIC EXCHANGE PROGRAMME

Now underway is the new Canadian Arctic-Antarctic Exchange Programme aimed at encouraging collaboration among Canadian and non-Canadian Antarctic scientists wishing to undertake joint studies in the respective polar regions.

Canada has an increasing interest and role in the Antarctic scientific community and this exchange programme will help to consolidate Canada's international commitments.

The Polar Continental Shelf Project (PCSP) currently provides logistic support on a no cost or cost-shared basis to Canadian government, university and independent research scientists working in the Canadian Arctic. Services to scientists from other countries are provided on a full cost recovery basis.

Beginning with the 1997 Arctic field, PCSP accepts applications from Canadian scientists wishing to sponsor Antarctic partners. Once a proposal is approved the non-Canadian collaborators would be eligible for the same type of logistics support from PCSP as all Canadian scientists.

ANTARCTIC EDUCATION EXPANDS WITH LEARNZ AND NSF TEA

Since the information about Antarctic education programmes appeared on the Internet World Wide Web, those offering courses have been swamped with applications from people all around the world.

LEARNZ — Linking Education with Antarctic Research in New Zealand — is a multimedia, contextual education programme developed in association with researchers and experienced teachers. Students whose schools have registered with LEARNZ have a number of opportunities to interact via live audioconferences both from within New Zealand and directly from field locations in Antarctica. Experts in science and Antarctic logistics participate in these audioconferences.

Each year a teacher gets the opportunity to join the LEARNZ experts on the ice. Photographed with Project manager, Pete Sommerville, is primary teacher Ms Sue Graham who recently spent two weeks in Antarctica and talked during nine audioconferences with New Zealand students enrolled with the LEARNZ programme. From a refrigerated container camp on the sea ice, where scientist Tim Haskill and his team are investigating sea ice properties, to Cape Bird where Fiona Hunter and her team are monitoring a colony of Adélie Penguins, Sue and Pete spoke directly with primary and secondary students. The teacher selected for the 1997 programme is Ms Pauline Donaldson of St Georges Prep School in Wanganui.



Primary teacher Ms Sue Graham and LEARNZ project manager, Peter Sommerville, Antarctica 1996.

National Science Foundation Teacher Experience in Antarctica (NSF TEA) program began in 1992 as part of the effort to make Antarctic research more accessible to the public. This year 22 teachers were nominated for the six slots available. Those selected will spend three to four week stints working with research scientists at one of several Antarctic research stations or on one of the NSF's research vessels.

THE NSF ANTARCTIC TRAIL

Part of the US Antarctic Polar Information Programme, is the compilation of an interactive CD-ROM on The

Antarctic Trail (Live from Antarctica 2). Field team members are currently on the ice creating an electronic field trip which aims to simulate the challenges faced by living and working in the Antarctic. Field team members will try to understand the type of constraints and logistical considerations that scientists and support personnel face on the ice each year.

In January and February, 'Live from Antarctica-2' will connect US students interactively via television and the Internet with researchers in the Antarctic Peninsula region and on the *R/V Polar Duke*.

KERSHAW'S KIDS PROGRAMME

For two weeks over the Christmas period six under-privileged children from Poland, UK and the US, between the ages of 14 and 17, will be visiting Patriot Hills in Antarctica free of charge.

The Kershaw Kids Programme started in 1995 in celebration of Adventure Network's 10th anniversary of operations in the Antarctic. It was so successful that the company hopes to continue the programme into the future.

TOURISM

NEW SNOW AND ICE EXPERIENCE OPENS AT THE ANTARCTIC CENTRE



Known as the 'Gateway to the Antarctica', the award winning Christchurch, New Zealand based International Antarctic Centre unveiled a new world-first attraction for visitors last month.

Along with its high tech audio visuals, interactive exhibits and live displays, the new Snow and Ice Experience' at the Antarctic Visitor Centre enables visitors to feel what it is

actually like to be in Antarctica. A virtual reality room has been filled with 50 tonnes of real snow made from a mix of water and nitrogen.

In controlled freezing sub-zero temperatures and biting winds visitors will be able to explore a snow cave, toboggan downhill and enjoy some wintry fun. Available all year round the new attraction should prove popular to all visitors.

"Asian travellers in particular are keen to touch and play with real snow, and surprisingly, nearly 75% of tourists from

our closest neighbour, Australia, have never been in snow", said Centre Manager, Richard Benton. "We believe this is a world first for the Centre, and we're sure it will add a new dimension to the Antarctic Experience for our visitors".

The \$7 million Visitor Centre at the International Antarctic Centre was opened in 1992 by British botanist, Professor David Bellamy, and since then has averaged 200,000 visitors each year. In November 1992 it won the New Zealand Tourism Board's award for Best Tourist Attraction.

QANTAS FLIES OVER ANTARCTICA

Since Qantas reintroduced Antarctic day flights two years ago, the first since 1979, thousands of passengers have been awe inspired by Antarctica's grandeur. The 15 flight Antarctica Programme in conjunction with Australia's Croydon Travel was the winner of the Environmental Tourism Category in the Victorian Tourism Awards 1995.

During this summer Croydon Travel and Qantas will operate a series of flights which have been scheduled from December 1996 through to February 1997. This year the programme will incorporate flights direct from Melbourne, Sydney and Perth aboard the latest Boeing 747-400 aircraft. The day trips take 11.5 to 12.5 hours.

Qantas has planned 16 different routings to take advantage of the best weather conditions. Passengers normally fly over the South Magnetic Pole, the French Base at Dumont d'Urville, Mawson's Hut at Commonwealth Bay, two glaciers and the rugged mountains of the Transantarctic and Admiralty Ranges. The aircraft will fly figure eights over various points to allow the sights to be viewed on both sides of the aircraft.

ECHOES OF THE PAST

Antarctic takes you back 40 years with a December 1956 article describing the commencement of Operation Deep Freeze II...

"FIRST SINCE SCOTT"

"A ski-equipped US Navy Dakota piloted by Commander C Shinn touched down at the Pole at 8.34 pm on October 31 while a Globemaster droned overhead on safety station. No difficul-

ties were reported. First man to set food on the hard dry snow was Rear-Admiral George F. Dufek. He was followed by six others.

The small party left radar reflectors

and other navigational aids such as trail-flags embedded in the ice. The temperature was — 58 deg F. During the short time necessary to hack a hole for the flying of the Stars and Stripes, Captain Cordiner's cheeks and nose went completely white.

Forty-nine minutes after landing an attempt was made to commence the return flight, but the Dakota's skis were found to be frozen to the polar ice. The pilot revved the engines to full throttle but the plane would not move. Horrified watchers on the circling Globemaster then saw the Dakota suddenly disappear in a huge cloud of smoke and flame and thought that the plane had blown up. Actually, Commander Shinn had fired four of his fifteen JATO (jet assisted take-off) bottles, but without result."

"IF YOU CAN'T GET OFF"

"Another four bottles, and a slight tremor ran through the plane. In quick succession the pilot fired his remaining seven bottles, the plane lurched, and staggered into the air at a mere 60 knots. The spent JATO bottles and 120 gallons of petrol were dumped; the plane gathered speed, and headed for the north.

Admiral Dufek was invalided to Christchurch on November 4, suffering from a severe bronchial chill, and was ordered to bed at Wigram for two days. The Admiral told reporters that Major C J Ellen, commander of the supporting Globemaster had radioed over the Pole, "If you cannot get off I will crash-land alongside you and you will have a house to live in." This, said the admiral, was mighty comforting'."

From Antarctic Volume 1, Number 4

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MEMORY MOMENTS RELIVED

BRITISH COMMONWEALTH TRANS-ANTARCTIC EXPEDITION

Aircraft pilot, Bill Cranfield remembers two particular flights back in 1957 when he supported the British Commonwealth Trans-Antarctic Expedition — one with Sir Edmund Hillary and the other with a petrified seal:

“The other day, Sir Edmund Hillary and I recalled a particular flight in the Auster during the Trans-Antarctic Expedition. We were taking a look at an area on the plateau behind the mountains and, after an hour and a half, with icy cold winds blowing through the aircraft, our feet were getting very cold and, for some reason, cold feet makes you want to urinate!” said Bill.

“We were coming home and Ed got to the stage when he was desperate. Minutes later, so was I. There was an emergency measure in the aircraft (a water bottle) but the thick layers of down clothing ruled that option out. We were flying over Hobs Glacier, at the foot of the Western Islands under Mount Lister. It looked a safe bet so we called the base to say that we were landing for a pee stop. There was stunned silence at the other end . . .”

“The plane was still running when we landed — as it may not have started up again in the cold — and we called to say that we were okay. Back at base we arrived to find a very unhappy squadron leader who would have preferred it if we had crossed our legs . . . or something other than what we did!” exclaimed Bill.

“The most traumatic time I had during the expedition,” continued Bill, “was when I had to fly a petrified seal from the Dry Valley area in the Auster back to Scott Base for scientific study. Although the 2000 year old solid six foot seal was strapped beside me, it slipped forward when we were in the air. Being a dual aeroplane it had dual controls and by slipping forward its flippers jammed under the control column thereby making it impossible to get the tail down enough for a controlled landing. Fortunately I could just about fly level.

I spent about 40 minutes trying to get control of the aeroplane without success and I was terrified about how I was going to land, but somehow, at high speed, I managed it. It nearly killed me.”

ADMIRAL RICHARD E BYRD

A personal reminiscence by Alton A. Lindsey, Emeritus Professor of Biology, Purdue University and member of Byrd's Antarctic Expedition 1933 (BAE 2)

Richard E. Byrd was widely respected during his lifetime and afterward. Since “the higher one gets the harder the wind

blows” he has also been criticised, even vilified, but almost exclusively by those who never visited Byrd's arena of action.

No one else on Earth, during the depths of the Great Depression, could have raised the funds and donations of supplies and equipment to mount an ambitious scientific/technological expedition like BAE 2. That it was a privately supported project, for which he went deeply into debt in the hope of a recovery supported by books, documentaries, radio shows and lectures, evidences Byrd's faith and courage.

In his speaking and writing, Byrd always emphasised the vital role of his men in the success of his expeditions. The men of the ice parties and ships came from two basic categories, the tattooed and the non-tattooed. The tattooed were sailors, mechanics, sail-makers and artisans who were indis-



Admiral R. E. Byrd.

pensable for keeping things on a continuous even keel. The non-tattooed were aviation pilots and navigators, scientists, physicians and other professionals who had not previously had many opportunities to interact with non-professionals. On the expeditions, men of both groups learned to appreciate each other's qualities and viewpoints.

Rear-view critics have surmised that Byrd was overly aloof towards his men. My sense was that he was properly reserved, leading from out front and doing his job well. I never heard one of his men say that Byrd was aloof or unsympathetic.

What sort of man was capable of weaving the personal and logistical strands of an expedition together? First he was an aviator, but he was far more.



Admiral R. E. Byrd (centre) returning to Little America after an exploratory flight in 1934

— Photograph by A. A. Lindsey

The public perception of him was as Admiral of the frozen lands and seas, not as a Virginian aristocrat living on Boston's historic Beacon Hill. His was a complex and many-faceted personality, but he was no scientist and never claimed to be one. He became the supreme organiser and a visionary who made a continent nearly safe for those who followed him there.

His flights over the Atlantic and the Poles led some to consider him a stuntman, but he outgrew his propensity for headline grabbing and adopted scientific and geographic contributions as his objectives. In mid-career a major personal objective was delineating the longest stretch of unknown coast on earth, east of Marie Byrd Land. His solitary winter at Advance Base, which some interpreted as showmanship, yielded an

invaluable unbroken meteorological record, despite illness and hazards.

The second Byrd expedition formed the historic dividing line between dog teams, wooden ships and iron men and the modern era. Byrd's successful adaptation of mechanical air and land transport started the trend to prolonged research cruises, permanent bases and aircraft-delivered supplies. Although a non-governmental project, BAE 2 was quite equivalent in the public mind with the Apollo space programme of the next generation.

The Antarctic Continent is now by far the largest area on the planet dedicated as an international scientific reserve and peace park. It was the work of Byrd and his multi-national associates in the Antarctic, which, in large measure made this outcome possible.

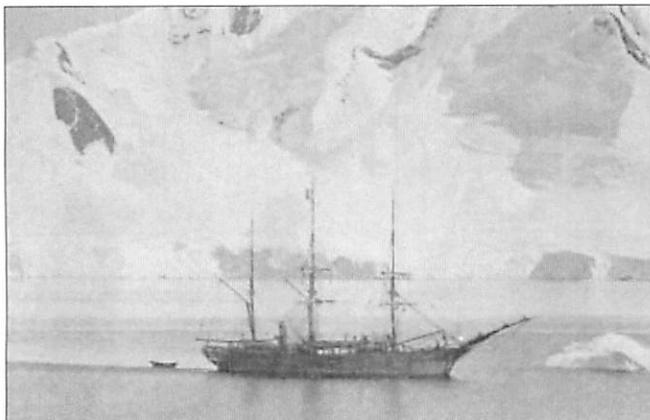
HISTORICAL

THE RIDDLE OF THE ANTARCTIC PENINSULA

By David E. Yelverton FRGS. Part I: Pioneers of the Antarctic Night: The Story of the Belgian Antarctic Expedition 1897-9.

Adrien de Gerlache de Gomery, a young Belgian naval lieutenant, had campaigned for years for a Belgian Antarctic Expedition. Smitten with antarctic fever in the 1880's he had obtained his first backer in 1894 and, like Roald Amundsen, sailed with Greenland whalers the following year to gain experience in ice-infested waters. Returning in the wake of the 1895 International Geographical Congress in London he had won the backing of the Royal Belgian Geographical Society, and by the following summer got promises of £3,000

from the public, plus £4,000 from the government, but no actual cash. Taking out a sizeable loan (£2,700) he set off to acquire and modify a Norwegian whaler, a task that took him a year. But public support was as thin as it was to be for the British and German expeditions that would only be viably funded four years later. In the end De Gerlache, as the world better knows him, was only able to sail in August 1897 because at the last moment his government increased its grant to more than half the eventual £11,900 cost of the expedition.(a) See notes on page 153.



Belgica in Neumayer channel below Mt. William. (Schepens, Brussels 1904)

Owing to the poor season he bought the whaler *Patria* for a small amount which he had first encountered off Greenland.

Accompanied by Lt. Emile Danco, released from the artillery to act as magnetician, he remained in Norway to supervise the overhaul and modification of the ship at the Christensen wharf at Sandefjord, including a new boiler and propeller, along with installation of laboratories and the oceanographic gear donated by the Danish Navy at the instigation of Cdr Christian Wandel, their Hydrographer. When work stopped for the winter, de Gerlache took time off from his heavy schedule of correspondence to learn ski and snow-shoe use.

Guided and advised by Arctic explorers Nansen, Sverdrup, Johansen and the Austrian Count Weyprecht (of the Tegethoff Expedition), he had the ship ready by June

1897, renamed her *Belgica* and, after visits from Sir Clements Markham and Nansen, sailed from Sandefjord on the 26th with Danco and his newest volunteer Amundsen, along with two mechanics and four sailors.(b)

After picking up instruments and supplies at Frederikshavn in the north of Denmark, a rough 4-day voyage brought them to

Vlissingen (Flushing) where Lt. Georges Lecoite, just released at De Gerlache's request to be second-in-command, met the ship on 2 July. Lecoite found the company totally exhausted, no one having slept at all during the voyage, or eaten for twenty-four hours because the trip had taken longer than expected. The next day they moved up the Schelde and anchored at Antwerp.

Faced with fund-raising diversions to



De Gerlache



Lecoite



*Cooks tent, showing Amundsen's and Lecointe's skis and Cooks snowshoes.
(Schepens, Brussels 1904)*

the last, De Gerlache could only assemble the remaining scientists from volunteers prepared to contribute rather than be paid. Emile-Georges Racovitza (29), a Rumanian, was accepted as zoologist and botanist; Henryk Arctowski (26), of Polish origin, would take charge of geology, oceanography and weather observations, and Louis Bernacchi (21), working at the Melbourne Observatory since 1895, would join as physicist for the second season. A young Polish student Antoine Dobrowolski, who volunteered to join without pay, was accepted as assistant meteorologist.

De Gerlache then had to find engineers and crew. He and Lecointe would sail with no powers of discipline or legal crew agreements as assisted the smooth running of a ship under British mercantile law. In the end, the heterogeneous crew De Gerlache did get together, "undisciplined and even dangerous". They were barely adequate, and even

less so controllable, though the worst deserted during preparations at Antwerp. Such was the nature of the locally recruited men that when Lecointe proposed exercises in manoeuvring the ship before leaving Antwerp for the better safety of all, De Gerlache had to decline because he knew his men would refuse any work outside this normal duties without extra payment.

The five Norwegian sailors that De Gerlache had taken on understood commands from 2nd Mate Amundsen, and De Gerlache had picked up some of their language. But the rest conversed in French. When the doctor withdrew, the problem was only resolved by the fortuitous arrival of a telegram from Dr. Frederick Cook (32) of Brooklyn, lately on Peary's first North Greenland expedition, who offered to contribute if he could join. De Gerlache cabled him to join them in Rio. Cook only spoke English and a smattering of German, so a third language was added which only

De Gerlache and 3rd Mate Jules Mélaerts could understand.

All was finally ready by 16 August, and after a grand official send-off and the playing of the national anthem, the 35 metre whaler, dressed overall, sailed at last amid a myriad yachts and sounding of sirens, only to have the boiler water pump break down once she was out to sea.

Putting back into Ostend, already a month behind schedule, King Leopold II who had hitherto held aloof from the expedition, came aboard without advance warning to inspect everything with minute interest, and addressed the whole company — some slight compensation for their troubles to date, but of no avail in stemming further crew problems which were to break out twice more before they reached the Antarctic.

One of the mechanics fell sick, and both the bosun and carpenter resigned because sailors were continually going ashore without leave. To replace them De Gerlache managed to get only two seamen from Antwerp.(c) The working complement, excluding the scientists, was just 19 comprising De Gerlache, the 3 officers, 2 engineers, steward, cook, 2 mechanics, and 9 sailors, of whom Tollefsen, the oldest Norwegian, was appointed bosun.

On the evening of 23 August, having waited for three days for winds to abate, they weighed anchor and lurched into the roughest of channel seas behind a tug, only feeling it safe to cast off when they were near the Isle of Wight. The weather remained tempestuous for ten days, so that they didn't reach Madeira until 11 September.

Sailing again on the 14th, De

Gerlache and Amundsen began to sort out the supplies and equipment to be landed at Cape Adare, for the plan was to use the southern summer of 1897-8 to explore southward in Weddell's tracks, and then sail to South Victoria Land to land De Gerlache, Amundsen, Danco and Arctowski to winter at the Cape and explore inland. The ship would re-provision at Melbourne and then pick them up early in 1899 after carrying out oceanographic work in the Pacific.

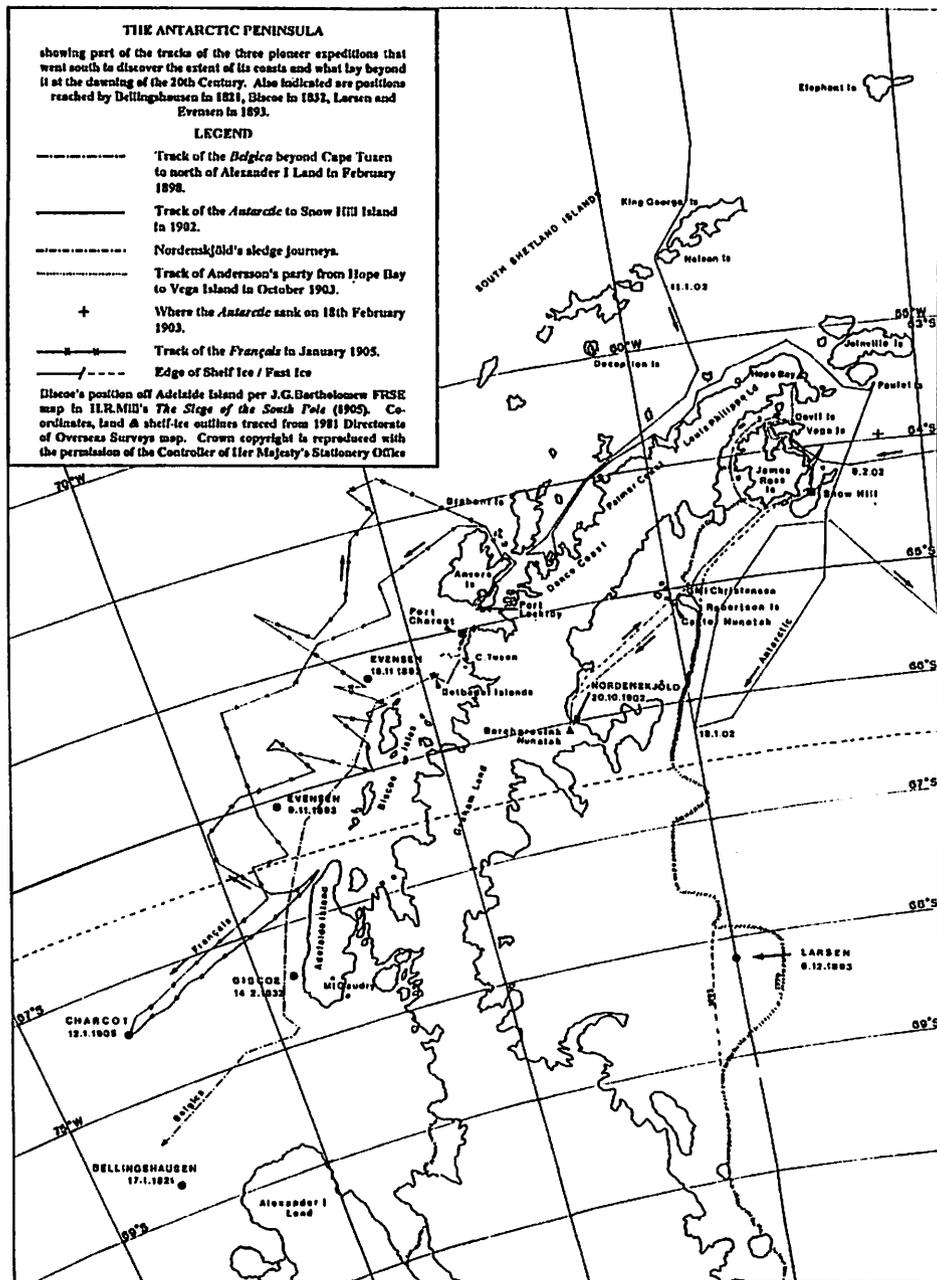
Taking five more weeks to reach Rio, where they picked up the enthusiastic Dr. Cook and enjoyed eight days of receptions and festivities, the *Belgica* did not reach Punta Arenas in the Magellan Straits until 1 December.

At Montevideo De Gerlache had had to sack the cook and, with near-fatal consequences later on, the Swedish replacement he took on fell ill the day they sailed and had to be put ashore at Punta Arenas. An ex-foreign legionnaire steward, Michotte, volunteered to take on the job. Within three days of arriving at the Chilean port, fresh trouble broke out and a chaotic period ended with De Gerlache bringing an armed police detachment aboard. When this news reached Europe, it reinforced Markham's conviction that the expedition should have been a naval one. (Two Belgian sailors and one of the mechanics were dismissed.)

About to plunge into the unknown, De Gerlache was left with a working complement of just 14, excluding Danco, Cook, Racovitz, Arctowski and the young Dobrowolski.(d)

They were at least five weeks late and the deck crew was dangerously small and inexperienced, four of them novices

ANTARCTIC JOURNEYS 1898 - 1905



21 years old or less, with only Tollefsen and Johansen to hold each watch together. It was only safe to sail further by virtue of the ship being equipped with Cunningham's patent furling topsails, which could be handled entirely from the deck without sending men aloft at all.

On top of this, De Gerlache had been faced with the need to accept offers of fresh meat and coal (despite picking up 100 tons shipped out from Belgium), and so had been forced to make a diversion through the difficult Beagle Channel to pick the meat up at Punta Arenas. It was clearly impossible to get to Victoria Land that season, so De Gerlache decided they could only visit Hughes Bay and try to get through from there to the Weddell Sea, going on afterwards to reach Melbourne in May, and stopping there for the winter. They would then land at Cape Adare the following season — it would all take no longer in total than the original plan envisaged, but the wintering on the Cape would have to be abandoned. (e)

Unknown to them, Sir Clements Markham had made the first announcement in London of Borchgrevink's expedition to the same place De Gerlache's party was aiming for — Cape Adare. After failing to get Nansen's support in his homeland, Borchgrevink had persuaded London publisher Sir George Newnes to back his expedition with almost three times the amount De Gerlache had raised for the Belgian expedition.

Leaving Punta Arenas on 13 Dec 1897, the diversion through the Magellan Straits and back had cost De Gerlache a month. They had taken on

NOTES

(a) £1500 would be recovered by sale of the ship.

(b) Lecoite (Au Pays des Manchots p19) refers to 4 sailors, but De Gerlache (Quinze Mois dans l'Antarctique p71) lists 5 Norwegians, one of which, Adam Tollefsen, is referred to as bosun by Lecoite p88.

(c) Gaston Dufour and Jean Van Mirlo, the latter assigned as apprentice mechanic.

(d) The working complement comprised De Gerlache (31), Lecoite (28), 2nd Offr Roald Amundsen (26), 3rd Offr Jules Mélaerts (22), Ch. Engr Henri Somers (34), 2nd Engr Max van Rysseberghe (19), Mechanic Jan Van Mirlo (20), Steward & Cook Louis Michotte, bosun Adam Tollefsen (31), 4 Norwegian sailors Ludwig Hjalmar Johansen (25), Engelbret Knudsen (21), August Wiencke (20), Johan Koren (18) & 1 Belgian Gustave-Gaston Dufour (21).

(e) There is some doubt about this because Lecoite (p132-3) relates that the new plan was to return to S. America for the winter, then head for the Weddell Sea if they had found good prospects to the south or, if not, carryout the original S. Victoria Land plan. But it seems unlikely De Gerlache would have slowed the first voyage south to take soundings across the Drake Strait if he had been intending to return that way.

another 45 tons of coal, mostly stacked on deck, the beef carcasses which they hung in the shrouds and, on the last stretch through the channel fresh water, the gaining of which nearly cost them their lives. Trying to enter an uncharted bay in darkness the ship ran aground, and for many hours was in danger of being completely wrecked. But with the aid of local indians they got her floated off without serious damage.

At last on 14 Jan 1898 l'Expédition Antarctique Belge, so nearly finished before it really started, stood out into the South Atlantic and headed the ship's bow towards the South Shetlands and

the Antarctic beyond. The opening raid upon Nature's white wilderness had got off to a shaky start.

To be continued next issue

TRIBUTES

SIR ROBIN IRVINE 1929 — 1996 CHAIRMAN OF ANTARCTICA NEW ZEALAND

One of my great privileges was knowing Sir Robin Irvine for the last five years. He was a man of high ability and made a major and lasting impression on every venture that he was involved in. His final years were marked by a focus of his extraordinary energy on Antarctica.

In 1993 he was appointed Chairperson of the Ross Dependency Research Committee (RDRC). As a man of action he soon became frustrated by the lack of "teeth" that characterised the decisions of this nominally important committee. As a result he became the driving force in the establishment of the New Zealand Antarctic Institute which, under an Act of Parliament, would have responsibilities superseding those of the RDRC.

At the time of his death he was Chairman of the Board of Directors of the Antarctic Institute (named "Antarctica New Zealand"), Chairman of the Board of the International Centre for Antarctic Information and Research (ICAIR), Chairman of the Board of Mercy Hospital and Deputy Chairman of the Board of the Institute of Environmental Science and Research, as well as being a trustee of the Antarctic

Heritage Trust, the National Library, the New Zealand Red Cross Foundation and a member of several other nationally important academic and educational governing boards, and trustee committees.

Sir Robin was a medical scientist by training and after several appointments in New Zealand and the UK he was appointed clinical Dean of the Medical School at the University of Otago in 1969. In 1973 he became Vice Chancellor of the University of Otago, the youngest appointment of this nature by the University this century. He held this post until 1993 when he became actively involved in Antarctica.

He was a tireless communicator and rapidly increased the profile of New Zealand's Antarctic programme in international affairs. Already strong links with the US Antarctic programme and with the British Antarctic Survey were enhanced and in particular he was very pleased to be given the opportunity to develop, for the first time, links with South Africa's National Antarctic Research Programme. At the time of his death New Zealand's Antarctic interests have seldom looked stronger: increases in government science funding for

Antarctica have been approved, ICAIR has developed as a UNEP GRID node for the South Pacific, Antarctica New Zealand is on a firm footing as the country's first self standing Antarctic Institute, SCAR related activities have

increased as have Gateway City interactions. Much of this can be ascribed to the energy and enthusiasm of Sir Robin. He is sorely missed.

By *Dr Clive Howard-Williams*
Board Member, Antarctica New Zealand.

IAN WALTER HARKESS

25 JANUARY 1941 — 18 OCTOBER 1996

The Society lost a loyal New Zealand member when Ian Harkess died of cancer in October this year. Ian came from a well known Lyttelton shipping family, and as a boy he had the opportunity to see many ships enter and leave the harbour, some of them destined for the Antarctic. His boyhood interest in ships and the Antarctic grew and never left him, even when he decided to follow a career in pharmacy and move to Christchurch, investing long hours in his Hornby Mall chemist shop.

Ian has been described as having a passion for Antarctica. He first visited the continent in 1964-65 as part of the University of Canterbury team studying Weddell seals, Adélie penguins and McCormick skuas in McMurdo Sound and Ross Island and was also with them the following year. Since then, he made about nine further trips, several aboard the *Tradewind* and the *Marco Polo*, and others on the *Akademik Shokalskiy*. A personal highlight was flying in Antarctica with Dick Smith.

Ian had a good photographic eye, and several of his Antarctic photographs were published in the *National Geographic*. His penguin shots delighted many when he arranged for them to be used on a special phonecard.



For many years Ian was a committee member for Canterbury Branch, and during the last few years was also National Back Issues Officer, generously storing the large collection at his home in West Melton. It was his desire to share his Antarctic and shipping interests with others that led Ian to arrange for a set of postcards of early Antarctic expedition ships to be made for the Society. His knowledge of stamps was also immense, especially relating to Antarctic issues.

Ian was a charming but very quiet

man, softly spoken, very thorough in everything he did, and seldom without a pleased smile of greeting. His second marriage in July to Linda Ann, who he had known for over a decade and a half, was a modestly kept secret, as were his

bouts of illness. We are glad that before illness finally forced him to slow down, Ian, with Linda Ann, had a magical trip to China and Tibet this April.

By Margaret Bradshaw, Society President

BOOK REVIEWS

"SILAS: THE ANTARCTIC DIARIES AND MEMOIRS OF CHARLES S WRIGHT"

(Edited by Colin Bull and Pat F. Wright; illustrated by Pat F. Wright). Ohio State University Press, Columbus, 1993.

It has been a privilege and a pleasure to read this remarkable collection of diaries, memoirs and letters which tell the story of Robert Falcon Scott's final journey to Antarctica, as seen through the eyes of Charles S. Wright, the expedition's Canadian physicist and glaciologist. Following in the fine tradition of accounts written by Scott himself, Edward Wilson, Apsley Cherry-Garrard, Frank Debenham, Teddy Evans, Tryggve Gran, Raymond Priestley and Griffith Taylor — to mention just a few — Wright has given another point of view and has helped to complete a picture of this extraordinary journey of exploration and scientific discovery.

The co-editor of this volume, Colin Bull, dean emeritus at the Ohio State University, who has himself conducted extensive glaciological and geophysical research in the Antarctic and Arctic, writes, "by no stretch of the imagination can he [Wright] be considered to have been a good diarist, but he was a careful observer, well trained as a scientist and

interested in a wide range of subjects, both of nature and of human beings". Wright published four monographs between 1921 and 1923, outlining his scientific discoveries, but the collection being reviewed has a much wider scope.

Detailing both his scientific discoveries and his reactions to the hardships and wonders of the expedition, Wright's story culminates in the dramatic search for the discovery of Scott and two other members of the party who perished on their return to base camp from the expedition to the Pole. It was Wright who first sighted the six inches or so tip of the tent and his descriptions of this discovery in his diary and memoirs are very moving. But there are also accounts of the journey to Antarctica, exploring the Western mountains, depot-laying, crossing the Barrier, climbing the Beardmore Glacier, and two winters at Cape Evans, which compliment other descriptions in a fascinating way.

But one cannot review this book

without making reference to both Colin Bull's outstanding editorial notes for they alone make the book compulsory reading for those interested in Antarctic exploration; and the exquisite illustrations — second only to those of Edward Wilson — of the co-editor, Wright's second daughter, Pat — obviously a labour of love and accomplished during a long period of time. The book is excellently produced and would grace any library of Antarctic books.

I can recommend "Silas", without reservation, to any one interested in Antarctic exploration. Others will read the book but might find the scientific detail difficult to follow. The book should be part of any library which

holds an Antarctic collection and the proud possession of any person with an addiction for Antarctic books, particularly one like this reviewer who has had the opportunity to visit the Wright Valley in Antarctica and to view and admire the wonderful glaciers in this region.

Reviewed by Sir Robin Irvine

EDITORS NOTE:

This review was written shortly before Sir Robin died on 27 September 1996. Sir Robin was Chairman of the Board of Antarctica New Zealand and of ICAIR. Prior to that, he was the last Chairman of the Ross Dependency Research committee and Vice-Chancellor of Otago University.

ICY HERITAGE: THE HISTORIC SITES OF THE ROSS SEA REGION, ANTARCTICA

By David L Harrowfield. Published by Antarctic Heritage Trust: 1995

David Harrowfield and the Antarctic Heritage Trust (AHT) have done a great service towards preserving the early

human history of the Ross Sea region. "Icy Heritage" is the single best publication yet produced describing all the



The sledge at Cape Geology, 23 November 1959 — Bill Messerve



The rock hut at Cape Geology in 1911 — Tryggve Gran.

key historic sites, and their histories. The book is comprehensive, very well illustrated and yet concise. It is also inexpensive and hence will be accessible to all who want a quick reference book.

David Harrowfield has covered all the well known sites, such as the Discovery Hut on Hut Point, Scott's Hut at Cape Evans and Shackleton's Hut at Cape Royds. In addition, he has covered all the Cape Adare sites, Terra Nova Bay and the remote sites in Marie Byrd Land and southern Transantarctic Mountains. The description of the sites includes why they are significant and a short summary of visits and work done subsequently to protect the site. In summary, this is a register of historic sites, but in a popular and easily readable form.

The challenge that now needs to be taken up is to give protection to the

more modern historic sites. For example, are there specific buildings or features at McMurdo Station which should be preserved formally to reflect the 40 years of human habitation there? What conservation work should be directed to the T.A.E. mess hut at Scott Base? Hopefully we may look forward to an Icy Heritage Part 2 in the future.

This book is an excellent little publication. I would recommend it to anyone with an interest in Antarctic history.

Reviewed by Hugh Logan, Former Manager of New Zealand Antarctic Programme (recently renamed Antarctica New Zealand) & head of the Department of Conservation's Nelson Conservancy.

EDITORS NOTE:

This book is available from The Polar Bookshop at \$30 + post and packaging.

DAS BEDROHTE PARADIES (THE THREATENED PARADISE)

By Dr Sabine Schmidt

From January 1987 until January 1991 Greenpeace maintained a self-sufficient high-tech research station in Antarctica on Ross Island at Cape Evans. The purpose of this station was to provide a base from which it would be possible to establish a physical watch-dog presence in Antarctica, to monitor and to disseminate the effects of man-made contamination of the Antarctic environment, and to collect data and to carry out investigations in support of various international scientific research projects. This book is written in German and the author provides an informative and well written narrative of the daily life, activities, and experiences which she shared for two years in Antarctica with her three winter-over colleagues. It is a book which should appeal to anybody who has even a remote interest in Antarctica, and specifically to those who have visited or worked on Ross Island. The author displays a comprehensive and extensive knowledge of just about every aspect of life and survival in Antarctica and, if an English language version were available, this book might well be considered as required reading for anybody who is planning to visit Antarctica at some future date.

The book is divided into three main sections. The first section is primarily devoted to the preparation phase for the expedition, the sea voyage to Antarctica, and the settling-in process at Cape Evans. The reader is also introduced to the rather unorthodox publicity stunts employed by members of Greenpeace to

draw attention to events and situations which do not enjoy the approval of this organisation. One of these protest actions concerns a nearly suicidal attempt by the author and her colleagues to stop a Japanese whale-meat processing ship from reaching the catching fleet. Other publicity actions by the group, some of which are quite humorous when considered in context, involve incidents on Ross Island in protest against environmental contamination and the negligent disposal of rubbish at McMurdo Station.

The second section of the book is devoted to the daily routine and the winter activities during the months of perpetual darkness at Cape Evans. The author uses a narrative style which consists of a skilful blend of event documentation, historical and scientific facts, and her personal observations and feelings. The reader acquires a feeling of watching the winter-over group through a keyhole. Her descriptions are often so vivid that the reader vicariously joins the group and can almost hear the storm raging outside.

The final section of the book describes extended journeys undertaken by the group after the sun finally returns to Antarctica and the solidly frozen sea ice provides a bridge between Ross Island and the Antarctic continent. Among these excursions the author describes their visits to Vanda Station and the Dry Valleys, the continental ice shelf, and to many other places of interest on Ross Island. Throughout this section, as indeed throughout the book, the reader

is propelled through the pages by her obvious enthusiasm for her work and a compulsive love for the Antarctic.

The material in this book is well researched and beautifully presented. Careful attention has been given to the explanation of words and concepts that might not be known by the reader, such as an explanation of the origin of the catabatic wind and of the spectacular auroral displays. Local wisdom and weather indicators are also plentifully provided. Among these are such suggestions as "...avoid the crevassed terrain near Castle Rock . . ." and ". . . when you cannot see Mina Bluff from Scott Base then a storm is not far away. . .".

All in all, this is a most enjoyable and informative book. It is a shame that it has as yet not been translated into English.

By H. Andreas von Biel, Senior Physics Lecturer, Canterbury University, Christchurch.

NEW ZEALAND NAVAL HISTORY IN ANTARCTICA

Request for information

A book is being written by Brett Fotheringham (Scott Base Manager, 1991-92) about the New Zealand Navy's early involvement in Antarctica, concentrating primarily on the first *Endeavour* (ex. John Biscoe), which operated in Antarctica between 1956-1961. Brett would be keen to hear from any personnel who may have served on the *Endeavour* during this period, or who may have relevant information.

Contact him at:

Lieutenant Commander

Brett Fotheringham

HMNZS Tamaki, HMNZ Naval Base, Private Bag 32901, Devonport, Auckland.

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The New Zealand Antarctic Society acts as an information provider, educator and Antarctic watch dog, but it costs money.

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