Vol 29, No. 2, 2011

THE PUBLICATION OF THE NEW ZEALAND ANTARCTIC SOCIETY

ANTARCTIC

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

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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:

A sensor descends down a hole in the ice as part of the final season of IceCube. Image courtesy B Gudbjartsson, NSF.

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

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Regional Roundup

26 November 2010

Celebrating Scott's departure – Lyttelton, Christchurch

Around twenty Antarcticans met in Lyttelton to celebrate this event. Each talked for a few minutes about something they had brought relating in some way to Antarctica. The eclectic mix of items spanning from historic to contemporary included a sledging harness, a tie presented by Prince Charles, poetry, dog photos, maps, a book of collected letter relating to the *Discovery* expedition, a giraffe for someone wintering over, notes on installing the wind farm, excerpts from diaries of fathers and grandfathers, tales of communications installations and stories of ship journeys. Baden Norris proposed the toast which was celebrated appropriately.

Some of the objects taken to the celebration of Scott's departure from Lyttelton. Image courtesy Ursula Rack.

15 February 2011

Public Lecture: South With Scott – University of Canterbury

Lecture given by Julian Evans, grandson of Lt. Edward "Teddy" Evans, based on the book by his grandfather called South with Scott. The lecture was illustrated with images taken by the expedition photographer, Herbert Ponting, given to Evans after their return home in 1913.

17 February 2011

Shirase memorial ceremony – Wellington

On 17 February 2011, a small celebration took place near the plaque commemorating the Nobu Shirase's Kainan Maru Expedition at the Ships' Wall, Frank Kitt's Park on the Wellington waterfront. A contingent of Wellington branch members and Japanese representatives celebrated the centenary of Nobu Shirase's Antarctic expedition, the Kainan Maru's arrival had occurred 100 years ago at Port Nicolson on 8 February 1911. Speeches reflected on Japan's ongoing relationship with Antarctica and explained some attendees' modern connections with Nobu Shirase's Antarctic legacy, the Kainan Maru and the Japanese research programme.

Representatives from both Japan and New Zealand attended the Shirase Memorial ceremony at the plaque on Wellington's waterfront. Image courtesy Jud Fretter.

1 March 2011

Public Lecture: Subglacial Lake Whillans, Christchurch

This lecture was given by Bob Jacobel, Professor of Physics at St. Olaf College, who is a member of an interdisciplinary collaboration studying Subglacial Lake Whillans as part of the Whillans Ice Stream Subglacial Access Research Drilling Project (WISSARD) in West Antarctica. He talked about recent results which show that widespread areas of both the East and West Antarctic Ice Sheets are underlain by subglacial lakes, many of which are connected as part of a hydrologic network. The existence of liquid water beneath thousands of meters of ice adds a new dimension to the problem of predicting the response of large ice sheets in a greenhouse-warmed world.

Bob Jacobel in Antarctica.

March 2011

Index to Antarctic Vol 28 completed

Mike Wing of the New Zealand Antarctic Society has completed work on the index to Volume 28 of *Antarctic*. This will soon be available from the Societies website at www.antarctic.org.nz/pages/journal.html

27 March 2011

Film Showing: Landscapes at the Worlds End

Shown as part of the Documentary Edge Festival in Wellington this 30 minute documentary film about Antarctica was attended by the Director, Richard Sidney who answered questions about its making. The film, set to music composed by Boreal Taiga, was a visual journey to the polar regions portrayed through a triptych montage of photography and video taken during several artist residencies onboard three expedition vessels.

11 April 2011

Christchurch Branch talk: Wind farm at Scott Base

A fascinating presentation was given relating to the windfarm project at Scott Base and the benefits that are coming from this in terms of energy savings.

20 April 2011

AHT Board Meeting, Wellington

The meeting discussed a wide range of topics and noted that the Huts Restoration Project is proceeding successfully at Cape Royds and Cape Evans huts. Conservation planning and permitting is completed for Cape Adare and conservation plan is underway for Hut Point. Fundraising has been most successful this year. Fiona Wills was given a lovely send off as she left work at AHT. AHT have now welcomed two new staff members; Clare Ansley replaces Fiona and a new two-year fixed term position of Communications and Events Manager has been taken up by Paula Granger.

16 May 2011

Canterbury Branch talk: Historic artefacts, historic life – conserving the past for the future

Programme Manager-Artefacts for the Antarctic Heritage Trust, Lizzie gave a inside look at working on the historic huts on Ross Island over the summer months, including details of interesting artefact finds, including the excavation and conservation of Shackleton's whisky.

Crate of whiskey found at Cape royds hut. Image courtesy AHT.

23 June 2011

Mid Winter dinner – Christchurch

Mid Winter dinner for Canterbury Members will be held at the Loons in Lyttelton.

23 June 2011

Mid Winter dinner – Scott Base

Scott Base Mid Winter dinner will be held on the same day as the Canterbury Branch dinner and we hope, with the help of Ian Miller at Antarctica New Zealand that we will be sharing a toast between Antarctica and New Zealand.

24 June 2011

Mid Winter dinner – Wellington

Mid Winter dinner for Wellington Antarcticans will be held at Turnbull House and will include four toasts (Loyal Toast, Past Parties, Present Parties, Treaty Nations) to recognise the occasion. The Branch has invited all diplomats from Antarctic Treaty signatory nations.

4–6 July 2011

Antarctica New Zealand's Annual Antarctic Conference, University of Waikato

This three-day conference has the theme of *Value and Relevance of Antarctic Science* and will include oral and poster presentations and a fabulous dinner at the WEL Energy Trust Academy of Performing Arts on the University campus.

August 2011

Wellington Branch talk: Update on the ANDRILL Programme

Date and venue to be confirmed.

29 September 2011

Wellington Branch event: Show and Tell and Antarctic Quiz

Quiz Master: Malcolm Macfarlane
6pm, Turnbull House,
11 Bowen Street, Wellington.

8 October 2011

Wellington Branch Annual General Meeting and Sir Holmes Miller Lecture

Lecture: *Ecological Restoration in the Falkland Islands* by Peter Carey, NZAS Conservation Award winner
6pm AGM, 7pm Lecture, Turnbull House, 11 Bowen Street, Wellington.

17 October 17 2011

Canterbury Branch of NZAS Inc, Annual General Meeting

Venue and time to be announced.

5 November 2011

National Annual General Meeting to be followed by a film at the Film Archives

Turnbull House, 11 Bowen Street, Wellington, details to be confirmed.

Antarctica's IceCube is Among the Most Ambitious Scientific Construction Projects Ever Attempted

The last Digital Optical Module (DOM) deployed in the IceCube array. Image courtesy R Schwarz, NSF.

Digital Optical Module string descending through hole in the ice. Image courtesy NSF.

Culminating a decade of planning, innovation and testing, construction of the world's largest neutrino observatory, installed in the ice of the Antarctic Plateau at the geographic South Pole, was successfully completed December 18, 2010.

Eighty-six holes were drilled and a total of 5,160 optical sensors were installed to form the main detector – a cubic kilometre of instrumented ice – of the IceCube Neutrino Observatory, located at the Amundsen-Scott South Pole Station.

From its vantage point at the end of the world, IceCube provides an innovative means to investigate the properties of fundamental particles that originate in some of the most spectacular phenomena in the universe. In the 1950's, physicist Frederick Reines and other particle physicists realised that neutrinos could be used as astronomical messengers. Unlike light, neutrinos pass through most matter, making them a unique probe into the most violent processes in the universe involving neutron stars and black holes. The neutrinos IceCube studies have energies far exceeding those produced by man-made accelerators.

In the deep, dark, stillness of the Antarctic ice, IceCube records the rare collisions of neutrinos (elusive sub-atomic particles) with the atomic nuclei of the water molecules of the ice. Some neutrinos come from the sun, while others come from cosmic rays interacting with the Earth's atmosphere and dramatic astronomical sources such as exploding stars in the Milky Way and other distant galaxies. Trillions of neutrinos stream through the human body at any given moment, but they rarely interact with regular matter, and researchers want to know more about them and where they come from. The size of the observatory is important because it increases the number of potential collisions that can be observed, making neutrino astrophysics a reality.

The completion of construction brings to a culmination one of the most ambitious and complex multinational scientific projects ever attempted. The National Science Foundation (NSF) contributed $242 million USD toward the total project cost of $279 million. The University of Wisconsin-Madison, as the lead United States institution for the project, was funded by NSF to manage and coordinate the work needed to design and build the complex and often unique components and software for the project.

The university designed and built the Enhanced Hot Water Drill, which was assembled at the physical sciences lab in Stoughton, Wisconsin. The 4.8 megawatt hot-water drill is a unique machine that can penetrate more than two kilometres into the ice in less than two days. After the hot water drill bores cleanly through the ice sheet, deployment specialists attach optical sensors to cable strings and lower them to depths between 1,450 and 2,450 metres. The ice itself at these depths is very dark and optically ultra-transparent.

Each string has 60 sensors at depth and the 86 strings make up the main IceCube Detector. In addition, four more sensors sit on the top of the ice above each string, forming the IceTop array. The IceTop array combined with the IceCube detector form the IceCube Observatory, whose sensors record the neutrino interactions.

The successful completion of the observatory is also a milestone for international scientific cooperation on the southernmost continent. In addition to researchers at universities and research labs in the United States, Belgium, Germany and Sweden (the countries that funded the observatory) IceCube data are analysed by the larger IceCube Collaboration, which

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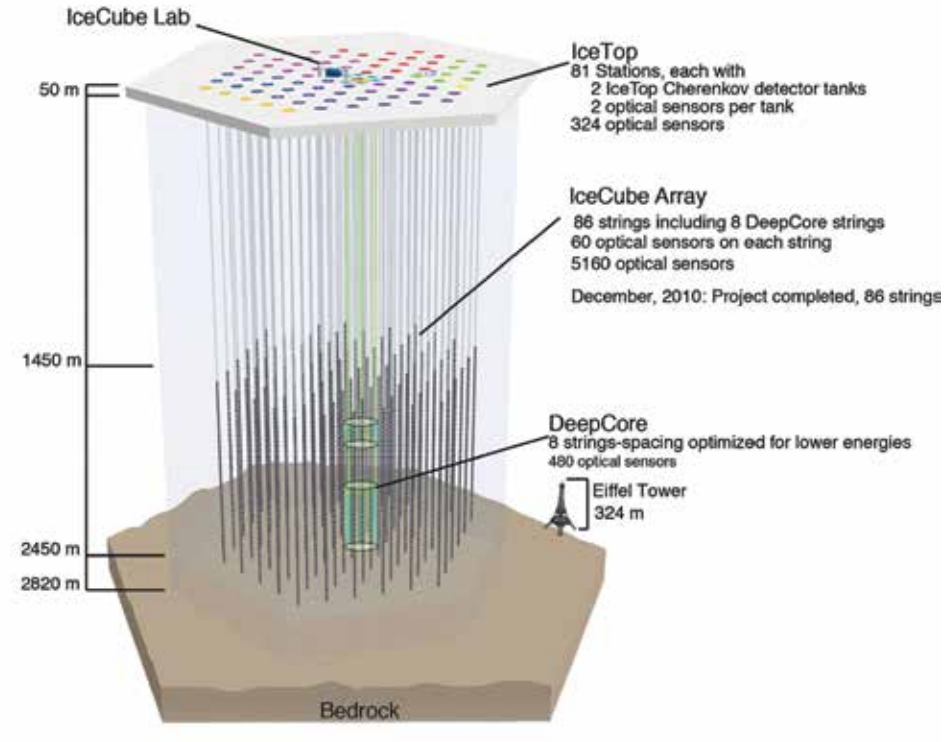

Sketch showing the IceCube array as at January 2011. Image courtesy NSF.

includes researchers from Barbados, Canada, Japan, New Zealand, Switzerland and the United Kingdom.

According to Karl Erb, Director of NSF's Office of Polar Programs, "IceCube is not only a magnificent observatory for fundamental astrophysical research, it is the kind of ambitious science that can only be attempted through the cooperation of many nations working together in the finest traditions of Antarctic science toward a single goal".

IceCube is among the most ambitious and complex scientific construction projects ever attempted. To build the observatory, all project personnel, equipment, food, and detector components had to be transported to Antarctica from various places around the globe. Everything then had to be flown in ski-equipped C-130 cargo aircraft from McMurdo Station to the South Pole. Working from November through February drill and deployment teams worked in shifts to maximise their short time on the ice each year.

An international team of scientists, engineers and computer specialists have been working on development and construction of the detector since November 1999, when the first proposal was submitted to NSF and partners in Belgium, Germany and Sweden.

Unlike many large-scale science projects, IceCube began recording data before construction was complete. Each year since 2005, following the first deployment season, the new configuration of sensor strings began taking data. Each year as the detector grew, increased quantities and quality of data made its way from the South Pole to the data warehouses in the University of Wisconsin and around the world.

Francis Halzen, principal investigator for the project, remarked that even in the construction stage of the project that results could be published on the search for dark matter and the intriguing patterns found in the arrival directions of cosmic rays. In the early years of the project, IceCube has extended the measurements of the atmospheric neutrino beam to energies in excess of 100 TeV. The completion of IceCube, means that scientists are on their way to reaching a level of sensitivity that may allow them to see neutrinos from sources beyond the sun.

This article is based upon work supported by the National Science Foundation and University of Wisconsin-Madison.

The IceCube team poses in front of the deployment tower following completion of the IceCube Neutrino Detector. Image courtesy C Carpenter, NSF.

Christmas Day on the Endeavour

By Randal Heke, Leader, Scott Base construction team 1956–1957

Recently at an end-of-year Rotary Christmas function the President of the Club asked members to share their most memorable Christmas Day.

Two members stood up and talked about Christmas Day celebrations while they were in overseas countries and we heard about the wonderful food, singing and dancing that were part of the festivities. I could not resist the temptation to stand up and say that one of my most memorable Christmas days was on board the *HMNZS Endeavour* on our journey south to the Antarctic continent with Sir Edmund Hillary's Trans Antarctic Expedition.

On Christmas Day 1956 the *Endeavour* was being severely buffeted about in the Southern Ocean as the ship headed south and to the relief of all on board Captain Kirkwood declared that the celebration of Christmas would be delayed until such time we reached he pack ice where the sea would be much calmer.

The HMNZS Endeavour *at ice edge.*
Image courtesy Randal Heke.

After such rough seas it was a great relief to reach the pack ice and say farewell to our escorting Navy frigates. Once in the pack ice the *Endeavour* hove to and the ship tied up to floating ice. This was our Christmas Day and we were all looking forward to the relief of being off the rolling ship and walking and exercising on the ice.

Christmas lunch was around midday and the ships chef produced a feast in the true Christmas tradition. The expedition mess room was lightly decorated with streamers and we all felt the spirit of Christmas was upon us. To me personally it was an occasion to the treasured, sitting down and enjoying the company of the late Sir Edmund Hillary, Sir Bob Holmes Miller and Trevor Hatherton and those other renowned members of the expedition.

After the meal with much banter and joviality imagine Trevor Hatherton, the chief scientist, that most likeable and genial man, telling humorous stories in his strong Yorkshire accent as only he could tell them, causing those listening to fall into fits of laughter. Then there was Bob Miller playing his harmonica and we singing along and feeling jolly and well satisfied, knowing this was our home for the day and that all was calm and serene. For me in 1956 my most memorable Christmas was this Christmas Day on the Ice, an occasion not to be forgotten. It was made more special to share this occasion with men I admired and who later were to be so successful in meeting the challenges that lay ahead for all of us.

Alas many of these men have since passed on, but that "Christmas Day on an Ice Floe" will long be remembered. Subsequent events show "we chose the right site" to establish Scott Base, aiding in the success of the Expedition and other activities undertaken in the Ross Dependency.

The Darwin Journey of Harry Ayres and Roy Carlyon Undertaken During the Commonwealth Trans-Antarctic Expediton

By Stephen Hicks

It has been said that by late 1957 the Commonwealth Trans-Antarctic Expedition consisted of three separate expeditions, these being Fuchs' crossing party, Hillary's tractor party, and the New Zealand field parties. Of the latter there were three separate teams, the Southern, the Northern and the Darwin parties. Together they surveyed over 40,000 sq. miles of territory in the Trans-Antarctic Mountain regions around McMurdo Sound. Each team headed out from Scott Base in the spring of 1957 with their dog teams and the prospect of sighting geographies that had never before been seen by man, let alone trod upon.

Evening radio schedule with Scott Base. Bill Cranfield on the radio with Harry Ayres looking over his shoulder. Photograph courtesy Bill Cranfield.

In April 1957, with the submission of his expedition plan to the Ross Sea Committee (RSC), Hillary had aroused cautious sensitivities in Wellington with an ambitious list of objectives for the following season. Bernie Gunn, geologist and member of the Northern Party, described the RSC response as "a monument to bureaucratic caution and indecision". The Committee felt that Hillary's plan to send three parties into the field would somehow put at risk New Zealand's primary objective, which was to assist Fuchs' crossing party in their attempt to cross the continent. The RSC intimated that New Zealand's activities should be confined to establishing depots for Fuchs. To his credit Hillary rejected this advice and replied that "The deployment of field personnel is best left in the hands of the field executive …" This would not be the last instance of friction between Hillary and the RSC. The field parties' survey expeditions would go ahead as planned.

The Darwin Party consisted of Harry Ayres and Roy Carlyon. Ayres, perhaps New Zealand's most experienced mountaineer and Hillary's climbing mentor, had also been personally chosen for the New Zealand contingent. As an Advance Party member he had joined Philip Law's 1955 ANARE expedition to Australia's Mawson Station, thus gaining Antarctic experience and was assigned the task of transporting 20 of Australia's huskies back to New Zealand. The dogs were donated as part of Australia's contribution to the CTAE. Carlyon, a young 23 year old surveyor, had been with New Zealand Railways prior to travelling to Antarctica. He was also a keen climber. The Darwin Party were charged with the mission of surveying the area between the Byrd and the Mulock Glaciers, an area of approximately 10,000 sq. miles (25,000 km sq). The area is located between 79° S and 80° S along the 158° E meridian, and just inside Australian Antarctic Territory.

Sledge preparations occupied the field parties throughout winter with innumerable adjustments and repairs to equipment. As Carlyon recounts in his diary *"I spent the rest of the day working on my sledge during which I completed repairing lashings and went on to attach a sledge wheel (for measuring distances). It didn't fit so I had to modify it somewhat. The magnetic compass bracket which is inconveniently situated on the sledge was moved up level with the top of the handlebars. The compass itself was only half full of alcohol, so I filled it with a hypodermic syringe. I took the opportunity to fill the counter-sunk screw holes in the sledge runner with plastic filler which seems to stick well."* The next day he and Ayres cut up two seals into 160 separate pieces of 3 lbs each. All of the supplies and the sledges, along with the dogs, would be flown out in the Beaver aircraft to the Plateau Depot at the head of the Skelton Glacier. New Zealand's ship *Endeavour* was scheduled to arrive in December with the summer party while the field parties were absent from Base. Space was always at a premium and so all field party members had to abandon their bunks and cubicles as if checking out of a hotel. It was now late October and frustrating delays in their flight occurred due to a combination of poor weather and a priority request for a flight of tractor fuel from Scott Base. The extra days gave some chance that the next Globemaster flight due in would deliver Harry Ayres his eagerly awaited expected package of 30 lbs of whitebait. What a treat that would be on the trail! (By 27 October the whitebait had not yet arrived.) Another day passed and a visit from Sir Hubert Wilkins, acting as advisor to the Americans, brought Carlyon into contact with Antarctic exploration history. The young surveyor was not impressed.

Finally, the next morning, at 9:30 am, the sky had cleared and Roy and Harry, with four dogs and camping equipment and pilot John Claydon at the Beaver controls, took off and flew up the Koettlitz Glacier. They found it impossible to land and returned to Scott Base via the Ferrar Glacier. Carlyon was back snoozing in his bunk by 1:00 pm. The next day began with discouraging weather reports from the Plateau but by early afternoon Claydon gave the all-clear and they took off again, this time heading up the Ferrar. Surface conditions at the Plateau were not good, with wind and drifting snow, but after 40 minutes of searching the Depot was spotted and Claydon landed the Beaver under challenging conditions two miles away.

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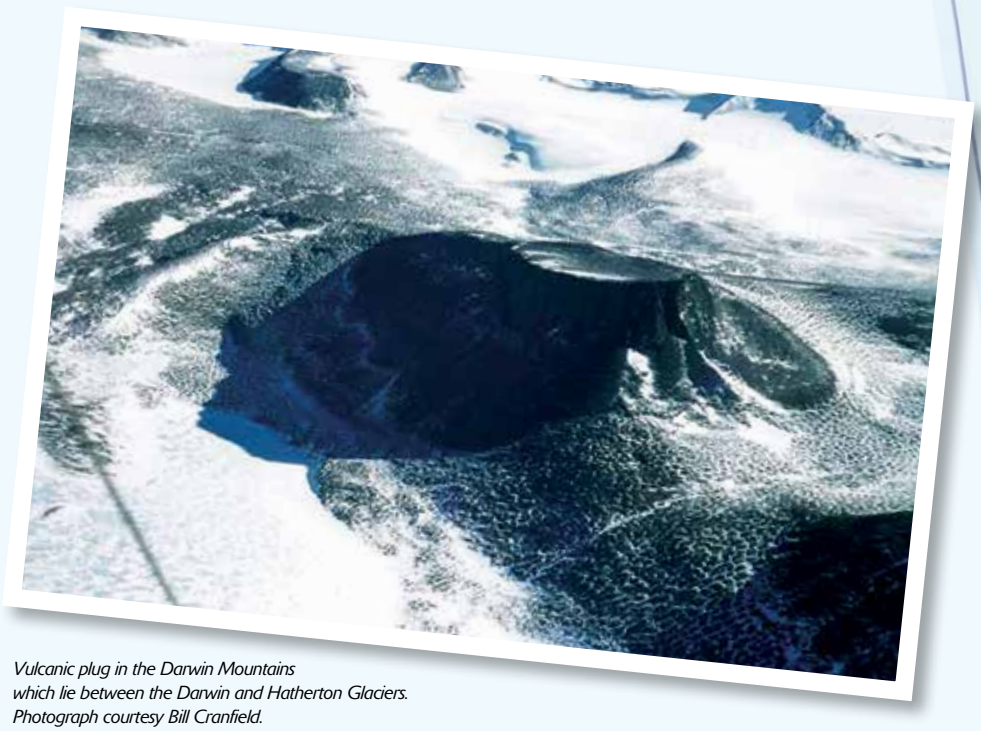


Vulcanic plug in the Darwin Mountains which lie between the Darwin and Hatherton Glaciers. Photograph courtesy Bill Cranfield.

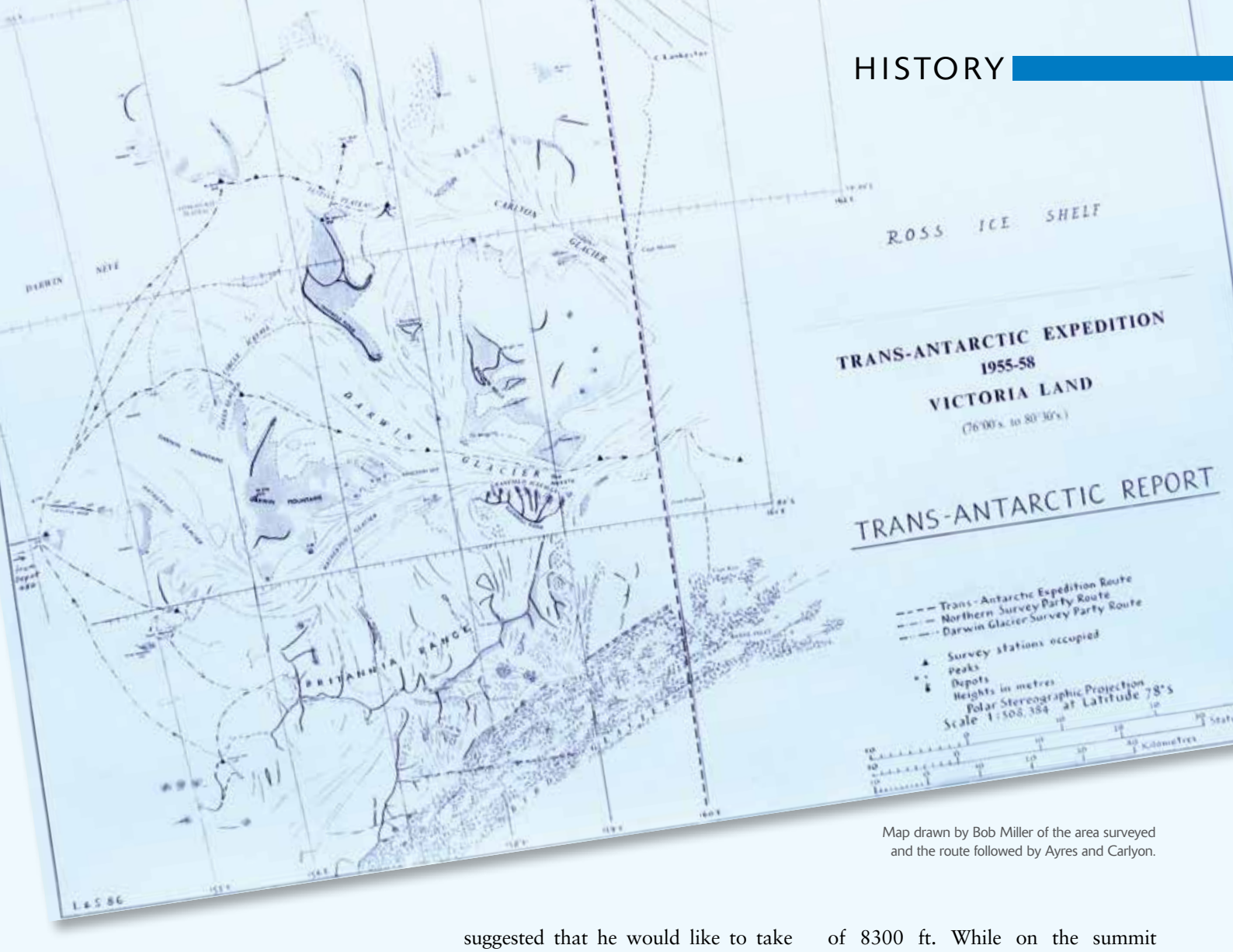
Pilot Bill Cranfield flew out later in the day with the sledges and more dogs and supplies and landed under similar conditions. At this point Ayres and Carlyon had their first experience of the harsh weather of the Polar Plateau. The temperature was -37° F with a 20 knot wind. The two men stayed at the Plateau Depot for the next few days while flights arrived with more fuel and supplies. On 31 October Hillary's tractor party arrived having left Scott Base just over two weeks earlier and having struggled their way 8000 ft. up the Skelton Glacier. Hillary wrote that he felt more sense of achievement by getting his tractors to the Plateau than he did reaching the summit of Everest.

Further delay occurred at the Plateau Depot when Murray Ellis injured his back and was not immediately evacuated and replaced. Ellis had to be returned to Scott Base a few days later to recuperate leaving Jim Bates as the only member of the Tractor party left at the Depot. Hillary and Peter Mulgrew, along with biologist Ron Balham, had earlier flown back to Base. Carlyon and Ayres stayed on to accompany Bates. On 7 November Mulgrew returned to Plateau Depot thus freeing up the sledging parties. Bob Miller and George Marsh, the 'Southern Party', had by this time also arrived at the Plateau Depot after sledging up the Skelton Glacier from the Skelton Depot. The next day, 8 November, Ayres and Carlyon accompanied by Miller and Marsh, began their sledging journeys heading for Depot 480 about 220 miles further south. The two parties continued south together for the next several days. Their dog teams were not functioning very well due to exhaustion while Carlyon had two sick dogs and his team was reduced by 20 per cent. Nevertheless, by 14 November the two parties had progressed 60 miles from the Plateau Depot. Meanwhile Hillary and the Tractor Party were now following and catching up. Carlyon keenly felt the difficult progress of the dog teams in comparison and commented *"…it makes our being here with dog teams seem superfluous…No doubt Ed considers the dog teams to be merely a support party for the tractors."* One interesting piece of news they received over the radio was that the Northern Party were having trouble with sickness affecting their dogs. Apparently they were using English Bovril pemmican while the Darwin and Southern Parties were feeding their dogs with "infinitely better" New Zealand pemmican.

On 28 November, 20 sledging days after leaving Plateau Depot, Ayres and Carlyon arrived at Depot 480. The location of this penultimate depot, 220 miles closer to the Pole, had been selected by the Tractor Party just one day prior. Several flights then came in from Scott Base with one delivering a package of fruit cake and Christmas puddings for Ayres. A recuperated Murray Ellis was also flown out to resume his role as engineer with the Tractor Party. Since it was Election Day in New Zealand a set of voting papers was delivered to enable the men to cast their votes. The plan was for Miller and Marsh to head out first from D480 towards the south and for the tractors to later follow their path. Ayres and Carlyon would stay back while the depot was being stocked. It was a rule that no flight would attempt a landing without having personnel on the ground. This was to ensure a good landing area was available and to provide a homing signal as well as for support in case of any emergency.

During a conversation with Hillary in the caboose Carlyon had casually suggested that he and Ayres return by descending the Darwin Glacier. To his surprise and delight Hillary saw merit in the idea and granted permission. Thus was determined the route of the Darwin Party. This path offered not only a significant surveying opportunity, but would also prove out an alternate and shorter route from the Plateau to the Ross Ice Shelf for Fuchs should it become necessary.

On 4 December Claydon took Carlyon on a reconnaissance flight down the Darwin. It looked quite passable although there were extensive crevasse areas and about 20 miles of pure ice surface. Afterwards, during one thoughtful afternoon spent writing letters, Carlyon came up with the idea to survey the area at the head



Map drawn by Bob Miller of the area surveyed and the route followed by Ayres and Carlyon.

of the Darwin. This would require an additional depot but discussion with Claydon, who supported the idea, led to another suggestion being put to Hillary. This Carlyon did and again the response was positive with a proviso that sufficient supplies be left at D480 in case the trip down the Darwin had to be aborted. This new supply base was named the Westhaven Depot as it was near the Westhaven Nunatak. (This depot would be used by the Antarctic Flight as their relay point for flights to D700). Ayres, being the senior member of the duo and most experienced in Antarctic terrain would make the final decision on the route. He was flown over the Glacier by Cranfield on 5 December and came back with good news. As Carlyon happily reported in his diary "the show was on". Their survey journey was rapidly taking shape. After the flight Bill Cranfield "half jokingly" suggested that he would like to take part in the trip down the Glacier. Carlyon took him up on it knowing that a third man would useful.

On 7 December, with D480 fully stocked, the Darwin Party of Ayres and Carlyon excitedly set out on their 46 day surveying and exploration journey. Their first destination was the Westhaven Nunatak. They made good time and advanced 40 miles due east in the next two days with Mt McKlintock in view much of the time. In the evening they heard Prime Minister Walter Nash sending the New Zealand Party his best wishes broadcast from the *Magga Dan*. The ship had sailed to New Zealand after delivering Fuchs' party to Vahsel Bay in the Weddell Sea a year earlier. Meanwhile, Miller and Marsh together with the Tractor Party, were headed south for D700.

On 12 December they climbed the Westhaven Nunatak and established their first survey station at an altitude of 8300 ft. While on the summit Carlyon also performed some rudimentary geologising and collected a number of interesting rock samples. In addition he attempted to keep a meteorological record. Tragedy knocked on the door the next afternoon as they made their way in the direction of Mt Longhurst passing Mt Keltie on their right. Starting out after a lunch stop for hot cocoa Ayres took the lead. Carlyon followed behind and as he came over the brow of a hill he could see Ayres "waving vigorously". His sledge and dogs were nowhere to be seen. A large crevasse had opened and swallowed both the dogs and the sledge which had jammed about 10 feet down. The dogs had fallen further into the deep, hanging from their traces and only an occasional whimper could be heard. Ayres mountaineering skills were put to the test and he lowered himself on a rope to secure Carlyon's dog span

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Dog sledge on the blue ice of Darwin Neve. Photograph courtesy Bill Cranfield.

lines to the sledge. The total weight being supported was over 1500 lbs. Ayres then went down again and on a separate rope hauled up two of the dogs. Another trip yielded four more dogs. A fourth trip down brought news that one dog had been killed and that the final two were alive but had slipped their traces and fallen to the bottom of the crevasse as had their precious jerry can of kerosene. Carlyon then donned his crampons and was lowered to the bottom. He roped up one dog and then the jerry can and finally the other dog was raised to the surface. The next task was to haul up the contents of the sledge, piece by piece, until all the camping gear was up top. By this stage they were exhausted and called it a day. The following morning they completed the retrieval and hauled up the empty sledge. Ayres made one last descent, his fifth, to the bottom to retrieve a piece of home-made fruitcake that had fallen from the load. It had been a close call but luck was with them – this time. The crevasse was actually rather narrow but the oblique angle of approach meant that its treachery was accentuated. In future, Carlyon planned to travel at right angles to the line of crevassing while leading. They also moved their vital radio set to the second sledge as a precaution.

En route, they discovered a new un-named mountain they dubbed 'New Mountain' over 8500 ft high. Theirs was truly becoming a journey of exploration and discovery. At this point, 17 December, they had travelled 350 miles from Plateau Depot (D280). They climbed this mountain (now named Mt. Ayres) and carried out an extensive survey from the summit. They next headed for a point between New Mountain and Mt Longhurst. During their rest periods in the tent they were sometimes able to communicate with the other sledging parties as well as receive news from Scott Base. Most often this was in the form of Morse code, a cumbersome but battery-efficient mode of communication. On 22 December they made their way to the summit of Mt Longhurst (9200 ft) and established their final survey station in this region. The results caused Carlyon to shift the location of the mountain by 7 miles. Realising that this work was being performed in Australian Antarctic Territory, Carlyon commented that he didn't mind that at all. During their evening radio schedule with Scott Base they were pleased to learn that both Bill Cranfield, and Selwyn Bucknell, the chef, would accompany them on their descent of the Darwin Glacier. Christmas Eve was the harbinger of good news. First, there was a Radio New Zealand programme that included personal greetings from their wives and families. Perhaps of equal cheer was the news that they would return to New Zealand by American ship or Globemaster and

that John Claydon would meet them back at Westhaven Nunatak early in the new year. In good spirits, they consumed the remainder of their brandy. On Christmas Day Ayres cooked the frozen chicken that he had carried from Scott Base for the occasion. The result was "beyond all expectations" with an entrée of anchovies and biscuits and for dessert steamed Christmas pudding. The feast was finished off with muscatels and a "rather desiccated cigar".

Occasionally, if atmospheric conditions were right, they could intercept radio signals from the crossing party or the Tractor Party. On Christmas Eve they overheard Ted Gawn report that Fuchs' party had only just reached South Ice. If their slow rate of progress continued it would make the Antarctic crossing an impossibility for this season. Two days later they learned that Hillary was just 290 miles from the Pole. On the 28th December they learned of the publicity being given to Fuchs and Hillary and their so-called 'race to the Pole'. At this point Fuchs was 800 miles away and Hillary 240 miles – hardly a race, especially with Fuchs carrying out a seismic programme. The media were stirring things up to inject interest and break the boredom of events so far. Ayres and Carlyon, along with the other field parties listened avidly to these reports. Three days later they learned that Fuchs was 450 miles and Hillary 120 from the Pole and Claydon reported that extra fuel may have to be flown to D700 (at Fuchs' request via Hillary). This would mean that Marsh and Miller would have to return to D700 to see the Beaver in and greatly disrupting their survey plans. Miller, who felt that Hillary's attempt to reach the Pole compromised the greater mission of the TAE, was "unwilling to curtail their program" for this purpose and advised that he and Marsh would not be at D700 until 16 January, two and a half weeks later. By this time the men were beginning to think of home. Hillary had just given the OK for field parties to return to New Zealand on the first available American transport. One of the reasons for this was the limited space and supplies at Scott Base. A worst case scenario was that Fuchs' party of twelve men could fail to reach Ross Island before winter freeze-up and would have to overwinter for a second season at Scott Base. The British were prepared to winter over if necessary, in sharp contrast to the New Zealanders who were keen to leave Antarctica and re-join their families as soon as their respective missions had been accomplished.

The Darwin Party's survey work was not yet complete with the next station to be placed on the summit of Westhaven Nunatak. This would also give a good view of the upper Darwin Glacier and provide an opportunity to plan their route for the descent. However, weather was against them and Carlyon had to abandon the idea. It was now 3 January and they received a report that Hillary was 20 miles from the Pole. The next day they learned that the Tractor Party had reached the Pole to a tumultuous reception. Carlyon's sentiments reflected those of most other New Zealanders. His diary simply states "One cannot help but feel proud of them". The next Radio N.Z. report they heard was a speech by Prime Minister Walter Nash congratulating Hillary and his 'old firm' on their exploit.

Continued over ▶▶

Harry Ayres preparing to leave Depot 480.
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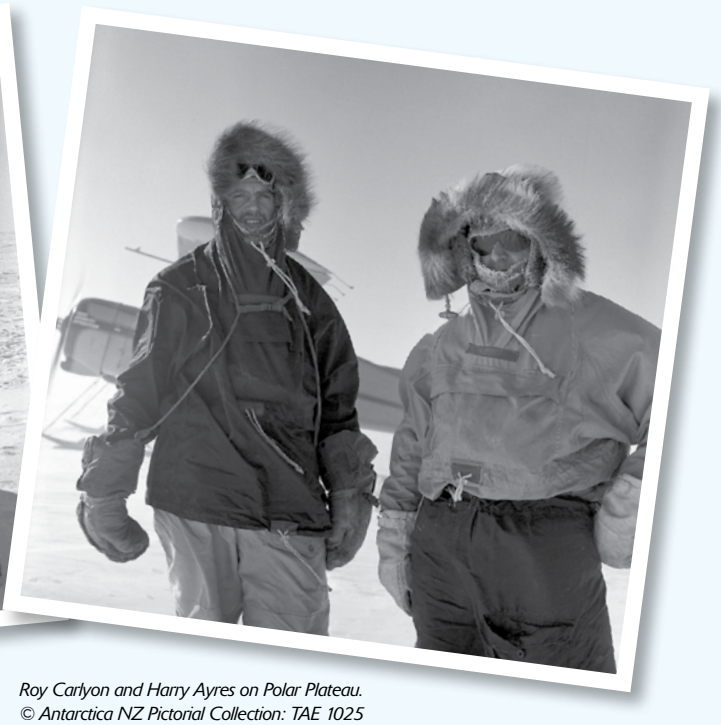


Roy Carlyon and Harry Ayres on Polar Plateau.
© Antarctica NZ Pictorial Collection: TAE 1025

Carlyon's understandable reaction to the speech was subdued and likely shared by several members of the New Zealand party. He wrote *"They certainly are making a fuss of it. We by comparison have been virtually forgotten."*

After five days at Westhaven Depot they decided to seek more settled weather and head south. They were interrupted by a break in the weather reviving the idea of climbing the Nunatak. They climbed the peak but cloud came in again and prevented any useful surveying. They then headed for Mt Henderson (9100 ft). It was during this traverse that Carlyon experienced the frightening 'whoomph' sound and feeling of a subsiding snow slab. Luckily there was no further snow collapse. Finally, they were successful in reaching the 9200 ft summit of Mt Henderson and were rewarded with their best view yet of the surrounding territory including the upper reaches of the Byrd Glacier. By 10 January they had completed their survey of the area between the Byrd and Darwin Glaciers with a final ascent of a peak provisionally called 'Trig Mountain' (now Vantage Hill). They then made their back to Westhaven Nunatak to await the arrival of Cranfield and Bucknell for the final leg of their journey. They had now been in the field for over 40 days. On 14 December, one day earlier than planned and despite deteriorating weather and increasing ground fog, Cranfield brought the Beaver in at 5:00 pm and delivered a much appreciated load of mail and Christmas gifts. First they shared a few mugs of beer that Bucknell had brought out and had a good yarn with the two new arrivals catching up on the news from Base. They learned that the *USS Greenville Victory* was due to sail on 25 January. They would try to make it back in time to board. That night they learned that Miller and Marsh had reached D700 and the extra seven drums of fuel for Fuchs' Sno-Cats would be flown in the following day.

The enlarged party of four men began the first ever descent of the Darwin Glacier on 16 January. Cranfield paired up with Carlyon for sledging while Bucknell travelled with Ayres. From their over-flights they had spotted a few landmarks which they now attempted to locate for use as reference points. Almost immediately they hit a large area of sheer ice which was very difficult for the dogs. However, they still managed to descend

Preparing overnight camp on upper Darwin Glacier. Photograph courtesy Bill Cranfield.

700 ft that first day. The second day they made good progress despite steep slopes and descended another 1700 ft. They could now see the mouth of the Glacier where it flows into the Ross Ice Shelf over 50 miles away. The third day the weather packed in with high winds so the group spent the day in their tents reading and having a good yarn. Over the radio they learned that Fuchs was 56 miles from the Pole and that the *Greenville Victory* had 20 berths available for passengers to New Zealand.

The next day they came upon a severely crevassed area but found a way through and emerged onto very good snow where they advanced quickly. They covered 21 miles and dropped another 2000 ft. towards the Ice Shelf. They were still 3000 ft above the Barrier. It was now 19 January and Carlyon estimated they needed two more days sledging to reach the Darwin Depot where John Claydon had scheduled to pick them up in the Beaver. They continued to take advantage of good weather and crossed more serious crevasse areas. They were fortunate not to fall into any of these although the sledge with Cranfield and Carlyon did partially capsize into one. That night they learned that Fuchs had finally arrived at the Pole. The next day, 21 January, they set out in dense fog on a rough course to the Glacier mouth. They encountered thaw streams up to four feet deep as temperatures melted the snow and ice. Their distance estimates were again off significantly and what was seen as a 3-4 mile sledge to the Barrier became a 12 mile trip to the moraine hill at its mouth. This mis-perception was due to the extreme clarity of the Antarctic air. With a short break to rest and feed the dogs it was not until 12:30 am that they finally reached the Darwin Depot.

The next morning, 23 January, they awoke to a beautifully clear and calm day. Claydon was expected to arrive around noon for the first of two flights back to Base with Ayres and Cranfield. Meanwhile Carlyon and Bucknell completed additional survey work while awaiting the second flight, not surprisingly to be piloted by Cranfield. Sadly, 11 of their dogs had to be put down while six others, including Ayres' favourite 'Mallory', were flown back to Base. On arrival, a few spare steaks were found and made an excellent welcoming meal. They slept in the hospital area and were faced with "congested conditions". This was due to the arrival of the Summer Party and the personnel who would be overwintering for the International Geophysical Year. In addition, there were four members of Fuchs' party who had arrived in mid-January. These were Capt. John Lewis and his fellow pilot, Kiwi Gordon Haslop, mechanic Peter Weston and Ellis Williams. In flying from Shackleton Base to Scott Base, they had completed the first non-stop flight across Antarctica by a single engine aircraft, a De Havilland Otter. This plane was later sold to the US Navy after some tough negotiation with Admiral Dufek.

The final days on Ross Island were spent doing laundry, developing film, and preparing for departure back to New Zealand. There was also spare time for visiting McMurdo Station and for a last walk up Crater and Observation Hills. Ever the surveyor, Carlyon and Northern Party geologist Guyon Warren took a theodolite and went out to survey the surrounding area. An American Neptune flew out to the Pole to transport 17 of Fuchs' dogs back to Scott Base. Many of these were later put down. Peter Mulgrew who had stayed at the Pole to help out with TAE and US Navy communication requirements also returned on that flight. There was considerable uncertainty on the departure date for the *Greenville Victory* and the men slated to return were getting restless. Base conditions were very crowded which did not help settle their emotions. Finally, on Tuesday 4 February, after many false alarms, *Greenville Victory* was ready to sail. Ayres and Carlyon and 18 other TAE members boarded *Endeavour* to be shuttled out to the American ship. Due to the crowding in the ship's bunk room they settled down in the hold where their gear had been stowed and made themselves quite comfortable. This was intended to be their quarters for the trip home. They each had $5.00 to spend in the canteen enough to make the trip "very pleasant indeed". They were then told to vacate the hold on account of the possibility of noxious gases being released. Carlyon ended up sleeping in a gun turret the first night as it was too hot in the ship's interior, an understandable reaction after spending months on the Plateau. But for Ayres and Carlyon the discomfort was a minor factor. Although the expedition would be part of their lives forever, they were homeward bound!

Left: Darwin Glacier taken from the Beaver aircraft near foot of Mt McKlintock. Photograph by Bill Cranfield.

Memorial Cross on Observation Hill Restored in 1994

By Dave Lucas, Engineering Services Manager, Scott Base 1993/1994

The confirmation of the deaths of the South Pole party of the British Antarctic Expedition 1910–1913 was a devastating moment for the expedition members who discovered the final tent, bodies of three of the party, their diaries and final letters. To recognise their efforts and sacrifice a memorial cross dedicated to Scott, Bowers, Oates, Wilson and Evans was placed on the top of Observation Hill on 22 Jan 1913. The next day the *Terra Nova* and its expedition members left McMurdo Sound forever.

Aspley Cherry-Garrard later wrote;

Observation Hill was clearly the place for it. Three of them had been Discovery men who lived under its shadow for three years. It commanded McMurdo Sound where they had lived and the Barrier where they had died. No more fitting a pedestal which in itself was nearly 1000 ft high could have been found.

Ninety-one years and one day late on 23 Jan 1994 the cross was again erected after being blown down by katabatic winds. The replacement of the cross involved engineering and logistic staff from Scott Base, and could not have been completed without the skilled precision flying of the Royal New Zealand Air Force (RNZAF). The concrete boot in which the re-erected cross was to sit was cast in the cold porch at Scott Base. It was then slung under an Iroquois helicopter and positioned at the correct orientation and depth in a pre-dug hole at the top of the hill. The tolerance limits were fine – about 30–40 mm. This lift was a tremendous achievement in itself and a credit to the Scott Base Engineering Team of the 1993/1994 season and the RNZAF. The cross itself was carried up Observation Hill in relays by staff from Scott Base and McMurdo Station and once in place a simple rededication ceremony was held reflecting the tradition of its original installation.

When I read of the struggle and hardship which went into its original placement it is very satisfying to have played a part in its final permanent fixture. Little did we realise at the time that our task would ensure the memorial cross's continuing impact on successive generations of Old Antarctic Explorers. Aspley would have been astonished by the use of load carrying helicopters, particularly as, in the final analysis he saw no future for Antarctic exploration dominated by struggle, loss and insufficient resources and funding. I hope the memorial cross long remains as a sentinel to the lost souls out on the Ice Barrier, and a place of reflection for the present generations of visitors to the continent.

The cross is brought up to the summit of Observation Hill. Image courtesy Dave Lucas.

The Royal New Zealand Air Force help drop equipment and supplies at the summit. Image courtesy Dave Lucas.

Jorge Berguño

January 1929 – 8 May 2011

The Antarctic community is mourning the death of Ambassador Jorge Berguño who passed away on 8 May 2011. Jorge joined the Chilean Ministry of Foreign Affairs in 1953 and was extremely active as a diplomat, academic, writer and passionate Antarctican. Jorge was considered to be a giant in Antarctic affairs, particularly relating to the Antarctic Treaty System. He championed the ideals of the Treaty including the spirit of cooperation, protection of the environment and ensuring the continent was devoted to peace and science. He worked hard on the establishment of the *Convention on the Conservation of Antarctic Marine Living Resources* (1980), the *Protocol for the Protection of the Antarctic Environment* (1990) and was active in the lengthy debates and negotiations over liability for damage to the Antarctic environment (2005). Jorge's qualifications and knowledge of law, public administration, international affairs, international relations and Antarctic history along with his softly spoken ability to make his point in multi-national Antarctic related meetings earned him the respect of his colleagues around the world. While always aware of his countries national interests he had an ability to seek solutions which would bring people together while protecting the fundamental principles of the Antarctic Treaty.

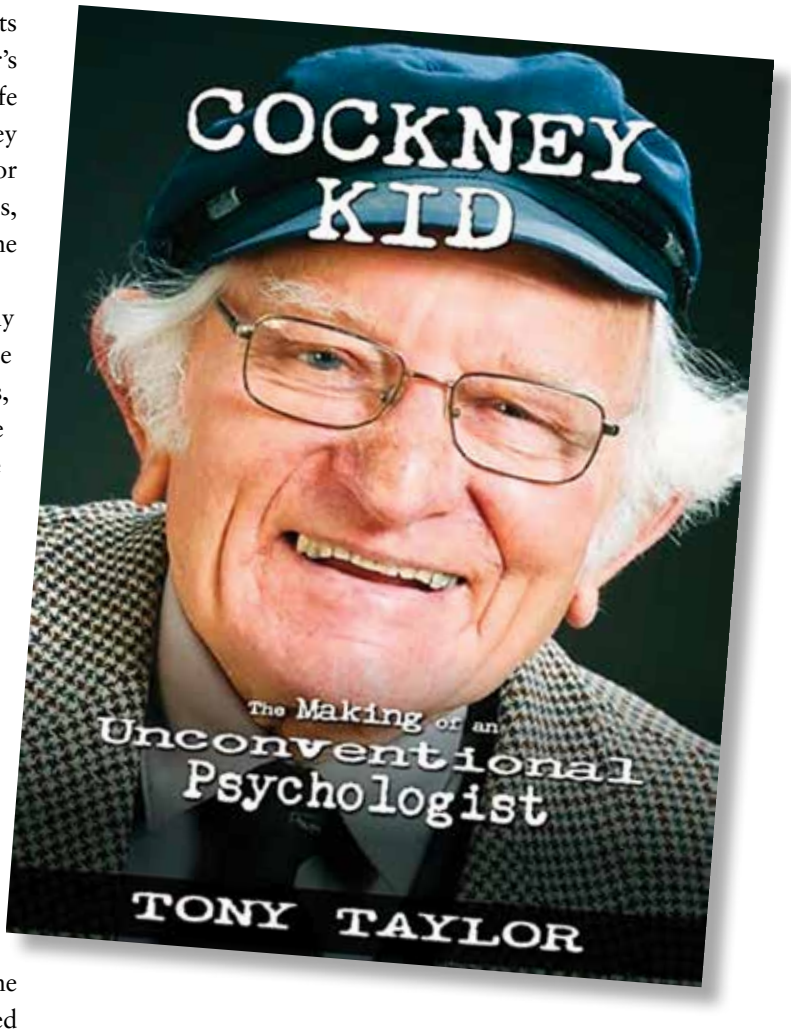
Jorge Berguño is survived by his wife, Paula Hurtado and their five children.

Cockney Kid

The Making of an Unconventional Psychologist

By Tony Taylor

The book is basically about psychology and is written about the life and experiences of a well know psychologist who refers to himself as being 'unconventional' or as one dictionary states "not following what is generally done or believed."



It is a large book of 437 pages. It is written in two parts and I found it easy to read. Part one is about Taylor's upbringing and early life in England. He had a hard life in these early days and I guess that's where the cockney term originated. Part two is about Taylor being a counsellor and psychologist to many institutions such as prisons, university teaching and many other facets of life he became involved with.

That part of the book on Antarctic research was my particular interest. Tony Taylor had visited Scott Base several times and had a wide experience of the conditions, living environment and what it was like to live or have a short stay in a climate which can, at times, become extremely cold.

As a professional psychologist, Tony interviewed job applicants and those sent to Antarctica because of their expertise in a particular science or other specialisation, to analyse their suitability and temperament to withstand the isolation, hardships, loneliness and being away from normal family life. These are just a few assessments that were made by Taylor to ascertain whether the person going into an Antarctic environment would be capable of lasting a summer or winter.

The section of the book on Antarctic research refers to instances where some personnel have not always fitted into the climate and social aspects of living closely with others, while a number have made the base their home especially in winter and developed new skills and adapted well to the total summer light or the long dark winters.

The chapter on Mount Erebus and other disaster counselling is of particular interest especially as Tony Taylor was deeply involved with counselling those men who had returned from the body recovery process of the Air New Zealand DC10 Erebus disaster. He expresses his own views on the disaster and speaks in detail of the aftermath that followed.

It was a very good book covering the life of Professor Tony Taylor, a psychologist who touched the lives of many people and was a good Samaritan to people of many organisations. The reflections on his life in England and other chapters in the book note relating to Antarctica tell other interesting stories; well worth reading.

Book reviewed by Randal Heke, Scott Base veteran

Published by Silver Owl Press, Paekakariki
RRP $45.00
ISBN: 9780986451911 (paperback)

A Very Perfect Gentleman

By Jane Myhill

South, to Ashburton,
not a heroic journey, nor
a voyage of discovery

just a good day out, no sledges,
ponies, dogs required,
no risk we'll starve or freeze

on East Street in early May,
two figures
strolling towards the Bookshop.

In the hut-like room
his dazzling
southern skies

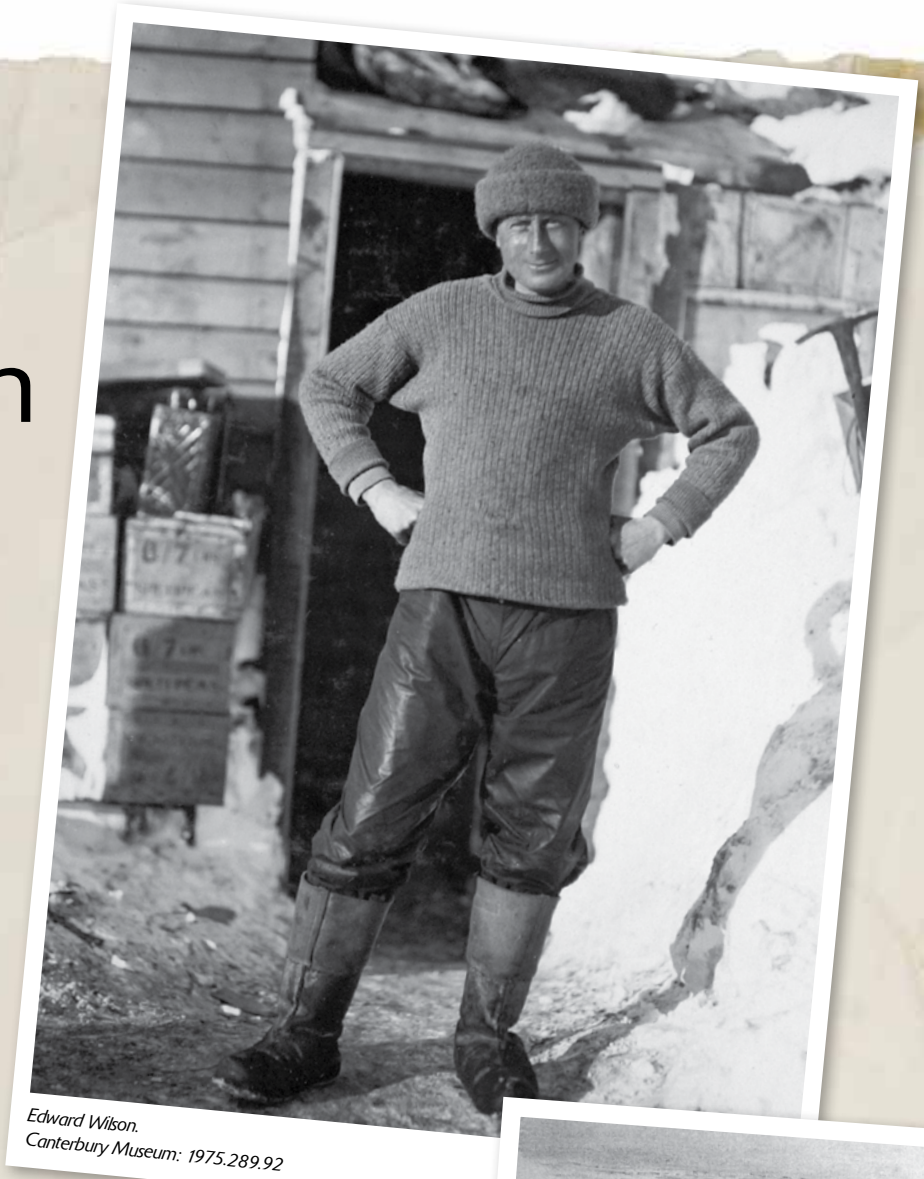
and little sketches,
cat and sardine can,
this champion of bird and bush

while in the mottled pages
it's the man himself
who shines

dear Uncle Bill

whose kind and curious eyes
saw life in stone, for
to his faithful mind

God made nothing dead



Edward Wilson.
Canterbury Museum: 1975.289.92

Watercolour painting by Edward Wilson of man-hauling sledge while wearing skis. Canterbury Museum: 1998.217.1

Sketches by Edward Wilson of the cairn and marker flag left by Amundsen at the South Pole. Canterbury Museum: 1975.261.2

Poem title and line in italics from *Edward Wilson, nature lover*, by George Seaver, published by John Murray. Edward Adrian Wilson, a member of Robert Falcon Scott's *Discovery* and *Terra Nova* expeditions, died in Antarctica in 1912.

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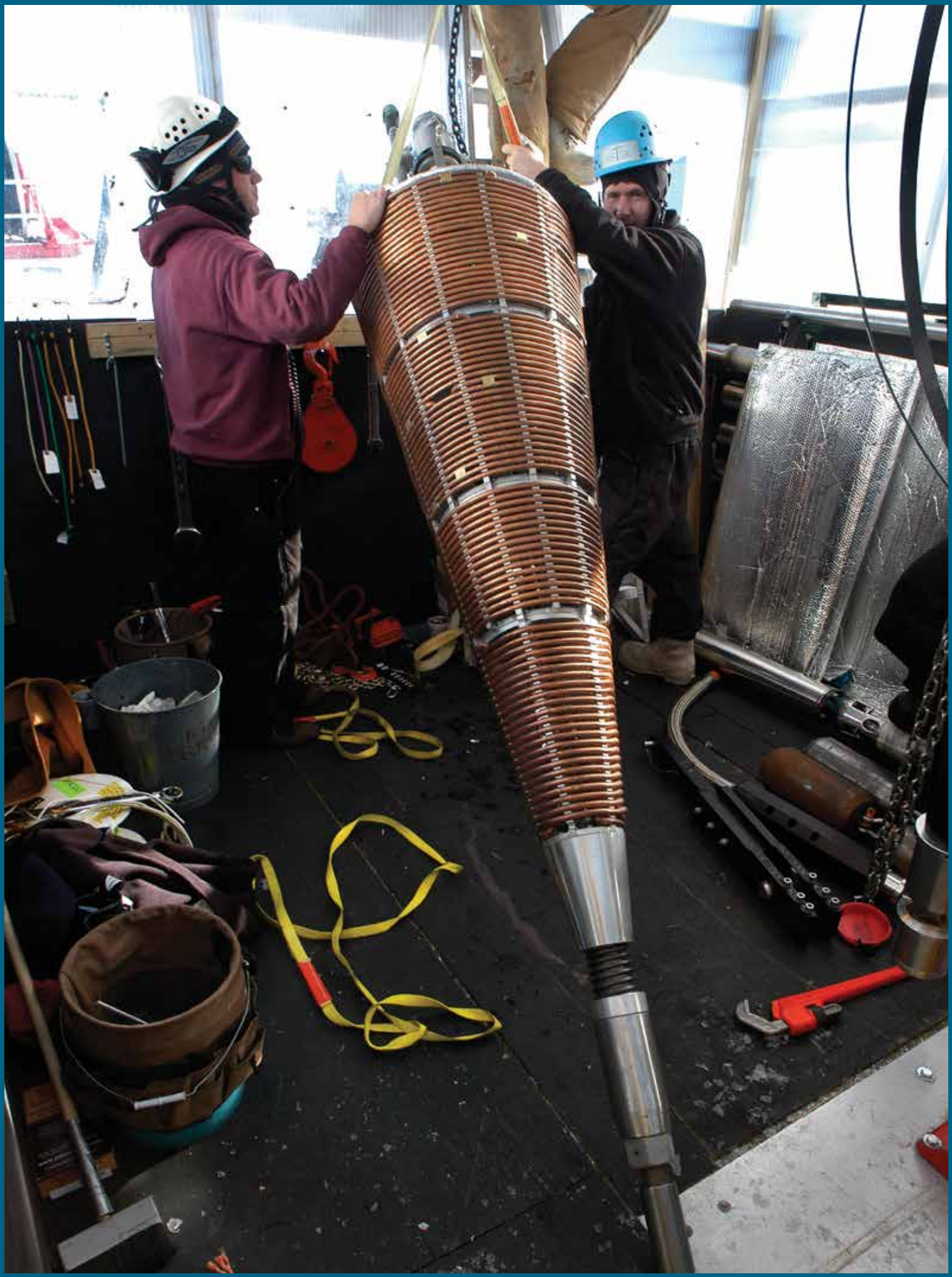

Dar Gibson and Tomas Gustafsson putting the Project IceCube Firn drill away after drilling the first 50 metres of hole through the compacted snow down to the actual ice. Image courtesy Tomas Gustafsson, NSF.