ANTARCTIC

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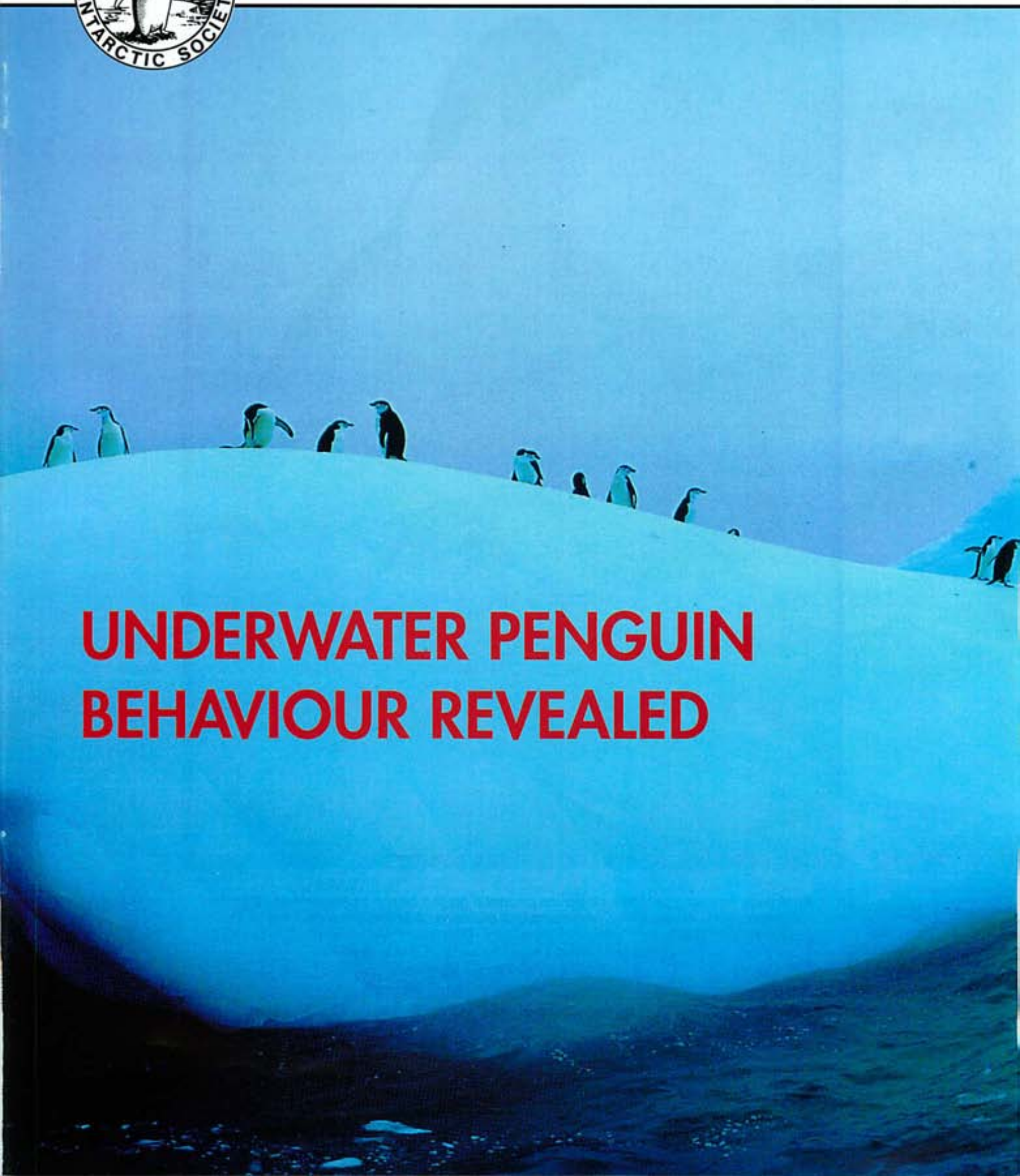
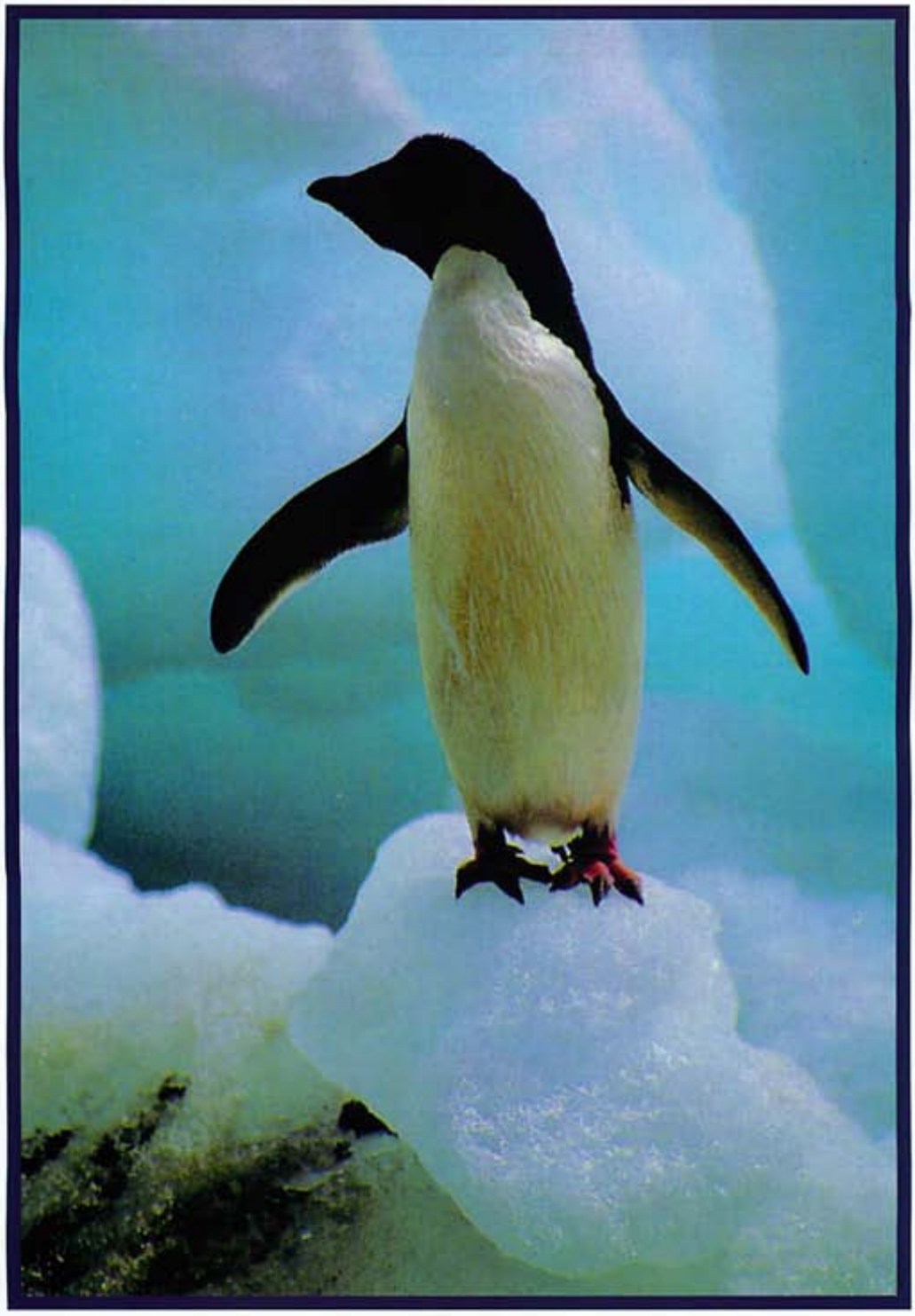


UNDERWATER PENGUIN BEHAVIOUR REVEALED



An Adelie penguin perches on an ice pedestal on the beach at Paulet Island in the Weddell Sea. Along with Chinstraps and Gentoos, Adelies are members of the Pygoscelis or "bristle-tail" genus of penguins. They use their stubby tail feathers for balance on land and as rudders in the water.
Photo by Colin Monteath.

ANTARCTIC

COVER

Perched on a rare blue-striped iceberg, drifting near the South Sandwich Islands, chinstrap penguins look down on a storm-tossed Scotia Sea. Photo by Colin Monteath.

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Polar Room finds a new home

David Harrowfield amongst his collection of Antarctic items in the Polar Room before its removal to the Canterbury Museum. Photo by Linton Photography Studios, Christchurch.

Canterbury Museum's world renowned collection of Antarctic artefacts was recently enhanced with the acquisition of nearly 1000 items from David Harrowfield's well known ***Polar Room***.

The room, which actually filled a large outdoor garage area, was a collection - rich with artefacts from the post TAE era. Its contents were carefully saved over the last 15 years by the former Antarctic Curator, but had outgrown storage capacity at his Christchurch home.

"I was becoming increasingly concerned at aspects of conservation and for the overall security of the collection, and aware of the Canterbury Museum's plan to create a much larger Antarctic Gallery, it was time for it to go" he said.

Up to four Museum technicians and Ethnologist Roger Fyfe, took over two weeks to document, pack and move the collection.

Included were sledges, signs, communications equipment, clothing, scientific instruments, parts of aircraft, camping equipment, furniture and many other objects reflecting New Zealand activities on the ice. There were also pieces of equipment from the American, Chinese and Russian Antarctic programmes as well.

When asked how he felt about relinquishing the collection, David who works at home said, "It was very sad to see it go, as in many ways it was my link to the outside world. However I also saw the collection as an extension of the Museum's magnificent material from the heroic era and it can now be enjoyed by a far greater number of people than when it was in my care and be looked after professionally.

"Looking back I had a wonderful time collecting and while I enjoyed the visits from many people over the years, I am certain I made the right decision."

Visitors to David's Polar Room had included Sir Edmund Hillary, the Hon Alexandra Shackleton, Paul Hargreaves, current Chair of the Board of Antarctica New Zealand and its CEO Lou Sanson. Also included were foreign diplomats, teachers and students, including, on one occasion, the entire group of graduate students from Gateway Antarctica and Professor Bryan Storey, when "a few of the students were lucky to have caviar and crayfish for afternoon tea; a change from the usual sausage rolls..."

Some of the gatherings in the Polar room were legendary and became part of the local 'folk history' and for that reason primarily the collection will be missed by David.

However, with this space now available and following completion of his book to mark 50 years of New Zealand and the Antarctic, David is adamant that he won't start another collection.

UNDERWATER PENGUIN BEHAVIOUR

Scientists from the British Antarctic Survey (BAS) and the National Institute of Polar Research in Tokyo, Japan, have recorded observations of penguin behaviour underwater via an underwater camera. The BAS Club Newsletter reported in volume 53, a miniature digital camera was attached to the backs of five Chinstrap penguins and five Adelie penguins breeding at their colonies at Signy Island. The tiny camera was developed to allow scientists to observe underwater feeding activities without affecting the bird's natural behaviour. It is carefully removed when the penguin returns to its chick, usually after one to three days. Until now, underwater behaviour in penguins has been almost impossible to record because of the difficulty in tracking them at sea where they may act unnaturally in the presence of a diver and where they can swim at speeds of over 8 km/hr. The first pictures seem to reveal that penguins mainly forage in groups while at sea collecting food for their chicks.

NEW MAP OF ROSS ISLAND

A new map of Ross Island at a scale of 1:100,000 has recently been produced and published by Gateway Antarctica. The map comes folded down to a convenient 14cm x 26cm size and unfolded measures a large A0. The full colour map features the history of Ross Island on its reverse and includes beautiful colour photos of the historic huts of Ross Island and both the US McMurdo Station and NZ Scott Base.

Details and order forms can be found at: www.anta.canterbury.ac.nz/publications.

CHRISTCHURCH Celebrations

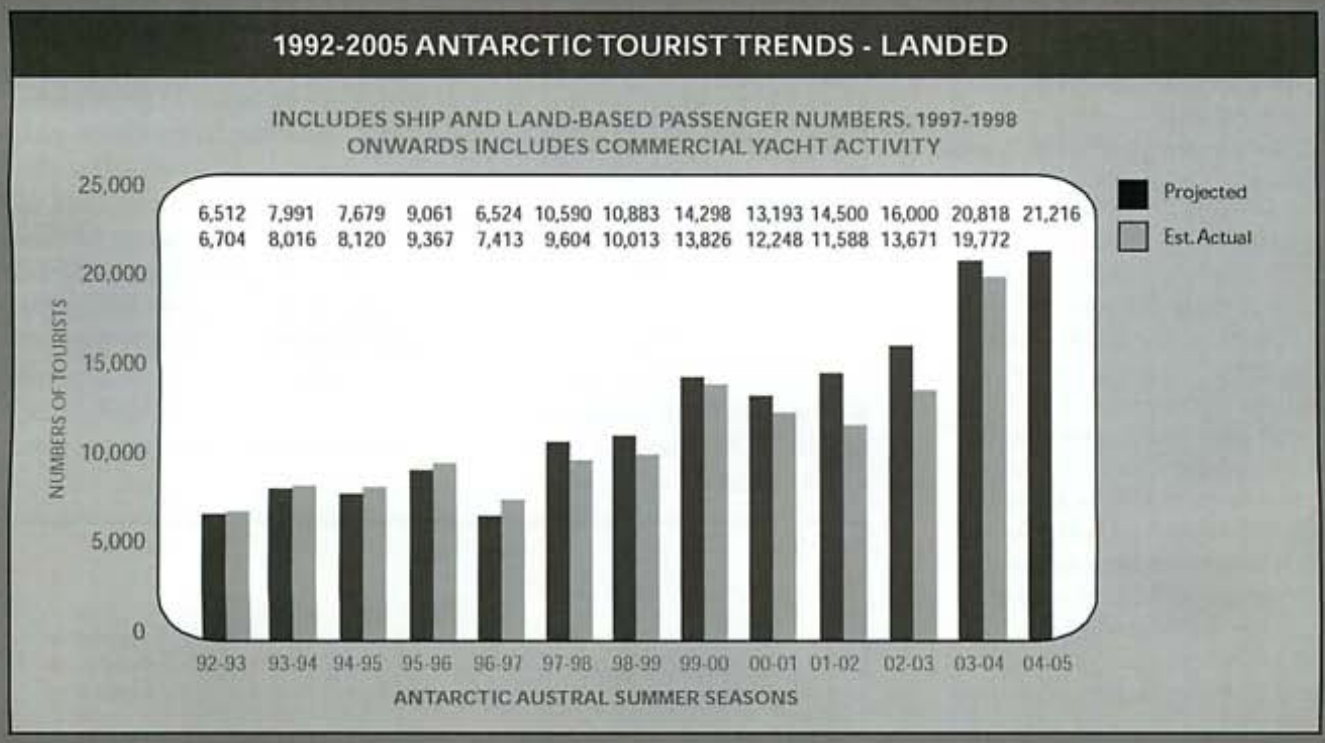
The City of Christchurch, New Zealand, recently celebrated the start of another Antarctic research season with the help of the Christchurch City Council (CCC) and the member organisations of Antarctic Link Canterbury (ALC). CCC and ALC put together a week's worth of Antarctic related events as part of the Antarctic Seasoning Opening Programme which ran from 1 – 9 October. There were special activities at the Canterbury Museum, the ChristChurch Cathedral and at the International Antarctic Centre campus-the home of the New Zealand, Italian and US Antarctic Programmes. One of the highlights of the programme was the Haglund Charity Challenge held at the Antarctic Attraction at the International Antarctic Centre. The challenge was for teams of 8 people to pull a Haglund through the course in the best time. The event raised $2000 for the Rainbow Charity Trust and the winning team, the Wharenui Swimming Club & Sports Centre team, received $500 and the Mayor's Haglund Trophy. The CCC and ALC will host an Antarctic festival in Christchurch in October 2006 celebrating Christchurch's many links with Antarctica.

The Raytheon Polar Team in extreme cold weather gear and and shorts compete in the Haglund Charity Challenge event.

Members of the competing teams pose for a group photo. The winning team are those in the red and blue t-shirts.

Ice Tourism Trends Higher

The Antarctic tourism season is underway. Tourism reports from IAATO (The International Association of Antarctica Tour Operators) since 1992 show an ever increasing trend in visitor numbers.



TRAGIC ACCIDENT AT MACKENNA PASS

A vehicle with seven persons on board fell into a crevasse on September 28 2005, in the vicinity of MacKenna Pass, 17 km from the Chilean Base O' Higgins in the Antarctic Peninsula according to Chilean sources. The vehicle was part of a patrol led by Lt. Colonel Mauricio Toro Pardo as it was on its way back to the O' Higgins Base after having carried out research and refuge maintenance activities. The accident occurred in good weather conditions and the patrol was travelling along the same route they had taken earlier. The obstacles along the route had been located by GPS.

The Commander of O'Higgins Base, stated that four of the crew had been rescued, but the other three were trapped in the vehicle. They are Captain Enrique Encina Gallardo, explorer, NCO Fernando Burboa Reyes, driver, and NCO Jorge Basualto Bravo, mechanic and radio operator.

A Chilean Air Force Twin Otter had taken off 28 September from the Teniente Marsh airport to carry out an evacuation, but had had to return to base because of worsening visibility conditions. However, on 30 September the Chilean Army announced that the three members of the Chilean patrol trapped in the crevasse had not survived the accident. The bodies of the deceased were recovered and flown to Punta Arenas.

Tragic Accident on 25 de Mayo Island

Five people from the Argentine base Jubany were caught in a crevasse field on 25 de Mayo Island on the morning of 17 September 2005, as they were coming back from the Uruguayan base General Artigas, after routine operations there. 25 de Mayo Island is near the Antarctic Peninsula where the Argentines, Chileans and Uruguayans all have bases. A snowmobile, with two people on board, fell into a crevasse. The two passengers, Teófilo González from the Argentine Navy and scientist, Augusto Thibaud, from the Argentine Antarctic Institute (Antarctic Directorate) were killed.

A search and rescue operation started immediately but had to be suspended in the afternoon due to bad weather conditions. Teams from the Chilean and Uruguayan bases responded to the emergency call, including a helicopter which flew over the area but had to return because of the weather. Also unsuccessful were the efforts made by personnel from the Korean station King Sejong to reach the area.

The three other members of the group, Captain Jorge Alejandro Pavon, Head of the Jubany base, Alejandro Carbajo and Mario Alberto Leonhardt, were rescued by a Chilean military helicopter and taken to the station in good health.

A Twin Otter airplane carrying a team of 6 rescue and glaciology experts left Marambio Base with a scheduled stop at Esperanza base to reach Frei base, from where they were to be taken by helicopter to the site of the accident. However, bad weather conditions prevented them from reaching Esperanza base. The second attempt was made on 19 September with an air force Hercules C130 plane flying from Air Force Base, El Palomar, on the Argentine mainland to the southernmost city of Ushuaia. The flight took 7 people, members of the 2nd Rescue Group of the Antarctic Army Command. The group reached Ushuaia and continued to the Chilean base, Frei, but they could not be taken to the accident site due to lack of sunlight. The area is affected by strongly adverse weather and visibility conditions.

On 20 September, the helicopters airlifted in ropes, ice anchors and other gear the rescuers from an Antarctic rescue unit planned to use in the difficult descent into the crack.

Up to the morning of 22 September, searchers dangling on ropes had attempted four times to find the two Argentine men. However, it was not until October 26 that the bodies were recovered, more than a month since the accident.

Sergio Policastro, a spokesman for the Antarctic command center in Buenos Aires, said Thibaud's body was found on 25 October at a depth of 180 feet (60m) by army experts on ropes. The second victim was found the next day, not far from the battered snowmobile the two men were riding on when they plunged through the crack in the ice.

Argentine officials said the bodies would be flown back to Buenos Aires, Argentina.

Source: Argentine Navy and Army.

WINNING DESIGN

The futuristic design by **Faber Maunsell and Hugh Broughton Architects** has won the competition for the new British Antarctic Survey (BAS) Halley Research Station. In a very close-run contest, three finalists presented their ideas to a Jury Panel, technical advisory panel and BAS scientists (see lay-out in *Antarctic, vol 23, no. 2 2005 pages 22-23;* design 3 is the winning design). Work on the design and the building contract will now begin. The first phase of construction at Halley will commence in January 2007 with handover to British Antarctic Survey in December 2008.

ANTARCTIC SEASON BEGINS FLAWLESSLY

The first flights of the main body season began without a hitch, releasing the winter-over teams at McMurdo, Scott Base and Amundsen-Scott South Pole stations recently. The first US Flight into Antarctica for 2005/06 left Christchurch on 4 October under good conditions. The first flight into the South Pole took place from Christchurch, via McMurdo, on 21 October. The South Pole crew included seven New Zealanders that were working for the Americans helping to fit out the new station.

ICEBERG GOES NORTH

The troubles caused by B-15 are now a thing of the past. The massive iceberg which calved off the Ross Ice Shelf in March 2000 is heading north, into warmer climes. The largest remnant of the initially 295km long and 37km wide iceberg, was B-15a, which became the largest moving object on planet Earth. In late October 2005, B-15a split into nine pieces and will soon disappear altogether.

Rare Opportunity for Arts Fellows

A composer and a photographer are the 2005/06 Antarctic Arts Fellows in Antarctica this summer through Antarctica New Zealand's Artists to Antarctica Programme. The Artists to Antarctica Programme is a joint initiative between Antarctica New Zealand and Creative New Zealand, and selects New Zealand artists who are prominent in their field.

"This scheme gives New Zealand artists a rare opportunity to experience the greatest wilderness on earth. The Arts Fellows interpret that inspiration and share their unique experience for the benefit of other New Zealanders," said Antarctica New Zealand CEO Lou Sanson.

"Creative New Zealand's partnership with Antarctica New Zealand has now been in place for eight years. It is an admirable example of how arts, science and the environment can come together in an imaginative way to support the creation of innovative New Zealand art," said Creative New Zealand Chief Executive Elizabeth Kerr."

This year top composer Gareth Farr is exploring the human stories associated with Antarctica. "I am particularly interested in the stories of great human endeavour, such as Robert Scott's South Pole expedition and the emotions inspired by Antarctica" said Farr. "These stories and emotions have huge and dramatic potential to inspire powerful music that people can relate to."

Photographer Megan Jenkinson's travel to Antarctica allows her to concentrate on the colours of Antarctica. " I want to produce works of art about the colours and light in a landscape predominantly regarded in terms of its whiteness", she said.

Previous Antarctic Fellows include poets Chris Orsman and Bernadette Hall, painters Nigel Brown, Margaret Elliot, Richard Thompson and Kathryn Madill and children's author Margaret Mahy.

SCOTT BASE PROJECT RECEIVES AWARD

The Leighs Construction Company team picked up the Hays Construction Award for Projects Under NZ$5m, the Placemakers Innovation Award, and the GIB/James Hardie Supreme Award in recognition of their work on the Hillary Field Centre at Scott Base. It is the first time in 15 years that the same entry has won all three of these awards.

Leighs completed the NZ$4.7m project in November 2004, 22 days ahead of schedule, with no accidents and within a "zero footprint' environmental policy.

It was the first construction project undertaken by a private company at Scott Base. Leighs not only managed the construction project, but procurement and logistical management. The sole shipment of materials and equipment, managed in conjunction with the United States Antarctic Program, was the single largest shipping requirement ever undertaken for the New Zealand Antarctic programme.

Because there was only one shipment, Leighs had to plan perfectly. The result is a beautiful and practical heated field store that is already being used by the New Zealand Antarctic programme.

ASMET TEAM UPDATE

The Antarctic Search for Meteorites (ASMET) program is in its 20th season searching for Antarctic meteorites, deploying a team of 15 people for the 2005-06 programme. ASMET is funded by the US National Science Foundation Office of Polar Programs and by NASA's Solar System Exploration Division and archives all its meteorites at NASA's Johnson Space Center in Houston. Planetary scientist Ralph Harvey of Case Western Reserve University heads the collecting expeditions.

The successful 2004-2005 meteorite collecting expedition added 1,230 meteorites to the world's collections. These include more than 300 pounds of "pallasite" meteorites — rare rocks originally from the core-mantle boundary of a small destroyed planet or a large asteroid. One pallasite, the largest ever found, weighed more than 70 pounds (32kgs). Over tens of thousands of years, phenomenal concentrations of meteorites have collected in Antarctica, as high as one meteorite per square metre in some places. The ASMET team hopes this will be another successful season.

This year the team will head for the Antarctic plateau inland of the Miller Range in the Transantarctic Mountains and set up base camp and spend five weeks there.

The meteorites are being used in many scientific investigations, including a research project reported in Environmental Chemistry (*vol 2, 215*) that suggests that early Earth (4.5 billion years ago) temperatures were approximately 500° C, which is about 200° C cooler than previous estimates. These estimates are obtained from analysing the elements found in Antarctic chondritic meteorites.

Antarctic Challenges: Historical and Current Perspectives on Otto Nordenskjold's Antarctic Expedition 1901-1903

Edited by Aant Elzinga, Torgny Nordin, David Turner and Urban Wrakberg (2004).

ISBN 91-852-52-64-6; ISSN 0347-4925. Price: 400 Swedish Crowns (NZ$70).

Review by Jon Stephenson
Townsville, Queensland.

This important, arresting book from Sweden (written in English), is a collection of papers from an international scientific symposium, sponsored by the University of Göteburg and the Royal Society of Arts and Sciences held in May 2001.

The recent symposium celebrated the centenary of Otto Nordenskjold's Swedish expedition, which sailed from Göteborg in the ship *Antarctic*. Otto served as the Permanent Secretary of the RSAS for fifteen years. His expedition is legendary - *Antarctic* was crushed and sank in the Weddell Sea attempting to relieve Nordenskjold's party after their first year on Snow Hill Island. Three parties of the expedition were isolated, with no knowledge of the others' situations. Nordenskjold and his men spent a second, unplanned winter at Snow Hill Island; Captain Larsen and the men from *Antarctic* wintered on Paulet Island; and three men, isolated at Hope Bay, were forced to winter there. Only one man died, from illness, on Paulet Island. In the spring, Nordenskjold and a companion unexpectedly encountered the three men from Hope Bay, making their way to Snow Hill. Soon after, men from an Argentine emergency relief ship, Uruguay, arrived to surprise Nordenskjold, back at Snow Hill. Then, unannounced, Larsen and some of his men next walked in, having crossed by boat from Paulet. These extraordinary reunions climaxed a most remarkable expedition.

The expedition was simultaneous with R.F.Scott's first *(Discovery)* expedition to the Ross Sea and Erich von Drygalski's *(Gauss)* expedition on the other side of the little-known continent. Nordenskjold's small group achieved some noteworthy scientific results.

All are concise and clearly written, well referenced, and contain a number of historic photographs (including one of Nordenskjold with Shackleton). Sweden has organised recent expeditions to revisit the region and the original expedition hut at Snow Hill still stands, well protected and maintained.

This book is both a fine tribute to the expedition and its remarkable men, and to the scientific work it achieved. People unfamiliar with the expedition should read Nordenskjold's warm account: "Antarctic: or two years amongst the ice of the South Pole" (translated in 1905, and republished).

This reviewer enjoyed all the papers. The book has maps and is a handsome production. The editors have taken special care, including some translation: the text is fluent and the length of the papers has been, somehow, 'controlled'! There is no index. It is difficult to nominate special highlights, necessarily having to ignoring others. However, geologists will appreciate Nordenskjold's vision on the importance of the fossils, which he and his colleagues found: this at a time when the nature of the Antarctic continent was still a mys-

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THE NEW BOOK CONTAINS 22 PAPERS, ARRANGED IN 4 PARTS. THESE ARE:

1. "Time Frames" concerning historic stages in the development of knowledge of Antarctica;
2. "Places and People", including Göteborg's civic culture around 1900; Recollections by Nordenskjold's youngest daughter; Nordenskjold's many missions and gender aspects about the expedition.
3. "The Scientific Core", including cartographic claims of knowledge and territory; physical oceanography; botany; geological prophecies; glaciation history contributions; meteorology and climate; ecology of penguins and fish.
4. "Scientific Internationalism, Nation States and Geopolitics", discussing international magnetic and meteorological cooperation in Antarctica, 1901-04; Nordenskjold's quest to internationalise south polar research; International law at the time including territorial acquisition.

Heads Turned South: New Zealanders' attitudes to the Antarctic

The importance of the Antarctic to New Zealand is recognised by most adults, if a recent survey conducted as part of study towards the Graduate Certificate in Antarctic Studies is anything to go by.

By Barrie Cook.

A telephone survey of people living in Wellington, Porirua, Lower Hutt and Upper Hutt, New Zealand, found that 86% saw the Antarctic as important to New Zealand, mainly for strategic reasons.

New Zealand's geographical position has ensured an association with the Antarctic since Captain James Cook's voyages of discovery in the late 1700s.

The country has a claim over an area called the Ross Dependency, it maintains a base within that territory and expresses its interests in various other ways. It is actively engaged in Antarctic Treaty issues, Antarctic science, exploratory fishing , and plays a gateway role for other nations, the USA and Italy in particular.

The NZ Government has made it clear it believes it is in the country's interests to be active in this way. Do New Zealanders agree? Do they care? It seems they do.

The first indication that they did was in people's response to being asked to agree to an interview. Telephone surveys are notorious for low response rates, yet this survey was an exception, with close to 90% of people contacted agreeing to an interview when told it was about the Antarctic. That in itself indicates goodwill towards the subject.

People were first asked what connections they thought New Zealand had *with* the Antarctic, with 93% mentioning at least one, and many mentioning several. Half identified scientific research as a connection, with Scott Base identified as the research base, while a quarter mentioned New Zealand's claim to the Ross Dependency or the responsibilities for and rights New Zealand has to the area.

Typical comments about the latter were "there's an area New Zealand is in charge of", "we look after the land and sea", "we have responsibilities for the place", and even "we own some of it". This indicates considerable awareness of New Zealand's territorial role and position and, to some extent, aspirations.

Some mentioned the simple geographical connection in that we are "the nearest country to it", service connections such as "planes go from Christchurch with provisions", and exploration and adventure connections such as "the Hillary expedition".

When asked how important they thought the Antarctic was to New Zealand, 61% said it was very important and 25% said it was quite important. This suggests not only a high awareness of the association but an affirmation of it, indicating that the Antarctic has a place in people's minds and is part of the New Zealand identity. Only eight per cent said it was not very important or not at all important.

Given that science was seen as the main connection, simple logic might have it that science would be seen as the main reason why it was important. However, the number one reason given was that it is important for New Zealand's strategic interests.

People made comments such as "we need to keep an eye on things", "a lot happens there that affects us", "we need to keep other nations honest", "it gives us more clout in terms of economic zone", and "if New Zealand wasn't there someone else would be".

It is obvious that there is an awareness that closeness means New Zealand needs to take an interest in what happens there. This in turn implies an awareness of what does already occur such as illegal fishing and what may occur, such as armed conflict over resources and territory.

Not far behind strategic reasons was science in the Antarctic in that "there's a lot we can learn from it", followed by environment in that "its a natural area", and climate in terms of "global warming".

Significantly, 12% said it was important to New Zealand because of resources such as fish, oil, coal, and water.

The small number who did not see it as important tended to do so because of their perception that there wasn't a lot down there, that it was "no good for living".

While an overwhelming majority said it was important to the country, only half said it was important to them. About a quarter said it was important to them because it was an unspoiled, natural area, and made comments such as "it is one of the last untouched areas" and "I want it kept unspoiled" and "there's a psychological benefit in knowing it's there".

Others said it was important to them because it was important to the world. "As a citizen of the world, I am concerned," said one respondent. Some said people had a responsibil-

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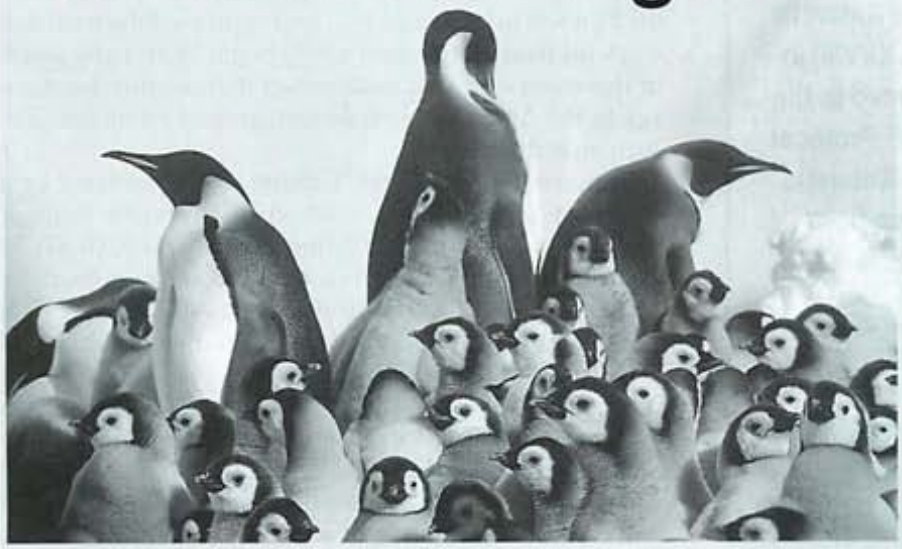
DNA Studies Suggest Emperor is Most Ancient of Penguins



Emperor penguins and chicks at Cape Crozier.
Copyright Antarctica NZ Pictorial Collection (ANBPEii).

Extracts from an article from the New York Times.

New research on penguin DNA suggests that the Emperor penguin has the most ancient lineage of all living penguins.

Penguins' ancestors most likely began their evolutionary march while dinosaurs still walked the earth. In a paper by researchers from the Royal Ontario Museum, to be published in The Proceedings of the Royal Society of London, Canadian scientists report on their gene investigation into the origin of penguins.

They analyzed segments from three genes, comparing their sequence in all 18 species of penguins and in other birds. Mutations can accumulate in genes at a fairly steady rate, so the variation between the species acted as sort of a molecular clock. The research reports that penguins diverged from the ancestors of petrels and albatrosses about 71 million years ago.

It's possible that the earliest penguins resembled petrels, which have short wings that help them dive as far as 240 feet underwater. Over time, penguins may have become more adapted to diving.

"That required sacrificing flight," Norberto Giannini, a biologist at the American Museum of Natural History says.

The question of how these early penguins gave rise to the living lineages has proved difficult. Early studies have suggested that emperors evolved recently. The new results show that emperors and king penguins belong to the oldest living lineage, while other species are more recent.

The Canadian researchers found that the penguin's common ancestor existed 40 million years ago - more than 30 million years after they think penguins evolved. "There is a big gap there," Dr. Pereira said. He proposed that most of the older fossils of penguins (some more than five feet tall) belonged to extinct branches of the tree.

The study also finds that the living species that belong to the oldest branches of the penguin tree - the gentoo, chinstrap and king penguins, along with the emperor penguins - can all be found around Antarctica.

Therefore, its probable that the ancestor of the modern penguins were in Antarctica or very close, but the early penguins did not have to survive the conditions on Antarctica as they do today as Antarctica was a much warmer place then.

Ice came later, about 35 million years ago as the ocean currents began to circle the continent, isolating it. This cooling climate may have killed off some penguins, but not all penguins became extinct.

The ancestors of the emperors and other residents of Antarctica evolved the ability to survive the new conditions.

Other penguins swam north to milder waters, where they founded new lineages. They may have followed ocean currents carrying cool, nutrient-rich waters northward where they established breeding grounds on new volcanic islands and branched off into new species.

The history of penguins - partly driven by a cooling climate - is now running in reverse. Ocean waters are warming, and it's hard for scientists to forecast how that will affect penguins.

Adelie penguins feed on krill that feed on algae that grows on ice. Adelie penguins have decreased by 70 percent over the past 30 years off the Antarctic peninsula, possibly as a result of retreating sea ice. They are being replaced by booming populations of chinstrap and gentoo penguins, which can switch from eating krill to fish and squid.

Adelie penguin.
Photo by Peter Harper.

Agreement to a Liability Annex to the Protocol

Antarctic Treaty parties attending the Antarctic Treaty Consultative Meeting (ATCM XXVIII) in Stockholm from 6-17 June 2005, agreed to the adoption of a Sixth Annex to the 1991 Protocol on Environmental Protection to the Antarctic Treaty addressing *Liability Arising from Environmental Emergencies.*

Below from left to right: Mark Simonoff, Legal Counsel, US State Department; Don MacKay, Chairman; John Dudeney, Deputy Director BAS.

By Alan D. Hemmings.

This Annex is the first new legal instrument adopted under the Antarctic Treaty System since 1991, when the Protocol itself was adopted, and is the product of prolonged and complex negotiations since the XVII ATCM in Venice in 1992.

The obligation to develop a liability regime stems from Article 16 of the Protocol, wherein "Parties undertake to elaborate rules and procedures relating to liability for damage arising from activities taking place in the Antarctic Treaty area and covered by this Protocol". These were to be included in "one or more Annexes" to the Protocol (which already has five technical annexes). This obligation was reinforced in the Final Act of the Eleventh Antarctic Treaty Special Consultative Meeting at which the Protocol was adopted. It "underlined the commitment of the Parties to the Protocol in its Article 16 ...and expressed the wish that work on their elaboration could begin at an early stage. In this context, it was understood that liability for damage to the Antarctic environment should be included in such an elaboration".

Between 1992 and 1998, liability was considered by a Group of Legal Experts, chaired by Professor Rudiger Wolfrum of Germany over 10 meetings. At the XXII ATCM in Tromsø in 1998 the work was passed to a Working Group of the ATCM. From the XXIII ATCM in Lima in 1999, liability negotiations were chaired by Don MacKay of New Zealand, then Deputy Secretary in the Ministry of Foreign Affairs and Trade (MFAT). MacKay continued to lead the liability work even after his appointment as New Zealand's Ambassador to the United Nations in New York.

So, 14 years after the adoption of the Protocol, and 13 years after consideration of a liability regime began, it is important to welcome the new Annex, and to applaud those who made the Stockholm agreement possible. The New Zealand Government, and officials in MFAT, and in particular Don MacKay, deserve great credit for persisting in this effort over many years. One has also to recognise the work of Swedish officials, whose conviction (and efforts to ensure) that this annex could, and should, be completed at the Stockholm ATCM was critical. Getting multilateral agreement to anything to do with protection of the environment is harder than it once was, and liability regimes are at the harder end of hard. Governments are invariably reluctant to enter into arrangements that may lead to them being held legally responsibility for foul ups, and worse still, to actually paying to clean them up. So this is no mean achievement.

What we have been able to agree in this annex is therefore a delicate political accommodation. In order to gain consensus it had to try and cover the essentials of 28 states. If you read it as a lawyer and wonder why it isn't clearer or why it doesn't do something, remember that it was a political process and its shape reflects policy positions first and legal niceties second.

It is a less comprehensive annex than many Parties (including New Zealand) and the environmental Non-Governmental Organisation (NGO) community would have preferred. But what has been achieved is an important first step and a significant enhancement of the Protocol. If it becomes possible to develop further annexes on liability the regime can be strengthened.

The Annex contains general provisions on preventative measures and contingency planning. But its main thrust is to establish responsibilities regarding response action to so-called "environmental emergencies", and liability for failure to take such action. In many respects the

Annex is as much to do with the Protocol's Article 15 on Emergency Response Action as it is about Article 16 Liability per se.

In the Antarctic Treaty area, a great many of the activities are still organised by States – usually through national Antarctic programmes. Other activities are organised by private entities – particularly now in relation to tourism. So the Annex creates responsibilities and liability for both State and non-State operators.

Each Party is to require its operators to take prompt and effective response action to environmental emergencies arising from their activities. But if the operator does not take such action, the Annex allows the Party of the operator or other Parties to step in and take response action themselves in certain circumstances. Liability arises where the operator fails to take the required action.

There are important exceptions from liability, and limits of liability are also established. To ensure that money is available, each Party is to require its operators to maintain insurance to cover liability.

The Annex is limited as to which activities it covers. The focus is on activities for which advance notice is required under Article VII(5) of the Antarctic Treaty. So, it will not ordinarily cover fishing and whaling activities, or activities such as "innocent-passage" or aircraft overflights without landing. But, for the avoidance of doubt, the Annex also states that it applies to all tourist vessels that enter the Antarctic Treaty area, so covering those vessels even if they enter the area without landing.

The new Liability Annex was adopted as a legally binding Measure, and will enter into force once all the present Consultative Parties have ratified it. A Decision adopted at the same time commits Parties to annually evaluate progress towards its becoming effective, and suggests that not less than five years from now they will examine whether additional liability coverage may be necessary.

The challenge now is to ensure that it enters into force in a reasonable time, and substantially quicker than the seven years it took for the Protocol itself to enter into force. One would expect New Zealand to be the first state to complete the necessary legal formalities at home and be the first to ratify the Annex. With Sweden, Australia and various others, one might expect the first batch of states to have ratified the Annex within two years. Quite how long it will take for all the rest to do so is not yet clear, but diplomatic effort by New Zealand and similar-minded states to encourage this is probably essential.

Dr Alan Hemmings is an environmental consultant, Senior Fellow at Gateway Antarctica University of Canterbury, Senior Advisor with the Antarctic and Southern Ocean Coalition (ASOC) and regularly attends Antarctic Treaty Meetings.

SCIENCE

Ocean warming trends reported

Findings from a new study show that the ocean west of the Antarctic Peninsula has warmed by more than a degree since the 1960s. This may be the first evidence that the Southern Ocean is getting warmer: a finding with potentially severe implications for wildlife in the Antarctic.

The Guardian newspaper reported on 19 October 2005, that marine biologists with the British Antarctic Survey, said that the sea temperature is going up in a way that is not predicted by the climate models. Even a one degree increase may put us into the region where the animals are pushed to one end of their biological, physiological and ecological capabilities.

The waters of the Southern Ocean are characterised by low but highly stable temperatures. At the most variable sites, such as Signy Island, temperatures usually range between -1.8°C in winter and around +1.0°C in summer (Peck 2005). Animals that live on the seabed around the Antarctic Peninsula, where summertime water temperatures currently peak at about 0.5C (approximately 32F), are sensitive to shifts in temperature, even small shifts. In water just two degrees warmer, molluscs become unable to bury themselves in seabed sediment, limpets cannot turn over and scallops lose the ability to swim. These changes would make them more susceptible to predators, with disruptions to the Southern Ocean food chain which could endanger larger animals including birds. Many Antarctic marine species that have been part of scientific testing die in experiments when temperatures are raised to between +5°C and +10°C.

It is thus likely that if this warming goes on for 50 years or 100 years then populations of animals and even entire species, would be at risk.

The climate of the Antarctic Peninsula, which reaches north from the frozen continent towards South America, is the most rapidly changing in the southern hemisphere. Air temperatures there have risen nearly 3° C since 1951 and sea ice cover around it has dropped 20% since 1979. Now, polar experts Michael Meredith and John King, also with the British Antarctic Survey, have shown that sea temperatures are on the rise.

There are few long term analyses of conditions in the Southern Ocean, making temperature trends difficult to monitor. Meredith and King used satellite data, historical

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BOOK REVIEW

In The Ghost Country: A lifetime spent on the edge

By P. Hillary and J. Elder. Random House New Zealand (2004).

Review by Tony Taylor, Emeritus Professor, School of Psychology, Victoria University of Wellington.

This book by a well-known expeditioner as told to his journalist good friend, gives a strong lead to those trying to understand the struggles of intrepid thrill seekers who drive themselves along under conditions of extreme environmental and social hardship. Instead of proudly describing their deprivations, mistakes, sufferings, and near-death experiences, it plunges beneath such superficial reactions. As a result it might encourage more of those who 'live on the edge' to follow suit. And it should make the rest of us grow up rather than live vicariously through the achievements of others. It is a compelling read.

The story is Hillary's view of a three-man party attempting to complete a return journey to the South Pole that defeated Robert Falcon Scott long before: one of the trekkers has already told his story, and there could be a third to come. Were it not for modern communications and the availability of emergency support, the enterprise, like the original, would have failed tragically without getting nearly as far as Scott. No matter how impressive their collective accomplishments, the Hillary party was ill-prepared for this latest venture. They relied too much on managing parachute sails and a constant wind to haul loaded sledges at the speed required for a return journey in time to catch the last plane home from McMurdo before the winter closed the ice-runway. They had not even done trials on the Ross Ice Shelf and the Antarctic plateau, and their proposed means of wind propulsion failed. With sails blowing away, ropes fraying, the subsequent effort of man-hauling in harsh climatic conditions took a physical toll, causing circulatory, musculo-skeletal, and respiratory ailments, to say nothing about the soles of Hillary's boots constantly coming apart. Then came problems with the battery for maintaining communications with NZ Scott Base, contaminated fuel for the stove, and unpalatable and indigestible food in the bargain.

Along with all this, the party was a cluster of isolates in which apparently all did not do their share of the chores, a pattern of decision-making was never settled, and Hillary's attempts to establish cohesion were unsuccessful. There was little of the conventional banter, bonhomie, joking, and readiness to share personal stories about family life that create camaraderie and maintain group bonding in times of hardship, and little of the readiness to give extra help when needed. En route the trio merely came together briefly as a unit at agreed times for hot drinks and a snack-lunch, or crammed into a small tent for shelter during storms or for a hot meal and a sleep by night. Otherwise Hillary was the odd man out, trudging alone day after day in featureless white terrain while the other pair was together, sometimes ahead and sometimes astern.

For me, a psychologist not altogether unacquainted with Antarcticans, the richness of the book lies in Peter Hillary's account of finding himself using spontaneously the perceptual deprivation and the double geographical and psychological isolation of his environment, as a neutral backdrop for creating scenes in which close friends and family featured – hence the title of the book. True, he had the latest telemetry gear with which to contact his intimates in other parts of the world, but he could not use it to call up the many figures from the past over whose tragic deaths he was still grieving and from whom he found himself drawing emotional and spiritual strength to survive the worsening conditions. The process enabled him to turn adversity to advantage and to salvage something from the over-demanding present, and when he was in the tent with his companions occasionally it carried over to become stronger than reality.

To give more detail in this review would be going too far. Suffice to say that the phenomenon is known to have occurred with other expeditioners who have 'lived at the edge', as well of course with the mystics of old who isolated themselves deliberately to create the 'other worldly experience'.

The account is quite gripping, and it could not have emerged but for the sensitive and literary skills of John Elder, Peter's real mate in whom he confided over many a long session when the journey was over. In fact John brought to mind the maxim that 'a friend is one to whom you can pour out the whole contents of your heart, wheat and chaff together, knowing that with the breath of kindness he will blow the chaff away'.

John must have listened to Peter with the touch of a healer unravelling the issues as they surfaced without getting in the way. In the event he highlighted and expanded Peter's cryptic phrases, buttressed them with

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The 2005 Ozone Hole

September 16 was International Day for the Preservation of the Ozone Layer and, this year, British Antarctic Survey (BAS) staff will commemorate their discovery of the Antarctic 'ozone hole' 20 years ago. Data on the formation of the 2005 ozone hole over Antarctica show that the 2005 hole is larger and deeper than the hole that formed when the discovery was made and almost as large as the August 2003 hole- the biggest on record, the 2005 hole covering an area of around 22 million square kilometres. Measurements made during August and September at BAS's Halley and Rothera Research Stations reveal a 50% reduction on normal ozone levels over the base of the Antarctic Peninsula and the Weddell Sea, and a 20% reduction over the tip of South America and the Falkland Islands. The increased ultra violet light reaching the surface poses a medical hazard to people living under the 'hole' and without suitable protection people face the prospect of rapid sunburn and potentially more serious skin damage.

Scientistis launch Ozone hole monitoring equipment at Halley Bay Station. Photo by BAS 2005.

ORAL HISTORIES COMPLETED

Volume 23, No 2, 2005 of the *Antarctic Journal* noted that the Oral History project was near completion. As of mid-October, oral historian Jacqui Foley reports that the project has now been completed. The tapes and transcriptions are with the New Zealand Antarctic Society and will shortly be made available through the Canterbury Museum, subject to the various permissions agreed to by the interviewees. The New Zealand Antarctic Society acknowledges the valuable financial support received from the New Zealand Lottery, Environment and Heritage fund in support of this interesting project.

PENGUINS TAKE SPOOF PRIZE

Top billing at the recent Ig Nobel Prize awards held in early October, went to the award for fluid dynamics shared by Victor Benno Meyer-Rochow of the International University Bremen and Jozsef Gal of Lorand Eotvos University in Hungary "for using basic principles of physics to calculate the pressure that builds up inside a penguin". The awards are a spoof on the Nobel prizes and are given for research which "cannot or should not be reproduced".

Dr Meyer-Rochow said the research had started in 1993 when he led the first (and, so far, only) Jamaican expedition to the Antarctic. Years later, while showing a group of students pictures of the faeces-lined nests where penguins lived, he was asked how the displays were created. From that question, he got the idea to calculate what pressure is produced by a penguin's pooh. Their results are detailed in their report "Pressures Produced When Penguins Pooh - Calculations on Avian Defecation."

HERITAGE TRUST LAUNCHES UK FUND RAISING

The Director of Antarctic Heritage Trust (AHT), Nigel Watson, and trustee, Paul East, journeyed to the UK in early October to launch a British fundraising campaign to restore and preserve the heroic huts of the Ross Sea Region.

Sir Edmund Hillary's immense influence is also being used to try to secure the large amount of funding required. On a visit to Antarctica last November, Sir Ed, AHT Patron, was dismayed to find Scott's 1911 Terra Nova Hut at Cape Evans and Shackleton's 1908 hut at Cape Royds in a state of disrepair. At the time he remarked: "I think very strongly this was a British activity and the UK should be making considerable efforts to maintain these remarkable relics."

Another hut from an earlier Scott expedition in 1902 and one from an 1897 British expedition led by Norwegian explorer Carsten Borgrevink are also part of the preservation plan.

Guests at the UK launch were joined at a London function by New Zealand High Commissioner Jonathan Hunt, and celebrities Kenneth Branagh and Bill Bryson. Princess Anne, Patron of the UK branch of Antarctic Heritage Trust also attended the event. Trust chairman Rob Fenwick said that up to $1 million of mainly American money would be used this summer to start work on repairs to Shackleton's hut in a preservation programme expected to last 10 years. The campaign hoped to eventually raise "multiple millions". The Getty Foundation in Los Angeles had already provided $500,000 and the World Monument Fund up to $400,000.

Further information on AHT can be found at www.heritage-antarctica.org.

David Roger Given

8 NOVEMBER 1943 - 27 NOVEMBER 2005

The Antarctic community was saddened by the death of David Given. The Christchurch City Council's Botanical Services Curator, who died on Sunday 27 November, aged 62.

David was born in Nelson, New Zealand. His parents brought him up to love music, nature and sports. As a child, David spent time with his parents in Australia doing "bug work", his father being an entomologist, and David learned the Latin names of many bugs.

In 1962 David began his university study at Canterbury University, completing a first class honours degree in botany and then going on to complete his PhD there. David married his wife, Karina, in 1968, they have 3 children and three grandchildren. His family, his faith and his work were all important elements in his busy and diverse life.

David worked for many years with DSIR (the Department of Scientific and Industrial Research) at the centre's herbarium. He was a lecturer at Lincoln University and also contributed to lectures in Antarctic Studies at the University of Canterbury. David worked for many years on Sub-Antarctic Island ecosystem research and spent many seasons in Antarctica conducting research and providing lectures on tour ships. He was among the few

people in the world to camp on and study Mt. Melbourne, an active Antarctic volcano in the Ross Sea Region and he was a strong advocate for the protection of Edmonson Point, Antarctica, which is currently going through the Antarctic Specially Protected Area designation process.

David's achievements have been recognised locally and internationally. In 2004, he was awarded the IUCN Sir Peter Scott Award for services to global plant conservation. In 2005 he received the NZ Ecological Society's Te Tohu Taiao Award for ecological excellence and the NZ Plant Conservation Network's Lifetime Achievement Award for his outstanding commitment to indigenous plant conservation.

Over the past year, David had been working on writing a large part of the future vision for Christchurch's Hagley Park and the Botanic Gardens. David strongly believed in the fundamental place of nature in people's lives.

The next time you visit the Botanical Gardens, enjoy the surroundings that David's vision helped to maintain, and think of him.

Antarctic Challenges: Historical and Current Perspectives on Otto Nordenskjold's Antarctic Expedition 1901-1903
Continued from page 47

tery. To collect ammonite and shell fossils, and to find plant fossils, perceiving relatively young former Antarctic forests, must have been sensational.

Description of the special international cooperation which was achieved regarding magnetism and meteorology around the turn of the twentieth century is sobering, relative to the times that followed with growing nationalism including the race for the pole, in spite of Nordenskjold's efforts for cooperation. The First World War destroyed Nordenskjold's own plans for a return, international expedition.

The human stories about Nordenskjold and also those about his botanist, Skottsberg, are delightful. Nordenskjold's romance with the young Norwegian woman who was to become his wife, and his immediate visit to Iceland after returning from Antarctica, to find her again, is a warm story. Soon after their marriage, when they were visiting the US, one press account described how the two had come to meet: while in the Antarctic his expedition had encountered another party, and she was its leader!

Their marriage was a very happy one. However, life can be so tragic: Nordenskjold was killed by a bus near his home, aged only 58.

IPY UPDATE

The upcoming International Polar Year (IPY) 2007-2008 will not only stimulate scientific activity on the ice, but will also provide an opportunity for international cooperation in terms of bringing together young researchers and the "next generation" of students. The recently established international Youth Steering Committee (IPY YSC) aims to unite national groups of young polar researchers to enable them to participate in the IPY, as well as to communicate their interest in the Polar Regions through outreach and educational programmes for other students. The development of a New Zealand National Youth Steering Committee (NZ YSC) as part of the international YSC is currently underway. If you are interested in participating in this network of students (postgraduate and undergraduate) and would like to have a role to play in New Zealand's contribution to the IPY, **please contact Melianie Raymond at the University of Otago (melianieraymond@yahoo.co.uk) or Daniela Haase at the University of Canterbury (dha48@student.canterbury.ac.nz).**

"At one point both ships were blown 400 yards backwards."

By **Paul Wales**, Classic Stamps Ltd, Christchurch, New Zealand.

The following letter to the late Ian Harkess of Christchurch NZ, inside an envelope with the very scarce one day cancel Amundsen Sea Coast, Antarctica, dated 4 March 1961, provides us with a unique glimpse of the adventures aboard icebreakers USS *Glacier* and USS *Staten Island* at that time.

Evans Peninsula, Bellingshausen Sea, Antarctica
March 3, 1961.

Dear Mr Harkess,

Thank you very much for your letter. I'm happy to oblige by mailing you this letter. I'm not sure if I'll be able to mail the other two envelopes because the ship is putting a limit on the number of specially cacheted letters we can send out tomorrow, however I'll do my best. The letters probably will be mailed from Montevideo sometime late in March.

As you know, we sailed from New Zealand. Went through several hundred miles of pack ice, entered the Bellingshausen Sea to a point farther than any ship had penetrated before. Our farthest point was 72 degrees 28 mins South, 91 degrees 42 mins West. A great barrier of ice blocked further progress.

As you may have seen in the papers, we put a party of three scientists and one Naval officer ashore at that point – flew them to point 40 farther east of the ship. We were then hit by a 60 hour storm packing winds of more than 130 miles an hour at times. Glacier and Staten Island nosed against ice pack, side by side, heading into winds. At one point both ships were blown 400 yards backwards, even as the propellers worked to keep us nosed against the ice. Our Commodore, Capt. Edwin A. McDonald, veteran of six Arctic and five Antarctic expeditions, said storm was worst he ever saw.

Meanwhile, the shore party had been trapped by it. We feared for their safety. They holed up in a crude rock shelter, not high enough to sit up, for most of the time. Unable to eat, rations frozen, did munch on crackers. In fact, did not dare eat or drink much, because the requirements of nature would then have forced them outside of shelter. Once out, they feared violent winds, getting clothing frozen, would cause them to lose heat with resultant danger of not being able to get warm again. Any injuries would have been bad because they didn't know how long they would be trapped there. Anyway, got them out after 60 hours, weakened condition, but o.k. after some sleep. They are Roberts, Peeler, Drake and Lepley and I'll get some of them to autograph envelope for you.

On heading West again, ship met great ice fields, up to 35 feet deep. Practically stopped dead for 10 days or so. Now at Cape Evans on Thurston Peninsula, will just nose into Amundsen Sea tomorrow, and then will head out of ice to Palmer Peninsula, South Sandwich Islands, and home eventually.

Please excuse my shortened writing style, but only have a short time to write this as just learned the special envelopes must be stamped tomorrow morning. Had originally planned to write much more detailed letter. Thank you again for your letter and contents. Enjoyed my visit to New Zealand. Found people friendly and country beautiful. People autographing letter will be American scientists (Brian Roberts is an English one) and Naval officers.

Yours sincerely
Paul Ganley Jr
Boston Traveller, Boston Mass, USA.

New Zealand's Antarctic Scholarships Restructured

Antarctica New Zealand announced the recipients of their three post-graduate research scholarships to Antarctica.

The scholarships have been restructured this year, and for the first time one scholarship, the Robin Irvine Scholarship, is awarded over a 2 year period. The total value of this award is NZ$40,000, and supports post-doctoral research.

The remaining two scholarships, the New Zealand Post Scholarship and Kelly Tarlton's Scholarship, are still of one year duration, and support post-graduate research. Both of these awards have a value of NZ$10,000. All scholarship winners will also be provided with logistical support to, from and in Antarctica.

Antarctica New Zealand CEO Lou Sanson said the scholarship programme provided excellent opportunities for a new generation of researchers to conduct investigations in Antarctica that would not otherwise be possible due to logistical costs. "The financial support provided by the sponsors, allows students to experience hands-on Antarctic research at a developmental time in their academic careers" said Sanson.

"As always, we are delighted with the high quality and calibre of the proposals received, and are delighted that all three recipients this year are persuing post-doctoral research." said Dr Dean Peterson, Antarctica New Zealand Science Strategy Manager.

The first recipient of the newly extended Sir Robin Irvine Scholarship for post-doctoral research is Shelley MacDonell of the University of Otago. She will study the hydrological regime of the cold-based Wright Lower Glacier, Antarctica.

Adam Martin of the University of Otago has been awarded the New Zealand Post Scholarship for his post-doctoral work on the geology of Mount Morning, Erebus province, Antarctica.

The Kelly Tarlton's Antarctic Encounter and Underwater World Scholar, Mélianie Raymond, a post-doctoral student also from the University of Otago, will study the diversity and survival strategies in nematodes from the Ross Sea Region, Antarctica.

Two new Antarctic-related scholarhships for 2006/07 have recently been announced. One from Helicopters New Zealand which will be administered by Antarctica New Zealand and a second, recently announced at the Antarctic Season Opening celebrations in Christchurch, which is a new Antarctic scholarship sponsored by the Christchurch City Council (CCC). The new NZ$10,000 per annum CCC scholarship will support a student undertaking graduate research at Gateway Antarctica at the University of Canterbury.

From top to bottom: Adam Martin, Melianie Raymond, Shelley MacDonell.

ARTEFACTS UNCOVERED

An Antarctic Heritage Trust conservation team, working in the 2005/06 season in Scott's Cape Evans hut, has discovered two wonderful and priceless artefacts from Scott's expedition to reach the South Pole.

A hand-made pony hood and a much-repaired backpack were uncovered. Nothing like this had been found before in the hut which Scott left from in 1912. The hood was most likely created by Oates, who was in charge of overseeing the horses on the expedition. But conservationists and museum staff are unable to confirm whether the hood, meant to prevent snow-blindness, was actually ever worn by one of the horses during the expedition. The items, treated by conservators in Auckland, are now on display at Canterbury Museum, however, it is unclear whether they will be kept at the Museum or whether they will be returned to the hut sometime in the future.

ANTARCTICA NEW ZEALAND NEW STAFF

Antarctica New Zealand recently welcomed two new staff members. Erik Barnes has been appointed as the Programme Support Manager. Erik worked at Scott Base as the Programme Support Coordinator in the 2004/05 season. Prior to this he worked for the United States Antarctic Programme and Alpine Ascents International as a mountain guide. He is currently at Scott Base for the Antarctic research season.

Above: Erik Barnes. Right: Ursula Ryan.

Ursula Ryan is the new Information Advisor. Her responsibilities include development and maintenance of the website and management and care of the large pictorial, and growing Antarctic art collections. Ursula comes to Antarctica New Zealand after 3 years working on the reference desk in the Documentary Research Centre at Canterbury Museum.

In The Ghost Country: A lifetime spent on the edge
Continued from Page 52

an appropriate sprinkle of quotations from Homer, Jean-Paul Sartre, Alfred Lord Tennyson, and T.S. Elliot, and provided sufficient detail that would hold the attention of readers unfamiliar with the background of previous Antarctic explorations. In the characteristic fashion of a wise friend, John identified with Peter without being so absorbed as to lose his own touch with reality. In fact the dialogue moves backwards and forwards between the reality and unreality of the past and the present in a way the perceptive reader will find totally absorbing.

In short, the book is a courageously presented masterpiece with lessons about the essence of life that are there to be learned by all of us – no matter what kind of expedition on which we might embark. It shows how we can roam (and need to roam) freely over the totality of our being if we are to cope with misfortune, learn from mistakes, realign our values, and look ahead with confidence. It is a treasure trove of insights and observations about human nature that will appeal to the insightful and reflective.

Huskies on the Tasman Glacier

The bark of a Husky would surprise climbers, skiers and ski plane passengers if heard on the Tasman Glacier of New Zealand's Southern Alps today, but 50 years ago it was a daily occurrence for almost two months.

The men of Sir Edmund Hillary's New Zealand Antarctic Expedition were training on the wide snow glacier below Mount Cook in August 1956, with 22 men based at the Malte Brun Hut. With them were 26 husky dogs shipped to New Zealand months before from the ice, where they were born, and 15 raised in Auckland Zoo.

Doug Drake, a retired journalist then working as a reporter for The Timaru Herald newspaper; vividly recalls the arrival of the Antarctic dogs and says the great climber Harry Ayres brought them to Mount Cook in March 1956.

The Antarctic pack arrived on 28 March and "were obviously delighted to be on flat ground." There was much yapping and howling as the New Zealand pack - which had been at the Hermitage for a fortnight - greeted the newcomers. He says Ayres was drawn and tired on arrival which was understandable, as he had had no sleep for five nights.

The dogs had been his personal responsibility since their arrival at Melbourne aboard the Australian polar supply ship the *Kista Dan*.

Ayres had flown with the dogs from Melbourne to Brisbane, then on to Norfolk Island and Whenuapai, arriving at 12.15am, departing at 1.40am by RNZAF Bristol Freighter to Harewood arriving at 4.40am. "This circuitous route was taken to avoid any upset to the dogs which might have arisen from flying at high altitudes to cross the Southern Alps. The final overland journey by army truck was completed in 5 1/2 hours."

Alpine guide Murray Douglas, told Drake the dogs were listless and uncomfortable in the warmth but appreciated the colder nights at Mount Cook,

Drake reported "a considerable difference between the New Zealand and Antarctic packs, the former are only nine months old and have yet to develop the furry coats of their more experienced brothers. They are considerably smaller...the full-grown Antarctic pack are the height of large Alsations although broader in the back and legs."

There was quite a contrast in the dogs' condition when

Drake photographed them for the Timaru Herald 4 1/2 months later. "There was a remarkable change in the dogs," recalls Drake 50 years on. "On arrival in March 1976 they were straggly. By August that year they were healthy and fresh."

According to the Herald's archives, Drake reported on 8 August 1956 that Sir Edmund accompanied by eight key members of his Antarctic team and husky dogs "assembled in brilliant sunshine at Mt Cook...to start training in earnest for the Antarctic expedition."

"Sir Edmund and Dr George Marsh and seven other team members conducted trial runs with three sledges and three dog teams in what will be the start of seven weeks of intensive training under simulated Antarctic conditions."

"Tonight in 30 degrees of frost on the Tasman Glacier the three dog teams had their first night out in Antarctic conditions."

"Before leaving them for the night Sir Edmund fed them with legs and three-quarters of mutton. They were tethered on a 200ft set line at suitable intervals to prevent fighting over food in the night."

Three dog teams were taken from their pens near the Hermitage and taken onto the glacier "half a mile from the Ball Hut. In the afternoon one team was given a trial run under Antarctic conditions on snow and ice. The dogs relished the work but were too lively because they had had insufficient training during the last two weeks. The terrain was difficult for a training ground but the dogs did not lack enthusiasm."

"Dr George Marsh was in charge of training the dogs and other members of the expedition were helping and practising skiing," Holmes Miller told Drake.

Drakes's story says that those who assembled at the Ball Hut on that day were Sir Edmund, Mr J Holmes Miller, deputy leader of the expedition, Mr Richard Brooke, surveyor, Mr Murray Ellis, engineer, of Dunedin, Mr Roy Carlyon, surveyor, of Wanganui, Mr Peter Mulgrew, chief radio engineer, of Lower Hutt, Mr Ayres, and Mr Douglas.

After their seven weeks of training Sir Edmund's team was to proceed to Burnham Military Camp for first aid instruction and a final medical check-up, returning to Mount Cook for a week before disbanding until their departure in December 1956 for the Antarctic.

The huskies were not to feature in the heroic push to the South Pole...the expedition's ultimate transport was the Ferguson tractor.

Pictured on the opposite page: Murray Ellis (at left) and Dr George Marsh (in foreground) on Tasman Glacier. All photos by Doug Drake, former reporter, Timaru Herald.

'Antarctic' acknowledges the assistance of Mr Doug Drake, and The Timaru Herald.

Pictured top: Dr George Marsh (at left) with Murray Ellis and dog team.

Pictured above: Dr George Marsh readies a husky for the day's training.

MUMMIFIED OR DESICCATED

In the course of research for my book on New Zealand's last fifty years in Antarctica, I have located numerous references to remains of seals in the Dry Valleys. Readers may be aware of the discovery last summer by a party from the University of Waikato, which located 50 dead seals in the Miers Valley. The seals all appeared to have committed suicide over a bluff.

According to my edition of the Oxford Dictionary, mummification is a process used by humans to preserve by embalming and drying, the body of a human or animal. Those of us who have been fortunate to view some of the bodies of seals and penguins in the Dry Valleys, would agree that while perhaps having the appearance of a mummified body, surely the term desiccated would be more appropriate and that the animals should be referred to as such.

David L. Harrowfield

UNKNOWN WORD?

Rachel Morgan (overseas NZAS member) and Anthony Wright of the Canterbury Museum, both wrote in regards to Paul Wales' article in *Antarctic* Vol. 23, no. 1, 2005 (pages 16-17), about the "word not known" in Hartley Ferrar's letter. They both point out that the unknown word is "Oundelian". This being the name given to boys of the English public school - Oundle (in Northamptonshire). Ferrar lived in South Africa for some time but returned to England and was educated at Oundle School. Hence he was an 'Old Oundelian'. Anthony also notes that "Readers may be interested to know that Hartley's daughter, Mrs Evelyn Forbes, generously gave his Polar Medal and one of is two sledging pennants to the Canterbury Museum in 2001. Following Evelyn's death in 2003, her son Dr. Michael Forbes generously presented nine of Hartley's field notebooks from his time as a field geologist with the New Zealand Geological Society to the Museum."

Heads Turned South: New Zealanders' attitudes to the Antarctic
Continued from Page 48

ity to care, making comments such as "we need to do our duty there" and "we don't want others taking over".

Close to 10% said that it was important to them personally for scientific reasons, pointing out that it is "a key to science things" and is an "important barometer for world ecology". Some said it was important to them because it was a place they would love to visit.

However, 44% said it was not important to them because they were never going to go there themselves or just did not think about it much.

It is curious that most recognise the importance of the Antarctic to New Zealand, but most do not believe it is important to them personally. This indicates a certain detachment, a certain objectifying, which goes against the idea that in the modern world people tend to care only about what affects them personally.

When asked about current issues and the Antarctic, climate came out on top with 29% mentioning global warming, the ozone hole, ice melting, and the like. Significant numbers mentioned pollution, tourism, mining, fishing, and the protection of wildlife. Only eight per cent mentioned countries trying to exploit the region for their own purposes.

Even though the survey by its very nature was limited, the results are a clear indication that New Zealanders are quite aware of New Zealand's relationship with the Antarctic and have definite views on how important it is to the country.

Note: Barrie Cook completed the Graduate Certificate in Antarctic Studies at Canterbury University in 2003/04, is a member of the New Zealand Antarctic Society and a director of Niu Pacific Ltd.

Ocean warming trends reported
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records and measurements taken from ships to reconstruct the temperature in the upper layer of the sea over the past few decades. There findings show the average sea temperature off the peninsula during the summer rose by 1.2C during the period 1955 to 1994.

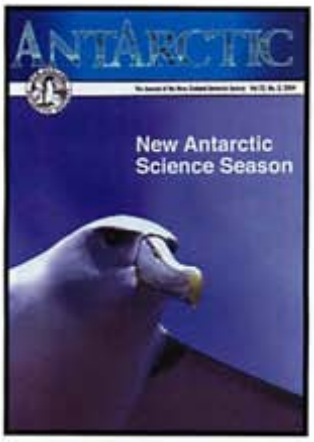
The amount of salt in the top layer of water has also increased: a crucial discovery as dissolved salt lowers the freezing point of water and helps to make it more difficult for the insulating cover of sea ice to form in winter. Less ice would form on warmer seas in winter, which in turn would increase the warming effect because sea ice has high albedo which means it reflects sunlight and protects the water from the warmer air. Recently scientific findings have just announced a significant reduction of Arctic sea ice this year.

"Both the temperature and salinity trends are in a direction that will act to reduce future sea ice production. Since a reduction in ice cover was important in the instigation of these trends, they constitute positive feedbacks," the scientists write in the journal Geophysical Research Letters. Positive feedbacks are cycles where the warming produces effects that assist in speeding up the warming.

Rising temperatures and greater losses of sea ice could also spell big problems for krill which are critical to the Southern Ocean food chain. A study published last year showed krill numbers had fallen by 80% since the 1970s. This reduction in krill biomass has been linked to the reduction in sea ice cover which affects krill spawning and availability of food for the krill themselves.

Antarctic creatures are particularly vulnerable to rising temperatures because the roughly circular Antarctic continent creates a barrier to creatures moving south to escape from warmer conditions.

NZ ANTARCTIC SOCIETY MEMBERSHIP



You are invited to join - please write to:

NATIONAL SECRETARY
New Zealand Antarctic Society
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Adelie penguins perch on a small ice floe near the Mackellar Islands in Terre Adelie Land. Penguins are truly ocean-going birds that only need to return to land to breed during the brief Antarctic summer. Photo by Colin Monteath.