

ANTARCTIC

RRP \$15.95





www.antarctic.org.nz

is published quarterly by the
New Zealand Antarctic Society Inc.
ISSN 0003-5327

The New Zealand Antarctic Society is a
Registered Charity CC27118

Please address all publication enquiries to:

PUBLISHER: Gusto

P.O. Box 11994, Manners Street
Wellington

Tel (04) 4999 150, Fax (04) 4999 140
Email: leigh@gustodesign.co.nz

EDITOR: Natalie Cadenhead

P.O. Box 404
Christchurch 8140
New Zealand
Email: ncadenhead@canterbrymuseum.com

ASSISTANT EDITOR:

Janet Bray

INDEXER:

Mike Wing

PRINTED BY:

Format, Wellington

This publication is printed using vegetable-based inks onto media gloss, which is a stock sourced from sustainable forests with PEFC (Programme for the Endorsement of Forest Certification), EMAS (The EU Eco-Management & Audit Scheme) & ISO accreditations. *Antarctic* is distributed in flow biowrap.

Cover photo:

Renée White and Jackson Walter from Hillview Christian School participate in Antarctic Explorers lesson with Louisa Preen.
Image courtesy Louisa Preen.

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. Iris Orchard (Canterbury), 1990
5. Robin Ormerod (Wellington), 1996
6. Eric Gibbs (Wellington), 1997
7. Baden Norris (Canterbury), 2003
8. Bill Cranfield (Canterbury), 2003
9. Randal Heke (Wellington), 2003
10. Bill Hopper (Wellington), 2004
11. Malcolm Laird (Canterbury), 2006
12. Arnold Heine (Wellington), 2006
13. Margaret Bradshaw (Canterbury), 2006
14. Ray Dibble (Wellington), 2008
15. Norman Hardie (Canterbury), 2008



COMMENTARY

- Presidents Brief 50

EVENTS

- Canterbury Branch Celebrates the Centenary of Scott's Midwinter Dinner 51
Regional Roundup 52

HISTORY

- Building a Hillary Tractor 54

EVENTS

- Volunteering in Antarctica 60

SCIENCE

- Icy Tongues and Spicy Turbulence 62

BOOK REVIEW

- My Life from Antarctica to the Yukon 65

TRIBUTE

- Noel Gillespie 66

ARTS

- Poem – The Sleeping Bag 68

Presidents Brief

Canterbury Quakes

The events in Christchurch in the past year remain dominant in our minds with the aftermath in both CBD and urban areas still very evident. The events have had a significant impact on many of our Canterbury members and it will be some time before any state approaching normality is achieved.

There is also the effect on many Antarctic icons of Canterbury which have suffered significant damage including the Scott statue, Lyttelton and Canterbury Museums. Even the Conservation Trophy penguin broke the tip of its nose!

Antarctic

Despite the difficulties imposed by the Christchurch earthquakes *Antarctic* Editor, Natalie Cadenhead, has managed to meet publication deadlines. A fantastic effort and such a quality publication. Members may not be aware that the publication cost of *Antarctic* consumes over 90% of our income.

Annual Subscriptions

Hopefully everyone has now renewed their membership. Like all organisations cashflow is important. Subscription rates have remained unchanged from the previous year.

Oral History Project

Over 30 oral histories by notable Antarcticaans have now been completed. Five recent additions have been made possible by funding assistance from Antarctica New Zealand and Sue Stubenvoll. These records are held at Canterbury Museum. Margaret Bradshaw's leadership of this project is gratefully acknowledged.

Conservation Trophy

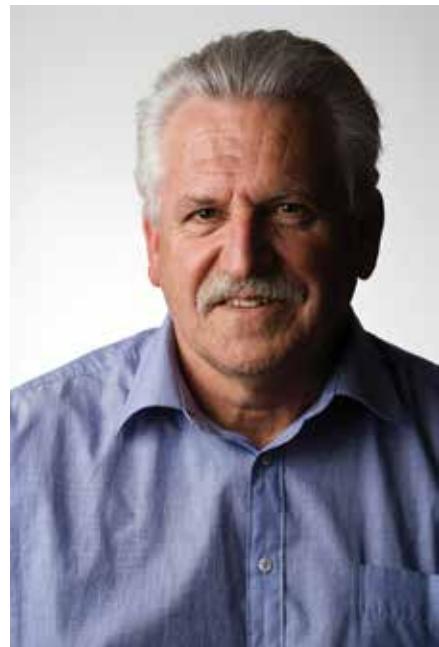
A new recipient of this award is pending and will be presented when a suitable time and occasion is decided. Peter Carey was the previous trophy holder.

Scott Base Volunteer Programme

At the time of going to print applications for the 2011/2012 programme are currently going through the selection process.

Antarctic Centenaries

Many notable centenaries are coming up in the next six months including Amundsen reaching the Pole on 18 December 1911 and Scott reaching the Pole on 17 January 1912. Events marking these centenaries are likely to be co-ordinated at branch level and in Canterbury possibly in conjunction with Antarctica New Zealand and the New Zealand Antarctic Heritage Trust.



Graham White

Annual General Meeting (National)

This meeting is scheduled to be held at Turnbull House, Wellington on 5 November 2011. Further details will follow via branches.

Graham White
President



Amundsen, Hansen, Hassel and Wisting at the South Pole, 17 December 1911. Canterbury Museum: 2569.



Canterbury Branch Celebrates the Centenary of Scott's Midwinter Dinner

By Grant Hunter

No seismic activity was going to deflect Canterbury Branch members and associates from celebrating the centenary of Scott's Midwinter Dinner on Thursday 23 June.

The celebration was held 100 years to the day after the Scott expedition's wintering-over dinner in its new hut at Cape Evans. Never mind that our intended venue, The Loons, Lyttelton, had been sidelined at short notice by the double earthquakes on 13 June, for the Naval Point Club, also at Lyttelton, rallied to our aid with a suitably poignant place for us to gather.

A full house of 48 members and friends attended this event. Each was charged with bringing a pennant to drape as part of the décor, and our ceiling-line was every bit as colourful and flaggy as photographs show the Cape Evans Hut to have been.

We enjoyed a welcome cocktail with canapés, green velvet soup in lieu of the seal variety, and a wider range

of roast meats and vegetables than Scott's beef, potatoes and sprouts. Our desserts seemed comparable, though we wanted for Cherry-Garrard's Buzzard cake. Three members proposed toasts: to Her Majesty the Queen, her heirs and the Royal Family; to the New Zealand Antarctic Society, Antarcticans, and absent friends; and to Captain Scott and his *Terra Nova* party.

During the evening we received a telephone call from Scott Base where the 14 wintering-over Kiwis were also engaged in festive dining. Several of our contingent traded greetings and jibes with Troy Beaumont, the wintering-over leader at Scott Base. (Troy's grandfather had been on the *Morning*, which, along with the *Terra Nova*, sailed to support Scott's *Discovery* expedition.)

In lieu of records on the gramophone Laura Tomlin performed songs she had written following her travels to the Ice in 2008 with Gateway Antarctica's Postgraduate Certificate in Antarctic Studies. *Ice Shelf Lullaby* tells of the routines in a field camp in the Antarctic summer; and *When We Live in Antarctica* was her response to being part of a group of individuals shaped by their shared environment into a unique community. (Laura hopes to record these soon.)

Scott's expedition was represented at our dinner by descendants of the *Terra Nova*'s crew: Gerard McCarthy and his son Peter, and Anne Hunter (McDonald).

Our thanks to organisers Sue Stubenvoll, Shirley Russ, and Peter McCarthy. ♣

Regional Roundup



Auckland members celebrate midwinter. Image courtesy Graham White.



The Winter Over Scott Base crew. Photograph courtesy Daniel Jennings.

November 2010

Auckland branch Trivia Night

A successful Antarctic quiz and ‘show and tell’ evening was held. It was great to see various items of memorabilia and hear the stories from 1960’s expeditioners Peter Otway and Frank Graveson. Thanks to Linda Kestle for putting this all together.

February 2011

Screening of the film *Last Ocean* at the New Zealand Maritime Museum, Auckland.

27 May 2011

Ted Tally’s play *Terra Nova* opened in Nelson. The play is described as a chilling depiction of the final days of Scott’s Antarctic expedition. It takes the audience with Scott as his mind flips from his wife and family, to the challenge to be first at the South Pole, and back to the icy white of Antarctica.

7 June 2011

Ted Tally’s play *Terra Nova* opened at Titirangi Theatre, Auckland. The play was first performed in 1977.

8 June 2011

Antarctic Arts Fellow Peter James Smith’s exhibition titled *Iceblink* opened at the John Leech Gallery, Auckland.

17 June 2011

MidWinter Dinner, Maungakiekie Golf Club, Auckland

Great hospitality and musical entertainment performed by members of the golf club members was much enjoyed by Auckland Antarcticians.

23 June 2011

MidWinter Dinner, Naval Point Yacht Club, Lyttelton

23 June 2011

MidWinter Dinner, Scott Base, Antarctica

Winter staff at Scott Base marked the 100th anniversary of Captain Scott’s famous mid-winter dinner with their own version based on the original menu. They were also able to celebrate with the Christchurch office of Antarctica New Zealand through a video link up.

24 June 2011

MidWinter celebration, Turnbull House, Wellington

Around 70 people attended the function including diplomats from the various embassies of Antarctic Treaty signatory nations, government and defence representatives and a wide range of Antarctic related organisations, Antarctic society and friends. The Secretary of Defence,

John McKinnon presented the Loyal Toast to the Queen, Maurice Bognuda made the Toast to Past Parties, Troy Beaumont, Scott Base Winter Leader made the Toast to Present Parties via a Live telephone link with Scott Base and His Excellency, Mr Fernando Daniel Escalona, the new Ambassador of the Embassy of Argentine Republic, gave a rousing toast to the strength of partnership and cooperation that underpins the Antarctic Treaty and scientific operations in Antarctica – and of course, mentioned his country’s keen interest in the Rugby World Cup.



Scott Base MidWinter dinner menu painted by Julie Unruh, AHT conservator on the ice.

June through to September 2011

Happy Feet the Emperor penguin

The Emperor penguin named *Happy Feet* visited New Zealand for a few months, had multiple operations and was released into the Southern Ocean to hopefully return to Antarctica. More details through:

www.wellingtonzoo.com



The Emperor penguin called Happy Feet who came to visit New Zealand. Photograph courtesy Dick Jessup.

4 July 2011

Annual Antarctic Conference, University of Waikato

There was a good attendance at the conference which had a theme looking at the *Value and Relevance of Antarctic Science*.

August 2011

Filming of Shackleton's Captain begins

Several Auckland branch members participated as extras in this docudrama which will screen on TV in December. A must watch to see who you recognise!

18 August 2011

Radio New Zealand interview at 9pm with Rochelle Constantine and Nick Gales about the joint Australia-New Zealand Antarctic whale research expedition of 2010. The findings from the expedition were presented at the International Whaling Commission in 2011. The interview is available at <http://radionz.co.nz/ourchangingworld>

2 September 2011

Canterbury Museum reopened to the public

Due to repairs needed in the Antarctic Gallery a display in the geology section was removed. This display has been temporarily replaced by the 1958 film *Antarctic Crossing* of the Commonwealth Trans Antarctic Expedition of 1955 to 1959.

September 2011

Scott Base Volunteer Programme applications open for the 2011/2012 season. The successful volunteers will be announced in the next issue.

27 and 28 September 2011

Whisky Tasting Evening Auckland

The Antarctic Heritage Trust in partnership with Glengarry Wine is holding a tasting event to celebrate the release of the 'Shackleton whisky' replica, *Mackinlay's Rare Old Highland Malt*. Contact Glengarry Wines for details: 0800 733 505 or www.glengarrywines.co.nz

30 September 2011

Season Opening tour of Antarctic Gallery Canterbury Museum for Antarctic dignitaries.

1 October 2011

Invitation only visit to the Scott statue which was damaged in the Christchurch earthquakes. Contact Canterbury Branch chair for details.

2 October 2011

Church Service to open the 2011/2012 Antarctic Season

Due to the damage to Christchurch Cathedral this service will take place in the chapel at Christs College, Rolleston Avenue at 11am. Contact Canterbury Branch chair for details.

2 October 2011

Wreath Laying ceremony

Due to the earthquake damage to the Scott statue the wreath laying will be held in the Antarctic Gallery at Canterbury Museum. The wreaths will be placed at the base of the Scott bust in the gallery directly after the church service. This bust was also created by Kathleen Scott.

3 October 2011

Whisky Tasting Evening Wellington

The Antarctic Heritage Trust in partnership with Whisky Galore is holding a tasting event to celebrate the release of the 'Shackleton whisky' replica, *Mackinlay's Rare Old Highland Malt*. Contact Whisky Galore for details on (03) 377 6824 or www.whiskygalore.co.nz

5 October 2011

Whisky Tasting Evening Christchurch

The Antarctic Heritage Trust in partnership with Whisky Galore is holding a tasting to celebrate the release of the 'Shackleton whisky' replica, *Mackinlay's Rare Old Highland Malt*. Contact Whisky Galore for details on (03) 377 6824 or www.whiskygalore.co.nz

5 November 2011

National AGM to be held in Wellington at Turnbull House, 11 Bowen Street between 1 and 2pm. All welcome.

5 November 2011

The unveiling ceremony for the new Mrs. Chippy interpretation panel will be held at Karori Cemetery at 3.00pm. Contact Wellington branch chair for details. ♀



Building a Hillary Tractor

By John Callesen

After completing restoration of the Oliver Crawler tractor used to take skiers and luggage to the Ball Glacier ski field, my brother Denis, then General Manager of the Hermitage and Trustee of the Aoraki Mt Cook Museum Trust, said he would love to have a "Hillary Tractor" like the ones used during the Commonwealth Trans-Antarctic Expedition 1955–1958 (CTAE). I rashly said, "Well, I'll just make one." Having seen the tractor in Canterbury Museum I thought it seemed a straightforward project.

In December 2007 the Sir Edmund Hillary Alpine Centre (SEHAC) at the Hermitage Mt Cook opened, and John Davies, the Chairman of the Aoraki Mt Cook Alpine Village Ltd, asked me to give an estimate of the cost to build the tractor.

Growing up on a farm using Massey Ferguson tractors and being an experienced car restorer meant I had some affinity with this project. Some months were spent researching exactly what the tractor should look like. All three tractors that made the trip still exist: two in New Zealand at Canterbury Museum and MOTAT, Auckland, and one in the Massey Ferguson museum in France.

All three museums holding the CTAE tractors were visited and numerous photographs were taken. These photographs, combined with research, showed that the tractors had been altered during their lives with the CTAE. The goal was that visitors to SEHAC should see a tractor as the originals had looked when they had arrived at the South Pole. This would mean donating at least double the time originally estimated to build one.

The third tractor, named "Sue", had been in original condition when it had been shipped to the Massey Ferguson Museum in Coventry, England. Unfortunately, about 15 years ago it was fully restored before being sent to the Massey Ferguson Museum in France. A friend, John Kennedy, a Kiwi living in the UK, drove to France and sent back to New Zealand 134 photos of the tractor. The restoration of Sue meant it now looked brand new with perfect panels, plastic lights, and a bungee cord holding historically incorrect canvas. Luckily, the frame and panels were correct, as was one set of tracks. Between the three tractors and original photographs, enough information was gathered to build an exact replica of a "Hillary Tractor" as it would have looked when arriving at the South Pole in 1958.

The original tractors were intended to be used to transport the 600 tonnes of stores from the ship *Endeavour*



On January 4 1958, driving trusty Ferguson TE20 'Fergie' tractors, Sir Edmund Hillary and his team became the first overland explorers to reach the South Pole since Captain Scott's expedition in 1912, and the first ever to do so using mechanised vehicles.

Photo courtesy AGCO Australia Ltd.

This image does not appear in the book Something Different.

to Scott Base. The three tractors, donated by Massey Ferguson (UK) duly arrived in New Zealand to be assembled by Norwoods of Palmerston North. The tracks were sent separately by Massey Ferguson (Scandinavia), who designed the track system for these TEA-model tractors. A modified electrical system was also installed. Luck featured in my finding out about the original vehicles. My mother sent a Christmas card to a family friend, Gordon Watkins, mentioning what I was working on. He wrote back to say that in 1956 he had been workshop foreman for LM Silver & Co, King Street, Palmerston North, who were Southern North Island distributors for Lucas parts. One day he had received a call from the service director of Lucas, Auckland to say that a case lot of special equipment would be arriving to be fitted to three Ferguson tractors for Hillary's Antarctic expedition. Gordon remembered that the M418 heavy-duty replacement starters wouldn't fit against the crankcase. He ended up over-centring the housings in a lathe and told me to look at the original tractors to see his handiwork.

Continued over ➤



The original tractor before restoration.

Heavy-duty generators and silicon rubber wiring looms that don't freeze or crack were also fitted. Taylor and Andrews, a local engineering firm, had the job of converting the tractors from wheeled to tracked. Unfortunately, because the tracks were late in arriving they could not be trialled along with the rest of the equipment at Mt Cook before departure.

It took a year to find a Ferguson TEA from 1956, the last year the TEAs had been built. I wanted one as close to the original tractors' serial numbers as possible, hence the search for a 1956 model. Despite the replica tractor being destined for display I wanted it to be in running order, and it took a day to get the 1956 tractor, which hadn't been running for a number of years, operational again. All the fuel and oil were then removed to prevent leakages onto the SEHAC floor. As there was no drain plug on the steering box the tractor was taken apart to get it off and drained. The whole tractor was sandblasted to remove all the oil and rust, which involved tipping it upside down with my digger to do the underside. It was then put onto wheels suitable for tracks.

Originally, so the tracks would run over the front axle, 21 inch tractor rims were fitted instead of the factory-fitted



Beginning the restoration and adaptation of the front wheel rims.

TEA 19 inch ones. As none were available they had to be fabricated specially. This was done by taking four of the 19 inch rims and segmenting them to create 21 inch rims. The trick was to extend the hubs out to the now 21 inch rim and retain the four scalloped gaps like the originals. After many weekends of work they were within 2 mm diameter and looked the part.

Some of the museum tractors have standard three-rib tractor tyres on but expedition photographs showed that vintage car-type tyres had been used, which gave a more flattened surface for the tracks to run on. To achieve the

original look, worn 21 inch tyres were removed from an army 1927 Dodge Coupe (which then got new ones). Worn rear tyres with the correct tread type were finally found at Taranaki Tractor Dismantlers.

Much research went into the track system. Massey Ferguson agent Ron Fletcher had seen the remains of a centre idler wheel arrangement in Wanganui. There was enough left to work out the complete system and this was copied. Castings were made and the whole system replicated, including the spring-loaded shock absorbers, both outside and in. These units were a major undertaking. While building them I marvelled at how the tractors completed the journey south, as it was obvious that some of the components were pretty fragile.

The centre jockey rims presented the same problems as the front ones. New Holland hay press wheels were found to be the correct 15 inch diameter but needed to be cut down to a 4½ inch width. To be able to fit in the jockey wheel, Massey Ferguson had produced a reduction gearbox that extended the tractor by 5½ inches. After searching unsuccessfully for over a year to find a reduced gearbox I reproduced one from scratch, based on photographs. It was a large task to ensure every detail of the exterior was correct, including the levers and the serial number plate. The basic tractor was now complete and work began on the tracks.

A partial set of tracks with a set of rusty steel cleats still on the original rubber straps was found in the backblocks of Waitara. Half the cleats were usable for display purposes and the joiners were complete enough to use as patterns. Manawatu Hydraulics used their workshop to make the remaining 4 mm cleats.

Hillary had been so impressed at how the tractors performed that he wanted to use them to lay the depots. A trial run was made to Cape Crozier to ensure this plan would work. Even carrying only light loads, the petrol consumption averaged 4 miles/gallon, showing that with a 7.9 gallon tank easy access to the petrol cap was going to be needed! Additionally, the small windscreen and bonnet-to-seat-height canvas screen were insufficient to prevent cold affecting the driver. During the wintering-over period the tractors were modified to solve these issues, using on-site stores and equipment, including an oxyacetylene plant, an arc-welder and a sewing machine. All these winter-over changes needed to be replicated on the new "Hillary Tractor".

The expedition created a safety frame for the cab in case the tractor dropped into a crevasse. The base of the frame was ¾ of an inch thick and was bent to be attached under the rear guards. Magnifying photos of this area showed two separately bent ⅜ inch plates welded together. The cab was made out of Dexion shelving. Enough of the correct type was found left over from the construction of a hay sledge,

and the original Dexion bolts were usable after sandblasting. The size of the cab was ascertained using photos of the "French" tractor and counting the number of holes in the Dexion. This gave the exact sizes and angles of the entire cab, including the safety frame. Colour photographs provided the correct colour of canvas for the covering. Vintage car upholsterer Basil Shailer copied the cover, including the window hole construction, from photographs. All bolts that held the canvas were placed exactly as per photographs from the South Pole. Old oxidised aluminium was used on the front of the cab and to hold the radio. The windscreen was a challenge as it is unknown how Perspex was rolled into shape in the 1950s. We finally succeeded, and we then used rusty sheet metal to form the surround to make it look 50 years old.

Once, when a friend asked Sir Edmund Hillary what his greatest achievement was, his reply was not "Ascending Everest" but "Getting three farm tractors to the South Pole."

Expedition reports stated that angle iron was used to strengthen the front axle, and studies revealed the angle iron used was Waratah fencing standards. (It took some creativity to explain to the French curator of the tractor what these were.) Presumably they had been stocked at Scott Base to construct windbreaks for the dogs.

According to reports from the expedition, the tracks kept coming off the tractor during the initial trip from the ship to Scott Base. This seemed to be because the front wheel wasn't adjustable to centre the tracks. To fix it, they used a hacksaw to cut a slot through ¾inch plate used to fasten the front steering so it could be adjusted. For authenticity these slots were recreated on the front axle steering fasteners. The expedition team also found that the centre jockey wheel wasn't putting enough downwards pressure on the tracks. This was because the spring loaded units had been originally made for tractors fitted with half tracks. A few half-track tractors had been used in New Zealand, as they gave more traction but could still be steered normally. These units relied on the pressure of the tracks around the jockey wheel forcing it backwards against the spring units. On the fully tracked expedition tractors the jockey wheel was just floating on the tracks, therefore Hillary's team had to increase the angle of the shock-absorber units to create more downwards pressure. To achieve this they used spare linkages and grafted them into the top shock absorber mounts. On our discovering this, the replica tracks had to

Continued over ►►

be changed in the same way, after they had already been made based on the half-track version.

The tractor could be steered only with the brakes, and in New Zealand levers were placed outside the piece of canvas wind protection, to be operated by hand when the driver was sitting down. For Antarctic conditions these were changed to be inside the canvas and welded to the brake-actuating arms. To get more traction a triangular piece was cut out of $\frac{1}{4}$ inch flat steel and welded to each side of the hump in the track cleats. Half the winter must have been spent doing this job, as it took us ages to cut and weld on with an arc welder 128 of them in the same way the expedition team had. To stop the track cleats hitting and jamming against the rear guards, $\frac{1}{4}$ inch flat plate was welded to a piece of channel and fixed just inside the rear of the guards.

Originally the cleats had been attached to chains, but by the time the ship was unloaded the cleats had broken multiple times, so the team came up with the idea of mounting them on $1\frac{1}{2}$ inch x 3 inch rubber belting. Welding and assembling the tracks took my helpers and me 170 hours!

The rear half of the tractor's bonnet was cut off so that the battery, which had been originally placed in an exposed position by the diff, could be mounted up by the engine. As the expedition had only oxyacetylene to cut steel I recreated all the scorch marks this would have left on the bonnet. The expedition welded a piece of angle iron with slots in it to the rear of the bonnet, which was held closed with No 8 wire. This allowed easier access to the petrol cap for regular refuelling. Originally, the bonnet grill had radiator shutters to keep the engine the correct temperature but this system was extremely frustrating and was discarded for a piece of canvas. This was fastened and made adjustable by welding three $\frac{5}{16}$ inch washers on each side of the bonnet, slotting the canvas and holding it once again with No 8 wire.

All the modifications performed at Scott Base have been recreated in this replica and painted matt black so they can be seen and won't rust. The team at Scott Base had had no tractor paint, so all the steel used was in its natural state, which in photos looked black.

During the CTAE there was no canvas on top of the cab while the tractors were being driven, to allow escape if the occupants fell into a crevasse. There was a rolled up canvas flap that could be pulled over to keep the snow out when they slept.

From photographs it seemed that the most likely option to tie this back had been a leather boot lace, which was luckily obtained from John Hastilow, a vintage car club friend, during the trip to deliver the tractor to the Sir Edmund Hillary Alpine Centre. The canvas screen was not windproof and hence, on the CTAE, the drivers swapped over regularly due to the cold.

During the journey to the Pole the tractors had had "A" frames attached to the front axle so they could be towed. There was not enough room in the Alpine Centre for this, so a piece of flat steel was welded on to indicate where it would have been attached, which was then cut off as had been done to "Sue".

At the rear of the CTAE tractors was a drop-down hook used for towing cargo sledges. This was challenging to make based on the surviving tractors and original photographs. An equipment-lifting rail was attached to the hydraulic arms.

The ammeter on the tractors was original to the TEA model, but these didn't have temperature gauges so an after-market one was installed on all three tractors. For the replica these were reproduced in New Plymouth.

The final paint colour was very difficult to get right. All the museum tractors had been repainted, and colour photographs taken on the Ice had different shades of red or orange-red. Massey Ferguson TEAs were always painted grey, and today's Massey Ferguson agents couldn't come up with any reds for 1956. Some articles say the tractors were painted once in Antarctica for visibility, but this was not the case, as they were working as soon as the ship arrived and photos show them already red. Eventually an orangey red was created that was "flattened" right back to look old. The Ferguson name on the bonnet was reproduced by Capture Signs in Palmerston North to match the same size, font and colour as seen in the photos.

In December 2009, two years after my initial conversation with John Davies, the "Hillary Tractor" was completed. It now sits proudly at the Sir Edmund Hillary Alpine Centre at the Hermitage Mt Cook. Like the CTAE team I had completed my mission and had recreated a Hillary tractor including all details and alterations. ¶

Edited extract from the book *Something Different* published by the Sir Edmund Hillary Alpine Centre www.hillarycentre.co.nz. All images courtesy John Callesen.



Close up showing the shock absorber system.



The finished "Hillary tractor" in pride of place on display.

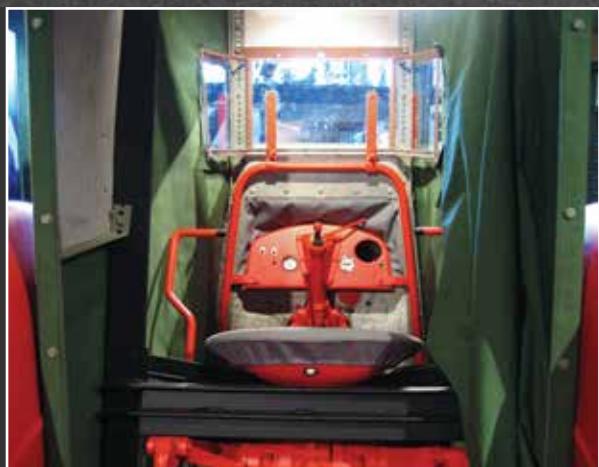


Image showing original windscreen from rear of tractor.



The restored tractor faithfully replicates the waratah standard which was added during the CTAE to strengthen the front wheel.



The tractor showing the bar on the hydraulic arm at the rear of the tractor.

Volunteering in Antarctica

By Louisa Preen

As a child I was taught to believe that fairies and leprechauns make dreams come true – wings and magic wands notwithstanding – that is exactly what the selection panel for the NZAS Volunteer role made come true for me.



Louisa on the summit of Mt Aurora, Boxing Day 2010. Image courtesy Cricket Harbeck.

Antarctica has been a deep passion of mine. Even before completing papers in Antarctic Studies at the University of Canterbury, I had written school reports, speeches and even travel brochures on the great frozen continent. My job at Canterbury Museum opened that world even further, surrounded by “the world’s greatest collection of memorabilia from the heroic age of exploration”, meeting people like David Hempleman Adams and working alongside Baden Norris and Natalie Cadenhead has seen me grow in an inordinate number of ways. Everyday I get to share my knowledge with our visitors, particularly children and it truly is an honour and a pleasure. The one thing I had always been lacking however was that personal connection with the continent – the ability to allow our visitors to see the continent through my eyes. That is why when this opportunity came up I thought “I have to give it a go” never expecting that it would become a reality.

My ‘partner in paintbrush’ was to be Jud Fretter and what a pleasure that was – not least because of her phenomenal knowledge of the Antarctic, or because of her far superior strength in scaffold moving but because of our mutual and absolute joy in being down on the continent.

Our task was to carry on the work of last year’s team in stripping, undercoating, painting and finishing the exterior windows of Scott Base. This was to prove a challenge, not only in getting water based undercoat to happily co-exist with oil based top coat but also to collect all paint flakes to prevent them from entering the environment. But every window finished was a delight, every time we looked up to Erebus was a pinch yourself moment as was every observation of a high altitude balloon launch. Surely there is no more stunning place in the world to be painting windows?

Much to the delight of the engineering group, not all of our

painting could take place outside and so a bright, breezy and gender neutral ‘smoko room’ was unveiled to them and the entrance room to the boiler received a lick of paint too. All in all a pretty darn good way to spend a Christmas holiday period!

The opportunity to be part of life at Scott Base over Christmas and New Years was fantastic, and the personal achievement I felt in reaching the summit of Mt Aurora on Boxing Day morning will last with me a lifetime, as will the infinite beauty of venturing down into the Erebus Snow Cave. But without doubt, the moment that stole my breath and a few tears was walking into Scott’s *Terra Nova* hut at Cape Evans. All those fabulous Ponting images I had poured over and here it was in 3D with all of the smells and tastes and fierce silence that goes along with it. A truly beautiful and haunting place – it almost has a spiritual nature to it, as if existing on two planes simultaneously. Even now as I sit here I struggle to find the words



Hillview Christian School participating in Antarctic Explorers lesson. Left to right: Renée White, Isaac Williams, Zoe Gilling, Matteus Zintl, Malia Faitaua-Nanai. At rear Jackson Walter and Mr White.

to describe the effect it had on me: each object, every space had to be paused at, to be drunk in completely before I felt I could move on. Seeing the clothing and footwear scattered around the hut was an absolute delight, as before I had left I had commissioned costumiers Karol London and Janet Chisnell to produce a set of replica Scott era clothing, enabling school groups to quite literally “step into his boots” and here laid before me were the putties and balaclavas those wonderful ladies were labouring so intensively over back home.

Returning to Christchurch was a shock to the system, but nothing was more shocking than what happened on 22 February 2011. It has been a tough time for all of us, the Museum is closed* and schools in the Eastern Suburbs can’t travel, while schools in the West couldn’t come into the Museum even if they wanted to. A grand scheme was hatched, something along the line of Mohammad and mountains.

Every day my colleague and I load up our van or cars and head out to schools: to teach children in a safe and familiar environment. We aim to compliment the school programme and to give them an escape from the sometimes grim reality of life in Canterbury. Possibly our most popular programme has become Antarctic Explorers. Thousands of kids from Methven to Waipara have examined the Polar continent with me, learnt that women *can* travel to Antarctica and the joys of a FUD, stood in “Scott’s shoes” to compare them with modern ECW’s (huge thanks to Woody and Chris at Antarctica New Zealand for the loan), and battled, grimaced and cursed while man-hauling our museum’s replica polar sledge across their school hall. My wonderful glorious moments in Antarctica, are now becoming wonderful glorious learning opportunities for the children of Canterbury. Who knows what these children may be capable of achieving in the future with this Polar passion. ♦



Renée White and Jackson Walter from Hillview Christian School participate in Antarctic Explorers lesson with Louisa Preen. Image courtesy Louisa Preen.

*Editors note: Canterbury Museum re-opened its doors to the public on 2 September.

Icy Tongues and Spicy Turbulence

NIWA oceanographer Craig Stevens recently led an international team of scientists through a highly successful month-long research campaign in McMurdo Sound, Antarctica, during which the group deployed a suite of hi-tech sensors to measure how the ocean affects ice shelves.

The scientists returned with stunning images and data that are helping to unravel how ocean mixing right at the face of ice shelves might affect the resilience of ice shelves to warming oceans. To do this they used a natural laboratory: the Erebus Glacier Tongue that flows off Ross Island into McMurdo Sound has much in common with the front of an ice shelf.

Ice shelves are important from climate and ecosystem perspectives as they influence the formation of sea ice. Recently their role in sea-level rise has become a matter of great and urgent concern. Global-process scientists predict a 50–80 cm sea-level rise by 2100, but with a huge uncertainty around the role of the ocean and, in particular, how it warms the underside of ice shelves. One of the big challenges in understanding sea-level rise is measuring the stability of ice shelves. Stevens says: “We think ice shelf stability may play a big part in sea-level rise. A future

warmer ocean will melt the underside of an ice shelf more quickly. A thinner shelf is more prone to collapse, and this in turn unlocks the Antarctic ice sheet, that sits on the Antarctic continent, which may flow more rapidly into the ocean. Suddenly we are in deep water! This is a worst-case scenario – and so our work relates in part to understanding the likelihood of that happening.”

The work was funded by the Royal Society of New Zealand’s prestigious Marsden Fund, and support was also received from Antarctica New Zealand. As the planning for the field experiment progressed it generated substantial international interest, and scientists from the USA, Canada and the UK joined the Kiwi scientists. Stevens says: “It was really exciting working with world-leaders in this sort of science. They brought their tremendous experience and some fantastic equipment along. Pioneers in the field, Miles McPhee and Tim Stanton, deployed their unique

turbulence sensor instrumentation. We, in turn, deployed our shear and acoustic profilers. A Canadian team, including Alex Forest and Andrew Hamilton, brought an unmanned submarine – an Autonomous Underwater Vehicle (AUV) – that enabled us to survey much further than normally possible. It all came together to help develop a picture of the unique and important oceanographic processes at play.”

The primary challenge for this sort of science is working in such a harsh environment with fragile equipment. The team operated out of long-time collaborator Tim Haskell’s field camp, which saw eight field containers deployed along the glacier edge. The next major hurdle was actually accessing the ocean. After some early hiccups the team managed to easily generate the required holes, thanks to a hot-water jet device put together by Martin Doble, part of the AUV team, and some of Scott Base’s heavy lifting gear. Of course, as soon as the holes were created a number of Weddell seals moved in. Fortunately it was possible to work around them, as they didn’t seem particularly concerned as long as all the activity took place slowly. Even the AUV and underwater camera units didn’t generate any nervousness – at least on the seals’ part.

The science went very smoothly. “I was really pleased that we managed to build up a map of the current flow at the lip of this giant floating glacier. We are all familiar with beautiful time-lapse films of clouds going over mountain ridges – they shoot down the other side. The same thing happens in the ocean where it flows over or, in our case, under a ridge. The data we have captured are unique – it is very rare to see such strong vertical flows in the ocean,” says Stevens.



Image from a 29 m deep remotely operated vehicle (ROV) looking at the side of the glacier – the green laser beams are 40 cm apart and give an idea of the scale of the dimples. Image courtesy Craig Stevens, NIWA.

The initial results show that the glacier generates substantial ocean mixing as the ocean flows past it – a hundred to almost a thousand times stronger than you might expect in the open ocean. This influences how the water circulates in McMurdo Sound – this is especially crucial because of the unique nature of the water beneath the nearby Ross Ice Shelf.

Continued over ►►



The Drygalski Ice Tongue – 80 km long, 15 km wide and 150 m thick with the Terra Nova Bay Polynya to the right of the tongue. The sea ice around this floating glacier 260 km north of Scott Base is the location for the coming season’s field campaign. Image courtesy Craig Stevens, NIWA.

The New Zealand team's turbulence shear profiler presented some of the more intense sampling challenges. It looks like a sleek torpedo, but with a big brushy tail that helps stabilize the device's descent rate as it falls through the water. The profiler had to be operated continuously for 24-hour sampling periods, with scientists working around the clock. The hard-won results show that, actually, the ocean doesn't slow down or mix less during neap tides. Instead, layers of fluids of different densities push flows around regardless of the tide. At other times the layers of seawater mix when tiny tendrils of fluid move up and down due to the changes in temperature and salt – the ocean mixing is said to be spicy!

The Erebus Glacier Tongue area is a historically rich corner of Antarctica in which to be conducting oceanography, as it's only a few kilometres from Cape Evans, where Edward Nelson conducted the first sea-ice oceanography during Scott's last expedition. It's also the location where, during the same expedition, Thomas Griffith Taylor almost succumbed to exposure seeking to become the first cyclist in Antarctica. And the tip of the Erebus Glacier Tongue is where Tim Haskell and Bill Robinson had based their sampling station that was eventually lost when the tongue last calved – the last 4 km broke off and floated away in 1990.

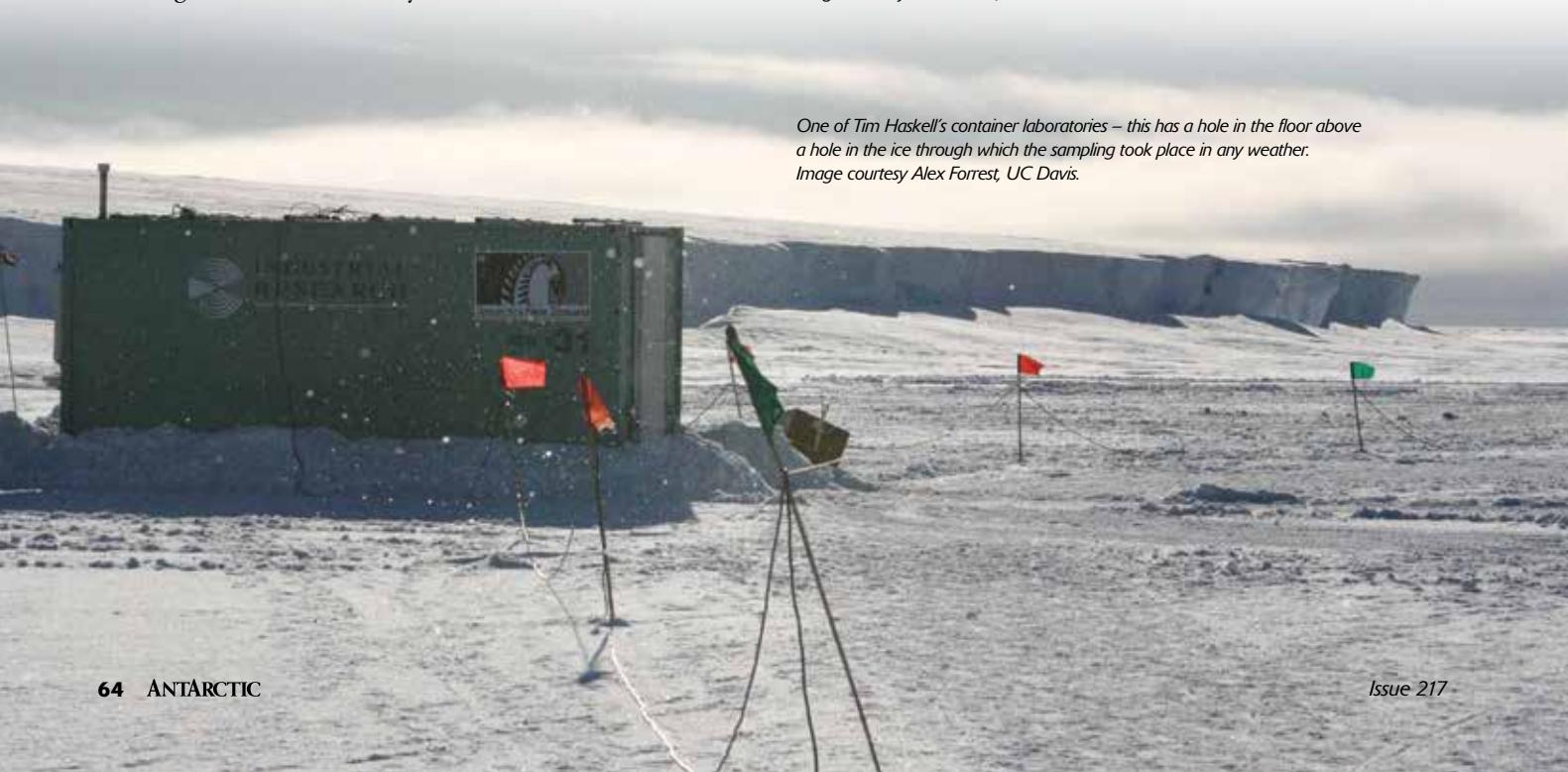
There have been only a few under-ice turbulence measurements made globally, and not many of those have been in the vicinity of ice shelves. Under-ice datasets are helping scientists to better understand ice–ocean interactions and to provide important knowledge and motivation for climate modellers. Craig Stevens' work continues in the coming season, but further north near the Drygalski Ice Tongue, one of the largest glacier tongues in Antarctica. The work will be in collaboration with Italian scientists working out of the nearby Mario Zucchelli Station in

Terra Nova Bay. This giant floating glacier controls how the Terra Nova Bay Polynya works. Such large polynyas (ice free areas) are actually sea ice factories that play a fundamental role in how climate and ecosystems work and are another example of how ice and oceans are intertwined. ♦



*Waiting! Martin Doble holds the AUV to the side of the submarine hydro-hole while we wait for a seal to decide to leave the science in peace.
Image courtesy Alex Forrest, UC Davis.*

*One of Tim Haskell's container laboratories – this has a hole in the floor above a hole in the ice through which the sampling took place in any weather.
Image courtesy Alex Forrest, UC Davis.*



My Life from Antarctica to the Yukon

By John A Shannon

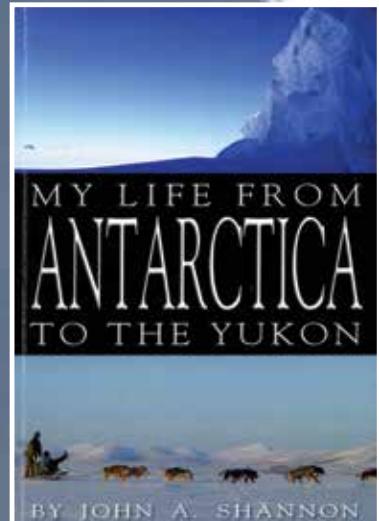
At the commemorative dinner in Christchurch marking the 50th anniversary of the permanent establishment of New Zealand's Scott Base, David Harrowfield presented to Norm Macpherson, the then President of the New Zealand Antarctic Society, a hand-written journal that had been kept by John Shannon. This journal was John's record of his time serving on board the ship *Discovery II*.

That presentation was made in September 2007. Three years later, John Shannon published his autobiography, and this included his *Discovery II* experiences. It records that he was "born on a cold and frosty winter's morn" in Dunedin, New Zealand, in 1925. An adventurous life has followed, of which a significant part has been involved with the sea. The book's title sums it up: "My Life from Antarctica to the Yukon".

It is a book of many parts. Early chapters record how John, brought up in Dunedin during the Great Depression, served in the Royal New Zealand Navy during the Second World War, where he developed his lifelong interest in the sea. After the War, his seagoing adventures continued when he joined the Royal Research Vessel *Discovery II* for a winter circumnavigation of Antarctica in 1951. The part of the book that covers this period consists of the daily entries transcribed from the journal he kept. It was this section that first attracted my attention, because of my own experiences at sea in the Southern Ocean.

After his *Discovery II* days, life at sea for the author continued aboard oil tankers, before a long sojourn on land in Canada working on the maintenance of the Alaskan Highway and on oil rigs in the Yukon. On his return to New Zealand his lifestyle changed again and, being close to the sea, he realized his dream of building a yacht. Marriage followed, along with a new career as a co-director of the family business.

This book is an interesting record of John's many milestones and journeys during his long life and would be of particular interest to his family and friends. His recollections of what life was like at sea working "below decks" around Antarctica, as written in his journal, give an honest insight into how men live and react in frequently "trying circumstances". To publish his *Discovery II* journal as part of a larger memoir of his life ensures his Antarctic experience of over half a century ago will be accessible to a far wider readership and will go some way to preserve the memory of past human endeavours.



Book reviewed by John Parsloe, Ice Master, M.V. *Discovery* (2003–2009).

Published by J.A. Shannon, 2A Paignton Street, Timaru, New Zealand.

Recommended Retail Price NZ\$49.90

Discounted price to NZ Antarctic Society members NZ\$39.95 + postage.

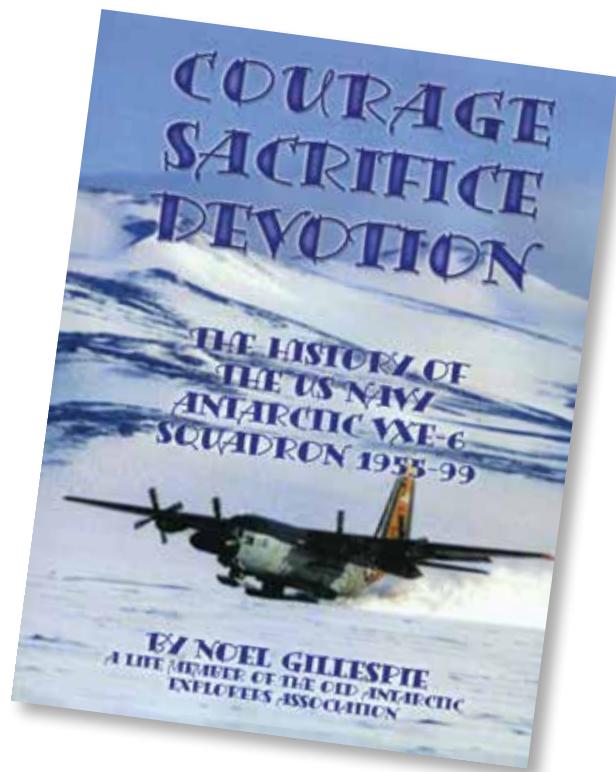
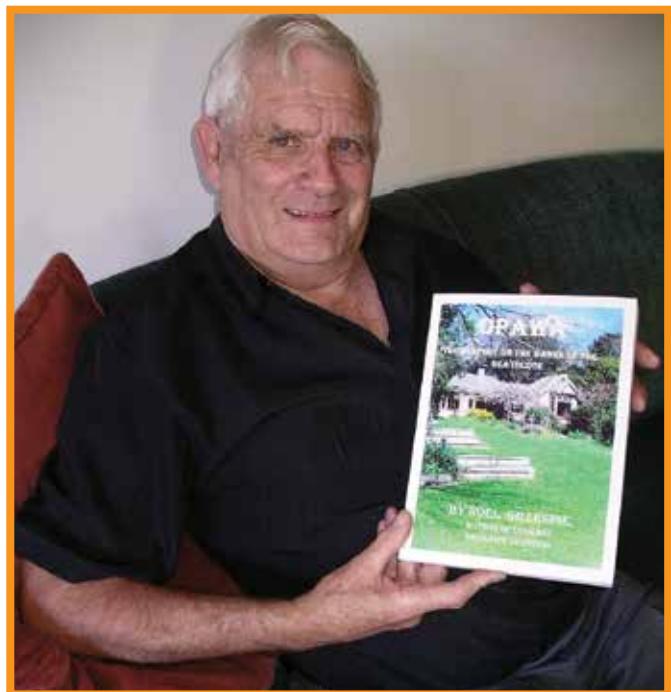
Available from: hoggfam@xtra.co.nz

ISBN 978-0-473-18032-4

Image courtesy Louisa Preen.

Noel Gillespie

(1934–2011)



Years of work culminated in 2006 with the publishing of Noel's book on the history of the US Navy Squadron, VX-6.

Noel was born in Dunedin in 1934 and at just two years old was scalded badly with boiling water. From that moment he stuttered badly. He had an elder brother Patrick but it was his younger sister Dorothy whom he was close to as she knew what he was trying to say. One of his teachers told him, "You'd better do something with your hands as you'll never be able to put three words together." Kids at school imitated him and Noel became a loner with only one school friend.

Noel completed an apprenticeship in painting and decorating in Timaru. In his early twenties he was in the Territorial Ambulance Core and met his Shirley, a nurse at Timaru Hospital. After their marriage in 1958 they moved to Christchurch where they produced three boys. Noel's stuttering became much less of a problem and would only become apparent when he was nervous.

In the 1960s he embarked into journalism producing articles for community news papers including *The Press* and covered a variety of subjects including aviation and in particular Operation Deep Freeze. Tired of painting he taught himself drawing and went out on his own as an architectural design consultant. He revitalised New Regent Street using pastels giving the street its art deco uniqueness. He was responsible for the redecoration of many city landmarks including Manchester Courts of which he was particularly proud. After the September 2010 earthquake Noel was distraught at the thought of it having to be demolished.

Noel designed the refurbishment of the US Navy's quarters at Harewood in Christchurch in 1984. Someone was happy with his work because immediately he was tasked to plan the refurbishment of the mess and recreation hall at McMurdo Base in Antarctica. Noel had a week to get organised and fly to McMurdo. He spent two weeks on the Ice where he celebrated his 50th birthday. On returning to Christchurch he completed the design work and organised various trades to undertake the painting and carpet laying. Noel never returned to Antarctica but his fascination of the place continued intertwined with his other passions – aviation and writing.

The idea to write a book of the VX-6 Squadron was conceived and encouraged by Shirley, along with ex squadron members. Noel's knowledge of Operation Deep Freeze and his flight to Antarctica on a Hercules C130

provided the foundation and he embarked on a journey to record the history of the US Navy Squadron, VX-6 who was responsible for every US flight to Antarctica from 1955 to 1999. Noel discovered a rich history of characters charged with operating, maintaining and repairing aircraft on the Ice.

In 1998 after 44 years of marriage, Noel's wife Shirley died. Noel dealt with this by immersing himself into researching for the voluminous work. He established contact with numerous ex-squadron members, many of them providing facts, anecdotes and photographs. Five years passed and Noel met Lois on the Internet when she was managing property in Auckland. Noel promised that if she ever came down to Christchurch he would cook her meal. Lois responded with, "OK, put your money where your mouth is." They were married six months later. Lois helped with editing the book and finally *Courage Sacrifice Devotion: the history of the US Navy VX-6 Squadron in Antarctica* was published by Infinity Publishing in Pennsylvania, US in 2006.

One of the Americans involved in the program said that Noel knew more about the VX-6 squadron than the Whitehouse. Noel's work was so appreciated by the ex-squadron members that he was made a lifetime member of the Old Antarctic Explorers Association (OAEA) with 14,000 members worldwide including all that make up the US Antarctic Program – US Coastguard, US Military, NSF, scientists, contractors and even tourists. In 2006 Noel met several contributors to his book when he and Lois went to the OAEA reunion in Warwick, Rhode Island. One of these was Eddie Ward, a Commander with the US Program who had corresponded with Noel for six years. Lois recalls, "When Noel walked into the room Eddie's eyes lit up – It was a magic moment."

Noel passed away on 15 March 2011 after a battle with cancer. He kept writing to the end and had just completed yet another article for *The Press*. Noel is survived by second wife Lois and three sons, David, Ian and Graham. ♦

Yes, Canterbury Museum is open!

Come and see all your old Antarctic favourites along with some fantastic new special exhibitions.

Visit www.canterburymuseum.com to find out more.



Open daily from 9.00 am.
Canterbury Museum, Rolleston Avenue, Christchurch, New Zealand
General admission is free; donations are appreciated.

The Sleeping Bag

By Herbert George Ponting, 1911

On the outside grows the furside.
On the inside grows the skininside.

So the furside is the outside and
the skininside is the inside.

As the skininside is the inside
(and the furside is the outside)

One ‘side’ likes the skininside inside
and the furside on the outside.

Others like the skininside outside
and the furside on the inside

As the skininside is the hard side
and the furside is the soft side.

If you turn the skininside outside,
thinking you will side with that ‘side’,

Then the soft side furside’s inside,
which some argue is the wrong side.

If you turn the furside outside –
as you say, it grows on that side,

Then your outside’s next the skininside,
which for comfort’s not the right side.

For the skininside is the cold side and
your outside’s not your warm side

And the two cold sides coming
side-by-side are not the right sides
one ‘side’ decides.

If you decide to side with that ‘side’,
turn the outside furside inside

Then the hard side, cold side,
skininside’s, beyond all question,
inside outside.



Lashly and Crean sewing Carabou sleeping bags at Cape Evans hut circa 1912 by Herbert Ponting. Canterbury Museum: 269G.



*Terra Nova expedition sleeping bag.
AHT collection: Canterbury Museum
AHT24.*



New Zealand Antarctic Society Membership

The New Zealand Antarctic Society Inc was formed in 1933. It comprises New Zealanders and overseas friends, many of whom have been to the Antarctic and all of whom are interested in some phase of Antarctic exploration, history, science, wildlife or adventure.

A membership to the New Zealand Antarctic Society entitles members to:

- *Antarctic*, the quarterly publication of the Society. It is unique in Antarctic literature as it is the only periodical which provides regular and up to date news of the activities of all nations at work in the Antarctic, Southern Ocean and Subantarctic Islands. It has worldwide circulation.
- Attend occasional meetings and fun events which are held by the Auckland, Wellington, Canterbury and Otago Branches of the Society.

OFFICERS 2009–2011 (ELECTED)

National President Graham White
North Island Vice President Nicola Jackson
South Island Vice President Sue Stubenvoll
National Secretary Linda Kestle
National Treasurer Lester Chaplow
Immediate Past President Norman McPherson

BRANCH CHAIRPEOPLE

Auckland Graham White
Canterbury Sue Stubenvoll
Wellington Jud Fretter

www.antarctic.org.nz

You are invited to join – please write to:

NATIONAL SECRETARY

New Zealand Antarctic Society

P.O. Box 404, Christchurch 8140, New Zealand
Email: secretary@antarctic.org.nz

All administrative enquiries, enquiries regarding back issues and Overseas Branch enquiries should be directed to the National Secretary.

ANTARCTIC Magazine correspondence and articles should be addressed to:

EDITOR: Natalie Cadenhead

New Zealand Antarctic Society
P.O. Box 404, Christchurch 8140, New Zealand
Email: ncadenhead@canterburymuseum.com
www.antarctic.org.nz

ADVERTISING ENQUIRIES: Gusto

Tel: 0064 4 4999 150
Email: leigh@gustodesign.co.nz
Deadline: 20th of preceding month

ADVERTISING RATES:

Full Page Colour	NZ\$700
Half Page Colour	NZ\$400
Full Page Black & White	NZ\$300
Half Page Black & White	NZ\$250
Situations Vacant (20 lines)	NZ\$50
Inserts by arrangement	

Claims for missing issues can be considered only if made immediately after receipt of the subsequent issue.

MEMBERSHIP APPLICATION

Name: _____

Address: _____

Email: _____

Phone: _____

Students (with ID) NZ\$40

Unwaged NZ\$40

NZ (Individual) NZ\$70

NZ (Family) NZ\$80

NZ (Institutions) NZ\$180

International members add NZ\$15
to the relevant New Zealand
membership category

Referral Source: _____

Payment by: Cheque (payable to NZ Antarctic Society)

Mastercard / Visa / AMEX

Direct Deposit to NZAS Account

Card No.: _____ / _____ / _____ / _____ / _____ / _____ / _____ / _____

Expiry Date: _____ / _____

Card Security Code: _____ / _____ / _____ / _____

(the last three numbers on the back of Visa/Mastercard
or four numbers from the front of the Amex card)

Signature: _____

Society Account Details are:

02 0800 0685108-02

New Zealand Antarctic Society Inc.
BNZ, Christchurch Branch



Craig Stevens reclining on a section of sea ice removed from alongside the Erebus Glacier Tongue. The brown patterns are algae-encrusted platelet ice crystals – the fundamental building-block of a vast ecosystem stretching through the Southern Ocean. Image courtesy Brett Grant.