THE LEGACY OF ANTARCTIC ADVENTURE

For over a century Antarctica has been the focus of exploration and discovery. Early polar explorers such as Captain Robert Falcon Scott, Sir Ernest Shackleton and Carsten Borchgrevink, followed by Sir Edmund Hillary, set out to explore the ‘great, white silence’, and in turn, captured the world’s imagination. Today, these men have come to represent leadership, heroism, courage and a sense of adventure.

Nowhere is more steeped in the history of this period of exploration than Ross Island, Antarctica. Located in the Ross Sea region, almost due south and 4000 kilometres from New Zealand, Ross Island and surrounding coastline is home to four expedition bases from the ‘heroic-age’ (1895-1917) and Hillary’s 1957 expedition base. Astonishingly, they have survived and still contain the supplies and equipment brought by these famous explorers.

THE ROSS SEA HERITAGE RESTORATION PROJECT

The New Zealand based Trust has conceived, planned and is implementing the Ross Sea Heritage Restoration Project. This multi-year, multi-site conservation programme is the largest heritage project ever undertaken in the polar regions. It is saving both the buildings and the thousands of artefacts in situ.

The Trust is the global leader in cold heritage conservation. Since 2006 the Trust has engaged over 60 international heritage and conservation specialists in Antarctica working in our custom-built facilities in the most challenging heritage conservation environment on earth.

In January 2015 the Trust completed a major phase of conservation work on Ross Island. This has included the conservation of three historic bases and more than 18,000 artefacts; Sir Ernest Shackleton’s 1908 base and its collection of more than 6,000 artefacts; Captain Robert Falcon Scott’s last expedition base at Cape Evans and its 12,000 artefacts; and Scott’s first expedition base at Hut Point. All three sites have a comprehensive monitoring and maintenance programme of work in place for at least 25 years.

Conservation work is yet to be undertaken at Carsten Borchgrevink’s 1899 base and Hillary’s 1957 historic base.
Building Conservation

Highlights

> The roof has been reclad and the original battens re-laid overtop.
> Conservation and repairs have been undertaken on the timber cladding and Mawson’s lab has been relined.
> Over 40 cubic metres of ice was removed from underneath the building and a waterproof cladding fitted around the perimeter to ensure summer melt water flows around, rather than underneath, the site. The surrounding gradients were also reworked to assist with drainage.
> The original stores boxes, full of provisions, which had been stacked around the southern and eastern exterior walls have been conserved and returned to their original positions.
> The original stores boxes making up the building blocks for the carport and stables have been conserved.
> Contemporary doors and windows (installed during the 1970s) have been removed and replaced with historically accurate materials based on the original architectural drawings.

In January 1909, 50 year old Professor Edgeworth David led a party of three to be the first to reach the Magnetic South Pole (an epic 1600km sledging trip). In late 1908 Shackleton led a party of four in an attempt to be the first to reach the Geographic South Pole. After man-hauling for two and a half months, and less than 97 nautical miles from the Pole, Shackleton made a decision, considered to be the finest in early polar history, to turn for home. The expedition also discovered over 800km of new mountain range and pioneered the way to the Antarctic Plateau.

Reconfiguration of the Interior of the Building

Following the departure of Shackleton’s expedition in 1909, two other ‘heroic-era’ expeditions occupied the building and over subsequent decades many of the artefacts were moved. Using the original photos and diaries the layout now more accurately reflects the occupation by Shackleton’s expedition.

Artefact Conservation

A century of extreme environmental conditions had taken their toll on the artefact collection. Specialist teams of paper, metal and textile conservators worked year-round in Antarctica conserving the 6,000+ collection. All planned artefact conservation work has been completed.

Maintenance and Monitoring Programme

An annual maintenance and monitoring programme for the building and associated artefact collection is in place.
LOCATION
Cape Evans, 77° 38’ S, 166° 24’ E, Ross Island, Antarctica.

PROTECTION
Listed by the Antarctic Treaty System as an Antarctic Specially Protected Area and previously listed on the World Monuments Fund 100 Most Endangered Sites On Earth. Cared for by the Antarctic Heritage Trust as part of its Ross Sea Heritage Restoration Project.

SIGNIFICANCE
The iconic base associated with Captain Robert Falcon Scott’s British Antarctic (Terra Nova) Expedition 1910–1913 and his second, and final, heroic attempt for the Geographic South Pole. The expedition gave rise to some of the most inspirational and harrowing stories associated with polar history. Michael Palin has described it as “one of the great memorials to exploration anywhere on Earth”.

CONSERVATION
Due to extreme environmental conditions this historic base, and the associated 12,000+ artefact collection, had been at real risk of loss. The conservation work programme to save this site began in 2008. A five year major carpentry work programme was completed during the 2011–2012 season. A seven year artefact conservation programme was completed in 2015. A comprehensive monitoring and maintenance programme is now in place.

SUMMARY OF WORK

Snow and Ice Mitigation
Unprecedented snow and ice build-up had caused structural damage to the building. Meanwhile a century of freeze/thaw cycles had caused a thick layer of ice to form under the building causing the floor to buckle and creating unfavourable environmental conditions within the building, accelerating the decay of the artefact collection. Long-term mitigation measures to prevent snow and ice build-up have now been effected.

Highlights
> Excavating the remains of Bowers’ Annex (which held supplies) from underneath an estimated 100 cubic metres of snow and ice.
> The stables’ roof has been structurally repaired to withstand maximum snow-loadings.
> Over two summer seasons the conservation carpenters lifted the centre third of the main floor and removed over 65 cubic metres of ice. The sub floor was strengthened and the floor boards re-laid. The internal walls were dried out.

Weatherproofing
Exposure to a continuous cycle of snow and ice melt means weatherproofing has been critical to the long-term survival of the building.

Highlights
> All exterior walls of the building have been weatherproofed. Completed over four summers, the cladding was progressively removed, layers of weatherproof (breathable membranes) installed and the cladding meticulously reinstated.
> A meltwater deflection dam has been installed forming a subterranean barrier around the site, while the perimeter of the building has been fitted with an underground barrier to ensure any melt water getting past the dam does not flow under the building.

Building Conservation
> The contemporary roofing fabric laid over the main base, stables and latrines in the 1980s has been over clad with a historically correct material.
> Modern timber cladding (installed in the 1970s) on the northern aspect was replaced with timber matched to the original species. Contemporary windows on the northern and southern aspects have been removed and replaced with the original windows (recovered from the stables).
> The latrines have been straightened and the ground stabilised as the migration of volcanic gravel caused by beach erosion and visitor traffic was causing the building to lean. The latrines have also been structurally repaired and weatherproofed.
> The furniture within the hut has been conserved including the wardroom table and chairs, bunks, metal bed frames and shelves.
> The wooden artefacts in the environs including the instrument shelter, meteorology screen and sledges have been conserved.

Re-cladding the roof of the base.
Scott’s Hut, Cape Evans continued

Restoring Historical Accuracy
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> The internal wall (known as the ‘bulkhead’) constructed from provision boxes has been conserved and rebuilt returning the building to a more historically accurate layout.
>
> The stove flues and acetylene plant piping has been conserved and reinstated.

The Artefact Collection
Salt damage (from the ocean) together with extreme fluctuations in humidity and temperature, the freeze/thaw cycle and a century of extreme environmental conditions had all contributed to the decline of the collection.

More than 12,000 artefacts have been individually and painstakingly conserved over the seven year programme of conservation. Conservators from the UK, Ireland, Australia, Canada, USA, France and Switzerland have worked on the project. Their specialisms have included, timber, metal, textile and paper.

There have been many milestones over the past seven years including:
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> The conservation of all textiles within the hut, including handmade clothes left by Shackleton’s Ross Sea Party.
>
> The conservation treatment of all the photographic chemicals and equipment in expedition photographer Herbert Ponting’s darkroom.
>
> Supply boxes that make up the internal bulkhead, and 230 supply boxes cached outside the hut (placed there by the expedition in case of fire).

SCOTT’S HUT, HUT POINT
PROJECT UPDATE

LOCATION
Hut Point, 77° 50’ 50” S, 166° 38’ E, Ross Island, Antarctica.

SIGNIFICANCE
Hut Point was Robert Falcon Scott’s first expedition base in Antarctica, established for the National Antarctic (Discovery) Expedition 1901-1904. The expedition included a major programme of science and was a landmark in British Antarctic exploration, resulting in Scott returning to Britain as a national hero. His base became an important staging post for every subsequent ‘heroic-era’ expedition. Today Captain Scott’s first base at Hut Point remains a testament to scientific endeavour.

CONSERVATION PROGRAMME

Conservation work was required to safeguard the hut and associated artefact collection. Significant effort was needed to repair damage sustained during a century of severe Antarctic environmental conditions and to protect against the ongoing impacts of these conditions.

A comprehensive Conservation Plan was prepared for both the site and the more than 500 associated items that form the artefact collection. A two-year summer and winter programme of work was completed in 2015.

Key conservation activities
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> The stabilisation, weather proofing and repair of the building.
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> The conservation of the artefact collection.
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> The removal of contemporary building materials introduced during the modern period and their replacement with historically correct materials.
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> Initiating the monitoring and maintenance programme.
Borchgrevink’s Hut, Cape Adare

LOCATION
Cape Adare, 71° 18’ S, 170° 09’ E, Northern Victoria Land, Antarctica.

SIGNIFICANCE
The site is notable not only for its role in the discovery of Antarctica but also as the only example left of humanity’s first building on any continent. Commander Carsten Borchgrevink, a young, unknown Norwegian, and his crew sailed from London on the British Antarctic (Southern Cross) Expedition 1898-1900 to be the first to explore the continent. The expedition landed at Cape Adare, one of the most inhospitable sites on earth and set up base.

CONSERVATION
The detailed planning, including the preparation of a Conservation Plan and Implementation Plan, required to save this site and its collection of more than 1,000 artefacts, has been completed. Due to its remote location, the site poses a number of logistical challenges. A three-year programme of work is due to commence during the 2015-2016 season, subject to securing suitable ship-based access for the conservation team.

Hillary’s TAE/IGY Hut, Scott Base

LOCATION
Scott Base, 77° 85’ S, 166° 75’ E, Ross Island, Antarctica

SIGNIFICANCE
Scott Base was established by the Commonwealth Trans-Antarctic Expedition 1955–1958 and the International Geophysical Year New Zealand party 1957–1958. The base is associated with Sir Edmund Hillary, leader of the New Zealand party that established Scott Base and laid supply depots from the Ross Sea to the South Pole for the first trans-Antarctic crossing. The original Scott Base building which remains represents the beginning of New Zealand’s Antarctic operations.

CONSERVATION
In 2012 the Trust signed a Memorandum of Understanding with the New Zealand Crown agency, Antarctica New Zealand, to take on management responsibility, including conservation and fundraising work, for the remaining TAE building (‘Hut A’). A Conservation Plan has been developed for the site following consultation with stakeholders internationally.

Completion of the TAE/IGY mess hut. © Murray Ellis Collection
MONITORING AND MAINTENANCE

The process of conserving an historic building and artefact collection in Antarctica is exacting. The Trust’s project life-cycle to conserve each expedition base is as follows:

> Site survey
> Conservation Plan
> Implementation Plan
> Securing Permits
> Implementing Conservation Programme
> Maintenance and Monitoring Plan

The Conservation and Implementation Plans guide the Trust in conserving each site. The conservation intervention at each site varies, partly due to the differences in the condition of each site, the number and condition of artefacts and the complexity of the legacy that remains.

Once the major implementation work to conserve a building and artefact collection has been undertaken an annual maintenance and monitoring plan is put in place. This includes monitoring environmental conditions at each site to track temperature and relative humidity in the buildings’ environments. Artefacts requiring more urgent conservation treatment are then prioritised based on knowledge obtained.

HOW TO SUPPORT OUR WORK
HELP US TO CONSERVE THE LEGACY OF ANTARCTIC ADVENTURE

The Trust relies on support from trusts and foundations, corporations and individuals to undertake our work to conserve the historic expedition bases in Antarctica. The New Zealand Government contributes baseline funding for the Trust’s administration costs, ensuring any donations made to the Trust go directly to our conservation work in Antarctica, the Ross Sea Heritage Restoration Project.

Committed funds in hand have been allocated towards an ongoing maintenance and monitoring programme for Sir Ernest Shackleton’s 1908 expedition base and Captain Scott’s 1911 and 1902 expedition bases.

While we have achieved significant outcomes, conservation work is yet to be undertaken at Carsten Borchgrevink’s 1899 base and Hillary’s 1957 historic base. The Trust requires funds to fulfil its conservation objectives. We would value your support.

Please consider making a donation or becoming a member of the Antarctic Explorer Club. Membership is available at a number of different levels. Our members, Antarctic Explorers, are committed to conserving the legacy of discovery, adventure and endurance.

As a registered New Zealand charity, donations are tax deductible for New Zealand tax payers.

Donations can be made directly to the Trust online at nzaht.org/support

Conservator Nicola Dunn working on the science bench at Scott’s Hut, Cape Evans. ALEJANDRA TURNER PHOTOGRAPHY

Environmental monitoring at Scott’s Cape Evans Hut. ALEJANDRA TURNER PHOTOGRAPHY