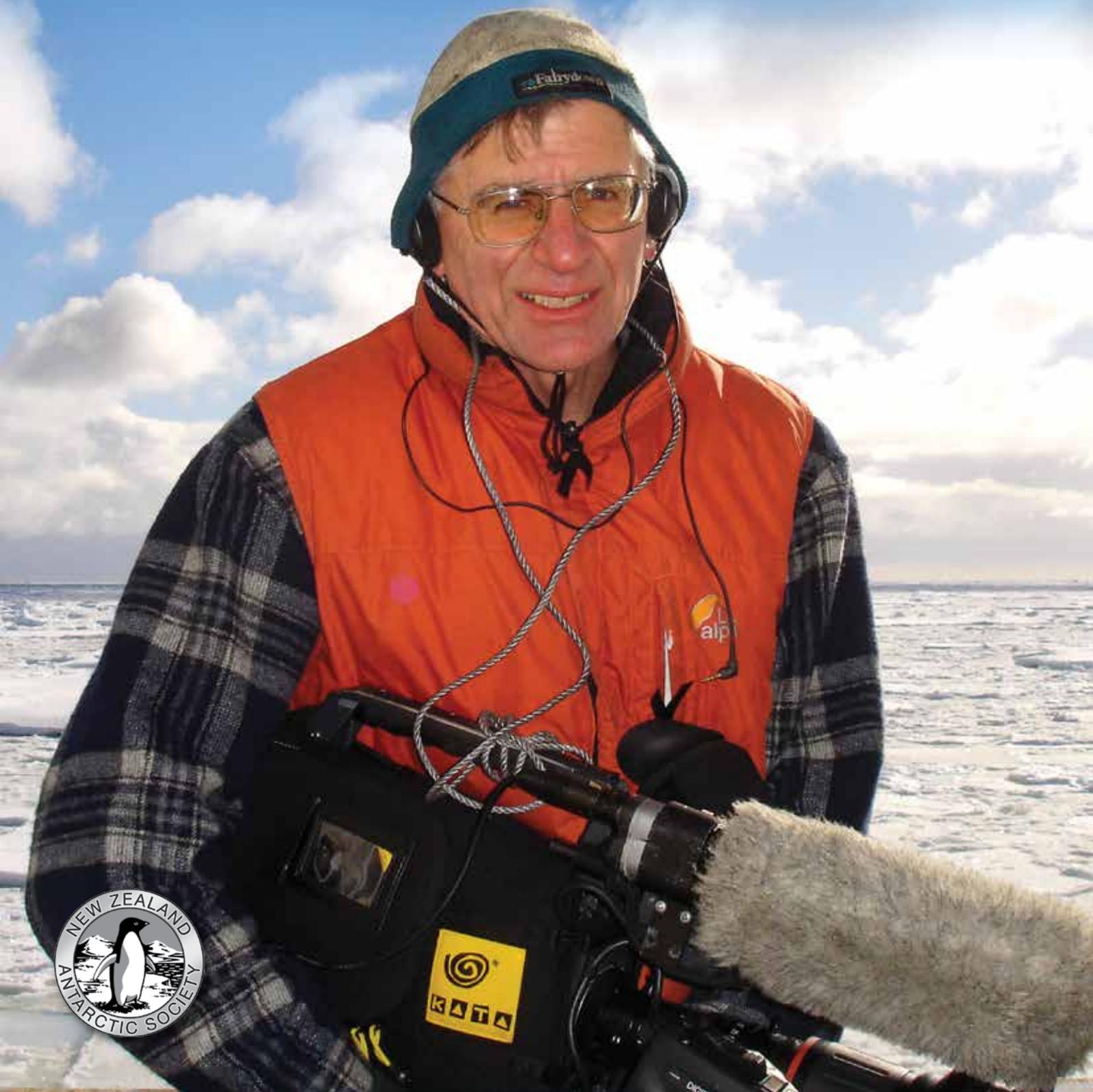


ANTARCTIC

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Max Quinn – Whale watcher





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Patron of the New Zealand Antarctic Society:
Patron: Professor Peter Barrett, 2008.
Immediate Past Patron: Sir Edmund Hillary.

NEW ZEALAND ANTARCTIC SOCIETY LIFE MEMBERS

The Society recognises with life membership, those people who excel in furthering the aims and objectives of the Society or who have given outstanding service in Antarctica. They are elected by vote at the Annual General Meeting and are restricted to 15 life members at any time.

Current Life Members by the year elected:

1. Bernard Stonehouse (UK), 1966
2. John Claydon (Canterbury), 1980
3. Jim Lowery (Wellington), 1982
4. Robin Ormerod (Wellington), 1996
5. Eric Gibbs (Wellington), 1997
6. Baden Norris (Canterbury), 2003
7. Bill Cranfield (Canterbury), 2003
8. Randal Heke (Wellington), 2003
9. Bill Hopper (Wellington), 2004
10. Malcolm Laird (Canterbury), 2006
11. Arnold Heine (Wellington), 2006
12. Margaret Bradshaw (Canterbury), 2006
13. Ray Dibble (Wellington), 2008
14. Norman Hardie (Canterbury), 2008
15. Vacant



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Cover photo:
Max Quinn. Image courtesy Max Quinn, NHNZ, Ltd

Antarctic Round Up

General

Historic items held in NZAS Care

At its last meeting the New Zealand Antarctic Society Council approved a policy to guide the placement of NZAS historic materials in appropriate repositories. The NZAS holds a wide range of historic materials gifted to it over many years. In the collection are diaries, photographs and personal papers of people associated with the Antarctic such as John Shannon who was on the *Discovery II* (1951) a British Royal research ship; Frank Ponder, government architect; Neville Clark of the Antarctic Division; Eric Gibbs' clipping collection; and John Oliver, Antarctic scientist. There are also some objects including a helmet and thermos used at Vanda associated with the Byrd expedition, framed pictures, film footage and lots of books.

An Archives sub-committee was formed in 2008 to address the on-going management of the items in its care. Council has approved a policy to establish a process to offer the items to public repositories such as museums and archives. The Society believes it is important that the historic items are able to be stored appropriately and able to be accessed by members, interested public and researchers. The Archives sub-committee are now determining the provenance of the items (how they came to be placed with/donated to the Society) and as far as our records will allow, identifying the wishes of those who have donated or lent items to the Society. The Society will endeavour to ensure the various collections remain intact and it will be approaching the main institutions to see if they might be interested in the items.

September

Auckland Branch AGM

Auckland Branch ran its AGM on 27 September with a good number of attendees who were full of great Antarctic stories and ideas for membership growth and involvement.

The Branch Chair Linda Kestle was re-elected, as was Myra Iererua as Secretary, Mike Wing as Treasurer and Malachy McGarrigle as a Committee member. Our thanks go to Graham White who is taking a gap year from any formal roles on the Branch and the Society this coming year.

Linda Kestle ran a presentation on the Volunteer Scott Base maintenance event that she and Ross Shapley undertook from Dec 2011 to Jan 2012. They have written up a short article on the volunteer programme that is in the most recent Antarctic (Vol 30 no 3).

The Auckland Branch plan to run a show-n-tell and quiz before Christmas for the Auckland members and an Antarctic movie night to start the new year.

Robert Falcon Scott statue restoration update

The challenge to strengthen and restore the Scott Statue is made difficult by the fact that he is a replica of a bronze statue. Bronze being a lighter and stronger material is able to carry more weight in the top portion of the sculpture, marble in contrast needs to be heavier and contain its strength at the base. To counter act this, the marble Scott Statue has a stone behind the left foot which the bronze statue does not. This was an attempt to strengthen what was known to be the weak point sculpture.

The restoration team includes a heritage experienced engineer who has designed a solution to strengthen the lower portion of the statue. The concept involves drilling and inserting steel rods up the legs to the top of the thighs and down into the feet to connect to a steel plate. The plate is connected to the plinth via a steel tube which is designed to bend at a force less than the strength of the statue. The flexing of the tube absorbs earthquake energy thus protecting the statue in any future earthquakes. Additional grouting and reinforcing has been added to the plinth and the soil immediately below.

The restoration will include a number of specialists, engineers, stone mason, conservators and steel fabricators to carry out the work. Before physical construction can start agreement for the work will be required through the resource and building consents process and from Council. The Scott Statue was insured.

Much of the work can be done off site. Reinstatement timing will be dependent on the activities occurring in the area.

Wreath laying ceremony to start the Antarctic Season

On 30 September 2013 the annual ceremony took place before the start of the Antarctic Season. Traditionally this takes place at in the park where the statue of Robert Falcon Scott is situated. Due to the earthquakes damaging the statue this has been impossible for the last two years. This season's wreath laying took place in Hagley Park, Christchurch as part of IceFest. Scott's statue was on display in a horizontal position within a glassed in crate. The statue is currently in the process of conservation and restoration. Each year the New Zealand Antarctic Society continues a tradition, which first took place in 1956 by Sir Ed Hillary and the members of the 1956-58 Commonwealth Trans-Antarctic Expedition (TAE), to commemorate those people that have given their lives to Antarctica. The 257 victims from the Mt Erebus disaster on the 28 November 1979 are also remembered. Around 90 people attended the ceremony as wreaths were laid by Wing Commanders John Claydon and Bill Cranfield; Art Brown the senior National Science Foundation (NSF) representative; Canon David Morrell on behalf of the British High Commissioner; Alessandro Levi Sandri, (Ambassador of Italy) and Isauro Torres, (Ambassador of Chile). The ceremony was completed by Ed Butler from Antarctica New Zealand piping a lament to those we commemorate.



Marmite cover which won in the Maggies.

October

New Zealand Antarctic Society Annual General Meeting

The meeting was held in Christchurch on 13 October 2012. Highlights from the Presidents Report include:

- Society membership levels have dropped slightly over the last year.
- The finances of the Society are in sound shape with a significant increase in operating surplus compared to last year. The financial security of the Society is well preserved by the Lagace Bequest monies and the interest accrued from it.
- Margaret Bradshaw, Project Manager of the Oral History Programme, has been successful in gaining further funding from the Lottery Grants Board. This will allow a further ten Antarcticans to be interviewed. The Society has to date completed 35 oral histories and 5 of these were completed last year.
- Malcolm Macfarlane has completed the huge task of digitising the back issues of *Antarctic*
- The Societies relationship with Antarctica New Zealand continues to be strong they have confirmed that we will continue the Scott Base Volunteer Programme for the 2012/2013 summer. This will be the 4th consecutive season of the programme.

November

The Maggies

Antarctic was entered in the national magazine cover awards; “*The Maggies*” for 2012. We entered two covers and one was judged into the short list for the specialist magazine category. The shortlisted covers were then voted on by the public. The “marmite” Antarctic cover, while not winning the supreme award, did scoop the win in our category. This is a great achievement as it is the first time we have entered the competition. Thanks to the Antarctic Heritage Trust conservators and Scott Base staff for their photography and imagination and to GUSTO for their cover design. For more information see www.themaggies.co.nz and click on the “winners” tab.

Order of the Rising Sun awarded to Newton Dodge

Cantabrian, Newton Dodge is being honoured by Japan’s emperor for his efforts to help foster good relationships between the New Zealand and Japan. He will be awarded the Order of the Rising Sun – Gold and Silver Rays for his outstanding contribution to the promotion of mutual understanding and friendly relations between the two countries. For many years Newton has helped organise visits of secondary school age students between New Zealand and Japan. These visits have always included an Antarctic component with the students visiting the Shirase bust at Canterbury Museum recognising the New Zealand and Japanese links to

early Antarctic exploration. Newton will receive his award at the Japanese embassy in Wellington on December 7.

Moving the NZAS object, publication and records collection

Due to earthquake damage the Society was required to shift the collection from its storage in a Christchurch City Council facility. The Air Force Museum at Wigram offered help to organisations in Canterbury who hold heritage collections and who have had difficulties due to the quakes. They offered storage for the collection and with the help of some fit and determined members and friends under the guidance of John Pascoe and Peter McCarthy the collection has successfully been transferred. The Air Force Museum is currently building a Recovery Centre for use by the smaller organisations so next year the Archives sub-committee and John will be able to assess and sort the material properly. The Society has expressed its thanks to the Air Force Museum for its assistance.

December

Winter crossing of Antarctic

A British led team including veteran explorer Ranulph Fiennes will attempt a six-month 4000 kilometre Antarctic traverse in the 2013 winter, braving temperatures up to -90 degrees Celsius. Two modified Caterpillar tractors will haul the six-man ice team’s 75 tonnes of gear in two specially engineered containers on sleds. They will carry supplies of fuel and food for a year. One container will be used for sleeping and living quarters while the other will contain scientific and communication equipment for environmental studies, plus links to the outside world.

The expedition aims to raise \$US10 million (NZ\$12.19 m) for global charity Seeing is Believing, which tackles preventable blindness in developing countries. The team will start their journey from close to the Russian Novolazareskaya Base, Queen Maud Land in eastern Antarctica on 21 March 2013, the first day of the winter equinox. They will travel to the South Pole and then on to McMurdo Sound. To successfully complete the winter journey they must reach the coast by the official end of winter on 21 September. ❄

Scott's

last expedition

Image copyright of Scott Polar Research Institute, University of Cambridge

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23 Nov 2012 - 30 Jun 2013



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HISTORY
MUSEUM

ANTARCTIC
Heritage
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THE PRESS

 **Canterbury
Museum**

Humpback surfaces between researcher's inflatable and RV Tangaroa (NIWA) while on Satellite Tagging sorty. Image courtesy Australian Antarctic Division/NIWA.



Hunting the Ice Whales

By Max Quinn

On the same day South Korea announced their intention to follow Japan's lead and start hunting whales for research, Natural History New Zealand (NHNZ) premiered its latest documentary *Hunting the Ice Whales* at the joint Australian and New Zealand Marine Sciences Conference (AMSA-NZMSS 2012) in Hobart.

It was a timely premiere for a film that tells the convincing story of why Antarctic whale research can and must be conducted without killing whales.

Cameraman and producer Max Quinn reveals the story behind *Hunting the Ice Whales*...

We are all familiar with the battle going on in Antarctic waters, between those killing whales for scientific research and those attempting to stop them. It's an issue I've always been passionate about, so when the opportunity arose to join a team setting out to undertake a non-lethal research programme, it didn't take much convincing to get me along for the ride. The result is NHNZ's latest Antarctic documentary *Hunting The Ice Whales* – the story of the 2010 Antarctic

Whale Research Expedition.

This joint venture between Hobart based Australian Antarctic Division and New Zealand's key marine research agencies including NIWA and Auckland University, brought together an elite research team headed by marine biologist Nick Gales. His key mission was to track the migratory routes of the humpback whale and the Antarctic minke to fill in the missing knowledge gap of how, why and where these great leviathans go to feed in this frozen world.

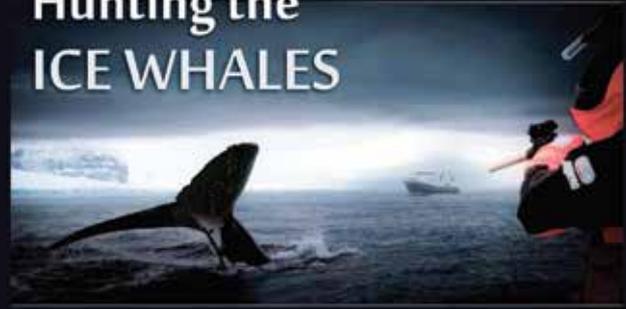
It was a task easier said than done. Not only were they to voyage through some of the roughest seas on earth, they had to race against the onset of winter when plunging temperatures and rapidly forming sea-ice would threaten to lock their research grounds away for another eight months.

In this short window of opportunity, their mission was to tag as many whales as possible with satellite transmitters and retrieve biopsy samples for later DNA analysis.

Veteran Antarctic skipper Andrew Leachman's expertise proved crucial in navigating the research vessel, *Tangaroa*, through Antarctica's treacherous seas – always a challenge for film makers wanting to capture those dramatic storms on film. Once the seas settled it wasn't long before *Tangaroa* was onto pods of feeding whales along the sea ice edge in the Ross Sea and around the remote Balleny Islands.

While the minkes kept their distance, the team managed to implant 30 satellite tags onto Humpbacks using inflatables to ride up beside the massive leviathans before precision firing the tag into

Hunting the ICE WHALES



Title image used for the film.

On 19 September 2012 *Hunting the Ice Whales* had its New Zealand premiere at the inaugural New Zealand IceFest in Christchurch. The screening was introduced by Max Quinn who told of some of his film-making adventures working in such icy extremes. Given his rich history of 15 documentaries from the ice – both in the Antarctic and Arctic – Max had plenty of stories to tell to a fascinated audience.

Hunting the Ice Whales is being distributed to broadcasters around the world by Off the Fence. www.offthefence.com



Camera/Director Max Quinn.
Image courtesy Paul Ensor.



L to R, Nick Gales Science leader,
Paul Ensor whale researcher, Michael Double Deputy
science leader, Simon Childerhouse whale researcher.
Image courtesy Max Quinn, NHNZ Ltd.



Inflatable pursues two whales. Image courtesy
Australian Antarctic Division/NIWA.

the whale's back. The inflatable pilots showed incredible skill manoeuvring the craft as close as possible while always on the lookout for a rogue tail that could easily flip them into the freezing ocean. Science leader Nick Gales and deputy voyage leader Sarah Robinson took on the job of precisely implanting the sat-tags high on the whale's back so it would transmit a position each time the whale surfaced. At the same time the biopsy dart guns would fire to retrieve a small but precious genetic sample of skin and blubber.

Although dangerous work, it effectively proved that research on

whales could be conducted non-lethally in these Antarctic conditions.

After an incredible 42 days at sea leader Nick Gales was able to reflect back on a job well done; *"We've shown that you can come down into areas that are incredibly difficult to work in with a really capable ship and work small boats around it...get the tags out on the whales and we're now starting to reap the benefits of that work and see the movements of these animals and start to see some early patterns and where they go for their krill...it's really exciting and it's starting to reveal a picture that we weren't able to get before."*

Since the film's completion, *Hunting the Ice Whales* has received screenings at the Marine Sciences Conference in Hobart, IceFest in Christchurch and a public screening in Dunedin. It's now in worldwide distribution with sales already made to France, Eastern Europe and Africa.

Check out the following websites for more stories from the film and a sneak preview.

www.antarctica.gov.au/media/news/2012/a-whale-of-a-tale#v78837

www.nhnz.tv/Antarctica%202012



The Oamaru Scott 100 programme launch gala dinner. Images courtesy of the Oamaru Scott 100 Centenary Commemorations Organising Committee.



The launch of Oamaru's Scott centenary commemorations

By Sarah Murray

On Friday 7 September 2012, more than one hundred people gathered in the glamorous setting of the Oamaru Opera House to launch the Oamaru centenary commemorations of Robert Falcon Scott's *Terra Nova* expedition.

Almost one hundred years ago, Dr Edward Atkinson and Lieutenant Harry Pennell rode ashore to Oamaru to cable the news – Scott and the four members of his Polar Party had perished. Decades later, the township on the eastern coast of the South Island will host five days of activities to remember the remarkable stories of the British Antarctic Expedition, 1910-1913.

In launching the programme of commemorative events, the gala dinner provided an inspirational beginning to what promises to be a diverse and stimulating range of activities. With a landscape of cool blues and drifting whites, diners were transported to the icy continent through a range of songs, dances, images and talks. New Zealand choreographer Bronwyn Judge (Antarctic Arts Fellow 2001/2002) and composer Chris Cree Brown contributed dramatic movement and sound to the occasion, reminding us that Antarctica continues to inspire artistic and creative

responses. The evening's guest speaker, Minister for Arts, Culture and Heritage, Christopher Finlayson deftly wove his support for New Zealand's Antarctic heritage through a fascinating talk introducing many of the upcoming centenary events.

One of the highlights of the evening was a presentation by Nigel Watson, Executive Director of the Antarctic Heritage Trust. The Antarctic Heritage Trust's work in caring for and conserving the historic huts and their contents in Antarctica continues to astound audiences. This work will be a significant feature at an upcoming exhibition developed in partnership between the Antarctic Heritage Trust, Canterbury Museum and the Natural History Museum of London. *Scott's Last Expedition*, featuring more than 200 artefacts from the *Terra Nova* expedition, will be on display at Canterbury Museum from 23 November 2012 to 30 June 2013. These objects are enhanced by the Antarctic Heritage

Trust's breathtaking images of the Cape Evan's base hut which literally transport the viewer into the smallest detail of these historic buildings. Watson touched upon these images at the gala dinner and also brought us forward in time through the stunning time lapse photography of 21 year old John Evans, the most recent Sir Peter Blake Trust's Antarctic Youth Ambassador. The evocative nature of these images once again reinforced the importance of preserving and celebrating New Zealand's historic links with the Antarctic.

From 6 February to 10 February 2013, Oamaru will host a programme of more than thirty events to commemorate one hundred years since Scott's *Terra Nova* expedition. From world premieres through to re-enactments, exhibitions and talks there will be a wealth of activities available for visitors of all ages. If you are interested in further information, please see: www.oamaruscott100.org.nz/index.html 

Iain of an Era

By Peter McCarthy (Canterbury Branch), October 2012

An interview with Iain Miller at Scott Base.

Antarctic: You're leaving as Antarctica New Zealand's manager of Operations and Infrastructure [O&I]. What has been your role?

IM: I started six years ago. Initially I was manager of Antarctic Support, managing logistics and capital assets and projects. An early challenge over the first three years was to set up and build the wind farm up on Crater Hill behind Scott Base in a deal with the US. At the time, Antarctica New Zealand did not have any real capital asset-management system, so we needed to develop a capital works programme to project-manage and create the discipline that went with that. I needed to develop and understand our relationship with the US, and the wind farm was part of that.

A few years on, my role was merged with the Antarctic Programme role to form the Manager, Operations and Infrastructure role. The result was that I took over all Scott Base operations, involving approximately 80 per cent of Antarctica New Zealand's budget and 80 per cent of the people.

Recently we completed developing the current Operations and Infrastructure team, which includes the programme support, asset management, services and logistics teams. On-continent [are] the Scott Base winter and summer crews where we also have a strong NZDF component. Over the year, that's a combined total of about 54 people working in O&I.

Antarctic: What have been your biggest achievements?

IM: Building the southern-most wind farm in the world during two summer seasons up on Crater Hill. We worked with the US to build and commission three turbines and developed the first-ever integrated power network between two Antarctic bases.

Picking up the development of the Antarctica New Zealand clothing range which had been going around in circles for years. We worked with David Ellis from Earth Sea Sky to produce our range of cold-weather clothing. We have some very discerning clients, and, on the whole, the feedback has been excellent.



Having just presented the winter pennant to Winter Base Leader Si Shelton, Iain Miller (right) reflects on his last trip as Manager O&I. John Leitch (left) Engineering Team Leader looks on. Photograph courtesy Peter McCarthy.

The Southern McMurdo Sound [SMS] ANDRILL project was another achievement in my first one- and-a-half years on the job. I was the project manager for New Zealand and we collaborated with the US, Italy and Germany. The SMS project set out to gather data of past Antarctic ice sheet variation and climate evolution. The team's 1,300 metre-deep drill core sampled sediment up to 17 million years old. These continental and global records provide a better understanding of the Ross Sea region's role in the past, present, and future global system and fed into IPCC climate models.

We have really worked to develop the Scott Base culture by focusing on judgement-based decision making rather than rules-based. We give our staff the tools, knowledge, training and equipment to work effectively and safely down here. There is a real sense of ownership and we strive to attain an interdependent team culture, where we look out for ourselves and also each other. We have also tried hard to eliminate bureaucratic process and paperwork for our customers.

I worked our joint logistics pool commitments with the US by introducing the RNZAF Boeing 757 into the pool.



At the A Frame with Sir Ed Hillary 2006/07. Photograph courtesy Mike White.

Antarctic: What have been the three most special moments?

IM: Sitting outside the A Frame with Sir Ed Hillary on a blue-sky day listening to his stories and sipping whisky; it was amazing. This was on my second day in Antarctica – a humbling experience.

The Erebus family commemoration event was the largest-ever Antarctica New Zealand event, bringing about 100 people to Scott Base for one day. Being a part of such a special commemoration was a privilege, particularly watching the emotion in the faces of the family members.

I visited an emperor penguin colony at Cape Washington, which is about 10 miles from Italy's Mario Zucchelli Station in Terra Nova Bay – 300 km north of Scott Base. That was awesome; like being in a David Attenborough documentary.

Antarctic: How do you see O&I going forward, e.g. the size, people, science, support and technology?

IM: I don't think the numbers will change much. We have about 85 per cent of the budget and 40 per cent of the full-time employees. It is really important to retain the good people we have. It is difficult retaining and rewarding good people and providing them with work-life balance, due to the fact for some that Scott Base life requires a lot of time away from home and families. We need to keep it sustainable and I tell our guys to try and make it work for them. We also need to retain our high-performing seasonal staff for the long term if we can. With the state of the world's and New Zealand's economy we need to continue to live within our means and continue doing the best with what we have got.

I think it'll be interesting to see how NZARI – [New Zealand Antarctic Research Institute] – impacts and what that can provide the science community.

We do need to continue to invest in technology but be careful not to get too complicated. We need to have on-going investment in energy-reducing technology, such as options for improved water-making technology.

We need to keep up-grading the Hägglunds [the Swedish tracked amphibious troop-carrier] fleet and continue to standardise our fleet. Our science platforms, such as the "wanigan" huts, that we tow out to the sea ice for events, and to work in, are all in need of refurbishment. There is no shortage of work to be done.

Our Scott Base master plan for 2030 is in draft form and soon to be finalised. One of the key themes in the plan is how to improve and consolidate the science workspaces. Currently science is scattered throughout the base, from the Hatherton Lab to the Hillary Field Centre – [HFC]. The plan is to look at consolidating labs into modular spaces; where, for example, a lab space can be easily reconfigured for different science needs, depending on demand. Wireless access is a constant demand from all, and this has to come soon. We can get bandwidth via satellite but currently cost makes [wireless] prohibitive.

Antarctic: Did you manage to do a polar plunge?

IM: No, I missed out. I must have been in the field when they were going on!!

Antarctic: Have you been to a Scott base skirt party, and, if so, what did you wear?

IM: Yeah, heaps. My favourite was the tight silver number.

Antarctic: What would you recommend to a first-time male party-goer?

IM: A summer frock, simple yet elegant. Definitely not a black negligée with fluff around the collar like Lex wore a few years back.



RNZAF Boeing 757. Photograph courtesy Peter McCarthy.

Antarctic: What is your favourite site in Antarctica?

IM: Castle Rock on a good night; the views are incredible. The Barne Glacier is also outstanding in good light.

Antarctic: A key part of your role is the Antarctica New Zealand relationship with the US. What have been some of your outcomes over the last six years?

IM: The balancing of the logistics pool with the contribution of the Boeing 757 and also the wind farm. It's about developing the trust in those relationships; being able to ring your counterparts and have a good discussion with mutual respect. It's those conversational relationships rather than the formal contractual approach which are important.

Antarctic: What has been the best-organised science event?

IM: Dr Tim Haskell is the one I respect most of all: extraordinary dedication, his incredible 34 years working on the sea ice. I also admire others like Professor Craig Cary, a microbial ecologist researching bacteria living in extreme environments such as the Dry Valleys and the fumaroles on Mt Erebus. Also Dr Nancy Bertler, for her preparedness to spend whole summers drilling ice cores at Roosevelt Island. In fact, all the science, all the far-flung ideas – admirable.

Antarctic: What about the Italian programme? How closely do you work with them?

IM: We have worked closely with them over the last few years, particularly with regard to airlift. I feel they have done well over the last five years, given the time and money. They work out of our Christchurch office and do amazingly well to mobilise and support Concordia as well. They are fun to work with and we have the same level of mutual respect; very nice guys.

Antarctic: How does the relationship with the NZDF work?

IM: It requires a lot of time, but they are a key part of our logistics pool. They provide the ship offload team through the Light Engineering Team – [LET] – that come down to McMurdo for a few weeks each summer season. The SAR [search and rescue] response is problematic when you compare our air force to modern air forces. They have a well maintained serviceable fleet but [have] unreliably inefficient air support.

The new HMS *Endeavour* will be the most important strategic asset for us, ensuring the project is adequately balanced to handle both fuel and cargo. It will be the single most [important] contribution NZDF can make.

Antarctic: The Koreans are building a new base called Jang Bogo – after an eighth-century "maritime King" – in Terra Nova Bay close to the Italians' Mario Zucchelli Station. Jang Bogo will operate year-round and will be one of the largest



The RNZAF Boeing 757 at Pegasus Airfield provides more efficient passenger transfer to Christchurch in a 4:40 hour flight. Photograph courtesy, Peter McCarthy, February 2012.

permanent bases in the Ross Sea area. What impact will that have on Antarctica New Zealand operations?

IM: I think that'll be good overall as a new player into the Ross Sea region. Jang Bogo will offer large logistics support from their base and will have the capability to conduct major overland traverses up onto the Plateau and cross the interior of that region. Their new ice-breaker, *RV Araon*, will also be valuable in the region, with logistics support and search and rescue capabilities. There is a real potential for Antarctica New Zealand to contribute the RNZAF C-130 platform to the Koreans in exchange for some of their logistics capability, much in the same way as our joint logistics pool works with the US. This could also result in a significant shared logistics hub at the US Pegasus Airfield. There is also the great benefit to New Zealand from the economic flow from another player operating out of Christchurch.

Antarctic: What are some of the immediate challenges New Zealand faces in Antarctica?

IM: Maintaining our reputation on environmental sustainability and not side-stepping the responsibility we have of managing the Southern Ocean.

For the last two years New Zealand has been working with the US on a proposal for a Marine Protection Area – [MPA] – in the Ross Sea to be considered by CCAMLR – [Commission for the Conservation of Antarctic Marine Living Resources]. In September, New Zealand backed away from the joint proposal and submitted its own proposal to allow toothfishing to continue where it is. CCAMLR requires a full consensus to enforce sanctions, and without consensus the toothfish remain vulnerable.

The on-going costs of operating down here. A blue-ribbon panel reviewed the US operations in the Antarctic last year and there are significant challenges ahead for them, with little prospect for increased funding.

Another issue is the Pegasus Airfield ice runway and the operational requirement to use it at night when the temperatures are lower. It may get to the point where the runway cannot be used mid-summer.

Politically monitoring the horizon – as resources of the world deplete, people will turn their eyes to Antarctica. New Zealand's role is to maintain our presence, role-model our values, maintain our safety record and our healthy organisational culture. It's going to be an on-going challenge.

Antarctic: No doubt you have had frustrations?

IM: The bureaucracy of implementing the wind farm frustrated me: jumping through all the hurdles that were

placed in front of us. The breadth of my role and not being able to focus and finish properly; it requires energy and attention. The frustration when you have the intention to do follow-through and know that there is stuff to do and don't have the resources; and I'm thinking examples like the wanigans and other resources being in poor shape.

Antarctic: Do you have any regrets?

IM: Maybe I didn't spend enough time with science out in the field. There's always those competing demands on you and I did not have the time and flexibility to understand more.

Antarctic: What is your legacy to Antarctica New Zealand? What will you be remembered for?

IM: Probably my leadership style. I have a candid approach to issues. The wind farm will be there for a while; a lasting testament. Also that cultural thing: open and relaxed, yet people know the standard and adhere to the principles. My passion for the winter crew: having those weekly meetings and talking to the winter base leader regularly; that continual support.

Antarctic: Will you be back to Antarctica?

IM: [Absolutely]. Not sure why or in what capacity – maybe a director one day?

Antarctic: Would you like to bring your family to Antarctica, and, if so, what would you like them to get from it?

IM: I'd like to bring my wife Pip, for her to see the place and what I've been going on about for the last six years. With the family I'd like them to gain an understanding of the environment, to see penguins and understand the ecosystem and the need for biosecurity in this most pristine and fragile corner of the world.

Antarctic: Antarctica New Zealand has been a big piece of your life. How will you manage the transition?

IM: I'll launch head-long into the new challenges. I will miss parts of Antarctica New Zealand; its uniqueness. [In] what other job do you spend Sunday brunch and evenings with the people you work with? There will be changes, but I won't look back.

Antarctic: Finally, Iain, what opportunity has lured you away from Antarctica New Zealand?

IM: I am going to be the CEO for a new start-up company in the paua export industry. It's completely different to this but the link for me is keeping in touch with the natural world. I'll still go to some amazing places, like Stewart Island and Fiordland, and for me the natural beauty has strong appeal. I wanted to leave Antarctica New Zealand feeling positive, rather than staying on for too long and going for other reasons. 🍷



The K131 team wearing clean suits obtaining an ice core sample. Bruno Delille. All images courtesy Peter McCarthy.

Brief overview and sampling site of K131-YROSIAE

By Bruno Delille

Oceans play a key role in global change issues. Since the onset of industries, oceans have absorbed 48% of the carbon dioxide produced by human activities. Little is known, however, on the role of sea ice in this uptake of CO₂. Indeed, for decades sea ice was seen as an impermeable barrier for gas exchanges.

In the last years there is growing evidence that sea ice can play an active role in the uptake or release of carbon dioxide and climate gas. Taking into account that sea ice is one of the largest biomes on Earth the amount of climate gases absorbed or released by sea ice can be potentially significant.

K131-YROSIAE stands for Year Round Ocean Sea Ice Atmosphere Exchanges. The project aims at a year-round survey of land-fast sea ice in Antarctica, focusing on the study of sea ice physics and biogeochemistry in order to better understand and budget exchanges of energy and matter across the ocean-sea ice-atmosphere interfaces during growth and decay, and to quantify their potential impact on fluxes of climate gases (CO₂, DMS, CH₄, N₂O) to the atmosphere and on carbon, nutrients and micronutrients (including trace metals) export to the deep ocean and to other sectors of the world ocean.

In November 2011, we set a tower for continuous micro-meteorological measurement of CO₂ fluxes over land fast sea ice, at Cape Evans, in the surroundings of Scott's Hut. This will allow us to budget air-ice CO₂ fluxes over the year. In addition we are taking discrete samples of dimethylsulfide (DMS), a climate gas mainly produced by ocean micro-algae. DMS, the opposite of greenhouse gas, contributes to cool down the temperature of the atmosphere. Power supply of this remote equipment is provided by two wind generators and a fuel-cell.

In parallel, we are trying to understand the role played by sea ice physical, biological and biogeochemical processes in supporting the fluxes of greenhouse gas. To achieve that objective we developed a highly trans-disciplinary research methodology that combines field investigations and modelling. Since September 2012, we collect ice cores, sea water, brines and exported material in trace clean conditions during field surveys, at regular intervals, to characterize the distribution of climate gases (CO₂, DMS, CH₄, N₂O), physical (salinity, temperature, texture, ¹⁸O) and CO₂-related (DIC, TA, CaCO₃) biogeochemical parameters, macronutrients and particulate material (including ¹³C, ³⁰Si and ¹⁵N), micronutrients (including iron), biological parameters (chlorophyll a, micro-algae speciation, bacterial cell and viruses counts, primary production within sea ice derived from O₂/Ar and O₂/N ratios).

Iron plays a crucial role in limiting production of Southern Ocean micro-algae. We are studying iron fluxes and cycling within sea ice. As iron can be very easily contaminated, we developed special procedures for collecting sea ice samples, including wearing clean suits on the ice.

Two dust collecting towers were installed on the shore at Cape Evans to provide a temporal record of a full suite of trace metal and dust measurements at different levels above the ground. These will be used to characterize the origin, nature and availability of these

compounds that are biologically active in the sea ice. Sea ice ocean exchanges are investigated using vertical profiles in the water column down to 30 m of the parameters described above, and also through the deployment of three sediment traps (down to 76 m) that allow to collect particulate organic matter and potentially inorganic matter. Finally, were installed 'Ice-T' (an Ice Mass balance Buoy) in sea ice cover to provide real time records of ice accretion or melting, both at the ice-ocean and the ice-atmosphere interfaces. Ice-T measure ice temperature profiles and basic meteorological data continuously, with regular download through an ARGOS transmission system.

Modelling effort will involve the extension of a bio-physical sea ice model to gas exchange and its extensive validation using the data from this project and from five previous programs. This biogeochemical model will be central in the mid-term future to integrate the knowledge gained on sea ice processes from field surveys and experimental studies in the Earth System Models used for climate projections. 

People involved

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Other participants: Jiayun Zhou (ULB/ULG-Be), Willy Champenois (ULG-Be), Brian Staite (Antarctica New Zealand), Gauthier Carnat (ULB-Be), Thomas Goossens (ULB-Be), Sebastien Moreau (UCL-Be), Gerard Dieckmann (AWI-Ge), Martin Vancoppenolle (LOCEAN-Fr) Frédéric Vivier (LOCEAN-Fr)



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Richard ("Dick") Barwick (1929 – 2012)

Tribute by *Barrie McKelvey*

Dick Barwick, retired Reader in Zoology at the Australian National University, died suddenly in Canberra on 9 November 2012. Whilst a junior lecturer in Zoology at Victoria University of Wellington (VUW), Dick joined the Scott Base 1956/57 and 1957/58 summer support contingents of the Trans-Antarctic Expedition (TAE). In the following summer of 1957/58 Dick was one of the four members of VUW's second Antarctic expedition which explored the Wright and Victoria systems of the McMurdo Dry Valleys.

Dick was born in Christchurch and graduated from Christchurch Boys High School. His boyhood memories were of "freewheeling yet disciplined roaming and exploring around the outskirts of Christchurch" and of being particularly interested in birds, reptiles, amphibia and insects. Always tough and wiry, he furthered his education in such diverse jobs as a potato picker, market gardener, knacker worker, filing clerk and forestry worker. Eventually enrolling at Victoria University he achieved an MSc (Hons) degree for his study of the life cycles and ecology of scincid lizards.

During Dick's first TAE summer season at Scott Base he spent long hours tractor driving, unloading cargo, helping construct buildings, running chain lines and doing theodolite sighting for surveys, and seawater sampling. Biological studies were sandwiched in whenever an opportunity arose. The second summer season saw a less hectic Scott Base and allowed Dick to snatch more time for fieldwork. With three others he was landed from *HMNZS Endeavour* onto Franklin Island for a few hours. It was probably the first landing there since that of Borchgrevinck in 1900. Dick quickly scaled the volcanic heights and obtained a photographic panorama that allowed the first assessment of the island's Adélie penguin colony. A few days later Dick was landed at Botany Bay in Granite Harbour and after a few hours reboarded *Endeavour* laden with geological and botanical specimens. Most importantly that season Dick and three others (using US Navy helicopter support) camped in, and explored for ten days, the virtually unknown Victoria Dry Valley. The following summer, as a member of VUWAE 2, Dick spent nearly eight weeks investigating both the Wright and Victoria valley systems. There he researched the micro-faunas and floras in and about Lake Vida and Lake Vanda, and documented the remarkable mummified crabeater seals often found far inland from the coast. Much of his time had to be spent climbing numerous peaks in the Olympus and adjacent ranges to assist the party's physicist leader, Colin Bull, undertake a first survey and so establish ground control throughout much of this polar desert.

In 1960 Dick joined the Zoology Department of the newly



Victoria University of Wellington Antarctic Expedition 1958 – 1959 (VUWAE 58-59) members. Left to Right: Dick barwick, Colin Bull, Peter Webb, Barrie McKelvey. Image courtesy Margaret Bradshaw.



Dick barwick, Colin Bull, Peter Webb, Barrie McKelvey at the Vanda Reunion at Twizel 2005. Image courtesy Margaret Bradshaw.

established School of General Studies at the ANU as a lecturer. There he developed undergraduate courses, and pursued a very active research career in ecology and evolutionary biology. He helped pioneer the application of radiotelemetry to biological research in the Australian bush. Dick was also Deputy Warden of Bruce Hall, the first co-educational residence on an Australian campus. He was devastated when his wife Diane, a noted Australian urban anthropologist, died tragically in 1986. Dick retired in 1994, but continued a highly productive collaboration with Professor Ken Campbell researching the evolution and functional anatomy of ca. 400 million years old Devonian lungfish, work that has received international recognition.

Dick's talents were protean. He was an enthusiastic silver smith, wood turner, calligrapher, postage stamp designer and recreational photographer. He was an excellent conversationalist, and an avid rugby enthusiast. For the first time in 50 years he returned again to McMurdo Sound in 2008 as lecturer on a polar cruise vessel. To the end Dick pursued his many scientific and personal interests with admirable passion and expertise. He will be much missed by his many friends and colleagues. ❧



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The Barrier Silence

By Edward Wilson during the Terra Nova expedition

*The Silence was deep with a breath like sleep
As our sledge runners slid on the snow,
And the fate-full fall of our fur-clad feet
Struck mute like a silent blow
On a questioning 'hush', as the settling crust
Shrank shivering over the floe:
And the sledge in its track sent a whisper back
Which was lost in a white fog-bow.*

*And this was the thought that the Silence wrought
As it scorched and froze us through,
Through secrets are hidden are all forbidden
Till God means man to know,
We might be the men God meant should know
The heart of the Barrier snow,
In the heat of the sun, and the glow
And the glare from the glistening flow,
As it scorched and froze us through and through
With the bit of the drifting snow.*

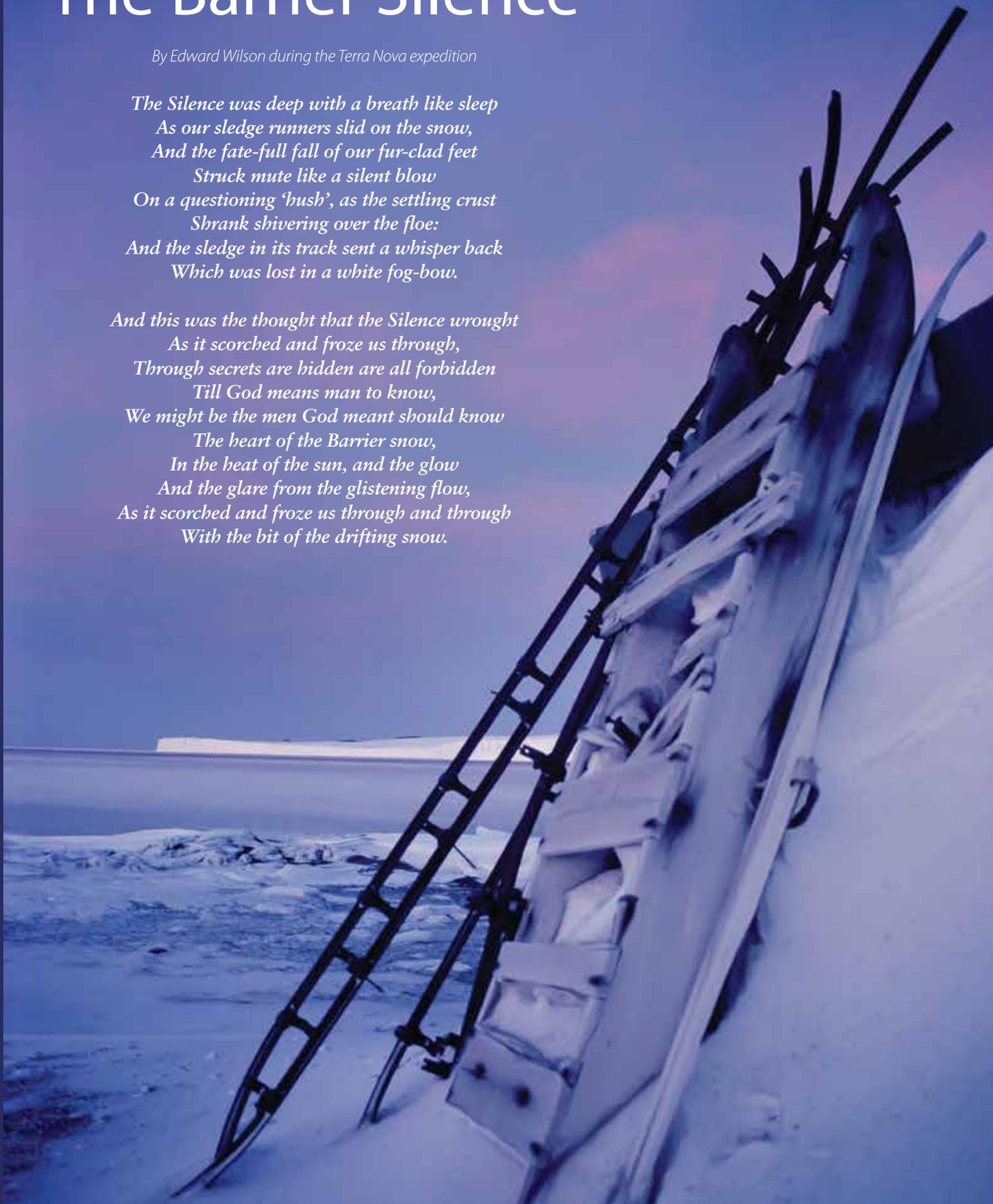


Photo above: Sledges outside the Terra Nova hut at Cape Evans.
Image courtesy Colin Monteath, Hedgehog House (www.hedgehoghouse.com).