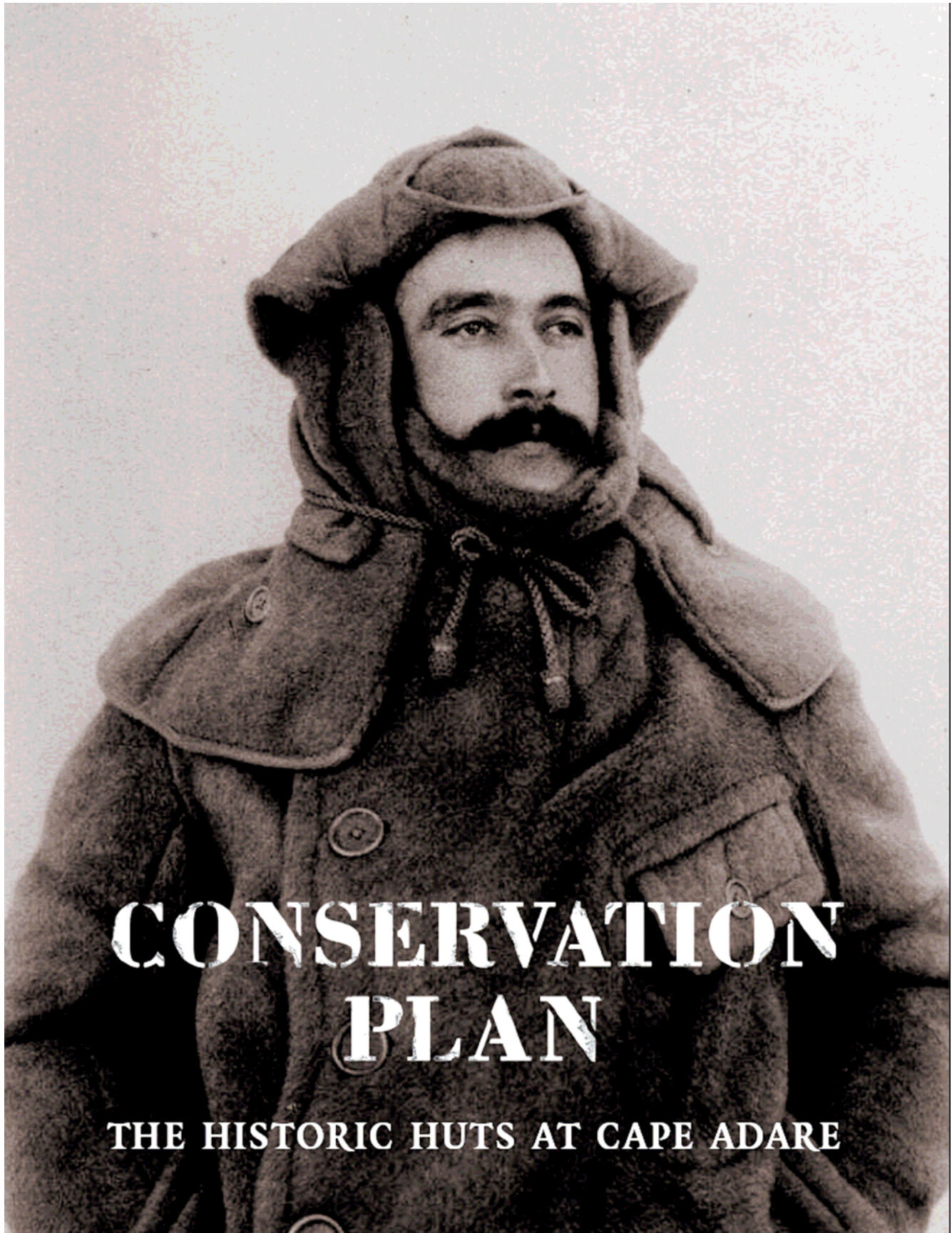


The following extracts are from the Conservation Plan prepared for the historic huts, located Cape Adare, Antarctica. To purchase a full copy of the conservation plan please email [info@nzaht.org](mailto:info@nzaht.org). Note the Architectural Drawings included in this document are A3.



# CONSERVATION PLAN

## THE HISTORIC HUTS AT CAPE ADARE

Borchgrevink's British Antarctic Expedition 1898–1900

Northern Party of Scott's British Antarctic Expedition 1910–1913

Cape Adare, Antarctica



ANTARCTIC HERITAGE TRUST, CHRISTCHURCH, NEW ZEALAND

MAY 2004



# RECOMMENDATIONS

*This section makes recommendations for repair, restoration and reconstruction work based on the preceding sections, and in particular, on the conservation policies in Section 6.*

*The architectural drawings form an integral part of the recommendations, and they are included here in reduced format.*



**The Warning Glacier, Adare Peninsula and the Living Hut in the foreground.**

PHOTO: MICHAEL MORRISON, PURCELL MILLER TRIVYON 2003

## 7.1 Environs

The recommendations made here aim to repair and conserve Borchgrevink's Living Hut, to repair and stabilise the Stores Hut and to stabilise the remnants of Scott's Northern Party Hut. The intention for the whole site is to arrest the ongoing deterioration and to preserve it intact for future generations. There is no attempt to return it to a particular period or moment in time. It will be stabilised in its present condition, with the main alterations being either the stabilisation of the remaining structures or the removal of modern interventions which make the original layout of the huts difficult to comprehend.

Essential work is that necessary to secure the long-term future of the huts and to remove environmental hazards.

### ESSENTIAL WORK:

- Carry out a full assessment of, and record, the remaining artefacts, cases, boxes etc buried or semi-buried around the exterior of the huts.
- Remove any buried and semi-buried objects necessary to reduce the ground level to the bottom of the external wall boards.
- Re-profile ground around the outside of the huts to allow free drainage. Dig a drainage channel from the area between the huts to the adjacent low areas to east and west. The channel to be refilled with the excavated material after it has been screened to remove fine material and thus assist free drainage.
- Conservation and repair of the carpenter's bench is dealt with in Section 7.7: Conservation of Artefacts.
- Erect a new steel post and wire fence around the perimeter of the site to keep the penguins away from the huts.

### DESIRABLE WORK:

- Re-erect two flag poles (currently used as raking shores) in their original locations.
- Carefully expose the parts of the two anchors to remove the build-up of penguin guano and grit deposits.
- The conservation, repair and repositioning of the cases, barrels, coal stores, beds, boiler etc are dealt with in Section 7.7: Conservation of Artefacts.

## 7.2 Living Hut Exterior

### ESSENTIAL WORK:

- Remove the existing (Northern Party) external door and frame and take into storage in Stores Hut. Fit new lower leaf to door to match the pattern of the extant inner doors. Repair the remaining upper leaf and reglaze with toughened safety glass. Overhaul and renew ironmongery as necessary. Form new removable external shutter to cover the window glass when there is no-one on site.
- Take up existing threshold when the door and frame are removed. When door repair is complete, bed-in new bearers and refix single step.
- Remove modern hood moulding over the door and dispose of the material used for this.
- Remove blocking from the west window. Overhaul, repair and reglaze the window to match its original form, remaking the casements if necessary. The window to be left in working order so that ventilation can be achieved when visitors or working parties are present.
- Overhaul the remaining off-set hinges forming new strap hinges as necessary. Make new single shutter and rehang to cover the whole window. Form new replica hold backs to the shutter and fixing bolts for securing shut.
- Remove the blocking from the north window, overhaul, repair and reglaze the window. Fit removable timber shutter over the window for protection.
- Assess the condition of the wall boards, once the ground level has been lowered, for potential repair and/or partial replacement. It may be desirable to allow the timber a complete season to dry out and for any ice damage to become apparent before embarking on timber replacement.
- Strip off all the battens, ridge pieces and bargeboard cappings from the roof. Set aside

sufficient battens for the new roof covering and remove remainder off site. Remove sufficient of the modern roof covering to allow the condition of the original roof boards to be assessed and to allow the fixing methods and fixing centres attaching the modern plywood to the original timbers to be assessed. The extent of the repair work to the original timbers (if any) and the need for refixing of the plywood and/or butylclad cannot be assessed until the opening up has been completed. After any necessary repairs (including the waterproofing of any holes left in the butylclad after removals and investigations) fix new canvas roof covering over the butylclad. The new canvas roof to be secured to the butylclad with an appropriate adhesive. Canvas to be brought down over the eaves and over the bargeboards where it should be secured with a double row of clout nails and moulded timber cover pieces. Refix six battens per side at spacings consistent with the 1900 photographs.

- Take modern screw fixings out of the back plates of the hooked cable guides on the east and west walls. Refix using cut nails to match original. Fix additional tie-down cables to pass directly over the roof to provide sufficient stability (if recommended by the structural engineer).

### DESIRABLE WORK:

- Replace the repaired stores boxes against east and west walls. Replace coal stores and fodder sacks against the north wall. See Section 7.7 for details of this work.

## 7.3 Living Hut Interior

### ESSENTIAL WORK:

- Remove internal door. Remove modern ironmongery. Repair door where it has been damaged and re-hang on replicas of the original hinges in the correct alignment. Fit modern reproduction of the original ironmongery to provide an effective latch.
- Remove the blocking over the west window. Repair, overhaul and reglaze as necessary the inner casements and leave in good working order.
- Work around the bunks and shelves checking all fixings and securing all loose sections of material. Where bunk base boards have fallen in or been removed these should be replaced to allow the bunks to be used for display purposes.
- Re-secure the remaining sections of the papier-mâché insulation to the inner surface of the matchboards where this has fallen away.
- Take down, back and conserve and re-secure the fabric in the 'darkroom' and the remaining fabric in the 'office' to the walls.
- Remove the internal blocking from the loft window.
- Fit a grid of levelling studs internally and check the floor levels, relating these back to some reliable external datum (one of the anchors might prove a good datum).
- Remove the stored items from under the bunks in the north-east corner of the room to allow a full inspection of both the artefacts themselves and the condition of the floor and wall timbers in this area. For treatment of the artefacts following removal see Section 7.7.
- For the treatment of the remaining artefacts (store, sledges, dog coats, clothing etc) see Section 7.7.

### DESIRABLE WORK:

- Remove the Northern Party table and the bentwood chairs from the Living Hut to safe storage in the re-roofed Stores Hut.
- Sort out the display artefacts and remove those from the 1910–1912 expedition to safe storage and display within the re-roofed Stores Hut.

## 7.4 Stores Hut

### ESSENTIAL WORK:

- Take up the whole floorboard assembly and remove the ice from between the floor joists. Reinstall the original floorboards, making up with new where they are damaged.
- Repair both doors to the Stores Hut and re-make the damaged section of door frame. Re-hang both doors and secure in the open position.
- Remove the modern plywood sheets from the interior of the Stores Hut and dispose of anything that cannot be used in the building conservation programme.
- Remove the two temporary raking shores from the walls, together with their associated fixing blocks.
- Conserve and repair the remaining elements of the Northern Party latrine on the west side of the Stores Hut once the ground levels have been adjusted.
- Carefully remove, in short sections, and replace the damaged wall board on the east side of the hut at low level.
- Check, using non-destructive methods, the integrity of the eight holding-down bolts that secure the structure of the Stores Hut.
- Rearrange the repaired boxes, cases and barrels around the south-east and west walls of the

Stores Hut after the ground has been lowered (see Section 7.7: Conservation of Artefacts).

- Remove modern material and other unrecognisable fragments from the interior of the Stores Hut and dispose off site (see Section 7.7: Conservation of Artefacts).
- Carefully secure the whaleboat bow and other stored artefacts so that they are less susceptible to wind damage.

#### DESIRABLE WORK:

- Check over the integrity of the remaining trusses and repair timbers and replace ironmongery where necessary to allow them to be re-used.
- Re-secure loose and distorted top boards on the east and west sides of the Stores Hut to ensure good connection to the boards below. If necessary, drill down and secure with holding-down bolts.
- Reconstruct the roof of the Stores Hut to provide the ideal protection for the floor and the bracing for the walls. The roof construction to be identical to that of the Living Hut, with canvas on a waterproofing layer on plywood on timber boards set as purlins on the original trusses. There is no intention to rebuild the loft floor so that the trusses can remain open for inspection.
- Rebuild the gable ends, complete with bargeboards, and the south window. All the existing gable end timbers to be re-used matching in modern timber where necessary.
- Put the pair of doors back into working order and provide a stout timber securing bar and cover pieces to provide as much draft-proofing and security against wind damage as possible.
- Rearrange the interior to accommodate the articles from the Northern Party Hut that it is desirable to remove from Borchgrevink's Living Hut.

## 7.5 Northern Party Hut

#### ESSENTIAL WORK:

- Remove the remaining cladding from the standing section of the porch. Check the stability of the frame and re-nailing joints. Fix holding-down straps to prevent over-turning together with wind bracing for the frame. Reclad the external walls re-using all the salvaged elements, with an inner layer of matchboard and an outer layer of feather-edged weatherboard.
- Check over the fixings of all the remaining roof boards and refix as necessary.
- Check over the fixings of all the internal matchboarding of the porch and refix as necessary.
- Consolidate the remaining standing section of the south wall by refixing sections of boarding and framing members where possible to stabilise the remaining structure.
- Collect any loose sections of timber that are likely to blow away and remove from site for disposal.
- Secure the window assembly to the end frame of the hut to ensure that it does not blow away.
- Check over the remaining timbers of the collapsed sections of the wall for areas that could trap penguins and rearrange or block off as necessary.

## 7.6 Maintenance and Planning

In conjunction with the work that is recommended in the Conservation Plan, AHT will undertake the planning and implementation of research, maintenance and management regimes.

- Before implementing any work on the site or to any of the buildings or artefacts a detailed record will be made of the object and its context. Techniques used will include still photography, video photography, GPS position recording, level surveys and measured surveys and drawings. These techniques will be used as appropriate to provide a clear record of the existing situation, of the work being completed and of the final result. Such documentation will be securely stored in AHT's archives in Christchurch.
- A plan of the routine cyclical maintenance needed for the site and huts will be prepared. It will include specific maintenance regimes for individual elements around the site and on the buildings themselves. The maintenance regime will take account of the possibility of gaps of several years between visits to Cape Adare and will be adapted accordingly.
- The AHT will plan to visit the site at least once every ten years with a team that is equipped to carry out a full structural survey of the condition of the buildings. The survey will be used to monitor the changing condition of the building, to check the effectiveness of maintenance and management plans and to plan for future work programmes.
- A number of specific surveys will be undertaken on a long-term basis. Initially, levelling pins will be used to monitor frost heave and/or subsidence. Data loggers will be used to collect temperature and relative humidity conditions inside and outside the Living Hut. The AHT will keep the types of survey and survey methods under review. The possibilities of remote sensing will be pursued. The survey methods used will, where possible, be kept simple so that readings can be taken or data downloaded by other

scientific personnel who may be at Cape Adare for other purposes.

- There should be an ongoing review of the way that visits to the site are managed. The AHT will clarify the protocols designed to protect the site, buildings and artefacts. The topics to be reviewed will include advance notification of all visits, the securing of doors and shutters, opening of windows, inspections for damage by all parties, record keeping, cleanliness, the provision of appropriate information to all proposed visitors.
- All planning for the future of the Cape Adare site will keep under review the possibilities for remote 'access' by video camera and the internet or by other technologies as these become available. The intention is to provide the best possible access to the site without actually going there.
- A housekeeping manual will be developed to ensure a regular regime of maintenance of interior artefacts and surfaces is undertaken. The process will also ensure that artefacts are annually checked and monitored. Processes will include the removal of mould growth using a hepa vacuum, and cleaning of affected surfaces.

## 7.7 Conservation of Artefacts

This section covers the general scope of treatment that the artefacts at Cape Adare will require. The aim in providing these treatment recommendations is to indicate the type and extent of treatment that will be required, not to provide a point by point methodology for each artefact. Detailed treatment proposals will need to be prepared for each artefact at the time of conservation.

### GENERAL

On the basis a penguin-proof fence is established, it should be possible to excavate and evaluate all the

boxes, cases and barrels around the site. An early task will be to clear all around the huts, reducing the ground to below the level of the internal floors. This will give a chance for all the cases to be freed and their contents to be examined, catalogued and conserved or disposed of as appropriate. It is hoped that it will be possible to salvage sufficient timbers from the excavations for the provision cases to be repaired and reassembled and to be replaced around the huts – accepting the fact that they may well be devoid of contents. Similarly, it is intended to salvage the coal as it is excavated and to conserve and stabilise the barrel remnants. Internally, the work on the iconic and other most important artefacts in the first season will be a priority. They will be carefully catalogued and categorised to inform future programmes of conservation and repair. This will be followed by the careful assessment of all the remaining objects from under the bunks and the loft. Many of the artefacts under the bunks are expected to be in a state beyond practical conservation.

## ICONIC ARTEFACTS EXTERNAL:

### *Carpentry bench*

- Confirm type of timber
- Reattach any loose sections using original fixing method if possible
- Build new wooden support in similar timber to original to underpin heavily eroded end and screw to original
- Attach further wooden bracing as necessary by screws to stabilise.

### *Parts of Northern Party Hut stove*

- Surface clean with soft brush and low-pressure vacuum to remove dust and dirt
- Apply Rusticide conversion coating
- Apply protective coating, for example, Ferrogard FS.

## ICONIC ARTEFACTS INTERNAL

### *Sledge and harness*

#### **Wooden frame:**

- Surface clean with soft brush and low-pressure vacuum.

#### **Leather straps:**

- Surface clean with soft brush and low-pressure vacuum
- Remove any verdigris or fatty spew with petroleum spirits.

#### **Metal runners:**

- Clean with non-ionic detergent and water
- Stabilise any corrosion with tannic or phosphoric acid
- Apply protective coating, for example, Corrostop.

### *Blubber stove*

- Dismantle all components that are easily removed
- Apply lubricating agent to door hinge, for example, WD40 and examine whether door can be opened and/or removed
- Surface clean with soft brush and low-pressure vacuum
- Apply Rusticide conversion coating to metal elements
- Apply protective coating, for example, Ferrogard FS
- Reassemble.

### *Dog coats*

- Vacuum surface through fine netting
- Dry clean if the fabric is considered strong enough
- Couch tears to backing fabric of pre-washed polyester cotton.

#### *Primus cooker*

- Disassemble as far as possible
- Surface clean with non-ionic detergent and water
- Stabilise iron alloys with conversion coating (Rusticide)
- Clean copper alloy with Riley Williams copper and brass polish
- Coat with Ferrogard FS
- Reassemble.

#### *Long johns and socks*

- Vacuum surface through fine netting
- Dry clean if the fabric is considered strong enough
- Couch tears to backing fabric of pre-washed polyester cotton.

#### *Table and chairs*

- Surface clean with soft brush and low-pressure vacuum
- Reattach any loose sections using original fixing method if possible.

### TYPICAL NON-ICONIC ARTEFACTS

#### *Iron alloy objects such as barrel hoops, harness elements, tools*

- Surface clean with soft brush and low-pressure vacuum
- Treat any corrosion with tannic or phosphoric acid
- Apply protective coating.

#### *Boxes of biscuits and cans of food*

- Surface clean boxes with soft brush
- Check condition of contents, if corroded:
  - Remove label

- Reduce any staining on label and undertake any tear repairs
- Stabilise corrosion with tannic or phosphoric acid
- Apply protective coating, for example, Corrostop
- Reattach label with interleaving liner.

#### *Bottles, particularly those in the loft area*

- Surface clean with soft brush and low-pressure vacuum
- Wash with clean water and non-ionic detergent if dirt and grime persists.

#### *Coal and fodder sacks*

- Remove from existing position ensuring sacks are lifted from the bottom, not the top
- Assess condition of sacks and ensure there are no large holes or tears
- Repair any holes or tears by couching similar type of fabric to sack
- Surface clean with soft brush and low-pressure vacuum
- Replace in position.