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Science at the Antarctic Frontier

—First SWAIS2C Field Season

Mātauranga Māori

—Antarctic and the Southern Ocean

Scott Base Huskies

—Their journey

Antarctic Tourism

—For good or bad?

Sno-Cat *Able*

—Adventures Part 1

**Also: The early conservation of Captain
Scott's hut at Cape Evans, 1960-61**

AND MORE...



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Cover: *Antarctic Intermediate Depth Drill rig (AIDD) sits outside the drill tent at the SWAIS2C KIS-3 site prior to moving it to an operational position inside the tent.*

Credit: Anthony Powell/Antarctica NZ

Notes

OUR LOGO

One of the early decisions of the first council of the New Zealand Antarctic Society, founded in Wellington in 1933, was to commission a logo.

Richard McElrea notes that this task fell to Eleanor Hunt, a commercial artist, then in her early 20s, and the daughter of the society's founder, Arthur Leigh Hunt.

The logo has served the society for its 90 year history. As part of the on-going review of the society and its performance, members were recently surveyed as to replacing the logo with a new design. Overwhelmingly, members chose to keep the original. This has been slightly simplified for economies when embroidering badges and is the version used in this issue of the magazine.

Remarkably, Eleanor (Kean) celebrated her 100th birthday in Levin in 2011. A *Kapiti Observer* report noted she and a sister, 19 years her junior, were the survivors of five children. Her career included running her own advertising company, 'drawing everything from fashion to tractor adverts.' She was an honorary life member of the Levin Historical Society.

REFERENCES: Neville Peat. (1983). *Looking South. New Zealand Antarctic Society's first Fifty Years 1933–1983* p13 published by NZAS, Wellington; *Kapiti Observer* 26 August 2011, <https://www.stuff.co.nz/local-papers/Horowhenua-mail>

ERRATUM

The Note, "Celebration of 90th Anniversary of NZAS" in the previous issue (Vol 41 No 2) incorrectly stated Sir Douglas Mawson and Admiral Richard Byrd were in attendance at the first meeting. They were named as patrons (along with Admiral Edward Evans), subject to consent, but were not present.

Reference: Neville Peat. (1983). *Looking South. New Zealand Antarctic Society's first Fifty Years 1933–1983* p10 published by NZAS, Wellington. ISBN 0-473-00308-6

COLOUR THEME FOR THIS YEAR

Instead of the past practice of a different colour theme for each issue, there will now be an annual colour theme. For 2024, the colours are those in jade icebergs as featured on the page opposite.

ADVERTISING:

Please use this QR Code for a guide on options, rates and booking.



NEXT ISSUE:

The copy deadline is 24 September for the November 2024 issue. Please email editor with topic in advance.

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Jade iceberg near Macey Islands. Though normally white or tones of blue, icebergs sometimes come in shades of green and are known as 'jade icebergs'. An Australian study suggests "the unique colour of the icebergs is the result of yellow-tinted iron oxide in seawater combining with the crystalline blue of the ice to produce the distinctive jade green." Icebergs play an important role transporting nutrients into the Antarctic ecosystem.



First SWAIS2C Field Season: Science at the Antarctic Frontier

PREFACE

Project Co-Chief Scientists Richard Levy and Tina van de Flierdt give us their account of the effort, trials, tribulations, and moments of joy that come from pulling together and implementing an international science project in Antarctica.

The SWAIS2C (Sensitivity of the West Antarctic Ice Sheet to 2°C of Warming) project is financed and supported by an international partnership agreement—see the Acknowledgements on the inside back cover for the full list of partners.

The first SWAIS2C field season at the KIS-3 drill site on the Ross Ice Shelf was completed between November 2023 and January 2024. It delivered a great deal of scientific and logistical success, drilling challenges, and opportunities to learn.

The goal to drill through the ~580 m-thick Ross Ice Shelf and deep into sediments beneath the sea floor near the grounding zone of the West Antarctic Ice Sheet, at a location ~800 km away from Scott Base, is not an easy task. It requires meticulous planning and dedication from a diverse team with varied skills.

This season once again proved that large-scale complex scientific endeavours in Antarctica don't always go exactly to plan, and that Antarctic exploration is a marathon, not a sprint.

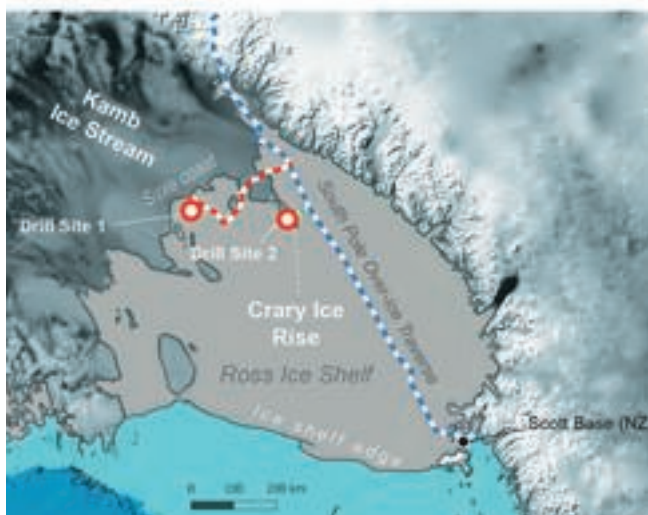


Fig 1. Map to show SWAIS2C drilling locations. Drill site 1 in front of the Kamb Ice Stream is KIS-3. Drill site 2 is the other SWAIS2C site on the Cray Ice Rise.

ONE OF THE LAST THINGS YOU WANT TO SEE

A major aim of the international SWAIS2C scientific programme is to obtain sedimentary records from beneath the sea floor near the location where the West Antarctic Ice Sheet (WAIS) begins to float and form the Ross Ice Shelf. These records offer insight into the response of the WAIS during past intervals when Earth's surface temperature was warmer than pre-industrial values. New data gleaned from the sediments will be integrated with new numerical modelling experiments to explore past and current drivers and thresholds of WAIS dynamics.

Ultimately, outputs from our studies will be used to improve projections of the rate and size of ice sheet changes under a range of elevated greenhouse gas levels and associated average global temperature scenarios to and beyond the +2°C target of the Paris Climate Agreement.

Taking the necessary big steps forward to explore new regions in Antarctica and obtain records from hard-to-reach locations—such as the sea floor beneath the Ross Ice Shelf—requires the use of new technology. After many years of careful planning, development and pre-deployment testing our new Antarctic Intermediate Depth Sediment Drilling (AIDD) system was moved into place on Christmas Eve 2023.

One of the last things you want to see, when you head to the drill tent to check on progress at a critical point in the project, is no action on the drill rig floor. Instead of watching six-metre lengths of drill pipe being winched into place and the rig moving slowly up and down lowering the pipe to the sea floor, the drillers and engineers were standing beside inactive machinery, talking, thinking. Held in place by strong clamps, about 80 m of glass reinforced epoxy pipe connected to heavy lead filled steel weights, hung in a 30 cm diameter hole in the ice shelf beneath the drill rig floor. This two-tonne 'string' of fibreglass and steel was dangling in the hole that our hot water drillers had made over the preceding week to provide our team access to the ocean cavity and sea floor some 630 metres below our feet.



Martin (Paddy) Loughney (left) and Ollie Twigge (right) deploy an oceanographic mooring through a hole in the Ross Ice Shelf.

It turns out that the fibre-glass pipe had slipped through the drill rig chuck three separate times causing the whole rig to shake and shudder and sink into the hardened snowpack foundation. The chuck is the part of the rig that closes around the circular drill pipe and rotates when drilling operations are underway, causing the drill pipe to turn. Whereas steel pipe is a proven technology, our use of fibreglass in Antarctic drilling operations is a first and was chosen to reduce weight for remote field operations. While tests in New Zealand had indicated the chuck would hold the fibre-glass under a large load (up to 13 tonne), deployment of the new technological approach in the field under full Antarctic conditions failed. The slip events and associated damage to the chuck proves a show-stopper. Not the outcome our team want, but not a complete surprise.

MORE THAN TEN YEARS IN THE MAKING

Geological evidence for collapse of the Ross Ice Shelf and retreat of the WAIS under past warm climatic conditions was recovered by the ANTARCTIC DRILLING Programme (ANDRILL) in late 2006. Sediment core recovered from deep below the sea floor in McMurdo Sound contained distinct sequences of rock that offered a record of previous advance and retreat of grounded ice above the drill site. Thick intervals of diatomite, sediment rich in marine algae, indicated that relatively warm ocean water occupied the Ross Sea during long episodes of time throughout the

Pliocene, a period some ~5 to 3 million years ago. These data and associated ice sheet modelling, offered clear evidence that the WAIS collapsed during the most recent period in Earth's past where average surface temperatures were 2 to 3 degrees warmer than the recent pre-industrial era. While this discovery provided key insight into past ice sheet response to warmth beyond a 'Paris Target World', a question remains as to whether the WAIS completely collapsed during slightly cooler intervals in Earth's past. These intervals include recent interglacial episodes when average surface temperatures were between 1 and 2 °C warmer than the pre-industrial era. To answer this question requires geological data from a location much closer to the heart of West Antarctica than that drilled by ANDRILL—a location where model outputs and our knowledge of glacial processes indicate we have a chance to obtain conclusive evidence that the WAIS disappeared (or remained) during these cooler interglacial periods.

Placing X on a map to mark the best place to drill is easy. But proving that the site lies above layers of sedimentary rock that can be recovered through drilling requires site survey, drilling technology development, logistical planning, and financial support.

Geophysical surveys to acquire seismic reflection and gravity data near the grounding zone of the Kamb Ice Stream (KIS) and at Cray Ice Rise (CIR) were planned and completed over several field seasons between 2015 and 2020. Design and build of a brand-new 'light-weight' drilling system was started in 2019 and completed in late 2023. In-person and on-line science workshops were run, and a portfolio of research that centred on two drilling targets was developed. Two major field seasons were planned. An operations and logistics budget of ~USD \$5.4 million was established, based on full-cost estimates for the requisite field work. Science proposals were prepared by national teams and submitted to funding agencies and institutions in nine partner countries. A major international proposal was also submitted to the International Continental Drilling Programme. Finally, after more than nine years of planning and organising, a well-funded international partnership was established, technology was built and tested, and we were ready to head to Antarctica and the Siple Coast to drill at the first site (KIS-3) in 2023.

GETTING THERE—ANTARCTICA'S VERSION OF PLANES, TRAINS, AND AUTOMOBILES

Acquiring sedimentary records from beneath a thick ice shelf far from any logistical support centre in the coldest driest continent on Earth is no walk in the park. Our team of engineers, project managers, and logisticians from Victoria University of Wellington (VUW), GNS Science, and Antarctica New Zealand designed and implemented complex logistical operations to get us there and back. Most of our heavy equipment including the drilling system and drill pipe was shipped to Scott Base on a cargo vessel.

Antarctic field operations began in October 2023 as team members flew from Christchurch to Scott Base over several staggered flights on board US Airforce operated Boeing C-17 Globemaster and New Zealand Defence Force 1960s era C-130 Hercules aircraft.

Ahead of our science and drilling party, a six-person team from Antarctica New Zealand left Scott Base on 10 November in three PistenBully 300s towing sleds loaded with our drilling equipment, camp supplies, and fuel. (See the traverse party on the centrefold.) Over the following two weeks the crew drove, ate, slept, rose, and drove again, averaging 75 km per day along a 1128 km journey to the KIS-3 site. Upon arrival, they groomed a ski-way and set up a large tent for the camp kitchen and living room to get ready for arrival of the science and drilling team.

Our camp crew, scientists, engineers, and drillers flew into KIS-3 from the ice runway at Williams Field near Scott Base on Basler BT-67/DC3T aircraft operated by Kenn Borek Air and supported by the US National Antarctic Program. The airframe of the plane was built in the 1940s and was used on D-Day in World War II. It's awesome, and somewhat disconcerting, to know that you are flying across Antarctica on aircraft that flew from England to France on such a defining day in the history of the modern world.

Touching down on the freshly built ski-way in the middle of the flat white expanse at the very edge of the West Antarctic Ice Sheet is somewhat surreal. A relatively short flight but a long way to travel in terms of planning, proposal writing, fund raising, tech development, and distance, so to finally arrive on site is a feeling that is hard to capture and describe. We spend the next several days setting up our sleeping tent city and science



Aerial view of the KIS-3 camp

facilities. The drill team erect our large orange and white drill tent and set up our Hot Water Drill and Sediment coring systems—ready to start drilling.

DRILLING AND SCIENCE OPERATIONS

Hot water drilling is critical to our project as it produces a hole through the 580 m thick ice shelf, allowing us access to the water column and sea floor beneath the ice. But hot water drilling is no simple task. Our team of six drillers work for approximately two weeks to set up equipment and make thousands of litres of hot water in an environment where water's natural state is cold, solid ice. Once enough seeding water had been made, the team melt a pilot hole and form a water well some 70 m below the ice surface, then continue to drill to the base of the ice shelf, breaking through into the sea water cavity approximately four days after drilling started. Another day to widen the hole to ~ 30 cm diameter, and then our scientists are given access to the hole.

Scientific equipment to measure water temperature, salinity, and pressure and collect images of the borehole and sea floor is lowered through the ice shelf into the sea water column and returned to the surface on the end of a cable using an Okeanus winch. A gravity corer is lowered on the winch and 'dropped' with force into the sea floor to collect samples of the layers of sediment up to 70 cm below the sea floor. Finally, our scientists step back so that our drillers can move the Antarctic Intermediate Depth Drill (AIDD) into place—time for the 'main event'.

The AIDD was developed for use in remote locations in Antarctica and is built around a Multipower Products MP 1000 drilling rig with steel drill pipe and GRE casing/riser designed to core sediments and bedrock from ice platforms. The system is based on wireline diamond coring technology previously used in Antarctica, but deployment at KIS-3 is the first remote field test.



Darcy Mandeno explaining hot water drilling



Loading a Basler for the return to Scott Base from KIS-3 camp

Anthony Powell/Antarctica NZ

Ten hours into sediment coring the GRE pipe slips in the chuck, halting drilling.

STEEL IS REAL

The slip on the riser is unexpected as our team had tested the system back in Wellington. But this is big science at the Antarctic frontier using a new approach to meet significant environmental challenges. Our drillers and engineers find that tiny variations in diameter of the GRE pipe are causing components in the drill rig chuck to malfunction. The problem could be solved by replacing the GRE with regular steel pipe, but this cannot be bought and shipped to Antarctica before the field season ends. After a few video calls back to our project partners and the rest of the science leadership team—made possible by using our amazing Starlink connection (a first for the Siple Coast)—a decision is made.

Our next steps are clear: complete the pieces of our science program that we can still do through an open hole in the ice shelf at this extremely remote location; leave our gear at the KIS-3 site; purchase and ship steel pipe to replace the GRE; and return in the 2024–25 season to complete the job. A lot of added effort and resource—but only one more year in a project that has been more than ten years in the making.

SOME FINAL SCIENCE AND RETURN HOME

Once the GRE riser is pulled back to the surface safely and the AIDD moved away from the open ice shelf hole, our scientists jump into action. We collect more oceanographic data and attempt to recover longer sediment samples using a hammer corer.

With expert input from our drillers, we are able to modify our corer on the fly and drive the sampling tube over two metres into the sea floor to recover a 1.92 m long sediment core—a record for the region. Armed with new environmental information from the incredibly-difficult-to-reach

environment at the grounding zone of the West Antarctic Ice Sheet, we pack our camp and fly back to our homes around the world.

WHAT'S NEXT

Samples from below the sea floor will help us understand the microbial ecosystem that lives in this remote, dark, poorly understood part of our planet. Layers of sediment in the short cores preserve a history of ice sheet behaviour over the past several hundreds to thousands of years—insight that will help us improve the computer models that we use to project future change. For now, the prized geological information about WAIS response to past episodes of warm climate remains hidden, tens to hundreds of metres below the sea floor beneath the ice.

While our team works to analyse the data and geological material we have already recovered, our engineers and drillers are using the experience and technical insights gained from last season to improve our drilling operations.

Our challenging endeavour of discovery at the Antarctic frontier continues. We are getting ready to go back in November this year to finish the job. We are all very aware that our discoveries are important to better understand the consequences of the increase in surface temperature of our planet. Time is short.

By **Richard Levy** (*GNS Science and Te Herenga Waka—Victoria University of Wellington*) and **Tina van de Flierdt** (*Imperial College London*)

DEDICATION

This article is dedicated to Martin (Paddy) Loughney—our Irish driller, amateur oceanographer, and story teller who was with us in Antarctica this past season and sadly passed on May 6th, 2024. Paddy, you will be in our thoughts when we return to finish the job that your skill and enthusiasm helped us start.

Our team is also deeply saddened by the loss of Craig Cary who passed on February 29th, 2024. Craig was a SWAIS2C team member and regular visitor to Antarctica to study microbial life in extreme environments.

Saving Scott's Hut

THE EARLY CONSERVATION OF CAPTAIN SCOTT'S HUT AT CAPE EVANS, 1960-61



Restoration Party, Cape Evans, Dec. 1960. L to R: Mike Prebble, Jack Sandman, Les Quartermain, Bob Buckley, Colin Jenness.

BACKSTORY

Robert John (“Bob”) Buckley was a key member of the Huts Restoration Party at Cape Evans, Ross Island, Antarctica in December 1960. In an interview recorded in Christchurch, New Zealand (NZ), in September 2022, he disclosed new information about the assessment of and the techniques used in removing almost 200m³ of ice in the Cape Evans Hut accumulated over 43 years.

The hut was erected by Captain Robert Scott’s British Antarctic Expedition 1911–13, and occupied in increasingly dire circumstances by Sir Ernest Shackleton’s Ross Sea Party 1914–17.

Scott’s expedition had left the hut in ship-shape condition in January 1913. By the time the survivors of the Ross Sea Party were rescued in January 1917, the hut was begrimed with soot from seal blubber fuel used by the beleaguered party. Additionally, detritus from their stay was piled inside opposite the galley area and in the surrounds of the hut, in particular outside the main entrance.

For 30 years until 1947, the hut, and others on Ross Island—Shackleton’s at Cape Royds (1907–09), and that of Scott’s first expedition (1901–04) at Hut Point—had remained largely unseen by humans, and unvisited. US Navy personnel visited Cape Evans in 1947–48 and, in December 1955, 12 men from USS *Glacier* entered the building and broke open some food cases.

Visitors from the newly established Scott Base were unimpressed with what they saw. Sir Edmund Hillary wrote, “The ground around the hut was a complete shambles, with rubbish, empty tins and the ancient carcasses of seals strewn in every direction.”

Geologist Guyon Warren referred to the “completely indescribable shambles inside” and found Shackleton’s hut at Cape Royds “...much more sanitary and altogether more pleasant than Evans.”

In January–February 1958, personnel from HMNZS *Endeavour* “carried out intensive improvement and cleaning up work” at the three



Garth Matterson.



Bob Cranfield.



Bob Cranfield.

Clearing the Cape Evans Hut entrance of snow in the previous season. Buckley said, "We cut our way in from the outside door."

Les Quartermain, leader of the Huts Restoration Party, outside the Cape Evans Hut, December 1960. Debris left by Shackleton's marooned Ross Sea Party 1914-17 litters the environs.

Scott's Hut, Mt Erebus, tents of the Huts Restoration Party and caravan. "Jack Sandman & I are enjoying the luxury of a caravan left here by the American biologists." (Quartermain).

huts. At Cape Evans, this included "building rubbish dumps for burning."

The New Zealand Government declared it had a responsibility "to fully restore these historic huts... to the condition they were left in..." Significantly, a Huts Restoration Committee was formed in 1959 and drew up a programme for work at Cape Evans and Cape Royds during the 1960-61 summer, and appointed Leslie Quartermain, then Information Officer at the Antarctic Division, as leader.

Despite the work of the *Endeavour* parties and occasional clearing work by Scott Base personnel, the Cape Evans site was in a bad way before Quartermain's party arrived in December 1960.

BOB BUCKLEY'S STORY

When appointed as maintenance officer at Scott Base in 1960, Bob was a 23 year-old electrician and one of 13 men who wintered over. A keen climber and skier, actively involved in search and rescue, he had been a leading hand in the Navy Reserve.

He said that when camped at Fort Dorset in Seatoun, Wellington, he saw the new Scott Base buildings being off-loaded and assembled at Wellington's (then) Rongotai aerodrome, where they were "escorted around" by the Ministry of Works. This would have been in August 1956.

He went south on HMNZS *Endeavour* to Scott Base "when it was being constructed" in the summer of 1956-57 and returned "on one of the other boats." Back in New Zealand, he kept in contact with Les Quartermain whom he came across at the Antarctic Division where Bob was assisting "collecting provisions...and requirements" for the following season. Bob admired Quartermain who "knew so much—every time you asked him a question, he had an answer that fitted."

When the advertisement for the winter-over position came up, it was "like a dream come true."

Scott Base in the summer of 1959-60 was undergoing upgrading including the addition of

an aircraft hangar and installation of two new generators, each of 45 kw output.

In New Zealand, Bob was in a position to go to the workshop where the Ministry of Works was doing the assembly of the generators. He helped prepare the gear and equipment throughout the winter. He had a job with the Ministry of Works at Chateau Tongariro. At the same time he was carrying on with "any emergencies, search and rescue" and "was able to fit in with this time preparing for the Antarctic." When he went south in the summer of 1959-60, they "fitted up the new generators and introduced bulldozers to the base. Before, they only had tractors."

PRELIMINARY EXPEDITION TO CAPE EVANS

They had trained the dogs by moonlight "in the wintertime." On 3 September 1960, Bob was in a party of five with four dog teams on a week's expedition to Cape Evans and Cape Royds. The party camped on the Cape Evans beach near the hut. They took out provisions for the Huts Restoration Party, to follow in December.

Bob recalled Quartermain had said he would "like to know the quantities, and volume [of ice] and possibilities—how you would go about working through the hut..."

To make such assessment they had to cut their way "in from the outside door through to the door of the kitchen part" where the ice had not completely filled the hut. They could see the angle of the snow and ice beyond. They crawled up and over the ice, across the beams below the ceiling.

Bob said they calculated that Quartermain would need three to four weeks to excavate the building with four people. Buckley volunteered to stay on to assist in the hut restoration work.

Bob recognised it was "going to be difficult to save things if removing the ice" and they needed the correct tools. Through "one of the chapel people" at McMurdo Station, he obtained a type



US Navy – F. Kazukaitis,
courtesy Bob Buckley.

Cape Evans Hut from the north, September 1960. Note the partially excavated stable. Bob thought this might have been the work of Americans, who “had a small hut” nearby, looking for bacterial samples.

of pick-like ice axe “with a coned-shape round point” that was more effective in breaking up ice than an ordinary pick.

CAPE EVANS, DECEMBER 1960

Quartermain and three men from Scott Base—carpenter Jack Sandman, Colin Jenness and Buckley—started work at Cape Evans on 5 December. They were joined six days later by Mike Prebble, a NZ Antarctic Society volunteer.

Bob explained they started the task of ice excavation by working from the ceiling beams, where there had been some melt through the black roof and “made a channel...over the top of Scott’s writing desk” to a small window above the roof of the stables. “We could get a slot down from the peak of the roof to where that window was.”

They used three canvas “banana sledges” which Quartermain describes as “a canvas sled on runner” borrowed from the Americans, to which they could attach ropes, initially to move the ice “down through the window frame”. They would check each load for “anything to be saved or recorded” by tipping it on to “a tarpaulin cloth” on the roof and allowing the heat of the sun to melt it. From the excavated ice they built a ramp from the roof of the stables to the beach surface below and continued the process of allowing the sun to melt and release objects on the black sand.

He said as they worked their way down through the ice, “you couldn’t really tell whether you were looking at the end of a bunk or a workshop where somebody had stored stuff.” Inevitably there was some collateral damage. A week into the task, Quartermain wrote: “Occasionally a pick goes through a bottle in the ice, today I smashed a bottle of ammonia: got out quick!”

Bob said the process “worked exceptionally well. I was really impressed. I knew what I wanted to do and others thought the same. Les [Quartermain] was so much the key—his knowledge, he had old photographs which we could refer to in the pattern of the original hut.”

Bob told me that “after about 14 days” he “couldn’t believe how much ice we removed, and the same thing with Les...” He (Bob) observed the effects of ice removal. “Once we started coming down through the ice, things were melting on ledges and shelves and bits and places, the whole temperature was changing inside the building.”

They worked long days. “We would go back after dinner at night because of the daylight... to keep going.” They uncovered numerous items: “notes... books half written... a lot of personal things... two small prayer books—they were in pieces.”

Significantly, Quartermain recorded: “...on Ponting’s darkroom door, Bob found a note from Capt J K Davis...stating that the 7 survivors of the 1915–17 Ross Sea party had been rescued...” This is now held at the Scott Polar Research Institute in Cambridge, England.

The arrival of Sir Charles Wright of Scott’s expedition, as a special guest at Cape Evans left an impression on Bob. He explained their special effort to reach Wright’s bunk, adjacent to the darkroom. “We had to jump ahead a bit because of the date, we hollowed out the floor area in the corner that had been his workshop. His bunk was the first one back from the corner.”

Buckley recounted that in Wright’s presence they opened the darkroom door for the first time. They had been surprised “to see the door was shut and we worked our way down through the ice. We didn’t dare open the door—anything like that...”

Quartermain in his 1963 book states, “the sturdy veteran” arrived “just at the time when the darkroom door had been cleared of ice...” and Wright was the first to enter the room.

Bob said of the darkroom, “it was totally magic—hard to describe, it was so different to the rest of the building because we had these [stalactites]—none of that looked broken, it looked as though the wind had never moved the building...”

In excavating Scott’s former cubicle, Bob said “the ice was slightly different colour...it was almost as if...something had been dug at some stage...”

Quartermain likewise states, “Someone (‘Endeavour’ ?) has been before us, because there is a clear line of demarcation between the hard ice and the part which is just comparatively recent snow...One wonders what has disappeared.”

There was a further surprise in Scott’s former “den”, later occupied by R.W. Richards following



US Navy – F. Kazukaitus, courtesy Bob Buckley.

Bob Buckley (top) and Colin Jenness clearing ice in the wooden annexe to the Cape Evans Hut. Lack of time prevented further progress in this area and followed the removal of approximately 200m³ from the main building. Quartermain said, “Bob Buckley is an absolute bullock for work—at least in spasms—and when he yields a pick the hard ice just crumples up.’



US Navy – F. Kazukaitus, courtesy Bob Buckley.

Scott’s partitioned work and sleep area showing the window used by Quartermain’s party in removing accumulated ice from higher levels. The upper bunk in the top left, still solidly encased in ice, was formerly occupied by Sir Charles Wright of the Scott expedition who visited Cape Evans when the Quartermain party was de-icing his old hut.

his illness in the winter of 1916. “We took the ice off the front of the bunks and there were the three buckets under there... like paint buckets...” These had been used as urinals during the dark days of 1916.

Between 5–23 December, Quartermain’s party, applying plenty of “Kiwi ingenuity”, had achieved the monumental task of excavating almost 200m³ of ice from the main body of the Cape Evans hut and in the process had rescued priceless artefacts. This was the foundation for conservation to follow.

After Christmas at Scott Base, Buckley and Jenness made a belated departure to New Zealand. Two further volunteers from the NZ Antarctic Society, Eric Gibbs and Graeme Wilson, joined Quartermain. The five men worked at Shackleton’s hut at Cape Royds 30 December to 17 January before returning to Cape Evans Hut for 12 days. Here they followed up after the ice extraction including weatherproofing, re-covering the roof, and allocating clothing, utensils, foodstuffs and like items to areas of the hut thought appropriate.

In a letter, Quartermain explained his final work inside the hut, “...clearing up various parts and then trying to re-stock them to make them look natural and ‘as was’. It is complicated by the two-year stay of the 1915–17 party...Most of the clothing is theirs, and in a terrible condition. So, in a way we are making it look more like it was in their time rather than in Scott’s time.”

Bob Buckley said his time at Scott Base and at Cape Evans, “was magic. It has stayed with me...it was pretty important to me.”

By **Richard McElrea** QSO

Richard McElrea worked as a New Zealand Antarctic Society volunteer at the Scott & Shackleton huts on Ross Island in December 1971.

SOURCES: **Interview** with Bob Buckley by Richard McElrea, 30 September 2022; L.B. Quartermain **letters/diary**, 6. 9, 12, 15 Dec 1960 & 25 Jan 1961, Canterbury Museum, MS 303 Part 2/ Box 7/Folder 34/Item31; **diary** of Garth Matterson, 3 Sep 1960; **published works**: *Two Huts the Antarctic*, 1963 & *New Zealand and the Antarctic*, 1971, by L.B. Quartermain; *Polar Castaways, The Ross Sea Party (1914-17) of Sir Ernest Shackleton*, 2004 by R. McElrea & D. Harrowfield; *The Crossing of Antarctica: The Commonwealth Trans-Antarctic Expedition 1955-58, 1958* by Sir V. Fuchs & Sir E. Hillary; *The Daily Journal of an Antarctic Explorer, 1956-58, 2014* by G. Warren, Ed. K. Warren (entry for 26 April 1957); *Antarctic* (1) & (2). **Special thanks** to: Bob Buckley & family; Canterbury Museum (Adele Jackson, Curator Human History); Garth Matterson; Bob Cranfield.



Antarctic Tourism: For good? Or bad?

Tourists on land for wildlife observation and photo shoots

IN THE LAST FEW YEARS Antarctic tourism has featured regularly in the media—not only in the standard travel features promoting new adventures in the far south, but also in more critical articles questioning the wisdom of allowing ever-increasing numbers of commercial travellers to visit the continent.

While numbers have been growing fairly steadily for several decades, a jump of about forty per cent after the COVID pandemic to over 100,000 visitors in one season has triggered shocked reactions. Critics point to the high per capita carbon footprint of an Antarctic journey as well as more direct impacts, such as potential wildlife disturbance, invasive species risk, and black carbon pollution. The industry, for its part, emphasises its strict biosecurity measures; its logistical support for researchers; the positive opportunities to create advocates for the continent's protection; and investment in lower-carbon technologies such as hybrid ships.

In response to this issue, the University of Tasmania has formed an Antarctic Tourism Research Program, comprised of tourism scholars, Antarctic experts, economists, political scientists, and sociologists. We are currently working with five operators, both in the Antarctic Peninsula (where the vast majority of tourism is concentrated) and in East Antarctica—a small part of the sector but potentially a strong growth area if visitor numbers continue to burgeon. Our goal is to identify the multiple motivations that drive travel to the region; understand whether and how an Antarctic encounter can inspire tourists to help protect Antarctica; and determine what a sustainable tourism industry in Antarctica would look like. Ultimately we are seeking to develop a suite of recommendations for policy-makers and operators to draw on.



The authors, Elizabeth Leane and Anne Hardy

When we discuss our research at academic or public events, we are often questioned about the ethics of the industry. Some people have a knee-jerk negative reaction to the very idea of tourism in the 'last wilderness'. Others are excited that about the access and opportunities for education that tourism in Antarctica allows. But either way, the concern about the actual numbers of tourists in the region is consistent.

Tourism in Antarctica is currently regulated by the 1991 Protocol on Environmental Protection to the Antarctic Treaty. Operators based in a signatory nation must accordingly apply for permits before they take customers south, and hence must meet environmental and other benchmarks. But the Protocol says nothing about overall numbers, nor does it make recommendations about the style, focus and goals of the tourism operations in the region.

Additionally, the International Association of Antarctica Tour Operators (IAATO)—to which almost all companies currently operating in the region belong—has its own evolving by-laws and requirements, including guidelines for landing sites, restrictions on the size of vessels that can land tourists (those carrying 500 or fewer), constraints on visitor numbers at landing sites, minimum approach distances to wildlife, speed restrictions on vessels to avoid whale strikes, and a host of other strictures. IAATO has also initiated an Antarctic Ambassadors program, which seeks to transform paying visitors into advocates for the region. However, as an industry body, IAATO explicitly cannot restrict numbers of operators or tourists.

We argue that the debate needs to extend beyond a focus on sheer numbers. We are interested in understanding what experiences are being offered in the region and the psychosocial



Citizen science



Biossecurity measures



Ready to go—tourist ships in port in Ushuaia, Argentina

impacts of these offerings. For example, themed cruises—including conference cruises, leadership cruises, and music cruises—operate in Antarctica. How and whether these align with the values of the Antarctic Treaty System is one focus of our research. We are also interested in the multiple motivations of those who visit Antarctica. Our research over the past two seasons on ten voyages has shown the complexity of this issue.

People often imagine Antarctic tourists as rich, entitled, and indifferent to or oblivious of their environmental impact, sipping cocktails in spas against icy backdrops. Some visitors do fit this stereotype: we met people whose main motivation was to visit all seven continents—an aim that spoke more to their ego than to an interest in the Antarctic itself. But while no Antarctic tourists are poor, we met people—teachers, librarians, manual workers—who had saved for years to journey to a place that had preoccupied them since childhood. A few of them were in tears during our research interviews, so intensely had their Antarctic encounter affected them. Many of our interviewees were highly conscious of their environmental footprint and felt an unreconcilable tension between the profound nature of their encounter and the knowledge of their environmental impact. And a number of them were uncomfortable with the industry’s continual growth—a fact brought home when they saw other vessels in the distance or tracks left by previous visitors at favourite landing sites.

Ultimately, there is a lot of space between one extreme to ban all commercial tourism and the other to allow unfettered access. And neither of those extremes is likely to happen. The chances of twenty-nine countries agreeing on an outright ban are vanishingly small; but the risk of a completely unmanaged future industry is also very low. The

Antarctic Treaty’s Environmental Protocol is not easy to change and operators themselves have a strong investment of protecting the integrity of the product they sell.

The question then becomes where on a continuum between those extremes the industry currently sits, where it should ideally be, and what mechanisms exist to shift it in the desired direction. Many suggestions have been raised, including in the key decision-making forum for Antarctic governance, the Antarctic Treaty Consultative Meetings—a cap-and-trade system; a tourism tax; a certification system; impartial observers on all vessels—without a lot of concrete outcomes. Solutions that might work in a sovereign nation are less easily implemented in an internationally governed region—some may have unwanted consequences. A cap on numbers would likely increase prices, rendering Antarctic visitors even more elite than at present. Restricting large vessels could increase the number of smaller vessels, creating congestion and heightened risk of accident. Overly restrictive regulations could lead to operators basing themselves in non-signatory nations. Any response must be carefully considered and implemented.

In May this year, when the Antarctic Treaty parties met in Kochi, India, a special working group focussed on a systematic framework to manage the tourism industry. People interested in the region’s protection should keep a close eye on the outcomes of this and future meetings. When decisions are made by consensus between twenty-nine countries, nothing tends to happen very quickly. Nonetheless, we might catch glimpses of a new era of Antarctic tourism.

By Elizabeth Leane and Anne Hardy
University of Tasmania

In the wake of James Clark Ross —but with robots

Ice floes viewed 12.46am 2 February 2024

IN SEPTEMBER OF 1839, James Clark Ross sailed from England in two stout wooden ships, HMS *Erebus* and *Terror*, with a task to survey the southern oceans—particularly Earth’s magnetic variations so critical for navigation at the time. As they set out, the very first signatures of change in our earth system due to greenhouse gas emissions were being laid out in corals, air temperature records and marine sediments. The industrial revolution was starting to change the way the planet worked.¹

In January of 2024, a team of NZ scientists joined the Italian icebreaker, RV *Laura Bassi*, for a two-month circumnavigation of the Ross Sea continental shelf. Our tasks were built into a voyage designed by our Italian colleagues to sample critical aspects of the Ross Sea continental shelf. This wide shallow embayment is Earth’s southernmost, often ice-free, area of ocean.

A prime motivator for the work was looking at the impacts of the dramatic reduction in sea ice coverage all around Antarctica over the last few years. These changes are being caused by our changing climate, primarily through a warming ocean and shifting wind patterns.

The nature of taking a ship, a wooden “bomb” ship like HMS *Erebus* or *Terror*, or a modern icebreaker, into sea ice, resulted in a startling but hardly surprising match in dates.² The RV *Laura Bassi* entered Terra Nova Bay on almost the same day of year as Ross and his vessels did in 1841.

The Ross Sea continental shelf region is mostly around 500–600 m deep but defined by a sequence of north-south troughs to guide water both on and off the shelf. Its southern

boundary is the huge Ross Ice Shelf—something that is geophysically unique. Even the Filchner-Ronne in the Weddell Sea is different as that sister embayment is typically ice-covered all year round—as Shackleton discovered.

But warm water making its way to the ice shelf has to come from somewhere. As one measures ocean heat north of the edge of the Ross continental shelf, we find a pool of deeper warm ocean water literally lapping at the edges of the continental shelf. This leads to one of our primary science questions around the future changes that will come with further ocean warming and if some of this warm water might get pushed up onto the shallows of the shelf and then on to melt the ice to the south.

The Italian research programme has been going in various forms for decades and is an example of the benefits of persistent funding on a topic. Their science leaders several decades ago recognised the importance of the region and coupled with operation requirements of servicing their base they started long term measurements of the ocean—this continues today in an evolved form. In a similar way the NZ Antarctic Science Platform is unique in the NZ science funding landscape in that it has longer term horizons for its support. This enables us to integrate NZ data activity with the Italian operations.³

While one can sit below deck in the icebreaker, listening to the grinding and smashing of ice against the thick steel plates of the hull, it doesn’t make you immune to weather. Several times during the voyage we watched a major weather system work its way across the Southern Ocean



Preparing an ocean glider



Deploying an ocean glider



One of 3 ocean glider robots off on its mission



RV *Laura Bassi*



Sailing close to the ice shelf

to our location and made plans for the best place to shelter. We could watch the storm pass us by but we couldn't collect data. It is usually too dangerous to crew and instruments to try and put instruments over the side in big waves with ice floes clashing about. What we did have though, that James Clark Ross did not, were robots. Ocean robots are almost impervious to bad weather.

On this voyage we were supported by a veritable flotilla of robots. Some are quite basic and their strength is in numbers—around 4000 Argo profiling robots drift through the oceans at any one time—reporting back on subsurface ocean weather. Other robots are as sophisticated as space probes—ocean gliders can travel independently for weeks at a time collecting an array of data-types. We deployed eleven of the Argo drifters and then sent off three ocean gliders to conduct missions across the Ross embayment.

The RV *Laura Bassi* saw service as the HMS and so has seen its fair share of Antarctica. Its interior is designed as much for transporting cargo as it is for collecting science data. The science team's time was spent revolving between the various laboratories and working lounges, and locking in to mealtimes as the backbone of the daily routine.

Recent modifications to the ship resulted in an observation deck, Piazza Grande—which is one of the more easily accessible areas on the ship to take in some sea air. It also affords a perfect view of the "CTD" operations—one of the mainstays of an oceanographic vessel of any era. CTD stands for Conductivity-Temperature-Depth. Today's instrument has a package that looks for all the

world like the chamber of a giant revolver. Instead of holding bullets, the chambers collect seawater samples along with electronic measurements of a plethora of ocean properties.

Life on the ship was a cycle of intense sampling broken up by either waiting for weather to ease or while steaming to major sampling locations. And the sampling was a combination of activity that Ross's crew would have recognised—storing samples of seawater or sediment—to things they would definitely not have such as deploying robots, or talking to school groups via satellite.

The robots and ship-based sampling provide us with a complex mesh of information in space, time and data-type. Collecting and analysing the data is only part of the story as it is becoming ever more critical to share the data efficiently and explain the meaning to all types of audiences. Both Italy and New Zealand are involved in the Southern Ocean Observing System (SOOS)—a network of researchers who work to connect the expensive and critical data with as many users as possible. So now the next phase of work begins.

By Craig Stevens

Professor, University of Auckland; Principal Scientist, NIWA; and Oceans Project Leader Antarctic Science Platform

REFERENCES

- (1) Abram, N.J. and others, 2016. Early onset of industrial-era warming across the oceans and continents. *Nature*, 536(7617), pp.411-418.
- (2) Ross, J.C., 1847. *A Voyage of Discovery and Research in the Southern and Antarctic Regions, During the Years 1839-43*. Vols. 1 and 2. London: John Murray.
- (3) Bowen, M.M. and others, 2023. Tides regulate the flow and density of Antarctic Bottom Water from the western Ross Sea. *Sci Rep* 13, 3873. <https://doi.org/10.1038/s41598-023-31008-w>

IMAGE CREDITS: Lana Young NIWA/AntNZ/K872



The CTD for collecting water samples



Processing zooplankton samples



Small fish

Seiko Watches in Antarctica

HARSH ENVIRONMENTS often require robust timepieces; this is a recurring theme my twin brother and I have seen play out repeatedly. We've seen it from underwater habitats on the ocean floor to motorcycle trips around the world and space flight. One place that stands out among these is Antarctica, and one watch brand that stands out for its use on the ice is Seiko.

For the past five years, my brother Justin and I have researched watches used in Antarctica. This all began in 2019 when Justin purchased a Seiko wristwatch model 6306. This is a diver's watch rated to 150m with a rotating bezel and an automatic movement. No batteries required; the watch would run mechanically with the movement of the wearer's arm. The reason Justin bought this Seiko watch was because the dial or face of the watch had an interesting set of markings printed on it, markings that wouldn't be seen on this model normally. The dial read "MSST 1979-80".

This set Justin and I on a mission to find out what the markings meant, and what the story behind the watch was. Thankfully, through the fine records kept by scientists and personnel in Antarctica, we tracked down a study conducted in the late 1970's called the McMurdo Sound Sediment and Tectonics Study (or MSSTS). This led us to a few folks who had worked on the MSSTS project, such as Dr. Peter Barrett, Dr. Peter Webb, and Alex Pyne. Through correspondence with them, we eventually learned that they not only recognized the watch, but each of the Peters were given one themselves by Dr. Tetsuya Torii. Dr. Torii was a well-known Antarctic scientist with the Japanese Antarctic Research Expedition (JARE) and was part of multiple joint research projects including MSSTS. The inscription was truncated.

Through research we learned this the Seiko model 6306 with the MSST dial was not the first Seiko given to members of a research project in Antarctica by Dr. Torii. There was another Seiko diver's watch model 6105 with the markings "DVDP 1975-76", where DVDP stood for the Dry Valley Drilling Project. This project ran from



Dr. Torii (far left) and other members of the JARE. Santa calls at the Labyrinth December 1985. The man on the far right of the photo is wearing a Seiko 6306 diver's watch.

1971–1976. DVDP 15 was the first geological drill hole in McMurdo Sound. This project was also a joint venture that included JARE. As with the MSSTS project, Dr. Torii gave these watches as gifts to higher level scientists and personnel working on the projects. One additional Seiko divers watch was given to personnel and scientists during the Cenozoic Investigations in the Western Ross Sea (CIROS) Project. This is the Seiko model we know the least about, despite being the youngest of the three projects, having taken place in the 1980s.

After learning about the use of Seiko watches in Antarctica as part of scientific research projects, we set out to comb through archives of photographs from the 1970s to try to see staff wearing Seiko watches. Hopefully, we would be able to reach the people wearing them to hear their story.

The first person I was able to reach was Mike Wing, who is a member of NZAS. I found the photo opposite of Mike during his time on the ice in 1975 as a field assistant/dog handler and on his wrist I spotted a Seiko 6105 diver's watch. As luck would have it, I was then able to reach out to the New Zealand Antarctic Society and reach Mike via email. He still has his Seiko 6105 that he bought as a robust and durable watch for his time on the ice. One of the crew members of the USCG Burton Island was able to engrave "Mike Wing" into the back of the watch and I believe his Seiko has been repaired and is now once again alive and ticking.

The search didn't end there, I turned up photos of Scott Base 1977 winter leader Jim Rankin also wearing a Seiko 6105. I never had the opportunity to speak with him, but researching Rankin led

me to a man named John Charles who worked as Deputy Officer in Charge (DOIC) at Scott Base during the 1976–77 summer season. I’ve been fortunate enough to reach John who has been very nice and, similar to Mike, still has his Seiko 6105. John’s Seiko was given to him by Dr. Torii and is marked with the DVDP markings on the dial in honour of the Dry Valley Drilling project.



The use of Seiko watches in Antarctica undoubtedly continued through the 1980s and 1990s. I’m sure there are scientists and staff there right now that continue to use Seiko watches for their durability and reliability. The Seiko models given during these research projects are a sign of the collaborative spirit and teamwork of those working in Antarctica. We were never able to speak with Dr. Torii, but the act of him giving a token of appreciation like the Seiko watches shows that he was proud of the Japanese watch manufacturer as well as the staff he worked with to advance the science and understanding of Antarctica.

Among the folks we’ve spoken with who wore Seiko watches during their time in Antarctica, none had anything negative to say about the watches. By all accounts they were reliable companions in conditions it’s hard to imagine. Having never been to Antarctica, hearing about these watches and getting to know the folks who used them and worked there has been a treat. I’m very appreciative for the opportunity to talk a little bit about how and when Seiko watches were used on the ice. Seiko has a rich history and with the help of Mike, John, and others we’ve spoken with, we now know a bit more about Seiko’s history.

It’s my pleasure to be able to contribute to the New Zealand Antarctic Society magazine *Antarctic* and I appreciate the opportunity. If any of you reading this have an interesting watch from your time working in Antarctica or stories about any of the projects we’ve mentioned, you can always feel free to reach out to me by email.

By **Devin Couture**, an avian biologist in the United States with an interest in watches and their intersection with science and exploration.

Email: drcouture87@gmail.com



Above Seiko watch belonging to Justin Couture inscribed with MSST: top left belonging to John Charles with DVDP.



Seiko 6306 divers watch inscribed with MSST 1979-80 on the dial. Behind is an envelope with a JARE stamp and US Navy Antarctica Dec 1079 frank mark.



Kevin Tasker, Summer IOC, handling over to 1977 winter leader Jim Rankin (right) who is wearing a Seiko.



Mike Wing during his time on the ice in 1975 as a field assistant/dog handler and on his wrist a Seiko 6105 diver's watch.

Kiwi Geological Drilling in the Antarctic

A BRIEF HISTORY

NEW ZEALAND DRILLING in the Antarctic began in January 1957, with Jack Hoffman, using compressed air as a drilling fluid, boring into basalt for the guy wires to hold down the new buildings for Scott Base. This was to become the home for New Zealand's year-round scientific observations for the 1957–58 International Geophysical Year (IGY); the Ross Sea party of the Commonwealth Trans-Antarctic Expedition; and the next two decades of research.

It also marked the start of a long involvement of Kiwi drillers with projects in the Ross Sea region. After IGY, the first few years of mapping and geological exploration covered the length of the Trans-Antarctic Mountains. Then a group of scientists and programme managers—Phil Smith and Lyle McGinnis (US); Peter Webb, Trevor Hatherton*, David Kear* and Bob Thomson* (NZ); and Tetsuya Torii (Japan)—began to plan for the first geological drilling. Known as the Dry Valleys Drilling Project (DVDP), this joint initiative used a Longyear 44 drill rig purchased by the US National Science Foundation on the recommendation of Jack Hoffman, Head of the Geophysics Division Drilling Team, NZ Department of Scientific and Industrial Research (DSIR).

The first cores were a test drilling led by Hoffman outside the Thiel Earth Science Laboratory at McMurdo Station in January and February 1973. The crew cored over 100 m into scoria and basalt flows. The crew for DVDP 1, also 2 and 3, included Bain Webster, who later set-up Webster Drilling and Exploration based in Porirua, NZ.

The DVDP drilling programme continued through the 1973 and 1974 summers with the DSIR drill team overseen by Hoffman, with Leon Oliver acting when he was not available. The 11 more sites drilled included: Lake Vanda, Don Juan Pond, Lake Vida, Lake Leon and New Harbour. DVDP culminated in November 1975 in the drilling of DVDP 15, where the rig was set up on annual 2-m-thick sea ice in 120 –m of water off Marble

Point. The rig cored to 64 m below sea floor (mbsf) of sand before cracks appeared in the sea ice—time to leave.

Four years later, New Zealanders led the way applying the lessons from DVDP 15, with the same rig on sea ice off Marble Point but in deeper water (196 m). This was the McMurdo Sound Tectonic & Sediment Studies (MSSTS) 1 drill hole, using a drill team from the Ministry of Works led by Jack Barclay and Jimmy Gupwell. Time was gained by the WINFLY deployment but living and drilling conditions were hard. Drilling terminated at 229 mbsf (see *Antarctic* 41(1) 2023) Nevertheless, marine glacial strata 30 million years (My) old had been reached—the oldest in the region so far.

The early 80s saw four years of the Eastern Taylor Valley drilling programme with a portable Winkie drill. The small rig was utilised to drill Quaternary permafrost sediment in the Dry Valleys up to 71 m.

A more ambitious off-shore Cenozoic Investigation in the ROSS Sea (CIROS) programme to core marine strata on either side of the faulted Trans-Antarctic Mountain Front led to the NZ-US-Japan group refurbishing the Longyear 44 rig. The sea ice in 1984 was too thin seaward of the Front so CIROS-2 in Ferrar Fiord was drilled first, led by Jimmy Gupwell and Ministry of Works drillers. The hole was successfully cored to basement at 165 mbsf after flotation tank failures had been overcome by the team, including driller Pat Cooper and VUW Science Manager Alex Pyne.

These and other issues were addressed by Hoffman, Kevin Jenkins (who led the drilling) and Pyne for CIROS 1 in 1986 off Marble Point. CIROS 1 set a record for Antarctic off-shore drilling, reaching 702 m below sea floor, testing the drill string's 950 m limit with the rig in 200 m of water. The same rig was used on land later that season near Lake Vanda by DSIR drillers. Highly accurate drill holes (<0.5° from vertical) were achieved to install two seismometers in granitic basement.

The success of CIROS-1 coring 702 m—over 30 My back in time—led to a yet more ambitious project based on seismic surveys of

**These three DSIR administrators also had key roles in the approval and support of drilling, science and logistics crucial to NZ's leadership in Antarctic geological drilling.*

KEY KIWI DRILLERS



Antarctica NZ Pictorial Coll.

Jack Hoffman



Courtesy B. Webster

Bain Webster



Tony Kingan

Alex Pyne



Courtesy P. Cooper

Pat Cooper



Courtesy S. Woodford

Sam Woodford



Courtesy A. Kingan

Tony Kingan

dipping strata off Cape Roberts. It involved a five-nation consortium (US, NZ, Italy, Germany, UK, Australia), with a new rig power plant purchased by GNS Science Te Pū Ao. The mast and sea riser were designed by Murray Mitchell from OPUS, and built by Southern Cross Engineering in Christchurch. The drill team was led by Pat Cooper, with Pyne as Science Manager and Jim Cowie as Project Manager.

Drilling took place in October and November from 1997 to 1999, again on 2 m thick sea-ice. The project culminating in the third hole coring 939 m of marine strata under nearly 300 m of water, all 3 holes giving 1500 m of continuous core from 17–34 My.

In the early 2000s, plans and surveys were made for coring the younger geological story from an ice shelf into the sea floor to sample strata back to 17 My. During the planning phase, Webster Drilling undertook a number of small projects using a small HPP150 modular rig which the company had developed for large seismic oil exploration programmes around the world. Scientific projects included sea ice/ice shelf seismic surveys for the proposed deep coring programme. Geotechnical projects included: drilling at Terra Nova Bay for the Italians; around Scott Base and McMurdo sites for the wind farm; environmental drilling at Lake Vida; shallow Sirius Group coring; and shallow ice coring projects. In 2004, Webster Drilling worked at Eureka Station in the Canadian Arctic for NASA Ames Research to evaluate rig scaling and performance in permafrost for robotic drills on Mars.

In 2006, the highly successful five-nation ANtarctic DRILLing Programme (ANDRILL) began the first of two seasons using a weather-protected UDR deep-coring minerals rig. The design team included Pyne and Murray Mitchell. The rig was purchased by the University of Nebraska and manufactured in Australia. This rig had a higher capacity, better technology, and faster drill time. Tony Kingan and Sam Woodford led the drill team.

The first site, ANDRILL MIS 1B, was on the 82 m thick Ross Ice Shelf in 855 m of water near Williams Field. The second, ANDRILL SMS 2A, was on 8 m thick multi-year sea ice. The sites cored

through marine glacial and interglacial strata to 1284 mbsf and 1139 mbsf respectively. At the first site an impressive total of 2221 m of drill string was hanging from the mast. See *Antarctic 24*(2).

During ANDRILL several small drilling projects provided geotechnical data for work at McMurdo and Scott Base. The small modular drilling rig again proved useful. A number of holes in shallow permafrost sediment or bedrock were cored for scientific purposes. Contracts with Queens College, Indiana University, New Mexico Tech, University of Washington, Victoria University of Wellington (VUW) and GNS Science were completed. On one project in 2006, Webster Drilling was contracted to Raytheon Technical Services to clean out DVDP 6 at Lake Vida. The original borehole was contaminated with diesel that had been used as drill fluid on DVDP in 1973. Webster had been on the original drill crew, 33 years prior! A brief foray over to Palmer Station for geotechnical work took place in 2016 and geotechnical work at McMurdo was completed. The last scientific drilling programme in 2016 cored 50 m of strata 15–20 My old from the Friis Hills, the uplifted floor of Taylor Valley, with compressed air as a drilling fluid. See *Antarctic 40*(3 & 4).

In the late 2010s, hopes were high for the ANDRILL Coulman High project, a seven-nation consortium, to core into pre-glacial strata from the edge of the Ross Ice Shelf. Though the site survey and rig design had been completed, the project stalled through lack of funding.

Post COVID, there have been small projects around Scott Base and at the windfarm for base redevelopment purposes. In addition, Websters have been involved since 2020 in the SWAIS2C drilling programme in conjunction with the VUW Antarctic Drilling Office. This new lighter sediment coring system, developed for deployment through up to 800 m of ice shelf and water to core 200 m into the sea floor, is the lead story for this issue.

By **Dr Jeff Ashby**, Webster Drilling

Note: Kiwi is a term for New Zealanders, derived from the national identity with the unique bird by this name—Ed



The Antarctic, Southern Ocean and Mātauranga Māori

IWI AND HAPŪ stories of their relationships to the Antarctic and the Southern Ocean have endured over time. Whakapapa narratives passed down over generations tell us our ancestors made many oceanic journeys, including to the Southern Oceans, encountering new land and ice masses along the way.

Over several years, we have sought to bring visibility to these stories or as our people call them, their *kōrero tuku iho*, stories handed down through research. One of our aims in conducting this research, was to better understand the extent and nature of hapū and iwi relationships with Antarctica and the Southern Ocean. This was important to address the historical underrepresentation of Mātauranga Māori in research conducted in and about Antarctica and the Southern Ocean.

In today's complex world, we need more than one knowledge system to solve the complex problems that we face today

a relationship between all humans and non-human entities in the universe. Nothing stands in isolation, not even Antarctica. Rather it relates to all aspects of the natural world and its forces of

An explanation of Mātauranga Māori is given noting that there is still a distinct practice amongst Māori of cultural and spiritual protocols and values. Mātauranga Māori (Māori knowledge) is embedded within a Māori worldview which is holistic, cyclical and interrelated. A Māori worldview acknowledges a visible and a spiritual world, the presence of *atua* (supernatural beings), who have domain over natural forces or beings, and specific living values, of which whakapapa (genealogy) is critical. Whakapapa affirms

inherent tapu (sacredness). Mātauranga Māori as a philosophy is very practical—we are dependent on the way that we engage with the world; our survival depends on it and whakapapa demands us to enter a relationship of respect, responsibility and reciprocity with nature, a concept known as *kaitiakitanga*.

As researchers, we were very mindful that any discussion on Antarctica and the Southern Ocean must acknowledge the peoples of Te Waipounamu, particularly Kāti Māmoe, Ngāi Tahu and Waitaha. For nearly a millennium, they have traversed those oceans, testing themselves against the elements to gather food, to trade, to seek work, to explore, to play and to continue the customary practices of their ancestors. Dodds & Yusoff¹ quote Sir Tipene O'Regan describing how Ngāi Tahu have a concept of Antarctica as a series of 'floating white mountains', a reference probably to the fact that Māori in New Zealand may have seen icebergs floating off the coastline of Southland province and Rakiura Stewart Island.

Ngāi Tahu call Antarctica Te Tiri o te Moana (the steep peaks of the glistening white) and the Southern Ocean Te Moana Tāpokopoko a Tāwhaki (the billowy sea of Tāwhaki). This name relates to Tāwhaki and his wife, Hāpai, who both disregarded a warning. Hāpai was abducted by the "bird in the sun" and taken up to the sky. Tāwhaki stands near the edge of the sea and utters *karakia* for her then goes to search for her. At the time that he said *karakia*, the sea surged with intensity creating the name Te Moana Tāpokopoko a Tāwhaki.

In gathering our *kōrero tuku iho*, one story of Tama Rereti is drawn from the whānau from Awarua, Bluff. Known as Motupōhue, Bluff is a unique community, mostly of Waitaha, Ngāti Māmoe, Ngāi Tahu descent. Many generations have resided in this small coastal town, traditionally a significant pā for seasonal kai and resource gathering and trade. Unique to this region is the *tītī* (muttonbird) and the *tio* (oysters); both are significant sources of customary kai for the people.



Above: Tama Rereti, Te Rau Aroha marae
Opposite page: Wall detail, Te Rau Aroha marae



Aimee Kaio explains the tukutuku panel named Mumu: the people of Motupōhue Bluff engaged in many alliances including intermarriage

The local marae, Te Rau Aroha is adorned with vibrant whakairo, tukutuku and kowhaiwhai depicting the kōrero, pūrakau, whakapapa and mahinga kai of the deep south through traditional and contemporary art forms. Pakiwaitara (legends), whānau ariki (celestial markers), whakapapa (genealogy), the histories of the whaler and sealer period, Te Tiriti (Treaty of Waitangi), Te Kereme (The Ngāi Tahu claim), ki uta ki tai (all things from our mountains to the sea), kai o te motu (kai of this region)—all of this rich knowledge is held within the walls and the people of Te Rau Aroha wharekai and Tahu Potiki wharerau.



Te Rau Aroha Marae

The ceiling is adorned with: te ao tukupū (the universe), Tahu-nui-a-rangi or Ngā kurakura o Hinenuitēpō (Aurora Australis), Tamauiiterā (the sun), Te Marama (the moon), Tama Rereti and Te Waka o Tama Rereti (the Southern Milky Way).

The story of Tama Rereti, the captain of the waka Te Rua o Maahu was the first waka ever to sail far down into the deep Southern Ocean in search of the flickering, dancing lights in the night skies. After many weeks of sailing and finding nothing, they finally found a colourful halo of lights glowing in the night skies or Ngā Kahukura o Hine Nui Te Pō (Aurora Australis).

The crew would catch fish to eat and one day while Tama Rereti was gulping down a shrimp, it got stuck in his throat, he couldn't get it out, and he choked and died. His crew wrapped his body and decided to take their captain home. "He paku te ika, I rāoa ai a Tama Rereti" (it was a small fish that choked Tama Rereti). The journey home was long. It was cold. There were fierce storms and very little food. The crew got weak. As they reached the shore, they had no strength left to save the waka and it crashed into the rocks. When the storm died down a tangi was held on

the beach for Tama Rereti and all his men. The shattered wood from the waka Te Rua O Maahu was gathered up and burnt in a huge fire. The spirits of Tama Rereti and his men could be seen through the flames heading towards the heavens where they remain as stars today. The bow piece of the waka became known as Te Pūtea Iti a Tama Rereti (the stars of the Southern Cross). The decorative paua on the stern post became Autahi. The anchor rope (Te Taura o te Punga) became known as the pointers. The anchor of the waka (Te Punga o Te Waka a Tama Rereti) can be seen today as the Coalsack.

This kōrero tuku iho when told in its entirety contains whakapapa, ancestral knowledge, and navigational wisdom. It details the intergenerational relationship that the hapū of Motupōhue have with the night sky itself, and with the Southern Ocean and Antarctic region, beginning with their ancestor Tama Rereti and continuing today through his descendants.

Mātauranga Māori, such as recorded here, can be reinterpreted to raise environmental awareness; to engage whānau and particularly rangatahi in mahi and research taking place in the Antarctic and the Southern Ocean; and provide a Te Ao Māori perspective of recurring phenomena to scientists.

In today's complex world, we need more than one knowledge system to solve the complex problems that we face today.

By **Sandra L. Morrison** and **Aimee Kaio**

REFERENCE

- (1) Dodds, K. J., & Yusoff, K. (2005). Settlement and unsettlement in Aotearoa/New Zealand and Antarctica. *Polar Record*, 41(2), 141–155. <https://doi.org/10.1017/S0032247405004390>

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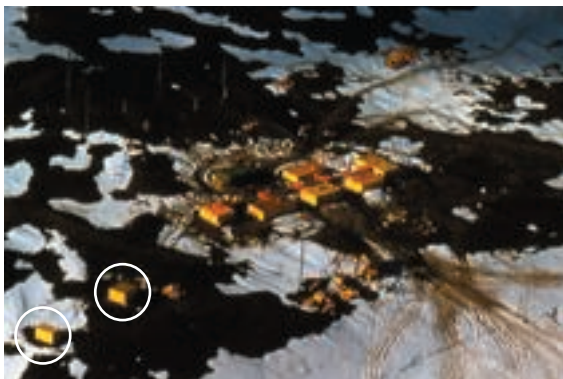
Launching the First SWAIS2C Field Season

On 10 November 2023, a six-person team from Antarctica New Zealand left Scott Base in three PistenBully 300s towing sleds loaded with drilling equipment, camp supplies, and fuel. Shown here, Johno Leitch, Operations Solutions Manager for Antarctica NZ, makes a final inspection of traverse convoy at Williams Airfield. Over the following two weeks the crew drove, ate, slept, rose, and drove again, averaging 75 km per day along a 1128 km journey to the KIS-3 site. Upon arrival, they groomed a ski-way and set up a large tent for the camp kitchen and living room to get ready for arrival of the science and drilling team. See the full story on pages 2-5.



Anthony Powell

The original Scott Base magnetic observatory: The end of an era



1. Scott Base from air in 1957—Huts G and H are circled

2. Hut G (magnetograph hut) and Hut H (absolute hut)

THE POWER was turned off to the magnetographs in Hut G, Scott Base (Figs 1,2) at 1350 NZDT on 22 October 2023 marking the end of over 66 years of geomagnetic measurements at the original observatory site. In Hut H the last absolute measurements were made on 25 June 2023.

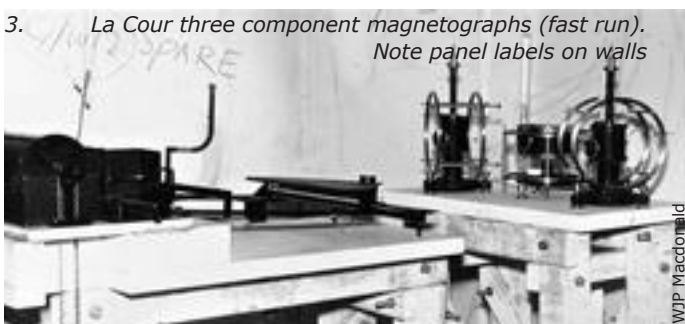
Measurements commenced on 1 March 1957, forming the second longest continuous record of the geomagnetic field in Antarctica, second only to that of the Australian Mawson Station which commenced one year earlier. The initial magnetic measurements at the observatory formed part of contribution by New Zealand (NZ) to the International Geophysical Year (IGY).

In 2020, the plans were to renovate the original magnetic observatory huts and continue magnetic measurements at the same location (Petersen, Pers. comm). However, a move to a new observatory location was necessary because the new Scott Base will contain a large amount of steel and its construction will also disturb the magnetic volcanic rocks on which the base is built. Both could affect the Earth's magnetic field at the original observatory huts. A replacement observatory was set up at the Arrival Heights Protected Area. A year of duplicate

observations have been made at the old and new sites to preserve continuity in the time record of geomagnetic variations at Ross Island.

The IGY was timed to correspond to a period of maximum solar activity when geomagnetic measurements were important to understanding the effects of solar activity on the Earth and its ionosphere. The location of Scott Base on Ross Island was not ideal for geomagnetic measurements as it sits on highly magnetic (volcanic) rocks, as Vern Gerrard, the geomagnetism specialist of the NZ IGY Antarctic expedition, duly noted at the time. However, it was the best available at short notice for other parts of the combined NZ expedition (IGY Antarctic Expedition and Transantarctic Expedition NZ support party). The original observatory huts were built by the Ministry of Works with help of the IGY scientific party. The original magnetographs comprised two La Cour three component magnetographs (wide range and fast record, Fig. 3), and three single axis fluxgates (designed by Vern Gerrard). Absolute measurements (D, H and Z) were made using QHMs (quartz horizontal magnetometers, Fig. 4) and BMZs (Balance Magnetique Zero, Fig. 5). All

3. La Cour three component magnetographs (fast run). Note panel labels on walls



4. QHM, Vern Gerrard observing

5. BMZ, Buzz Burrows observing



©Antarctica NZ Pictorial Collection TAE1283 1956-58.

magnetometers were operating by 7 March 1957, well before the IGY Observing Program commenced. In December 1957, AL (“Buzz”) Burrows carried out absolute magnetic measurements at the South Pole (Amundsen-Scott Station) for the US IGY program, and was one of the first three New Zealanders to go to the South Pole—almost two weeks before the Hillary party arrived.

At the end of the IGY in early 1959, both La Cours magnetographs continued recording as a magnetic variation station, but the records were not analysed at the time. Regular absolute observations for baseline control were discontinued and absolute measurements were made only each summer for secular variation purposes. The full observational program recommenced from the start of 1964 as part of the International Year of the Quiet Sun program and continued thereafter. Thus, there is a gap in analysed geomagnetic variation measurements from 1960 to 1964. A major change in instrumentation occurred in December 1990 with an upgrade to a three component, fluxgate-based, digital recording system developed and built by L A Tomlinson for continuous geomagnetic variations. Absolute measurements were made using a proton magnetometer and a non-magnetic fluxgate theodolite. Data were emailed to the Magnetic Observatory in Christchurch. The change from photographic recording to digital allowed the removal of an internal wall in Hut G.

In 1996 the Magnetic Observatory in Christchurch joined INTERMAGNET, a global network of observatories capturing long-term changes of the Earth’s magnetic field, and was streaming data from NZ. However, suitable internet access was not available at Scott Base. By 2002, three component magnetic variation readings were emailed daily to Christchurch for further processing and forwarding to INTERMAGNET. Absolute readings were sent from Scott Base on a weekly basis and K indices

every month. Every month the full data sets were retrieved from Scott Base via ftp. Final values were sent out with the Christchurch (Eyrewell) data report to INTERMAGNET annually. By January 2006, the continuously recording instrumentation at Scott Base was changed to a 3-component FGE fluxgate sensor (Fig. 6), manufactured in Denmark, and a Canadian GSM90 proton magnetometer. Data were streamed from Scott Base to NZ and hence to INTERMAGNET.

The old observatory huts are of significant historical value as they are the only parts of the original Scott Base prefabricated in New Zealand, are largely unaltered and have been in continuous use for their original purpose. They are a forerunner of the present NZ Antarctic Research program. The huts are the subject of a proposal for conservation (Cochran and Davey 2018). The Scott Base geomagnetic observatory continues to play an important role in the construction and testing of global reference models of the geomagnetic field. As part of INTERMAGNET, it is vital for calibrating or “ground-truthing” satellite measurements taken in or above the ionosphere. These global magnetic maps, for example the World Magnetic Model (WMM), provide the magnetic declination information needed to use magnetic compasses. The maps are widely used by scientists, by the military, in a variety of transport (e.g. aviation), and by the general public. In addition, it is monitoring Space Weather, the eruptive emissions from the sun (solar flares). These cause large geomagnetic storms and can affect the Earth and its ionosphere impacting on communications and other technologies.

By **Fred Davey**

SOURCES

Cochran C and Davey F. (2018). Magnetic Huts G and H, Scott Base, Antarctica, Proposed Listing as Historic Monuments, Under the Antarctic Treaty. Report prepared for NZ Antarctic Heritage Trust, Nov.2018.

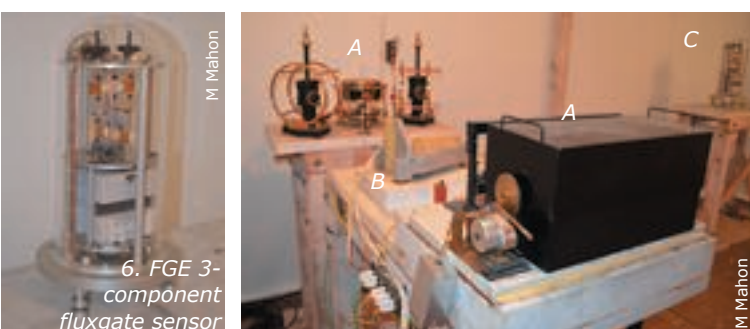
Davey F J. The original Scott Base buildings. *Polar Record* <https://doi.org/10.1017/S0032247422000122>

Hatherton T. (1961) New Zealand IGY Antarctic Expeditions, Scott Base and Hallett Station, NZ DSIR Bulletin 140. Government Printer, Wellington, New Zealand.

Helm A S, Miller J H. (1964). *Antarctica, The story of the New Zealand Party of the Trans-Antarctic Expedition*. Government Printer, Wellington, New Zealand.

Petersen T. Pers comm.

7. A recent image of the inside of the magnetograph Hut G showing three generations of magnetometers: (A) La Cour magnetograph with new recorder, (B) the Tomlinson 3-component fluxgate and (C) the FGE fluxgate system.



6. FGE 3-component fluxgate sensor

Girls* on Ice



Heading out on a day trip: Mountain expert Mel Harris leads a day trip in murky weather

Rebekah Parsons-King

2023 SAW THE ESTABLISHMENT of Girls* on Ice Aotearoa New Zealand, hosted by the Antarctic Research Centre (ARC), as a branch of Inspiring Girls* Expeditions. The international program offers 11-day, tuition-free expeditions that incorporate earth science, art, and outdoor exploration for 15 and 16-year old girls*.

We aim to inspire passion, participation, and empowerment for girls in professions of science, art, and wilderness exploration. We seek to create space for girls and women to grow and thrive in historically male-dominated fields.

The inaugural expedition took place in January 2024. Participants came from all over New Zealand, from Winton in the south to Auckland in the north. Led by ARC scientists, outdoor specialists and a US-based guest artist, the team explored New Zealand's unique landscape of Mount Ruapehu, the North Island's highest active volcanic peak. Throughout the week on the maunga,



Conducting snow experiments

Rebekah Parsons-King

they learned about the ever-changing nature of snow and ice, used art to observe the landscape, and engaged in practical field work including mountain safety and guided science experiments.

They worked together to create a positive and educational experience for both leaders and students alike, developing knowledge of the land, and forming life-long friendships.

The team returned to Te Herenga Waka—Victoria University of Wellington to present research findings and personal experiences to friends and whanau, supporters and sponsors. In an anonymous post-expedition survey, the students responded to questions about their participation:

“I really enjoyed learning about so many different things in such a vast range of areas and it really confirmed that I want to pursue a career in environmental sciences.”

“I [now] want to involve myself into as many things as I can. Even if I think it won't be fun, even if I really don't want to, I should just do it. What's stopping me from participating? Who knows what I'll learn...”

“The best part of my expedition was probably the long hike up the mount. I love how everyone encouraged each other and we paced ourselves pretty well throughout the day. I loved the views and having long conversations.”

The next Girls* on Ice Aotearoa New Zealand expedition is planned for January 2025, with the online application process opening mid-2024. More details are available on the Girls* on Ice webpage, including sign-up for news and supporting this inspiring programme: <https://www.inspiringgirls.org/goi-aotearoa-nz>.

By **Anna Bowron**, Administrator, ARC



* We welcome cisgender girls and transgender, agender, nonbinary, intersex, and genderqueer youth.

Investigating: *Saga of the White Horizon*

PREFACE

Published in 1972, for half a century “*Saga of the White Horizon*” by Magnus Lauritz Olsen was regarded a reliable source of detailed information about the Ellsworth Antarctic expedition in 1933-1936. The book earned a favorable review in the *Antarctic Bulletin of the New Zealand Antarctic Society Vol. 6, No. 10, 1973*. A number of references to the *Saga* can be found in the biographies of Sir Hubert Wilkins and Ellsworth. A cross-check of the book with Ellsworth’s reports, analysis of documents and archival photographs made it possible to establish that *Saga of the White Horizon* should be viewed as a peculiar hoax, combining elements of travelogue and hard science fiction.

Contrary to the history presented in the book, Magnus Olsen did not take part in the first two expedition seasons as the second and first mate of the ship *Wyatt Earp*, respectively, nor as Ellsworth’s reserve pilot. Instead, he joined the expedition only on the last trip to Antarctica. Moreover, he was hired as a second mate, not as a captain, as stated in the book. The ship’s captain was actually his father, Hartvig Olsen, who served as the first mate in the first two seasons but is not mentioned in the book.

I believe that readers of your magazine will be interested in this article, which points out the need to critically evaluate the sources of information about the history of Antarctic exploration. I have no conflicts of interest to disclose.

Signed by
Denis Smirnov
Independent scholar



IN EARLY NOVEMBER 1933, a small wooden vessel with the unexpected name *Wyatt Earp* set sail from the New Zealand port of Dunedin to Antarctica, carrying a Northrop Gamma Polar Star aircraft in its hold. American adventurer Lincoln Ellsworth led the expedition organized by experienced Australian polar explorer Sir Hubert Wilkins. Most of the 18 expedition members were Norwegian.

It took two years to achieve the goal of the expedition—a transantarctic flight. On November 23, 1935, the *Polar Star*, carrying Ellsworth and Canadian pilot Herbert Hollick-Kenyon, took off from Dundee Island near the north-eastern tip of the Antarctic Peninsula. Twelve days later, on December 5, after a 2,300-mile flight that included four stops along the way, it landed at 16 miles from the US Little America base on the edge of the Ross Ice Shelf.

For a long time, the only publicly available sources of detailed information about the Ellsworth expedition were two publications by the expedition’s leader: “My flight across Antarctica” (1936), was published almost immediately after Ellsworth’s return from Antarctica, his memoirs “Beyond Horizon” (1938) were published two years later. Herbert Hollick-Kenyon did not publish any autobiographical works, while Sir Hubert Wilkins and Bernt Balchen, the chief pilot in the first two attempts, made no mention of the expedition in their autobiographies.

The lack of published evidence was likely due to the terms of an agreement that all members of the expedition had to sign. It stipulated that the distribution of any materials had to be agreed to by Ellsworth. Hired as a deckhand on the *Wyatt Earp* for her second Antarctic season, New Zealander Alastair Simpson Duthie told an Evening Post reporter on his return home that “If he were at liberty to talk freely, which owing to contracts he is not, doubtless [he]... would have an interesting story to tell”.

The front cover of “Saga of the White Horizon”



Naval History and Heritage Command
<https://www.history.navy.mil/>

Members of the Ellsworth expedition on board "Wyatt Earp" in Dunedin Harbor before their first departure to Antarctica. November–December 1933 (taken by E. A. Phillips)
 Back row (left to right): Bjarne Larsen (mess boy), Realf Berg (doctor and sailor), Ingvald Strøm (carpenter), Lauritz Liavaag (second mate).
 Middle row (left to right): Harald Bigseth (assistant engineer), Harald Holmboe (chief engineer), Walther J. Lantz (radio operator).
 Front row (left to right): Christopher "Chris" Braathen (second engineer and aviation mechanic), Oluf Dahl (steward), Bernt Balchen (pilot), Hartvig Olsen (first mate), Lincoln Ellsworth, Jørgen Holmboe (meteorologist and sailor), Sir Hubert Wilkins, Magnus Johannessen (bosun), and Beard Holth (Captain).

Forty years later, in 1972, Magnus Lauritz Olsen published "Saga of the White Horizon," a book dedicated to the Ellsworth expedition. The author claimed that at the age of nineteen, after graduating from the Norwegian Royal Naval School in Horten, he had been invited to the expedition as second mate of the *Wyatt Earp* and reserve pilot. In the second season he became its chief mate. In the third, he was appointed captain of the ship. The book earned a favourable review in the *Antarctic Bulletin of the New Zealand Antarctic Society* (Vol. 6, No. 10, 1973), which noted that despite "minor [factual] errors" Olsen's book should be read "as a stirring sailor's yarn, spiced with humour and anecdote." Recently, the name Magnus Olsen surfaced in Russia, thanks to a mysterious episode about the Ellsworth expedition meeting a Soviet research vessel in the Bay of Whales in the Ross Sea in late December 1934–early 1935. If such a meeting really took place, it would radically change our understanding of the history of Soviet research in Antarctica. Current history has the first Soviet ships appear in Antarctic waters only at the end of 1946 together with the *Slava* whaling flotilla. The first landing of Soviet citizens on the sixth continent occurred in January 1956 during the First Complex Antarctic Expedition of the USSR Academy of Sciences.

Olsen's book is the only evidence of the voyage of a Soviet expeditionary ship to Antarctica in the 1930s. But can Olsen be considered a reliable historical source? A cross-check of the book with Ellsworth's reports and other sources reveals a staggering list of inconsistencies in chronology, routes, expedition preparations, equipment, participants, and day-to-day details.

The expedition routes described by Olsen in the first two seasons have nothing in common with those known from Ellsworth's publications, articles, and news reports of the time. For example: "Saga" has the expedition set off for Antarctica directly from Cape Town in the fall of 1933, without ever calling on New Zealand. This is despite the fact that the expedition's leader Ellsworth writes that he had arrived there from the US and was waiting for the *Wyatt Earp* to arrive.

Olsen also writes that the expedition visited hard-to-reach areas of Antarctica, which had remained uncharted at the time and were surveyed only in the late 1930s–1940s. Olsen describes landings on shores and inland sorties with a total length of more than 600 miles in the south-western part of the Weddell Sea and the coast of the Amundsen and Bellingshausen seas. If Ellsworth and his team had been there, that alone would likely have earned them a place on the list of outstanding Antarctic explorers.

As with the episode about meeting the Soviet ship, "Saga" contains a number of details that cannot be confirmed by available historical, geological and geographical data. Olsen describes the traces of previous explorers they found on the coast of Mary Byrd Land, presumably the expedition on the whaling ship *Norvegia* in 1929. He discovered coal outcrops in Hope Bay—which, according to his observations, were used to heat the hut used by the Nordenskiöld's expedition which overwintered there in 1903—and described visits to sites with geothermal activity at Cape Adare, Snow Hill Island and Block Bay. Only "Saga" describes that in addition to the *Polar Star*, there also was a "scouting plane" on board the *Wyatt Earp* which Balchen, Wilkins and Olsen himself used several times to conduct ice reconnaissance and deliver light cargo; that dynamite was used to help the ship navigate the ice; and that shore parties used portable radios to maintain contact with the *Wyatt Earp*.

Olsen's description of the first two Antarctic seasons very rarely mentions the names of his teammates, and the information he provides about their nationality, responsibilities, involvement into events on board seriously contradicts other sources, including surviving expedition photographs. Actually, an analysis of the expedition's photographs and lists of team members returned from the first two seasons finds no man named Magnus Olsen on board the *Wyatt Earp*, though there was chief mate named Hartvig Olsen (pictured opposite). In the photographs, Hartvig looks like a mature man, much older than 40. It is unlikely that this man is the author of "Saga", who claims that he got on the ship at the age of nineteen.

All this could lead to the conclusion that "Saga" is a hoax, but the real story turns out to be somewhat more complicated. The clue is in the book by Ellsworth, who mentioned that in the third expedition season of 1935–1936, after first mate Olsen was promoted to captain of the *Wyatt Earp*, his "younger brother" was taken on as second mate. While Ellsworth didn't mention the Olsens' first names, it did lead to speculation that the new crew member could have been Magnus Lauritz Olsen. This was confirmed by information from a living descendant of the Olsens and archival genealogical data. The only difference is that Magnus was not the younger brother, but the son of Hartvig Olsen.

It appears that in his book, Magnus "erased" his father from the expedition and credited himself with participating in the first two seasons as second and first mate, and in the final one as captain of the ship. Magnus did not even bother to bring his "memoirs" into line with well-known facts and Ellsworth's reports. He seems to have produced a work of fiction loosely based on the expedition.

His descendants knew Magnus as a romantic and loved to make up stories about his life. Olsen himself told us in "Saga" that in his youth, along with books about Antarctic exploration, he was fond of science fiction novels, especially those of Jules Verne. It seems that he wrote "Saga" combining his own travelogue with hard science fiction. He turned his only Antarctic voyage, a trip of about four and a half months with few if any dramatic events into a three-part saga filled with exciting polar adventures over a period of more

than a year and a half. It is easy to find traces of famous novels of the French science fiction writer, including references to latter's popular characters: Captain Nemo and engineer Cyrus Smith, Dick Sand and the indispensable eccentric scientist.

Despite this, for half a century "Saga" was regarded a reliable source. Numerous references to "Saga" can be found in biographies about Sir Wilkins and Ellsworth. The name Magnus Olsen displaced the name of Hartvig Olsen in the caption of the often cited group photo of the Ellsworth expedition taken before the first trip to Antarctica in December 1933. After Magnus Olsen's death in 1991, the manuscript of his book was given by his wife to the archives of the Scott Polar Research Institute. The giving of "papers and photographs of Captain Magnus Olsen" into the archive is mentioned on the archive page along with gifts of documents from Sir Vivian Fuchs, a member of the Scott expedition in 1910–1913 Edward Atkinson, as well as the American polar explorer Laurence McKinley Gould, who led the research work on Byrd's first Antarctic expedition.

Still, along with other members of the Ellsworth expedition (Hollick-Kenyon, Limburner, Holth, Liavaag, Howard, Lanz, Jorgen Holmbo), the name of Hartvig Olsen was immortalized on the map of Antarctica during his lifetime. By decision of the Advisory Committee on Antarctic Names, approved by the United States Board on Geographic Names on January 1, 1961, the mountain in the northern part of the Sentinel Range was named Olsen Peak (2,140 m) "for Hartveg Olsen, captain of Ellsworth's expedition ship *Wyatt Earp* in 1935–36."

By **Denis Smirnov**



The dust jacket of "Saga of the White Horizon" features this rare image of author Magnus Lauritz Olsen.

SNO-CAT ABLE:

The Adventurous Life of an Antarctic Veteran

PART 1: 1956–63

WHEN, IN OCTOBER 1962, we climbed down the steep ladder from the USN Super Constellation onto the Antarctic ice at Williams Field, we were met by a distinctive, bright orange, tracked vehicle with “TRANS-ANTARCTIC EXPEDITION” emblazoned on its side. We did not appreciate its historic significance—after all it was then quite new; the people who had driven it across the continent were still alive. History, we believed, was reserved for the early explorers of the Heroic Era. However, we should have had greater respect for Sno-Cat *Able* and its story.

THE FIRST SNO-CAT JOURNEY

The 1955-58 Commonwealth Trans-Antarctic Expedition under the leadership of Dr Vivian Fuchs left Shackleton Base (beside the Weddell Sea) in late November 1957 with a convoy of six vehicles: three Sno-Cats, two Weasels and a Muskeg.

The Sno-Cats were named *Able* (door code A), driven by David Pratt ; *Rock ‘n Roll* (door code B), driven by ‘Bunny’ Fuchs who led all the way; and *Haywire* (door code C), driven by Geoffrey Pratt. They were heading for South Ice, an inland station located on the Polar Plateau 480 km south of Shackleton Base, and followed a route established some weeks previously by a fourth Sno-Cat, *County of Kent* (no door code), and a Weasel. After a difficult and sometimes perilous journey, they arrived a few days before Christmas.

All eight vehicles set off from South Ice on Christmas Day following their two route-finding dog teams for the comparatively straightforward run to the South Pole which was reached on 19th January. The dogs were left behind at the Pole and, as the four smaller machines were abandoned one by one when they broke down, the Sno-Cats were the only vehicles to complete the 3,500-km journey to Scott Base (beside the Ross Sea) where they arrived on 2nd March 1958.

RETIREMENT

Haywire was transported to London, gifted to British Petroleum Ltd which had provided fuels



Sno-Cat A, aka 'Able'

for the expedition, and then taken on a tour of towns all over England before being displayed at the Science Museum, London. *Rock ‘n Roll* was returned to the manufacturer, Tucker Sno-Cat Corporation in Oregon, USA. *Able* and *County of Kent* remained at Scott Base as they had been acquired by the New Zealand Government although there was no definite plan for their use.

There was little work for the Sno-Cats at Scott Base during 1958 and, with only a small garage available, they were forced to spend the winter outside. *Able* was kept mobile and in the spring, two journeys were made to White Island—the first to take a spare radio to a dog team party and the second to establish a gravity station on the island. It was then used by the 1958–59 NZ Geological Survey Expedition (led by Larry Harrington) who had been delivered to Scott Base as they had been unable to reach their planned survey areas at Wood Bay and Terra Nova Bay.

FERRYING

On 30 December 1958, *Able* ferried six men across Windless Bight to Cape Mackay where Bruce Alexander, Jim Wilson and Mike White were deposited to man-haul to Cape Crozier. There, they carried out surveys in and around the Emperor penguin colony before making the first ascent of Mount Terror.

Having reached the summit on 6 January, the Mt Terror trio was met by *Able* (driven by Harrington and Scott Base leader Lin Martin) at Cape Crozier on 11 January. After further survey work in the penguin colonies and rediscovering the famous 1911 “Wilson Igloo”, they returned to Scott Base on 15 January.



Journeys were perilous at times

Meanwhile, a second party—John Harrison, Alan Beck and Wally Romanes—had been set down when halfway back to Scott Base. They

then made the first New Zealand ascent of Mt Erebus on 4 January and man-hauled back to Base.

The small, make-shift garage made maintaining both machines difficult and so County of Kent was allowed to have well-deserved rest.

MAPPING

The first major mapping expedition arranged by the newly formed Antarctic Division of NZ Department of Scientific and Industrial Research (DSIR) was planned for the 1959-60 summer. It was to use the two Sno-Cats combined with dog teams and the RNZAF Antarctic Flight.

Bernie Gunn, a geologist who had been with the very successful Northern Party as part of TAE in 1957–58, was selected as leader. He was the only member who had extensive field experience but with dogs, not with Sno-Cats. However, he was supported by Murray Robb, who had wintered over as base engineer in 1958, and by Tom Couzens, an army officer with considerable experience with tracked military vehicles. Also in the party were: three surveyors, Don Goldschmidt, Garth Matterson and Peter Hunt; and a second geologist, Jim Lowery. They arrived in early October 1959 and met the sixth member of the party, Charlie Wise, who was resident at Scott Base having spent the winter there. They were dismayed to find that the Sno-Cats had not been maintained. In fact, *County of Kent* was said to have remained where it was parked after its arrival in March 1958.



Neglected Sno-Cats, October 1959

Robb and Couzens ripped the doors off the small garage, brought the Sno-Cats inside and spent long hours giving them a thorough overhaul. Meanwhile, Gunn worked with Matterson, Hunt and Wise to convert the unruly, partly trained dogs into three capable teams.



Don Goldschmidt about to depart Scott Base November 1959

TOWARDS CAPE WILSON

On 7 November 1959, *Able* (driven by Robb with Goldschmidt navigating) and *County of Kent* (driven by Couzens with Lowery) left Scott Base on what was intended to be an 80-day survey and geology traverse from Cape Selborne south to Cape Wilson. They headed through the pressure ridges and then south across the Ross Ice Shelf. They were following the four men who had left with the dog teams five days previously. Rough sastrugi and iced-up fuel lines made for slow going. It took three days before they met up with the dog party. They then travelled together until reaching 80° S where they left a fuel depot for their return journey, and the surveyors established a “strain gauge” to measure ice movement. With the dogs leading to find a crevasse-free route, they travelled further south until 16 November—when their attempt to reach the land was thwarted by a belt of huge pressure ridges and crevasses. They camped together not far south of Cape Selborne nearly 380 km from Scott Base.

A blizzard on 18 November kept them tent-bound but they were confident that they could proceed with their plan to separate—the dog party to explore the mountains, the Sno-Cat party to examine the coastline from the Ice Shelf.

Gunn was anxious to identify some rocks that were visible some 10 km away and next morning, asked Couzens to drive him there in his Sno-Cat. Naturally, the other geologist, Lowery, joined them. They departed about 11 am and were quickly out of sight behind a pressure ridge. Visibility was not the best.

TRAGIC ACCIDENT

Concerned that they had not returned to camp by the following morning, a search party set out. They discovered





Able returning to Scott Base, February 1960

Athol Robertis

that *County of Kent* had fallen into a large crevasse, landing upside down about 30 m from the

surface. Tragically, Tom Couzens had been killed while both Jim Lowery and Bernie Gunn were injured and trapped. With considerable difficulty the two survivors and Couzen's body were extracted from the crushed vehicle and brought to the surface with assistance from *Able*.

It had been too late to contact Scott Base on the emergency radio schedule, and the neighbouring American base, McMurdo Station, was not responding. Luckily, their call was overheard by the USARP Victoria Land Traverse party (which included New Zealander, Arnold Heine, who was later to have a close association with *Able* on the Ross Ice Shelf Survey) and also by an aircraft flying to the South Pole. They contacted McMurdo who, in turn informed Scott Base. An American doctor and other staff were quickly despatched to the accident site and by late afternoon, Gunn and Lowery, with frostbite and other serious injuries, were flown by helicopter to McMurdo, and later evacuated to hospital in Christchurch. Couzens body was also recovered.



Able is loaded onto USS Arneb, February 1963.

Logie

The remaining five men, Robb, Hunt, Goldschmidt, Matterson and Wise, with the addition of replacement geologist Dick Walcott, continued with an amended programme using the three dog teams. They were flown further south by USN aircraft so that they could explore the coastal strip between the Nimrod and the Beardmore Glaciers. Sno-Cat *Able* was left behind at the accident site and *County of Kent* was abandoned in the crevasse.

In late December, Robb and Goldschmidt sought approval to retrieve their lonely Sno-Cat and re-measure the "strain gauge". Scott Base leader, Jim Lennox-King, agreed and on 9 January 1960, the RNZAF Beaver collected both men and their dogs and returned them in two flights to Scott Base. The men were then ferried to the accident site on 12 January. This was fortunate, as only three days later, the Beaver crashed and RNZAF air support was reduced to its small Auster aircraft.

By 14 January, Robb had carried out all the necessary maintenance on *Able* and, with three

sledges in tow, they were ready to depart. However, a prolonged period of poor visibility delayed them, and

it was not until 9.20pm on 30 January that they were able to set off.

While Robb drove, Goldschmidt, attached by rope, walked in front probing carefully with an ice axe until they were out of the dangerous, heavily-crevassed area. He then joined Robb in the cab and by the evening of 31 January, they had travelled 110 km non-stop.

The next day, they covered the remaining 50 km to the "strain gauge" which they re-measured and then continued their return journey on 4 February with a full load of 23 drums of fuel. Goldschmidt remembers that it was very cold in the unheated cab and that they clambered out frequently to stomp around to get their circulation going. After 110 km, they camped with the welcome sight of Mt Erebus and Mt Terror to the north. Despite mechanical problems, they made steady progress past Minna Bluff and White Island to arrive at Scott Base on 7 February in time for breakfast.

Able then became a workhorse at Scott Base: carrying personnel; towing cargo sledges to and from the airfield and supply ships; working with Arnold Heine on the Ice Shelf Survey; towing seals destined for dog-tucker; and acting as the Scott Base taxi.

Prolonged work on the hard sea ice took its toll and after the 1962–63 season, *Able* was shipped to New Zealand aboard the USS *Arneb* to be given a thorough overhaul by Standard Motor Bodies Ltd.

By Frank Graveson

SOURCES: Graham Midwinter (1958); Bruce Alexander (1958-59); Jim Wilson (1958-59); Bernie Gunn (1959); Jim Lowery (1959); Rowley Taylor (1959-60); Don Goldschmidt (1959-60); Garth Matterson (1959-60); Arnold Heine (1959 et seq.); Ray Logie (1960, 1962-63); Bill Lucy (1963 et seq.); Allan Guard (1968, 1969); Robin Foubister (1969)

Part 2 of Able's story will appear in the November issue of *Antarctic*.

Many images for this story were sourced from slides and several of those supplied were too small to print but are fine for on-line viewing. See on NZAS website or use this QR Code to see the fully illustrated version:



Randal Heke NZAM

Life Member 2003

1928–2024

HERE WAS A MAN who took advantage of interesting opportunities. Among those opportunities: leading the construction team that built the original Scott Base.

Randal Heke went down to the ice during the 1956–57 summer season as the foreman of construction. The base was assembled at Pram Point in just five weeks by a seven-person team, often working 10–12 hour shifts and sometimes longer¹. The quick time-frame was achieved because the base was prefabricated and a test assembly done at Rongotai Airport, Wellington, before it was shipped to Antarctica².

Heke's daughter, Angela Lowe, remembers her father as a man who always rose to a challenge and didn't pass up opportunities.

"Anytime there was an opportunity for something interesting, he'd be the first in line," she says. "Some people a little older than Randal went off to war. He went to Scott Base. It determined the rest of his path in life."

Heke was born on 5 June, 1928, in Whangārei. He spent much of his early life in orphanages. But he didn't let this get in the way. As he would say, "Not bad for a boy from the orphanage."

Heke left school at 14, becoming a builder with the Ministry of Works. In 1956 he was asked to help with the construction of the planned Antarctic base. The base was initially accommodation for the Ross Sea Support Party of the Commonwealth Trans-Antarctic Expedition and for the New Zealand International Geophysical Year Antarctic Expedition³.

"He was really committed to problem-solving," says Lowe of her father.

The new Scott Base was opened on 20 January, 1957. During construction, curious leopard seals would occasionally get close. Fortunately, no-one was attacked.

Heke returned to Antarctica in 1960 to help with construction of an aircraft hangar. He also became friends with New Zealand Antarctic Society patron Sir Edmund Hillary². His willingness to answer the call of adventure took him around



Courtesy Family archives

the globe, including Samoa, the Chatham Islands and Niue. He held numerous roles with the Antarctic Society. He was Chairman of the Wellington Branch, served four years as President of the Canterbury Branch, was National Vice President and President in the late 1970s⁴.

His achievements have been recognised. Hut A, which Heke and the original construction team built, was in 2001 listed as a Historic Monument under the Antarctic Treaty⁵. In 2003, Randal Heke became a Life Member of the NZ Antarctic Society. In 2017, he was awarded the New Zealand Antarctic Medal. In Victoria Land in Antarctica, Heke Peak is named after him¹.

"People like my father built the things we now take for granted," says Lowe.

Randal Heke died aged 95 on 4 February, 2024. Lowe says her father's life is an example of not letting obstacles get in the way. His life also speaks to the special people who are drawn to Antarctica, and are willing to work for something greater than themselves.

"[Scott Base] and the Antarctic was his life."

By **Ben Mack**, NZAS journalist (Abridged)

REFERENCES:

- (1) Pouloupoulos, A. (2017, February 8). Kapiti's Randal Heke proud of Scott Base construction and restoration 60 years on. *Stuff*. <https://www.stuff.co.nz/national/89006542/kapitis-randal-heke-proud-of-scott-base-construction-and-restoration-60-years-on>
- (2) Boyack, N. (2024, March 14). Scott Base builder who made history... and saved the beer. *The Press*. <https://www.pressreader.com/new-zealand/the-press/20240314/281672554917475>
- (3) Davey, F. J. (2022). The original Scott Base buildings. *Polar Record* 58(e12): 1–6. <https://doi.org/10.1017/S0032247422000122>
- (4) Chaplow, L. (2017, June 21). *Randal Heke receives Antarctic medal*. New Zealand Antarctic Society. <https://antarcticsociety.org.nz/ral-and-heke-receives-antarctic-medal/>
- (5) Antarctica New Zealand. (2024). *History*. <https://www.antarcticanz.govt.nz/scott-base/history>



Use this QR Code to link directly to a full version of this Obituary held on the NZAS website, antarcticsociety.org.nz

OBITUARY



RENOWNED MICROBIAL BIOLOGIST Professor Craig Cary died suddenly on February 29 aged 69. Areas of research focus for Cary included microbes living in extreme environments, such as Antarctic soils and deep-sea hydrothermal vents.

A natural storyteller who once convinced TV journalist Patrick Gower to film a segment sitting on a bed at Scott Base, Cary was known for his enthusiasm and passion for the environment. In 2019, he led a mission inside the high-temperature soils on the summit of Mount Erebus, discovering some of the world's rarest and oldest living organisms.

Cary undertook a world-first bird flu survey in March 2023. He trekked nine hours in and around a colony of one million Adélie penguins, looking for signs the penguins might have the deadly disease. Cary also developed a robot capable of taking samples of planktonic communities under Antarctic ice shelves—an innovation which can help forecast future impact of climate change.

Born in the United States, he began his career in academia at Delaware University before joining the University of Waikato in 2004. Roles he held included Assistant Vice-Chancellor PBRF, Director of the International Centre for Terrestrial Antarctic Research, Director of the DNA Sequencing Unit and Associate Dean Research within the School of Science, and Professor of Biomedical, Molecular and Cellular Biology.

Cary went to Antarctica 22 times over 18 seasons. Deputy Director and later Director of the New Zealand Antarctic Research Institute, Craig made discoveries that fundamentally changed how the scientific community views micro-organisms in Antarctica. Cary's passing is mourned by many Antarcticans.

By **Ben Mack**, NZAS journalist



Use the QR Code to read more on the University of Waikato's website: <https://www.waikato.ac.nz/news-events/news/renowned-microbial-biologist-professor-craig-cary-leaves-a-legacy-in-extreme-ecosystems/>

BOOK REVIEW

The Ship Beneath the Ice



The Discovery of Shackleton's *Endurance*

By Mensun Bound

Mariner Books 2023
ISBN 9780063297425
(ISBN10: 0063297426)

WHEN Sir Ernest Shackleton's ship *Endurance* was discovered on 5 March 2022, it made headlines all over the world.

Images of the 144 ft wooden schooner barque laying at the bottom of the Weddell Sea were the result of years of dedicated work by an army of scientists, experts and academics.

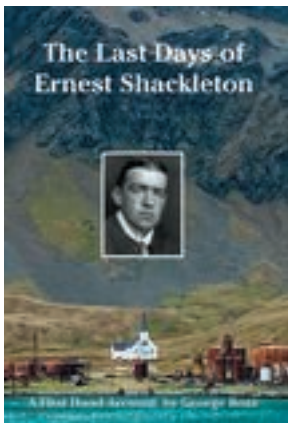
The team on board the *SA Agulhas II* found *Endurance* 3008 m below the surface—a feat made possible due to the incredibly accurate navigational records kept by New Zealander Frank Worsley, the captain of *Endurance*. Exactly how the team of investigators discovered the ship is a story of resolve, determination and luck (both good and bad).

An entertaining account of the successful expedition—and its ill-fated predecessor—is provided in *The Ship Beneath the Ice: The Discovery of Shackleton's Endurance*, by Mensun Bound. The book offers a fascinating insight into the discovery. It also acts as a belated companion piece to Shackleton's book *South*, which was published in 1919.

Bound, who was Director of Exploration on both expeditions charged with finding the lost ship, peppers his book with a potted history of Shackleton's expedition. The crossover works well for most parts, but others feel a little forced. Throughout, Bound's language is grand and exciting, at times evoking Ian Fleming. On one disappointing occasion he describes how the search team were "served a tepid dish of damned bad luck".

The book is packed with great detail as Bound shares his anxieties about the underwater equipment and whether he's searching in the correct area. As he puts it: "Very close simply isn't going to cut it."

Reviewed by **Lee Kenny**



Reardon Publishing 2023
 ISBN 9781901037210
 (ISBN10: 1901037215)

The Last Days of Ernest Shackleton

A FIRST HAND ACCOUNT BY GEORGE ROSS

SO MUCH has been written about the life and times of Ernest Shackleton that it comes as a surprise when a new book is published that sheds new information about him. *The Last Days of Ernest Shackleton* is such a book.

The account, by George Ross, differs from other books in a number of ways. Ross gives his narrative from the perspective of someone who was working as a member of the crew on Shackleton's last trip to South Georgia.

Ross (the narrator) was whaling in South Georgia when he joined the 1921–22 *Quest* expedition as a 'Donkeyman'—in charge of a ship's engine room (arguably the worst place to work). Prior to this, Ross held a number of jobs including lumberjack. Ross's narrative is written in his own words which ensures a clear 'easy' style making the book a very enjoyable read.

This book is enhanced by the inclusion of anecdotes and the minutiae that could only come from someone who was there at the time, which makes it different from many others and brings this book alive. Shackleton's earlier life is also brought into focus and particularly his interest and enthusiasm for the early Boy Scout Movement under Baden Powell. Shackleton recognised, along with Baden Powell, the value of instilling the Scout Movement ethos in youth and supported this early movement.

In fact, such was Shackleton's commitment to the principles of the Scout Movement that he held a competition amongst 1700 Scouts for a chance to join Shackleton as his cabin boy. This number was whittled down to two and eventually James Marr from Aberdeen was to sail throughout the voyage. Marr later made several trips to the Antarctic as a marine biologist and was later instrumental in setting up the British Antarctic Survey.

In support of the written narrative, the book contains a wealth of supporting information. This takes the form of photographs, maps and also hand drawn pictures and paintings, many of which were produced at the time. What I found to be particularly poignant was the description of Shackleton's funeral* and the level of detail with regards the information about the pallbearers (all from the Shetland Islands). I also found the inclusion of an interview with Shackleton of interest as are the text of speeches made at the unveiling of the Shackleton memorial.

Also in the book is a clipping from a newspaper of the time, describing how Shackleton died in the arms of Ross. All of these pieces of information pull together to make for a 'package' creating a fascinating human insight into a great man. In summary, this book is a cornucopia of information of the kind that brings to life the final days of Shackleton, who is probably the most enigmatic figure of the 'Heroic era' of Polar exploration. Anybody with an interest in Shackleton or polar exploration will find this book a fascinating read.

By **Steve Wroe** ex British Antarctic Survey

* Shackleton died of a heart attack aged 47 in January 1922 on board *Quest* when docked at South Georgia Island in the South Atlantic—Ed.

VIDEO

<https://www.youtube.com/watch?v=hNlfabQOOn8>

RECENT DISCOVERY

The ship Quest continued on expeditions until 1962, when the vessel was lost at sea. The crew were all saved. The Royal Canadian Geographical Society has announced its discovery saying that a team of international experts located Quest on June 9 2024 using sonar equipment after a 17-hour search that covered about 24 nautical miles. Largely intact, it is on the ocean floor, 15 nautical miles off the coast of Canada. (Source: CNN Science Wed June 12, 2024)

BIOGRAPHIC NOTES

GEORGE HENRY ROSS, born in London, went to sea when he was 14. In 1913 he went to the Shetlands, where he married a fisher girl, Annie. Ross was seriously injured in the battle of Jutland, while serving in the Royal Navy. He joined the Shackleton expedition in South Georgia before becoming a lumberjack in Canada until WWII. Then he signed up again for war service. Two of the ships in which he served as a gunlayer were torpedoed. After the war, he and Annie ran a boarding house in Yarmouth they named Shackleton House.

Remembering Rowley Taylor and a pair of old socks

In 1959, 27-year-old Rowland “Rowley” Hargrave Taylor began an intimate relationship with Ernest Shackleton’s historic hut at Cape Royds. It was a relationship that would last Rowley’s lifetime.

Rowley had been seconded from DSIR’s fledgling Animal Ecology Section onto Antarctic Division staff, and was there to conduct the first of many contemporary research studies on Adèlie penguins. Rowley was reacquainted with his “old home” in 1980, when he instigated a far-sighted programme undertaking annual aerial photographic surveys of Adèlie penguin colonies on Ross Island and along the Victoria Land Coast.

My first visit with him to Shackleton’s Hut in 1983 was made more intriguing by Rowley gazing intently up at the Shackleton team’s gear slung over the last of several support wires that had been strategically installed to enable the men a modicum of privacy behind canvas sheet partitions. This one stretched across the room close to the old Sam stove, and Rowley suddenly exclaimed, “Those are my old socks!” (left there from his 1959/60 season stay).

“Nah,” I responded doubtfully, “what ‘n hell makes you think those are yours?”

“Because,” he assured, “I recognise the scorch marks where they fell on the stove”. So typically Rowley ... and who was I to question his claim?

Rowley consistently operated well ahead of the game of the day; attested to by his publication and co-authorship list of circa 100 scientific papers and/or books. . . A likeable, polite, unassuming man, Rowley’s fields of research included introduced pests; achieving notable firsts with ground-based rat/stoat eradication techniques using bait and/or traps on Breaksea, Ulva, Adele and Langara Islands. He was a driver of various multi-faceted forest and island research programmes, such as developing five-minute bird counts, beech forest ecology on Mt Misery, sheep/cattle/rat research on Campbell Island, recovery of seals and numerous studies on native bush birds.

Rowley was always willing to share his time and knowledge with the many students and young



Janet Cummings

Rowley Taylor with his 70th birthday gift of an artwork featuring Shackleton’s hut and replicas of his socks

colleagues he mentored. With everything Rowley achieved, it was done with humility and grace.

Rowley was besotted by cartography from an early age, a quirk that was readily apparent to those of us who worked with him. Our map cabinets were positioned just outside his office door and he was forever rummaging in them.

Rowley Taylor passed away on 16 August, 2021, in Nelson. Rowley’s daughter Shelley had been in the room with him as he drifted in and out, saying to her during one of his open-eye moments “I’m feeling a little lost”.

“That’s OK, Dad” says Shelley, “it’s a new experience for you. Just relax. Find yourself a path ... and follow it,” she added.

At this point...Rowley opened his eyes and stated, “Well, I’ll need a map!” In true Rowley fashion [he] slipped away when no one was watching; leaving us as he did with a “last words” legacy that I believe is ‘out there with Oates’.

So haere ra old friend, haere, haere, haere. May your araroa and map get you to where you wish to be.

By **Bruce Thomas**, September 2021 (Abridged)

Use this QR Code to view a full version of Bruce’s recollections of Rowley Taylor held on the NZAS website: antarcticsociety.org.nz



The Journey of the Scott Base Huskies

HOW IT BEGAN

The start of New Zealand's involvement in acquiring dogs for pulling sledges in the New Zealand sector of Antarctica began in 1955 with Sir Edmund Hillary saying he needed 60 polar dogs. Mountain guide Harry Ayres was selected by Sir Ed for the first NZ Antarctic Expedition and was attached initially to the Australian Antarctic Expedition engaged in the relief of Mawson Station, where the Australians had promised 26 huskies bred there.

Finding money for the expedition and for the dogs in particular, was difficult. The Government gave a grant of £50,000, but the rest of the money was raised by the strenuous efforts of innumerable district committees and private individuals. The greatest per capita enthusiasm was shown by children. The boys of Wellington College contributed £300, enough to pay for a sledge and a dog. Some youngsters raised money by rearing and selling guinea pigs and tadpoles!

With the expedition running on a shoe-string budget, Harry Ayres left Sydney aboard the ice-breaker *Kista Dan*. He sailed on to Melbourne, passed by Heard Island with its snow-covered dome, Big Ben, rising up out of the ocean like a great white whale.

At Mawson, Harry had his first opportunity to learn something about huskies. These dogs were the descendants of Greenland-Labrador cross huskies (Malamutes) that were presented to the Australians by the ill-fated ship, the *Commandant Charcot*, which failed to reach the Antarctic in 1949 as part of the French Government's attempt to establish a base in Antarctica. The dogs were off-loaded in Hobart.

Harry Ayres returned with 26 huskies via Kerguelen Island, a French Antarctic base, arriving in Melbourne in March 1956. The final stage to New Zealand was aboard a Bristol freighter which flew to Brisbane, Norfolk Island, Auckland and finally Christchurch. By now the dogs were tired and upset by the noise and heat. The final stage of the journey was by army truck to Mt Cook where



Kiwi dog team returning to Scott Base on McMurdo sound sea ice, Ross Island, Antarctica

Colin Monteath polar & mountain archive

they were tethered in a wire enclosure beyond the Hooker Bridge from March to June 1956.

Today, the place is named Husky Flat. In June, Harry Ayres was joined by Murray Douglas and two men Hillary selected from the UK: Dr George Marsh and Lt Commander Richard Brooke. They were both experienced dog handlers having spent seven years in the polar regions. The dogs were kept fit: most days they pulled an old car without an engine up to Ball Hut and back, much to the amazement of bewildered tourists. Some trips over the Hooker Flats were attempted but inevitably the dogs would become entangled in the Matagouri bushes. It was with some relief for both dogs and handlers when they moved up the Tasman Glacier to Malte Brun Hut in June 1956.

While the first 26 huskies—which were soon to become 34 with the arrival of puppies—were enjoying the snow of the Tasman Glacier, 12 more huskies from Greenland were en route. They were loaded into the HMNZS *Endeavour* on the 18 August 1956 at Butler's Wharf in London on the south bank of the Thames just below the Tower Bridge. The huskies were housed in kennels on the ship's foredeck. Except for a spell of rough water in the Bay of Biscay when they were all sick, they withstood the long journey to New Zealand, via Kingston, Jamaica, the Panama Canal and Tahiti.

In Tahiti, the crew and the dogs received traditional Tahitian hospitality with each of the dogs being garlanded with flowers. After eight weeks out from London, the dogs landed in Auckland where they were quarantined in Auckland Zoo until they went south.

Fifteen husky pups, bred at the Auckland Zoo, were about nine months old when they arrived



Colin Monteath polar & mountain archive

Dog handler gets husky to sit before feeding it, Cape Evans, Ross Island, Antarctica.

at Mt Cook for the further training. One reliable source believes these pups were bred from descendants of the dogs used by Admiral Richard Byrd for his 1928–30 expedition to Antarctica.

On 21 December 1956 when the HMNZS *Endeavour* left Bluff she carried with her most of the men and dogs ready to set up New Zealand's first base in Antarctica. Twenty-four of the remaining dogs, mostly the untrained dogs from Greenland and some of the Auckland Zoo pups, were taken to Scott Base aboard the American cargo ship the *S.S. Private John R. Towie* a WWII Victory class cargo ship.

THE FIRST EXPEDITIONS

On 5 January 1957, the majority of the 61 huskies set their paws on Antarctic ice. After some local training trips with the dog teams, a longer trip commenced. On 19 January 1957, three teams left Scott Base to cross the McMurdo and Ross Ice Shelves to the Skelton Glacier, but five days later they were back. George Marsh got terribly sick a few days out and with poor radio communications, Brooke and Peter Mulgrew made a mercy dash back to get medical help. Sensing the urgency, the dogs covered the 50 km back to Scott base in just over seven hours, a speed of just over 7km an hour. Marsh was airlifted out the next day suffering from diphtheria.

During the summer of 1957, the New Zealand expedition huskies went on many trips with their drivers moulding and training them into solid teams. However, the dogs had their moments. Bob Millar noted one of those periods when

the dogs would do nothing right, “Dog trouble was with us yesterday and it looks like it will be another problem day. We were so exasperated that we turned a bitch loose and the dogs, like a pack of rugby forwards, surged forward, never noticing the 1000 pound load behind them.”

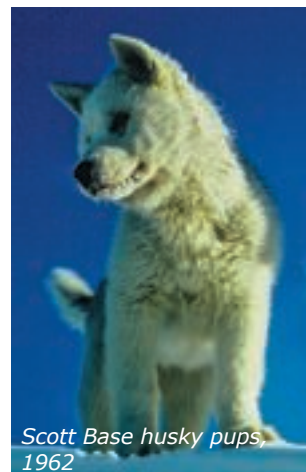
The greatest feat of exploration in Antarctica by New Zealanders using dog teams was the Northern Party of the Trans-Antarctic Expeditions which left Scott Base on 4 October 1957, comprising Brooke, Gunn, Warren and Douglas.

They returned to Scott Base on 6 February 1958, having travelled over 1000 miles by dog sledge. They had obtained the information required for the preliminary geological and topological mapping of 20,000 square miles of rugged mountain country. In terms of knowledge gained, geological, exploratory and topographical, this journey might well be regarded as the most rewarding in Antarctic history—a tribute to the two teams of huskies that pulled all the equipment, food and supplies for 127 days.

BUYING MORE HUSKIES

By late 1959 the dog population at Scott Base had dwindled to 26 dogs. The New Zealanders, realising the usefulness of the dogs for field work, decided to search for more dogs. In May 1960, Wally Herbert, Dr. Hugh Simpson and Myrtle Simpson were driving through Arctic Norway in an old Austin van, planning to explore Svalbard. Wally and Hugh had spent many years in Antarctica together. Late in May they arrived in Tromsø, the northern-most village in Norway, renowned as a starting point for Arctic expeditions—Nansen, Amundsen, Sverdrup and many others departed here by ship for the unknown. In this remote Arctic village, Wally Herbert received a telegram from the New Zealand Government asking him to go to Greenland and buy 12 dogs for the NZ Antarctic Expedition, and transport them via the USA, Hawaii, Fiji and Christchurch to Scott Base, where he was invited to join the expedition for two summers and one winter.

Wally carried on with his expedition on Svalbard, for a few weeks, before he took a kayak along the coast to Longyearbyen to catch a boat back to Norway.



Scott Base husky pups, 1962

Three weeks later he arrived in Søndre Strømfjord (now Kangerlussuaq) Greenland. He made his way to Jacobshavn (now Ilulissat) which had a dog population of over 3000: two dogs to every human being. This village had supplied dogs to many polar expeditions and there was always great excitement when 'Kabloonas' (white men) came to buy dogs. Wally recalls his days there, "The villagers were delightful old rogues to deal with when it came to buying dogs, and some of my happiest recollections of Greenland are the wranglings between dog owners and myself through interpreters. I often received the most incongruous answers that were presumably lost in the translation, but by drawing portraits of dog owners and priming them just before the final purchase with a crate of beer, I eventually got the dogs I wanted."

The Greenland huskies were flown south aboard a US Military Air Transport Service Globemaster from California, arriving at Scott Base at the end of October 1960.

TRANSITION TO THE TIN DOG ERA

Between 1959–62 two major survey and geology trips were carried out by experienced dog-handlers—Peter Otway, Wally Herbert and teams—using dogs across parts of the Trans-Antarctic Mountains, and then a descent of the Axel Heiberg Glacier. The 1963–64 summers saw the end of an era in Antarctica begin with the introduction of 'tin dogs'—motor toboggans—after a decade of dramatic journeys by dog sledge.

It was fitting that in the same 1963–64 season, Bob (Sir Holmes) Miller, Ed Hillary's deputy on the TAE, led the last major New Zealand dog sledge expedition. In 101 days, this expedition collection over 500 geological specimens from 145 localities, occupied over 50 stations. In all, they sledged 1600 miles (2575 km) and surveyed 49,000 square miles of previously unmapped country.

From 1964 onwards, most New Zealand field parties moved about by motor toboggan. The dog teams continued to be used for short scientific and field trips of a recreational nature.

When I arrived at Scott Base in October 1969 I did numerous

trips with Chris Knott, the dog handler. Often we would set off with a team each and race over the ice shelf towards Mt Lister and Huggins, or visit the Shackleton and Scott Huts at Cape Royds and Cape Evans. In a strange way, although being a science technician, I spent a lot of time helping Chris to feed and train the huskies. Also, to assist him with the unpleasant task of killing aging seals to feed the huskies over the winter.

From 1970 onwards, efforts were made to acquire dogs from other Antarctic bases to minimise in-breeding. In 1975 a bitch and a dog came in by Twin Otter from the British base Rothera. They evidently mated in the air over the South Pole and their progeny were successfully integrated into the Scott Base teams. In 1979 pairs of huskies were exchanged between Mawson Station and Scott Base.

END OF THE HUSKIE ERA

In January 1986, the DSIR's Antarctic Division announced they were pulling the huskies out of Antarctica. Christchurch newspapers debated this emotional issue at length. One article talked of putting the dogs down. While this debate was raging, I was slugging it out on the Arctic Ocean with 49 huskies, as a member of Will Steger's (the veteran Arctic explorer) International North Pole Expedition. During the training period and on the expedition, Will often quizzed me on Antarctica. His was dream to cross the continent with dogs.

When I returned to New Zealand I saw an opportunity for the Scott Base dogs to be kept together, and to go to a good home with Will Steger at his homestead near Ely, Minnesota where he ran a dog sledding outdoor centre. I began negotiations on behalf of Will Steger with Bob Thomson, Director of the NZ Antarctic Division. That was in the days where agreements were sealed with a handshake and a few beers.

The Scott Base huskies had their last winter in Antarctica in 1986. The last outing by the Scott Base dog team was on 17 January 1987. The dogs on the team were: Jens, Bjorn, Footrots, Odin, Kiri, Nimrod, Tania, Stareek, Julick, Monty, Herbie, Casper, Tama and Rehua

Each name has a history: Monty after Colin Monteath, a mountaineer and Antarctic traveller; Odin after Mt Odin overlooking Vanda Station and named by Colin Bull; Nimrod after Shackleton's ship. Arnold Heine, veteran of countless trips in



Peter Otway/Colin Monteath polar & mountain archive



Bob McKerrow offloading
Stareek at Port Lyttelton

Antarctica, calculates there have been 500–600 named dogs at Scott Base in the 30 years they have been in the NZ sector of Antarctica.

Grant Gillespie, the last dog handler, sent me an envelope with the names of all the dogs, a special post mark, and Ross Dependency stamps, and the words:

“Carried on the last dog sledge journey made in Antarctica by the Scott Base Dogs—17 January 1987.”

On 4 February 1987 at midday, the US ship *Greenwave* entered Lyttelton Harbour delivering the last 14 Scott Base huskies. Accompanying them was Grant Gillespie. Watching on the wharf were many people who had close association with the huskies such as: Murray Douglas, who, with moist eyes, spoke to me about his days training the first Scott Base huskies at Mt Cook and then accompanying them to Scott Base in 1956–57; veterinarian David Marshall who had worked with the health of the dogs for over 12 years; Pete Cleary, dog handler at British Antarctic bases for two years, and dog handler at Scott Base in 1978–79; Richard Balm dog handler in 1985–86; Eric Saxby, who had done so much in organising the return of the dogs; and Bob Thomson, Director of Antarctic Division, were there. I spoke to one 81-year-old woman who saw the dogs off in 1956 and was pleased to welcome their offspring back.

As I boarded the ship to help take the dogs off, I was impressed with their condition. They were excited and looking at me with anticipation. I had spent a lot of time at Will Steger’s homestead on a lake near Ely, Minnesota in preparation for the 1986 North Pole expedition. I knew they would have a great home there, and the possibility of returning to Antarctica with Will.

David Marshall checked each dog as we put them in cages and loaded them onto a truck. Murray Douglas took great interest and remarked, “They looked similar to the ones he took down.”

My two daughters, Tania and Kira, helped Grant, Eric and I load the dogs on the truck.

Eric drove the truck as I sat on the deck with 14 howling dogs in cages; a curious traffic officer passed on a motor bike and stood up on his footrests and gazed at the dogs. He decided against asking questions. At the airport we lugged the caged dogs into a refrigerated chamber. The dogs were now mine.

A month earlier I had started a newspaper fundraising campaign ‘Save the Huskies’ in the *Christchurch Press* and *Marlborough Express*. I raised about \$2000. Will Steger said he would pay the balance for the air freight to the US, but the money had not arrived. It was 5 pm: I knew that, if I presented my American Express Card, the woman on the counter would phone Amex HQ in Auckland and I would be declined. I knew from previous experience that the Amex office closed at 5.30 pm in Auckland, so I dithered around pretending to be examining the dog’s condition. At about 5.45 pm I presented my Amex card. The woman said, “I think the office for verification is closed. Do you have a good credit rating?”

Deliberately lying through my teeth, I said, “I am wealthy, no problem.”

She gave me a bill for just under NZ\$25,000. Will’s money came into my account a few days later.

Grant Gillespie had agreed to fly with the dogs via Nadi, Honolulu, Los Angeles and Denver, finally arriving in Aspen, Colorado on 25 February 1987. Sadly, on arrival it was discovered that one dog had died. It was Stareek, a seven-and-a-half-year-old male. Stareek was the name of one of Scott’s dogs and in Russian means ‘the old man’. The old man had led his team all the way to the US, and an autopsy revealed he had died of stress. All the other dogs arrived in perfect condition.

Keizo Funatsu describes meeting the dogs at Snowmass, Colorado for the first time, “I worked for Krabloonik Kennel there and Grant brought them over before they went to Minnesota. They had never seen trees and were fascinated by them, and slowly learned to take a pee on trees!”

Grant settled the dogs in at Will Steger’s homestead in Minnesota before returning to New Zealand some months later.

ANTARCTIC CROSSING

Two years later, five of the 13 Scott Base dogs were selected for an arduous crossing of Antarctica with Will Steger’s International Trans-Antarctic Expedition.

In March 1990, Steger and team completed what no expedition had ever before: the crossing of Antarctica on foot using dogs to pull the sledges all the way. Steger and his International Trans-Antarctica team performed an extraordinary feat of endurance covering 3,741 miles. In his book *Crossing Antarctica*, Steger describes the performance of the former Scott Base dogs:

Keizo's team is the unruliest of the three, comprised of the five Antarctic dogs and seven from the Homestead...

The five Antarctic dogs were: Bjorn the leader, Odin, Monty, Herbie and Casper. Of the 36 dogs that set out on the trans-Antarctic journey, only 12 completed the full distance. Three of them were from Scott Base: Bjorn, Monty and Herbie. Their Antarctic births at Scott Base, strong genes and acclimatisation were key factors. Monty was taken by Kenzo back to Japan, along with another dog, Kinta, to Osaka, where Kenzo used them as the foundation for a new dog team that he used at an outdoor centre he set up.

Five years later, fear of the impact of dogs on wildlife led to a new clause in the Antarctic Treaty:

Dogs shall not be introduced onto land or ice shelves and dogs currently in those areas shall be removed by April 1994.

The last dogs were removed from Antarctica on 22 February 1994, 96 years after huskies were first used for transport in Antarctica during the Southern Cross Expedition under the Norwegian, Carsten Borchgrevink, in 1898–1900

Fittingly, to close the story, I quote from the letter I received from Keizo Funatsu on 1 September 2009:

*Hello Bob,
I am Keizo Funatsu. I received an email from Will Steger about you. I had the New Zealand Antarctica dogs during the International Trans-Antarctica expedition 20 years ago. I have been living in Alaska for 15 years. I miss all Antarctic dogs. Their power was incredible to compare to Alaskan huskies here.*

THE FATE OF THE LAST DOGS

Monty and Herbie were brothers, both 4 years old and strong dogs. Bjorn was one of the leaders and the oldest dog in the International Trans-Antarctic team. I think he was 6 years old. Those three Antarctic dogs completed the journey. Casper and



An envelope carried on the last journey by Scott Base dogs, sledge and a dog handler.

Odin flew back when the aeroplane came to us on our way to the South Pole. Odin got frostbite and I forgot why Casper flew out.

Bjorn was 8 years old when he completed the Antarctic trip. He was a good leader. Monty and Herbie were strong fighters, but they were steady workers and cute dogs. All male Antarctic dogs were fighters, but it was fun to work with them.

Monty went to Japan to breed with some other dogs in Hokkaido, the northern-most main island in Japan. Monty bred with the offspring of the dogs which Naomi Uemura brought back from his trip in the Arctic. Uemura was a famous Japanese explorer who died on Mt Denali, Alaska, right after his successful first solo winter ascent. Kinta, who came from an Inuit village in Canada, completed the journey and went to Japan. Kinta worked for the outdoor school at Hokkaido.

MARKING THE END OF THE JOURNEY

For me the journey is complete. The offspring of the Scott Base dogs have been returned to their rightful place, the northern parts of the world, after 31 years of useful work in Antarctica. My Canterbury branch of the NZAS produced a superb book *Dogs of the Vastness—Lyttelton and the Ice Dogs of Antarctica* and gifted a bronze sculpture of an Antarctic husky to the people of Christchurch in 2016. This is a fitting memorial honouring 'the dogs of the vastness.'

By **Bob McKerrow**

Bob McKerrow was a technician in charge of seismology and geomagnetics at Scott Base in the summer of 1969–70 and then wintered over at Vanda Station with 3 others. He did dog sledging trips in the Arctic including being a member of the Steger International North Pole Expedition in 1986. A former director of the NZ Outward Bound School, he spent 35 years working for the International Red Cross in risk reduction and disaster management.

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- Antarctica New Zealand
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SWAIS2C SPONSORS *(refers to pp2-5)*

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antarcticsociety.org.nz

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*Husky on dogline chain during windstorm,
Cape Crozier, Ross Island, Antarctica*