

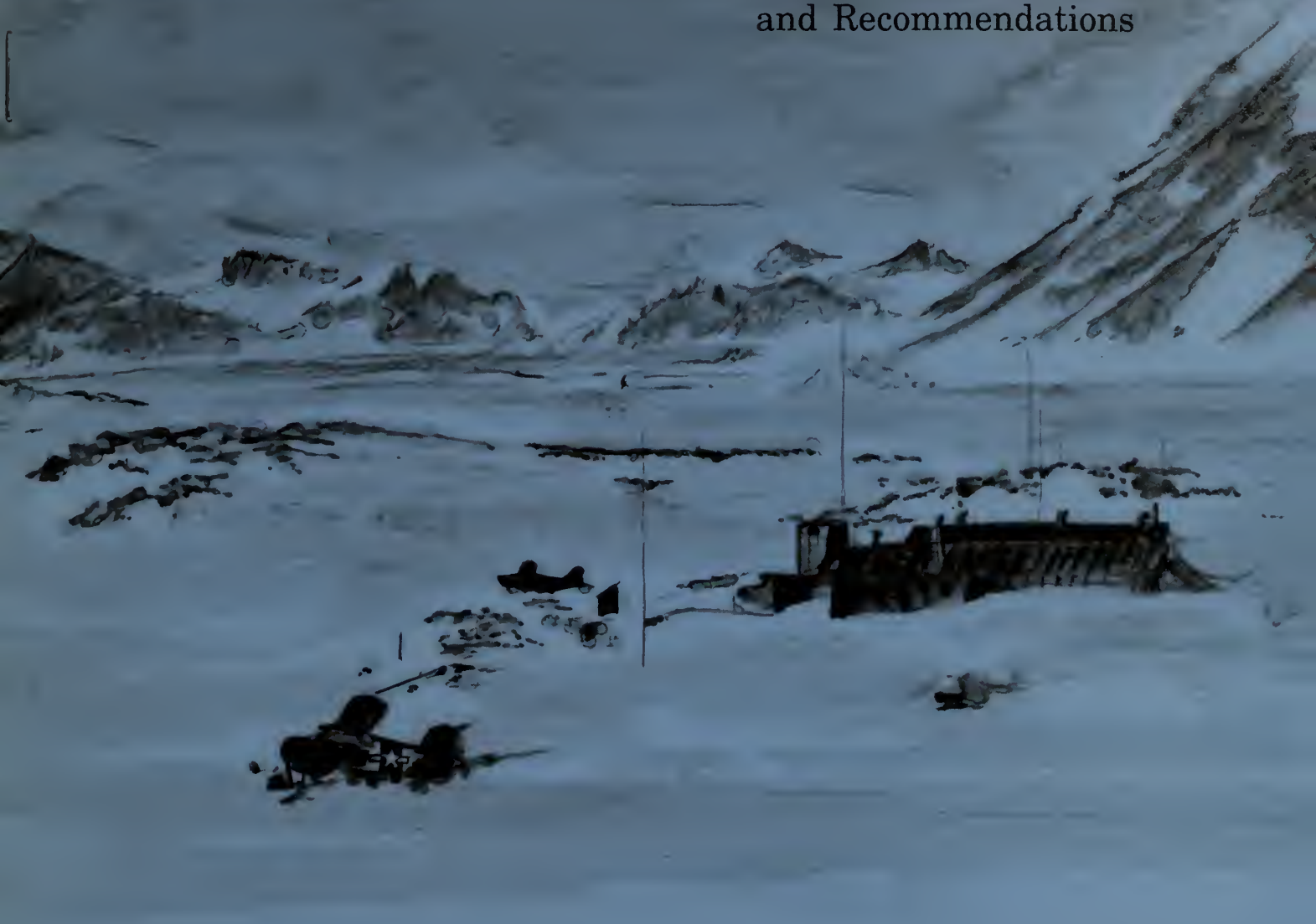
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Part I: A Guide for Management
Part II: Description of the Cultural Resources
and Recommendations



EAST BASE

Historic Monument • Stonington Island/Antarctic Peninsula

Cover Sketch: From photograph of East Base in 1947 taken from Northeast Glacier during the Ronne Antarctic Research Expedition. Base buildings stand at right, the planes are on frozen Back Bay, and the British Base E is barely visible over the ridge above the science building tower. Photo courtesy of Ronne Antarctic Research Expedition.



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Part I: A Guide for Management
Part II: Description of the Cultural Resources
and Recommendations

April 1993

Catherine Holder Spude
Robert L. Spude

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U.S. Antarctic Service East Base leader Richard B. Black, with pipe, discusses camp construction with Finn Ronne, April 8, 1940. Ronne reoccupied the base in 1947 as leader of the Ronne Antarctic Research Expedition (National Archives).

Part I: A Guide for Management

INTRODUCTION

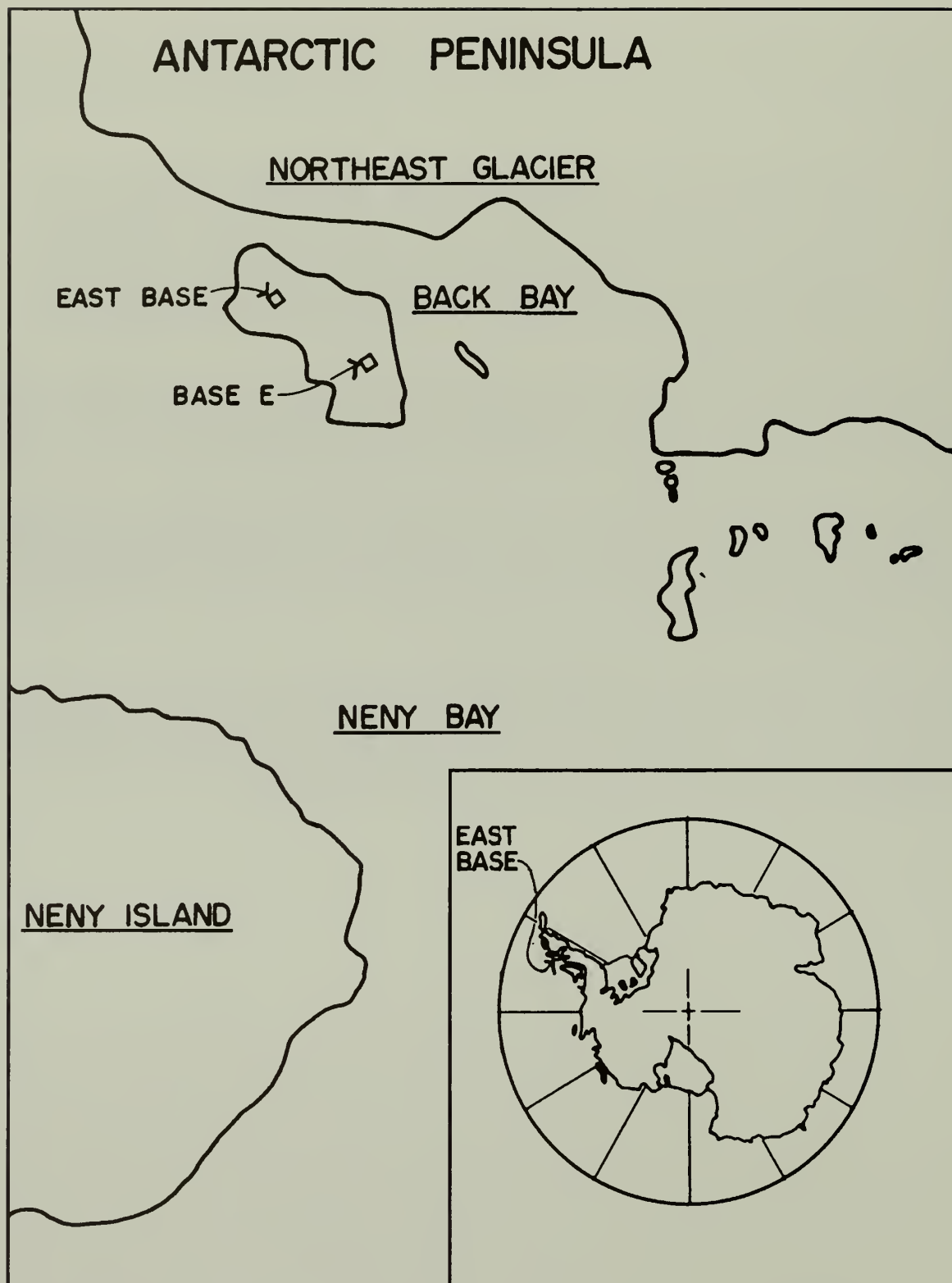
In October 1989 East Base, Stonington Island, Antarctic Peninsula, was designated as a historic monument under the Antarctic Treaty. The monument was described in the treaty as follows:

East Base, Stonington Island (6811S, 67W). Buildings and artifacts and their immediate environs. These structures were erected and used during two U. S. wintering expeditions: the Antarctic Service Expedition (1939-1941) and the Ronne Antarctic Research Expedition (1947-1948). The historic area is 1000 meters in the north-south direction (from the beach to Northeast Glacier adjacent to Back Bay) and 500 meters in the east-west direction.

The United States, through the National Science Foundation, which manages the site, is mandated by the terms of the agreement to adopt all adequate measures to protect the cultural resources associated with East Base's significant history.

With concern for the protection of the East Base Historic Monument as well as the necessity to remove debris and hazardous materials, the National Science Foundation requested the assistance of the National Park Service to prepare recommendations for the management of the site and its environmental cleanup. This report is a result of that cooperative effort.

During the austral summer, February and March 1991, National Park Service personnel traveled to Antarctica to prepare a site plan and to assess the cultural resources of East Base and vicinity. Resources and recommendations are discussed in this report. A lengthier discussion of the resources is in *East Base Historic Monument, Antarctica, Part II: Description of the Cultural Resources and Recommendations*.



GENERAL MANAGEMENT PHILOSOPHY

Historic preservation in Antarctica is a new field. The respect and concern for the preservation of sites began in the first years of the 20th century, shortly after the heroic explorers left the scene. Serious preservation efforts have occurred in recent years, especially by personnel from New Zealand.

Efforts by the United States were limited to salvage activities at Little America when that site was determined to be floating away from the ice shelf that held it to the continent. The work at East Base is the first to attempt to protect a U.S. historic site in situ.

Preservation philosophy in the United States has evolved from European models, with some modifications. A series of federal laws and regulations has been enacted to guide preservation work while following the general philosophy to preserve and protect historic properties.

The National Park Service, under the direction of the U.S. secretary of the interior, has prepared guidelines and standards for historic preservation. These were the standards under which the National Park Service personnel prepared the analysis of East Base. In general, evaluations of significance utilized the National Register of Historic Places guidelines, and the assessment followed the secretary of the interior's "Standards for Archeology and Historic Preservation" (48 CFR 190 IV).





East Base in wind storm, June 20, 1940 (National Archives).

EAST BASE HISTORY

East Base was established on Stonington Island in March 1940 as part of Admiral Byrd's third expedition to Antarctica. The expedition, known as the United States Antarctic Service, benefited from the experience of previous explorations and continued their work. The Antarctic Peninsula had been explored by Americans since 1819 and became the focus of early 20th century aerial mapping after the South Pole had been reached.

The U.S. Antarctic Service expedition had been conceived during the second Byrd expedition to survey the rugged spine of the peninsula and to continue the work begun at Little America. Two base camps would be established: West Base at Little America III and East Base on the Antarctic Peninsula. President Roosevelt, inspired by a desire to see American explorers in the Antarctic, supported the creation of the Antarctic Service expedition, one of the first major government-funded explorations in a century.

Admiral Byrd was commander, but most of the work was completed by his second in command, Dr. Paul Siple, and his base leaders. Richard Black of the U.S. Department of the Interior was appointed commander of East Base. The base would be a predesigned portable camp of knockdown buildings. A crew of 26 would staff the base, conduct explorations, and complete scientific tests. A Curtiss-Wright Condor biplane would be used for surveying, as would dog teams. A tank and a tractor would assist in base operations.

On March 8, 1940, the Antarctic Service Expedition crew arrived at Stonington Island and began construction of the base. It contained a science building, machine shop, main building/bunk house, storage shed, outpost building, taxidermy shed, and various outbuildings. During the following season the explorations were troubled by the breakdown of the plane and by complications with operating equipment in the extreme cold. Dogsled crews completed distant explorations and added to the information about the peninsula.

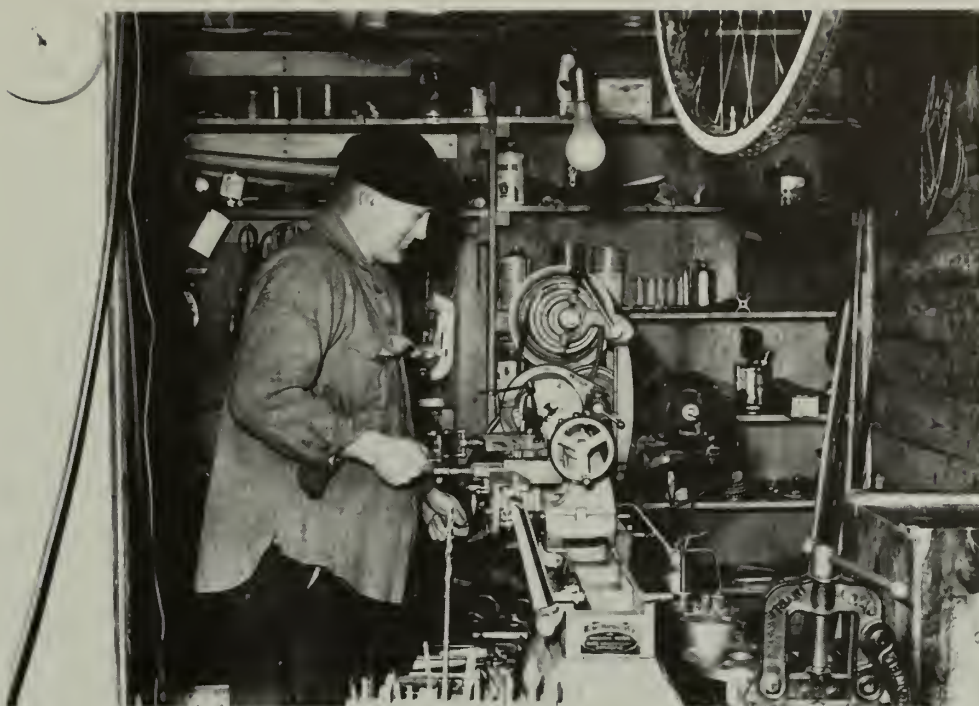
By the end of the season the ice had not retreated from the bay. With dire concern over events foretelling the entrance of the United States into World War II and apprehension over staying through another season, ships were dispatched to the edge of the ice sheet, and the East Base crew was flown out with only the scientific records and the personal effects they could carry. The evacuation was costly in the unfortunate abandoning of all supplies and scientific gear; it was tragic since the abandoned dog teams had to be killed rather than left to starve.

Because of World War II, East Base was not immediately reoccupied by the Americans. During the war the base was vandalized by visiting crews from ships. In March 1946 the British established their Base E on Stonington Island, near East Base, as part of the Falkland Islands Dependencies Survey. They used the buildings briefly while building their own camp and later as storage for their supplies. The British noted visitation by Argentines and Chileans, who vandalized the buildings. The base was in disarray when the Ronne Antarctic Research Expedition arrived to reoccupy it.



Top: U.S. Antarctic Service crews landing gear from the North Star at Stonington Island, March 1940 (National Archives).

Bottom: Initiating construction of East Base (National Archives).



Top: Inside the machine shop, crewman Zadick Collier operates the lathe (National Archives).

Bottom: The U.S. Antarctic Service expedition crew, February 18, 1941. Richard Black is in the first row, second from right (National Archives).



Top: Unloading the Port of Beaumont, ship of the Ronne Antarctic Research Expedition, in Back Bay in 1947.

Bottom: Finn and Edith Ronne in the Ronne hut, 1947 (Ronne, Antarctic Conquest).

Finn Ronne was at East Base with the U.S. Antarctic Service and, after the war, garnered support for a private expedition to reoccupy the base and continue the scientific explorations and tests begun by the Antarctic Service. The Ronne expedition arrived March 12, 1947. East Base was renamed Port of Beaumont, Texas, Base after the expedition's home port. The expedition was unique because its membership included two women, the first to winter over in the Antarctic. Finn Ronne's wife, Edith, assisted with administrative details and prepared news reports for the National American News Association, one of the sponsors. The other woman was Jennie Darlington, wife of the chief pilot. Both women actively undertook routine duties at the base.

Ronne's expedition continued the exploration of the peninsula. With three airplanes, it reached further inland and along the coast with its mapping. The expedition also coordinated with neighboring British Base E in its explorations. The British had more dogs and supported the Americans with ground parties. The coordinated efforts resulted in extensive land and air mapping.

On February 20, 1948, the Ronne expedition left by boat, assisted by naval icebreakers in the vicinity working with "Operation High Jump." The expedition was able to return with all the items they had brought with them. Not surprisingly, most of the artifacts, objects, and structures at East Base today belong to the Antarctic Service expedition era rather than the later Ronne expedition. Much alteration to the buildings, however, occurred after 1948.

The British Base E continued to function through the 1950s and 1960s. As the East Base buildings remained unoccupied, some of the functions at Base E were transferred to the American base. The emergency generator was moved to the outpost building (Ronne hut). The sealing operations used the main building (bunkhouse). This use caused a major transformation of the interior of the building. A new floor was added. All the doors were blocked, and the roof was opened for an entrance ramp. The British maintained the buildings through use and did minor repairs. By the mid-1970s, after Base E was abandoned, the machine shop, storage shed, and taxidermy shop had collapsed or burned.

By 1991 East Base still contained many of the artifacts and objects left by the expeditions. Crates of food lined the exteriors of the buildings, and piles of coal lay outside the doors. The tank and the tractor remained, as did a spare plane engine. Near the buildings were piles of trash and dumps full of period artifacts and objects. A quick inventory found a host of items from the medical supplies, personal gear, parts for sleds and buildings, and a number of paper items, surprisingly little deteriorated. The site had three buildings standing. The science building was habitable and retained the scribbled message of base commander Richard Black at the time of the Antarctic Service expedition evacuation. The main building had been greatly altered by its use for seal storage by the British. It contained a mess of ice and deteriorated seal debris. A seal carcass, flippers, tails, and snouts were observed sticking up through the ice and snow some distance from the buildings. The outpost building (Ronne hut) was in good shape, although a concrete pad for a generator sat in the middle of the floor.



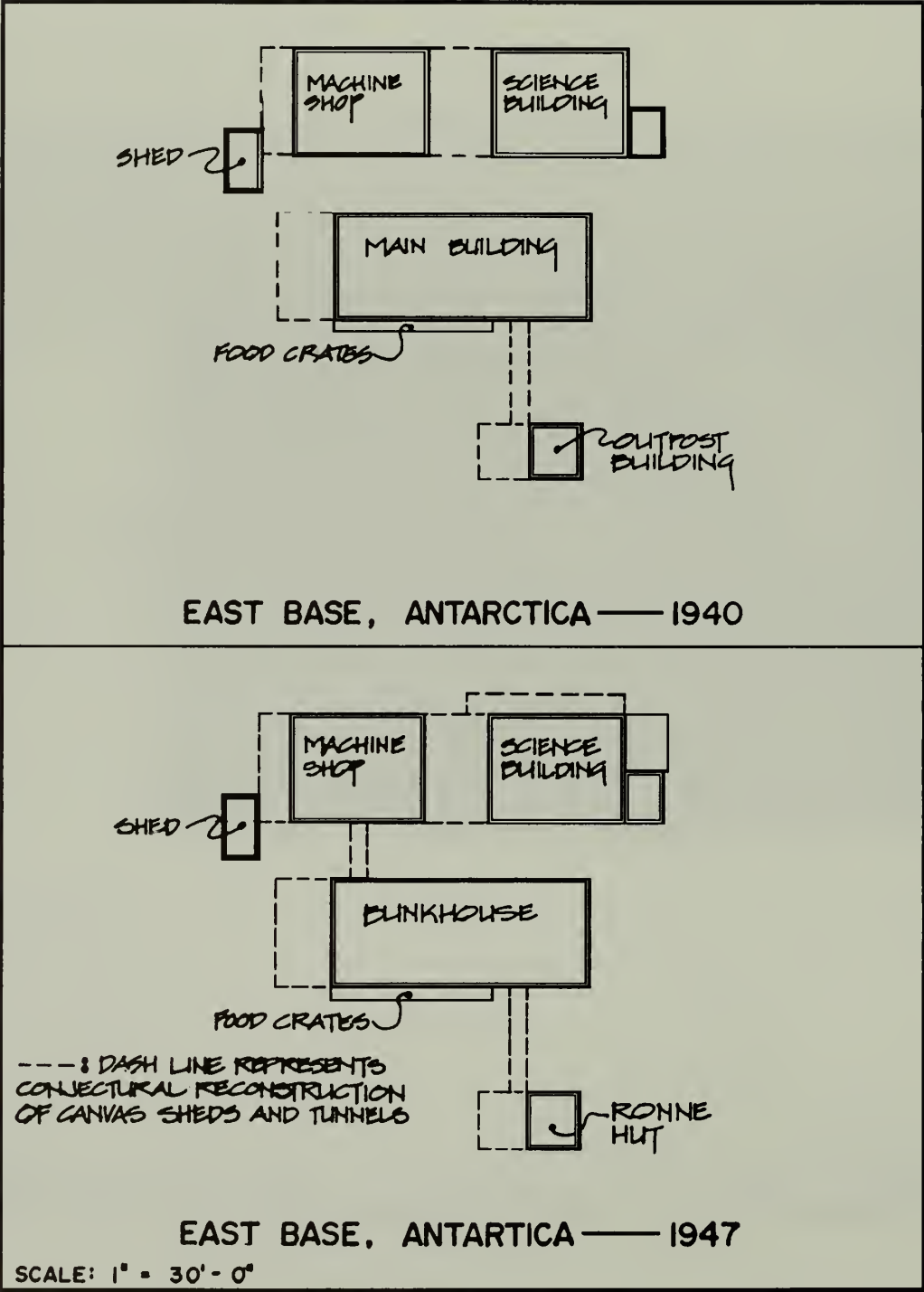
Map of Stonington Island drawn by U.S. Antarctic Service expedition member Glenn Dryer in 1941 (National Archives).

The base is occasionally visited today by people from the cruise ships and excursion boats in the area in the summer, as well as by the Argentines and British at nearby bases. Sled patrols visit the site in winter.

The site is confined to one end of the island and is set in a hollow between two rock outcrops. Back Bay is in front, and to the east is the massive glacier that once extended onto the island via a gentle ramp, making easy access to an airfield on the glacier. Today the glacier has receded, and the island is separated from it by a water course of 100 feet or more.



East Base. February 1991.



CULTURAL RESOURCES

EAST BASE CAMP BUILDINGS

In March 1940 the U.S. Antarctic Service expedition arrived at Stonington Island and quickly erected the East Base camp buildings. The buildings were knockdown structures designed for assembly onsite, using 4-foot by 8-foot panels of standard dimension. The buildings served to house the expedition and as the base for field surveys and scientific tests.

The camp consisted of six buildings. A scientific building, 32 feet by 24 feet, had an additional three-story tower from which meteorological studies were conducted. The main building contained the mess, doctor's office, expedition leader's office and quarters, and the bunks of most of the crew. A 12-foot by 12-foot outpost building, brought for use as a hut in the field, was built adjacent to the main building to provide additional bunk and conference space. A machine shop housed field gear and the generators and engines for power and light. A storage shed was built to the rear of the shop. A distance from the camp was the taxidermy shop, where the biologists prepared their specimens and where blubber was rendered for dog food. The camp buildings were utilitarian in design.

When the U.S. Antarctic Service evacuated East Base in 1941, the buildings were left unaltered from original designs and plans found in the National Archives. The technology used in their design had been developed in the World War I era and, as such, was quickly discarded when more appropriate technology for polar conditions was designed after World War II. World War II also prevented reestablishment of East Base the following season. Before the base was reoccupied, the buildings were vandalized by visiting ships' crews.

In February 1947 the Ronne Antarctic Research Expedition, a private expedition greatly supported by the government, established their base camp in East Base, reconditioning the buildings for their use. They added canvas-and-wood-frame tunnels between the structures and cut new doorways to allow travel between buildings in winter. The main building became the bunkhouse, and the outpost building became the Ronne hut, the office and quarters of Finn and Edith Ronne. The machine shop received a canvas addition that connected it with the science building.

After the Ronne expedition abandoned East Base in March 1948, the camp became derelict. The British at Base E, less than 100 yards away, began to use the abandoned buildings, which they slowly converted to their own needs. The outpost building (Ronne hut) became an emergency generator shed. The main building became a seal slaughterhouse. It was greatly altered: The interior furnishings and walls were removed and a false floor added to support the work. Ice and seal debris covered the interior floor. By the time the British abandoned the permanent Base E on Stonington Island, East Base had been incorporated into their operations.



Today, three buildings remain intact at East Base: the science building, the main building (bunkhouse), and the outpost building (Ronne hut). The machine shop consists of a wooden platform and one wall; the wall is about to collapse and may not be standing on the next visit to the site. A single small platform to the west of the machine shop is all that remains of the storage shed. Inside the science building, on the south wall, is the inscription by Richard Black, commander of the Antarctic Service's East Base, made during the evacuation on March 22, 1941.

VEHICLES

Two tracked vehicles, one on its side, the other on a snow pedestal, remain behind the camp buildings. These vehicles were brought to East Base by the Antarctic Service to haul supplies around camp and were tested to supply field camps. Because of their narrow treads, they proved of limited use. One of the vehicles is an army M-2 light tank of World War I vintage. The tank had no artillery piece when brought to Antarctica. The tank and the tractor were abandoned during the hurried evacuation of East Base in 1941. The Ronne expedition brought Weasels and did not use the tank or tractor. The Weasels returned with the Ronne expedition.

Between the machine shop and the science building is a crated engine brought as a spare for the Curtiss-Wright Condor used by the Antarctic Service. The engine has a plate labeled "Wright Aeronautical Corp/ Paterson, NJ/Cyclone engine/ Mfgr #1644/ Model _820__." It appears that it was never used.

OTHER COMPONENTS

Three coal caches, two food caches, a personal cache, two domestic dumps, three structural dumps, remnants of the radio systems, a series of trash scatters and dumps on the rock outcropping to the northwest of the building complex, and ubiquitous evidence of seal processing constitute the site components. All these components are described in detail in part II.



Top: Stonington Island and Northeast Glacier from the M.V. Erebus, February 21, 1991.

Bottom: Select artifacts from dumps of East Base.

RECOMMENDATIONS FOR MANAGEMENT

STONINGTON ISLAND

Objective

To establish a historic monument that encompasses all cultural resources related to the Antarctic expeditions, and to provide for protection and perpetuation of those historic and natural values.

East Base Historic Monument, Stonington Island, includes all buildings and artifacts and their immediate environs associated with the two United States wintering expeditions: the U.S. Antarctic Service expedition (1939-1941) and the Ronne Antarctic Research Expedition (1947-1948). The historic area was established as encompassing that section of Stonington Island bounded by 1,000 meters in the north-south direction (from the beach to Northeast Glacier adjacent to Back Bay) and 500 meters in the east-west direction.

Recommendations

1. The designation of the site as a historic monument has set its boundaries. No additional action is needed.

The resources of East Base include such cultural features as historic tracks and roadways, sites of antennae, flagpoles, and outlying caches, besides the obvious vehicles and structures used by the Antarctic Service and Ronne expeditions. The roadways, caches, and outlying structures within the boundary should be managed to show the widespread use of the island. The abundance of historic objects and artifacts should be left in situ, where feasible and prudent.

2. Store select artifacts of value, scientific and monetary, in secure storage, or retrieve for public display in museums that have proven capabilities to conserve fragile artifacts and have completed a conservation plan for such artifacts. Prepare a curation plan.
3. Remove hazardous waste — batteries, chemicals, fuels — from the site. Other items of a potentially hazardous nature should be reviewed by environmental and cultural resource specialists prior to management decisions to remove.
4. In areas of unsightly dumps, prepare an action plan to cover artifacts with light gravel from the island. The covering should protect the resource from vandalism, provide a shallow cap for future archeological investigation if deemed appropriate, and improve the appearance of the site so that visitors will appreciate and respect the historic monument.



Top: Food cache along the walls of the main building. February 1991.

Bottom: The cache of trail packet items behind the outpost building (Ronne hut).

5. Stonington Island is an attractive diversion for the few visitors who tour the Antarctic Peninsula. Back Bay serves as a safe harbor, and the record book at Base E shows increased island visitation. In order to inform visitors about the desire to protect East Base Historic Monument, several interpretive devices are needed.
6. Prepare a short interpretive pamphlet about the area for cruise ship visitors and for distribution at Palmer Station.
7. Prepare an interpretive panel (wayside exhibit) for the site.
8. To assist with site interpretation and preservation, initiate a special history study of East Base with an initial oral history phase.
9. Monitor cultural resources at the site.



Top: The science building, main building, and outpost building (Ronne hut) comprise the standing structures of East Base Historic Monument.

Bottom: Barely visible on the science building wall, is Richard Black's evacuation message.

EAST BASE CAMP BUILDINGS

Objective

To provide for the interpretation and protection of the historic resources and to rehabilitate the camp for temporary storage and short-term visitor use.

The East Base camp buildings are in dilapidated condition from years of neglect. Three of the original structures remain — the science building, main building, and outpost building (Ronne hut) — while three have collapsed or burned. The main building contains seal debris and ice that will require extensive efforts to remove. The buildings should be stabilized. Visitors to the island walk through the structures and will continue to do so. Rehabilitation efforts should keep this short-term use in mind. Sections of the buildings may be used for artifact storage and/or display.

Recommendations

1. Prepare historic structure reports for the three standing camp buildings. Define each structure's future use. Initiate rehabilitation/maintenance program.
2. Provide space for storage of select artifacts and objects.
3. Protect significant stenciling, markings, and inscriptions, such as Richard Black's message, on the buildings.
4. Prepare Historic American Building Survey documentation of the three standing buildings to be a permanent record of the site's structures.



The light tank (above) and the tractor remain on the site as does a Curtiss-Wright airplane engine (below), all brought to the island by the U.S. Antarctic Service in 1940.

THE VEHICLES

Objective

Provide for protection of the vehicles at East Base.

The derelict army tank and light artillery tractor are attractive foci for visitors to the site. Visitors are drawn to climb on board the tank. The Curtiss-Wright airplane engine is a component in understanding the use of land and air surveys in the transition to the mechanical age of exploration. The area around the vehicles and the engine needs tidying up.

Recommendations

1. Leave the vehicles and engine in situ, but have the immediate area tidied. Remove batteries.
2. Prepare an interpretive panel (wayside exhibit) on the vehicles and engine and the one-time ice bridge from Stonington Island to Northeast Glacier.

EAST BASE FIELD TEAM, 1991

NATIONAL PARK SERVICE

Catherine Spude, Ph.D.

Robert Spude, Ph.D.

ANTARCTIC SUPPORT ASSOCIATES

Karen Simons

James Hefner, M.D.

James Close

Michael Woodbury

Al Oxton

Part II: Description of the Cultural Resources and Recommendations



Archeological base map completed by the National Park Service under agreement with the National Science Foundation. It is overlaid on the 1941 map completed by USAS. The earlier map has lighter lines.



Panoramic view of East Base and environs from the cadastral point rock as it appeared on February 23, 1991.



ACKNOWLEDGMENTS

We would like to thank the National Science Foundation (NSF) for arranging what was truly a once-in-a-lifetime experience. We are especially grateful to Noel Broadbent of the polar programs. In our Washington office, a number of people worked with NSF to make it possible for us to participate in this somewhat historic endeavor: chief historian Ed Bearss, archeologist Craig Davis, and associate director of cultural resources Jerry Rogers and staff. In particular, departmental archeologist Michelle Aubrey expedited some incredible paperwork to make it all happen.

On the trip itself, we appreciated the fine service accorded us by Antarctic Support Associates (ASA) and their agents in Chile. Jimmy and Rudolfo in Santiago made our stay there particularly enjoyable. The crew of the *Erebus* was professional and accommodating; we especially appreciated the work of the ship's steward, Ulysses.

On Stonington Island we were enthusiastically assisted by ASA employees Jim Hefner, Jim Close, Karen Simons, Mike Woodbury, and Al Oxtan.

Susan Overson, Western Team, Denver Service Center, computerized the base maps for this study; Chris Jones and Steve Kline, Rocky Mountain Region, did the architectural drawings. We would like to thank our supervisors, Rodd Wheaton, Michael Snyder, Maurice Miller, and Sarah Bransom, for letting us set aside our other tasks in order to complete this project.

Doubleday courteously allowed the reproduction of graphics from Jennie Darlinton's, *My Antarctic Honeymoon*.

Majorie Ciarlante was extremely helpful at the National Archives. And last, but certainly not least, we thank Edith Ronne and the late Clarence Fiske for sharing some of their memories of East Base with us.

Mrs. Ronne also gave permission to reproduce photographs from the Ronne Antarctic Research Expedition for this report.



East Base, Stonington Island, as it appeared on February 22, 1991. The glacial ramp that connected the island to the continent as recently as 1975 was gone, leaving an ice cliff and water passage.

INTRODUCTION

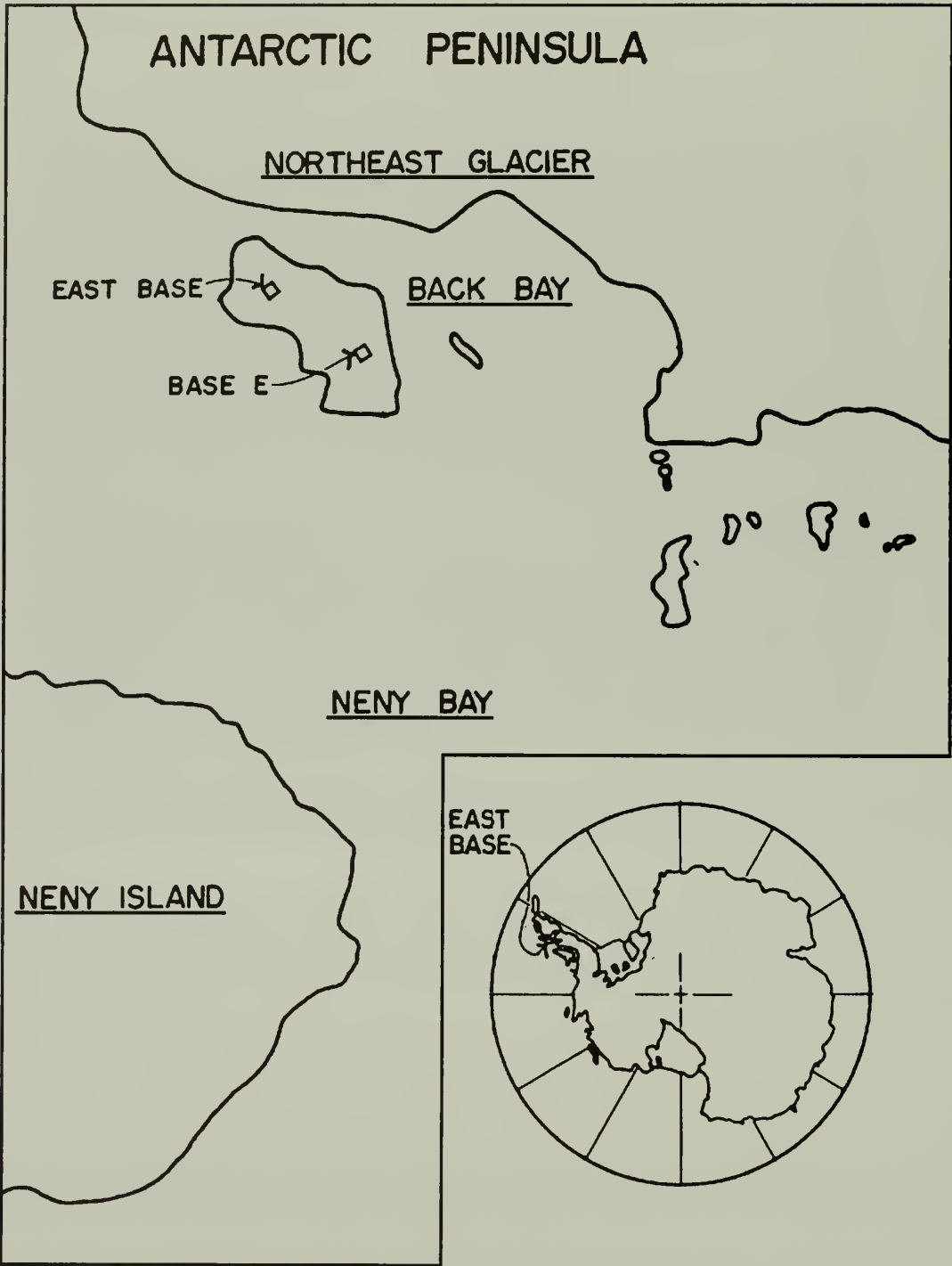
In January 1991 a cooperative agreement between the National Science Foundation (NSF) and the National Park Service (NPS) was negotiated, under which NPS was to provide two cultural resources personnel to assess and document material remains of archeological and historical value at East Base, Antarctic Peninsula. NSF provided transportation and support through Antarctic Support Associates (ASA). The site visit occurred between February 22 and February 26, 1991.

The United States Antarctic Service (USAS) expedition, organized in 1939 under Adm. Richard E. Byrd, built and used East Base in 1940-1941, under base leader Richard B. Black. It was reoccupied after World War II by the Ronne Antarctic Research Expedition (RARE) in 1947-1948 under the leadership of Finn Ronne. The six buildings and airplane landing strip on the nearby continental glacier served as base of operations for land and air mapping of the lower Antarctic Peninsula. The later expedition included the first two women to winter over on the continent. A historical summary is given in part I of this study. The articles by Jere Lipps and the book by Kenneth Bertrand provide excellent historical summaries of activities at the base.¹ A number of personal accounts of the expeditions provide additional details of base life and should be consulted by any future researchers at the site. The writers include (in alphabetical order) commander of East Base during USAS, Richard Black; wife of an aviator attached to RARE, Jennie Darlington; RARE dog handler Bill Ladaty; North American News Agency (NANA) correspondent Edith Ronne, wife of Finn Ronne; USAS second in command and RARE commander Finn Ronne; and Falkland Islands Dependencies Survey (FIDS) dog handler Kevin Walton.²

Unfortunately, information about the British use of East Base is limited to what Lipps retold in his 1976 article. After 1948 and until 1975, when a permanent crew was stationed at Base E, the East Base buildings were utilized by the British. Information about that use may be available at Rothera Base, north of Stonington Island, where the daily logs and annual reports of Base E are located.

The following pages contain a detailed review of the cultural resources surveyed at East Base in February 1991. After a description of the resources is a series of recommendations for their preservation and protection. Appendixes containing pertinent data follow the report.

-
1. Lipps, "The United States' 'East Base,'" pp. 211-219; Lipps, "Stonington Island, pp. 42-45; Lipps, "East Base, Stonington Island," pp. 231-232; Bertrand, *Americans in Antarctica*, pp. 407-482, 514-532.
 2. Black, "Narrative of East Base" Darlington and McIlvaine, *My Antarctic Honeymoon*; Ladaty, "Year on the Antarctic Continent, *Appalachia*, pp. 273-281; Ladaty, "Antarctic Interlude," pp. 233-247; Ronne, "Woman in the Antarctic," pp. 1-15; Ronne, *Antarctic Conquest*; Ronne, *Antarctica, My Destiny*; Walton, *Two Years in the Antarctic*.



The location of Stonington Island.

DESCRIPTION OF THE ENVIRONMENT

East Base is located on Stonington Island, a small gravel and rock outcrop formed at the base of Northeast Glacier, on the continent. At the time of its occupation by the two expeditions, an ice ramp connected the mainland glacier to the island, providing access to the interior of the Antarctic Peninsula. This feature was one of the primary reasons the site was chosen. The glacier has recently receded; a channel of water about 100 feet wide separates the island from the ice cliff. Photographs taken by Lipps in 1975 indicate that the glacial ramp disappeared only within the last 16 years.

The island is roughly 2,500 feet long and 1,000 feet wide, trending northwest to southeast. Five basal rock outcroppings on the island are surrounded by glacially derived gravel, subrounded to angular in shape and relatively large in size. Most pebbles are several inches in diameter, while some approach a foot in length.

Bryant, the biologist attached to USAS, observed both Weddell seals (*Leptonychotes weddelli*) and crabeater seals (*Lobodon carcinophaga*) at Stonington, the latter only during the season of open water.³ Eklund, ornithologist on the same expedition, reported Adelie penguins (*Pygosceles adeliae*), south polar skuas (*Catharacta skua maccormicki*), kelp gull (*Larus dominicanus*), snow petrel (*Pagodroma nivea*), giant fulmar (*Macronectes giganteus*), Wilson's storm petrel (scientific name not identified), and blue-eyed shag (*Phalacrocorax atriceps*).⁴ No vegetation was observed on Stonington Island by either the 1991 reconnaissance party or the biologists attached to the two expeditions. Adelie penguins and unidentified seals were both present very near the site in February 1991, as was a pair of skuas nesting on a rock outcrop on the northwest end of Stonington Island. This landform was unofficially named Skua Point for the purposes of this study in honor of its fiercely defensive inhabitants and for its proximity to Skua Bight, named by Richard Black.

SURVEY METHODOLOGY

The goal was to produce a detailed measured map of East Base to place each feature at the site accurately. A survey point had been set by the USAS in 1940 on top of a rock outcrop to the northwest of the base buildings. It was not marked with coordinates. The 1940 map produced by the United States Cadastral Survey gave latitude and longitude coordinates for this point: 68°28'36" South, 67°17'36" West. No elevation was provided. Contour lines on the 1940 map suggest the elevation of the point is a little over 40 feet above sea level. For the purpose of this survey, that elevation will be used as the beginning point.

3. Bryant, "Summary Report"; Black, "Narrative of East Base."

4. Eklund, "Ornithological Report."



Top: Medicine and chemical bottles sampled from the domestic dump to the north of the science building before being placed in a box in the outpost building.

Bottom: Medical supplies and dog tags taken from the dump to the north of the science building before being placed in a box in the outpost building.

Four arbitrary datum points were established to map the site. Each point was tied into at least one other datum point and the cadastral point with a transit. The instrument had no magnetic compass (magnetic bearings near the South Pole are extremely difficult to obtain); therefore it was not possible to establish true bearings. Arbitrary bearings were fixed on building corners. In two cases, the outpost building was used to establish bearings; for the other two datum points, the science building provided a base line. Datum points were marked with orange paint on solid rock (datum A and datum C) or with a large spike and orange flagging tape where the point was set in gravel (datum B and datum D).

Bearings, distance, and elevation were taken for each building corner and major feature within dumps. More detailed maps of each dump area were then produced by triangulation within the dump, using the surveyed buildings or features as reference points. Detailed measured drawings were produced of the cache west of the outpost building (dump A), the food and coal caches on the south and west sides of the main building (caches J, L, and M), and the dump to the west of the machine shop platform (dump D). Less detailed measured schematics were produced of the domestic dump to the north of the machine shop and science building (dump E), the large domestic dump to the east of the building complex (dump C), the coal caches to the east of the complex (caches N and K), and the large post-historic dump in the general area of the tracked vehicles (dump H). The tank and tractor were mapped directly in reference to both datum A and the cadastral survey point. In addition, the several unnumbered loci of activity around the cadastral point rock outcropping were mapped by triangulation.

SAMPLING STRATEGY

Prior to field work, it had been determined that no substantial sampling would be undertaken at East Base, primarily because the extreme isolation of the base ensures that very little attrition of materials is occurring through illegal collection and because it was believed that materials preservation was very good on the site. In addition, it was clear that no repositories were prepared to accept materials taken from East Base. Therefore, no supplies were taken to label, package, and preserve samples from the dumps.

The site visit confirmed the assumption that illegal collection was extremely limited. Many whole bottles and other attractive collectibles were evident throughout the dumps and caches. Such artifacts would have been taken had visitation been affecting the resource. It appears that the site has maintained a long-term integrity not seen on any similar site in the investigators' experiences. A visitors' log in the British Antarctic Survey (BAS) building indicated that fewer than five vessels have visited the island each year since the log was started in 1974.

Preservation of organic materials is very good; both cloth and paper items are in excellent condition, albeit wet, and do not seem to be suffering from any sort of degradation. Cans and bottles containing medicines and chemicals were wrapped in newspaper that was still readable and quite dry. Reading material, such as a *Reader's Digest* from December 1939, and navigational manuals and maps were found in the dumps. Clothing, especially wool shirts, pants, and fur-backed mittens, canvas pouches, and burlap bags were all



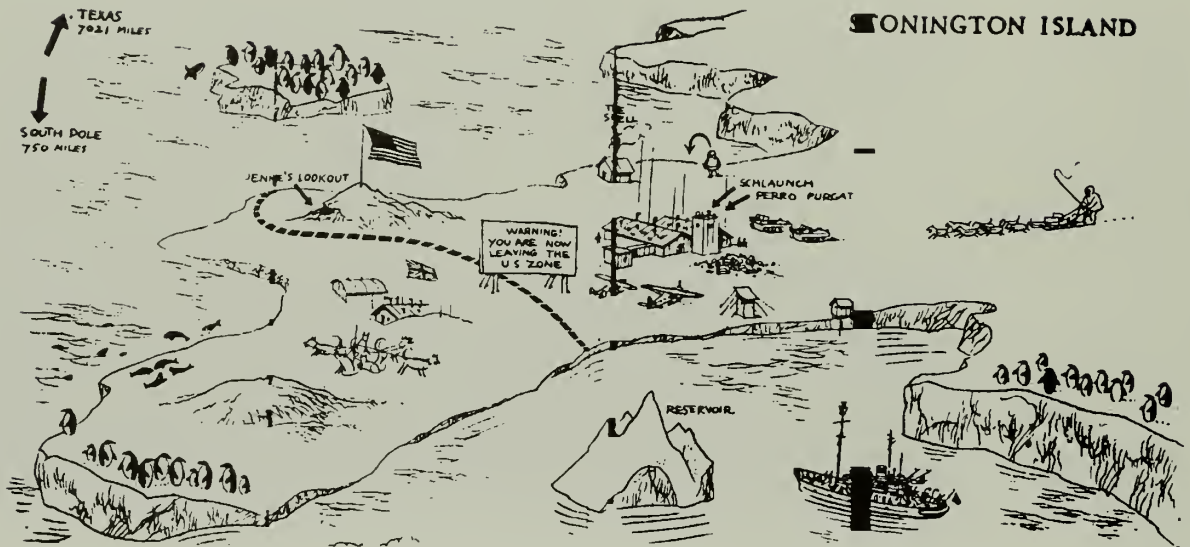
Top: ASA employees engaged in sampling activities.

Bottom: Wool shirt recovered from the dump to the north of the science building, still in excellent condition, prior to its placement in a box in the outpost building.

present and need only minor cleaning to be usable. Despite alternately wet and dry conditions, no bacteria or fungi are present, and all organic materials appear to be well preserved. In fact, preservation of these materials is probably better in situ than could be maintained in transit to a repository without refrigeration.

Metals have suffered considerably more than the organic materials; most iron-based objects are severely corroded. The dumps appear to have a matrix of rust-colored dust, which is probably the oxidized remains of tin cans. No whole cans were observed except where packed in wooden crates. While metal objects would benefit from curation, it seems likely that most cans have degraded past the point where they can be saved. Other sturdier items, such as eating utensils and hardware, are in relatively good condition, but will continue to suffer.

Because the assessment team was not prepared to do any extensive systematic sampling, a modified biased sampling was undertaken of the two large domestic dumps (dump C and dump E), and a few items were removed from the small domestic dump to the west of the machine shop (dump D). ASA employees were instructed to remove representative “goodies” from each dump. These items were placed in wooden crates taken from the honey bucket dump, inventoried (appendixes A-C), and placed in the outpost building. Copies of the inventories were left in heavy plastic zip-lock bags in each of the three boxes.



*Sketch map of Stonington Island from the end plate of Jennie Darlington's book, **Antarctic Honeymoon**.*

DESCRIPTION OF THE RESOURCES

The following pages describe the resources at East Base. They include three intact structures: the outpost building (Ronne hut), the main building (bunkhouse), and the science building. In addition, the machine shop consists of a wooden platform and one wall; the latter is about to collapse and may not be standing on the next visit to the site. A single small platform to the west of the machine shop is all that remains of the storage shed. An airplane engine, a tank, and a tractor remain on site. Other components consist of three coal caches, two food caches, a trail supply cache, two domestic dumps, three structural dumps, a series of trash scatters and dumps on the rock outcrop to the northwest of the building complex, and ubiquitous evidence of seal processing.



A view of East Base on February 22, 1991, looking north toward the glacier. The outpost building is in the foreground, the main building in the midground, and the science building with the meteorological tower at the rear.



Top: Interior view of the main building with FIDS ramp descending from the right and the middle floor covered with seal debris.

Bottom: The front door of the main building. February 23, 1991.

MAIN BUILDING (BUNKHOUSE)

The East Base structures were designed in 1939 by Major Andre Violante of the U.S. Army Corps of Engineers as standard prefabricated buildings. At the time, the knock-down building technique was commonplace in military organizations. Dr. Paul Siple recommended the use of an 18-inch cold sink subfloor that helped keep the buildings warm. The prefabricated panels were 4 feet by 8 feet, with plywood interior skin and drop-siding exterior. Rock wool insulation filled the interior of the panel, approximately 3½ inches. The buildings were built in Florida, disassembled, and crated for shipment to Antarctica. They were reassembled by the U.S. Antarctic Service East Base crew.

The main building is the largest structure at East Base. It measures 60 feet by 24 feet. It has a cold sink subfloor and uses the standard 4-foot panel construction technique. Each panel had rock wool insulation between a 4-foot by 8-foot plywood sheet and the exterior drop siding, which was nailed to two-by-fours. The building was constructed in March 1940 by USAS to house the members of the expedition. Several descriptions of the structure are available.⁵ Base leader Richard Black gave a detailed description of the buildings' construction in his unpublished narrative on the expedition. He described the main building:

The main building was sixty feet long and twenty four wide, with the galley in one end and the doctor's sick bay and quarters for the commander in the other. Arranged along each side were five curtained cubicles, each with lower and upper bunk, giving the building the interior appearance something like a gigantic Pullman car. . . . The space in each cubicle, eight feet long and six feet wide, was largely filled with bunks which were about forty inches wide, but there was room inside the curtains for a small wall-hung writing desk on one end wall, and a cabinet for toilet articles on the other. Under the lower berth there was space for two foot-lockers or sea chests and a duffel bag or two. At the head of each berth an electric reading lamp was mounted.⁶

Original USAS drawings of the buildings are in the National Archives.

Although the main building was in disarray when the Ronne expedition arrived, it was still habitable, and the crew moved in. Ronne made several substantial changes. A doorway was cut from the wall nearest the outpost building, and a canvas tunnel was built to connect the buildings. Similarly, a canvas tunnel connected the main building to the machine shop and science building. The tunnels made it possible to travel between all major buildings without venturing out of doors. The base leader's quarters became

5. Ronne, *Antarctic Conquest*, p. 62; Ronne, *Antarctica, My Destiny*, p. 147; Darlington, *Antarctic Honeymoon*, pp. 155-157; Walton, *Two Years in the Antarctic*, pp. 22-23; Black, "Narrative of East Base," pp. 20-22.

6. Black, "Narrative of East Base," p. 21.



Top: The main building under construction in March 1940 (National Archives, 126-AS-366).

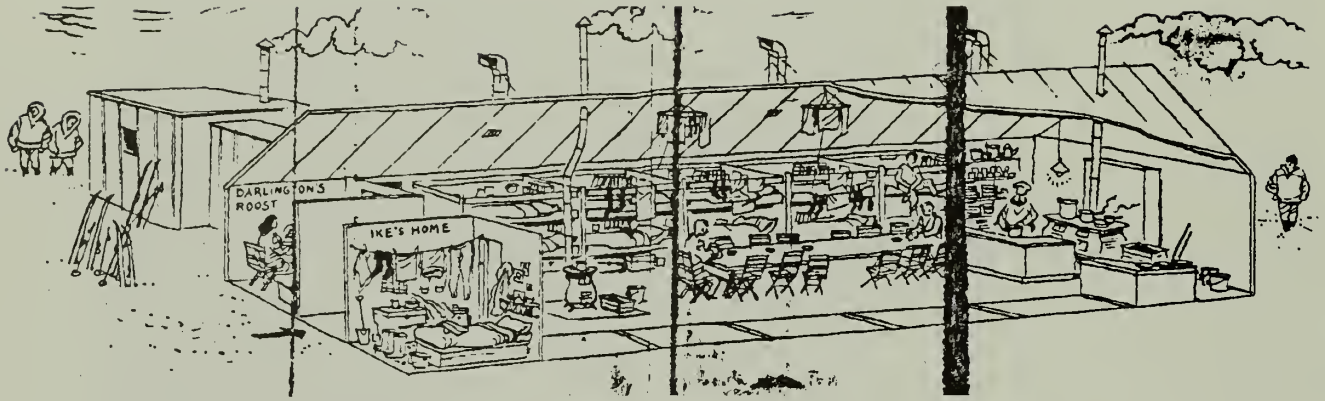
Bottom: The interior of the main building on June 21, 1940 (National Archives, 126-AS-512).

Captain Isaac Schlossbach's quarters, and the doctor's clinic became the quarters of chief pilot Harry Darlington and his wife, Jennie. A window was cut in the building's rear and in the front of Darlington's quarters. In her account, Jennie Darlington described the scenes from her window. She covered her window with red horse-blanket curtains. She also described her 8-foot by 12-foot home in the bunkhouse. Two bunks placed in an "L" shape occupied a corner.⁷ Jennie Darlington gave an entertaining account of the bunkhouse and the way occupants personalized their living spaces. One of the expedition members painted a mural on the wall of his cubicle. She provides an entertaining description of life in the bunkhouse, as well.⁸

Unfortunately, the space inside the main building has been greatly altered. After RARE left, the British used the building for the storage of seal carcasses. The stove, cubicles, walls, and other interior fixtures were removed, and a second floor was built 4 feet above the original. This floor is covered with desiccated seal remains and is collapsing. Because the rear door and window are open to the elements, snow has entered the building and a 6-foot pack of ice stands at the rear wall. This area is inaccessible. The front 12 feet of the bunkhouse was walled off for tent storage, presumably by Falkland Islands Dependencies Survey (FIDS) or BAS. The front room is clean and dry. This area also was given a new floor on top of the original. Hence, all the original doorways into the building are blocked. The only access provided by the British was a plywood ramp that led to a new opening in the ceiling. Presumably, seals were lowered into the work area via this hole in the roof and the ramp. On the canvas covering on the exterior wall near the hole is stenciled "Beware of Ramp" and "Seal Stor. #1."

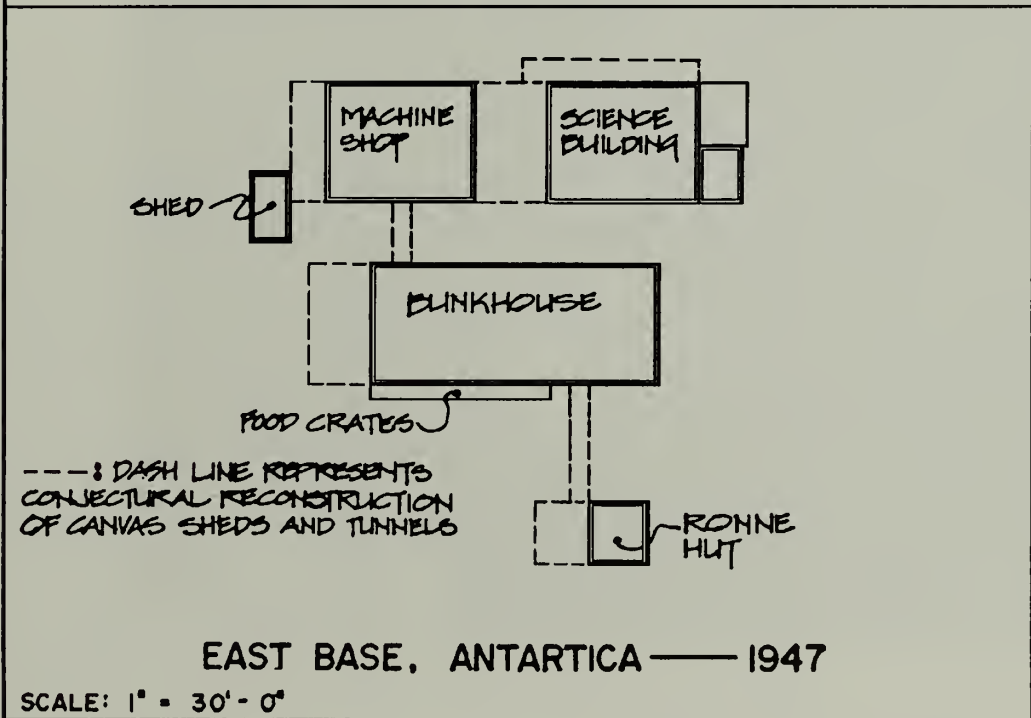
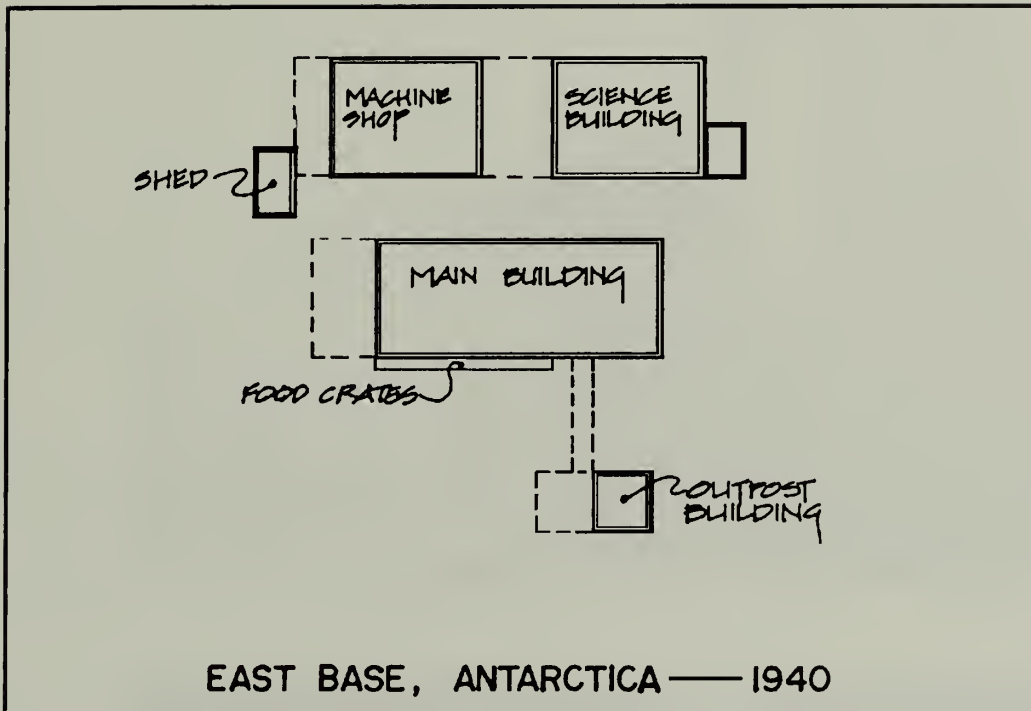
7. Darlington, *Antarctic Honeymoon*, p. 155.

8. *Ibid.*, pp. 156-157.



*Top: The interior of the main building as remembered by Jennie Darlington (**Antarctic Honeymoon**, end plate).*

*Bottom: The galley (west) end of the main building during the Ronne expedition (**Ronne Antarctic Research Expedition**).*





Top: The exterior of the science building on February 23, 1991.

Bottom: The interior of the science building on February 23, 1991, showing trusses.

SCIENCE BUILDING

The science building was built by the USAS in March 1940. The structure had a main section 32 feet by 24 feet, a tower 21 feet high and 12 feet by 8 feet in horizontal dimensions, with a packing crate addition measuring 12 feet by 10 feet. The building was built with prefabricated 4-foot panels and glass windows reinforced with chicken wire. The original plans for the building are in the National Archives. The USAS used the main section for office, medical, photographic, and lab space, as well as a radio room. The tower served the meteorological balloons. Black wrote that the science building "would be the center of the life of the Base, the headquarters, where plans would be formulated for the air and surface attacks on the unknown regions."⁹ When the base was evacuated, Black wrote a message on the science building wall, which still can be seen. It states:

TO THE FIRST VISITORS, GREETINGS!

Materials abandoned in the base are the property of the United States Government or of individual expedition members. Please report to the U.S. Dept. of the Interior any articles used. If possible to remove part of valuable items, the above agency should be notified, and instructions will be given for shipment to Washington, D.C., U.S.A.

Good luck!
Richard B. Black
East Base
U.S. Antarctic Service
March 22, 1941

The Ronne expedition found the science building in disarray upon arrival. They reoccupied the building in 1947 and essentially used the space the same as the USAS, with the exception of building the small packing-crate addition adjacent to the tower to be used for the seismograph, which sat on the rocks beneath the floor. The seismograph was serviced through a trap door near the center of the addition and provided space for storing illegal "hooch". The tower was used as a chicken coop for the expedition's few chickens, besides the intended use for launching meteorological balloons.¹⁰

After RARE left, the British used the building for sled repair and rope storage. Interior walls were removed – only a short section remains – and the windward half of the building was covered with tar paper. The building is currently dry and all exterior openings are covered.

The double door entry to the addition has lost one door, which lies outside on the ground nearby. A canvas connection to the machine shop, visible in historic photographs, has been removed. Some workbenches remain. Inside the main section, on the south wall,

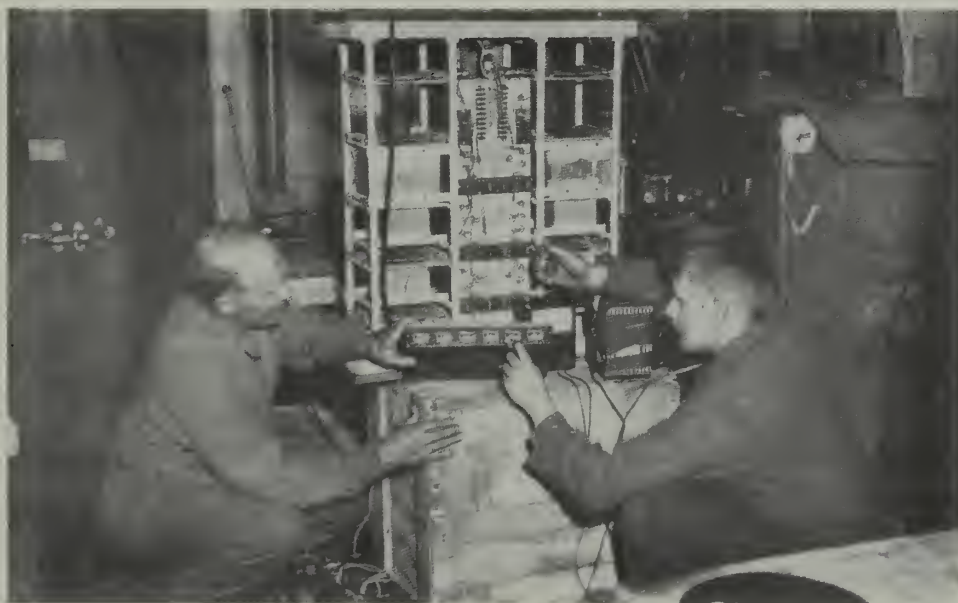
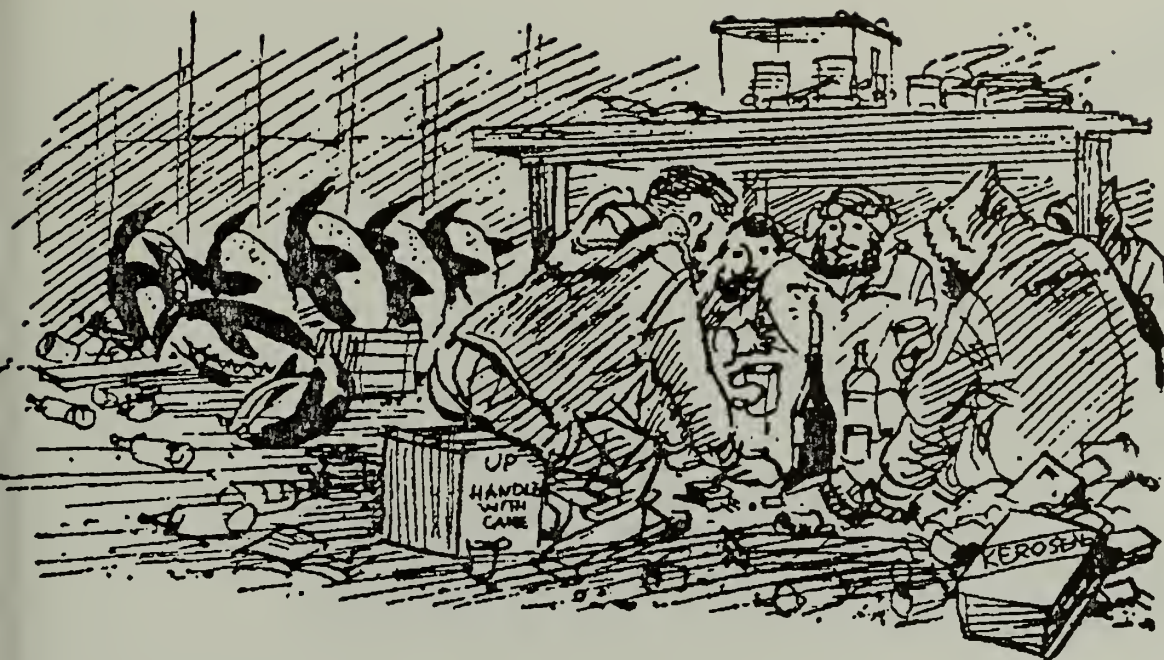
9. Black, "Narrative of East Base," p. 25.

10. Ronne, *Antarctic Conquest*, p. 62.



Top: Meteorologists sending up a weather balloon from the meteorological tower in 1940 (National Archives, 126-AS-791).

Bottom: Carl Eklund, Finn Ronne, Richard Black, and Paul Knowles playing pool in the machine shop during the USAS. The table was covered with a sheet of plywood during working hours (National Archives, 126-AS-469).



Top: Jennie Darlington remembered some of the RARE men mixing alcoholic drinks and stuffing penguins for sale to Abercrombie and Fitch in the room adjacent the meteorological tower (Antarctic Honeymoon, p. 176).

Bottom: RARE expedition members working in the science building on cosmic ray instruments (Ronne Antarctic Research Expedition).



Top: The machine shop as it appeared on February 23, 1991. A fuel tank pad is in the foreground, and the science building is to the left.

Bottom: Carpenter C.W. Sharbonneau operating the electric saw inside the machine shop on June 15, 1940 (National Archives, 126-AS-496).

is the inscription left by Richard Black, commander of the USAS, during the evacuation of the base March 22, 1941.

MACHINE SHOP

The machine shop was the second building constructed by the USAS in 1940, after the main building. Like the science building, it measured 32 by 24 feet and was constructed of prefabricated 4-foot panels. Unlike the two other large buildings, the shop was not constructed with the 18-inch cold trap. The original plans for the building are in the National Archives. The machine shop contained two diesel electric alternating-current generators of 5- and 3-kilowatt capacity. The smaller unit was placed on a foundation outside the building but under a canvas lean-to. The shop contained a lathe, drill press, and tilting table saw besides hand tools. In addition, it held work space for the sail maker, who made tents, harnesses, trail bags, sledge tanks, and clothing. During the first expedition, there was also room for a small pool and billiards table with a removable plywood top, which converted it to a worktable. All this equipment had been removed or was unusable when the Ronne expedition arrived.¹¹

In 1947 the Ronne expedition reoccupied the building and placed their own diesel generator in the building. The function of the machine shop was the same as for the USAS, and it was used to maintain the explorers' equipment. The building was left in good condition by RARE. Lipps noted the British cleaned up the site, but reported they found the machine shop in a state of collapse. They removed the roof and three walls in the 1970s.¹²

The machine shop currently consists of the floor and one wall, which has begun to fall and may not last the winter. The west end of the floor is saturated with diesel fuel. The bolts and foundation for the diesel engine are on the west flooring. The two diesel-powered generators, which once stood on separate foundations adjacent to the floor to the west, have been removed but the foundations remain. When the diesel engine and generators were removed is unknown. The method of construction used at the camp is most evident in the machine shop. The bare structural members, 4-foot panels filled with rock wool insulation, can be easily analyzed at the floor and wall.

OUTPOST BUILDING (RONNE HUT)

Built in March 1940 as a residence for Finn Ronne, Lyton Musselman, and Arthur Carroll, the outpost building is a 12-foot by 12-foot, flat-roofed building. A canvas-covered shed of similar dimensions attached to the back effectively doubled its size. Like the main building and the science building, the hut has an 18-inch cold sink subfloor and a drop entry. The building has two standard windows, 18 inches by 3 feet. Ronne wrote

11. Black, "Narrative of East Base," pp. 24-25.

12. Lipps, "United States' East Base," pp. 217-218.



Top: The outpost building (Ronne hut). February 23, 1991.

Bottom: The concrete generator pad inside the outpost building (Ronne hut). February 25, 1991. It was placed there by the British after RARE.

that he built the hut from excess materials from the main building.¹³ Black indicates that two outpost buildings, each 12 feet by 12 feet, had been planned for the expedition.¹⁴ Original plans for these small structures are in the National Archives. In a manuscript report, Ronne states that the British had appropriated the panels for the other outpost house that was never built.¹⁵

Finn Ronne and his wife, Edith, used the structure as their residence and command post during RARE, 1947-1948. According to Mrs. Ronne, the building contained their bunk, a worktable, a typewriter stand, from which she wrote the daily news reports for NANA, and a stove in the northeast corner. Mrs. Ronne improved the appearance of the hut by adding orange aviators' tape to decorate the walls. Pieces of the tape remain in the room. Shelves were added at the foot of their bunk.

During RARE the hut was connected to the main building by a canvas tunnel and a new doorway into the latter building. The Ronnes therefore had direct access to the mess area. Mrs. Ronne recalled another door in the tunnel to the outside. Photographs taken by USAS suggest that there was no connection during the earlier expedition. No evidence of the tunnel remains, but the outline of the canvas shed could be found as well as the 4-foot-wide walkway that, at one time, was inside the shed.

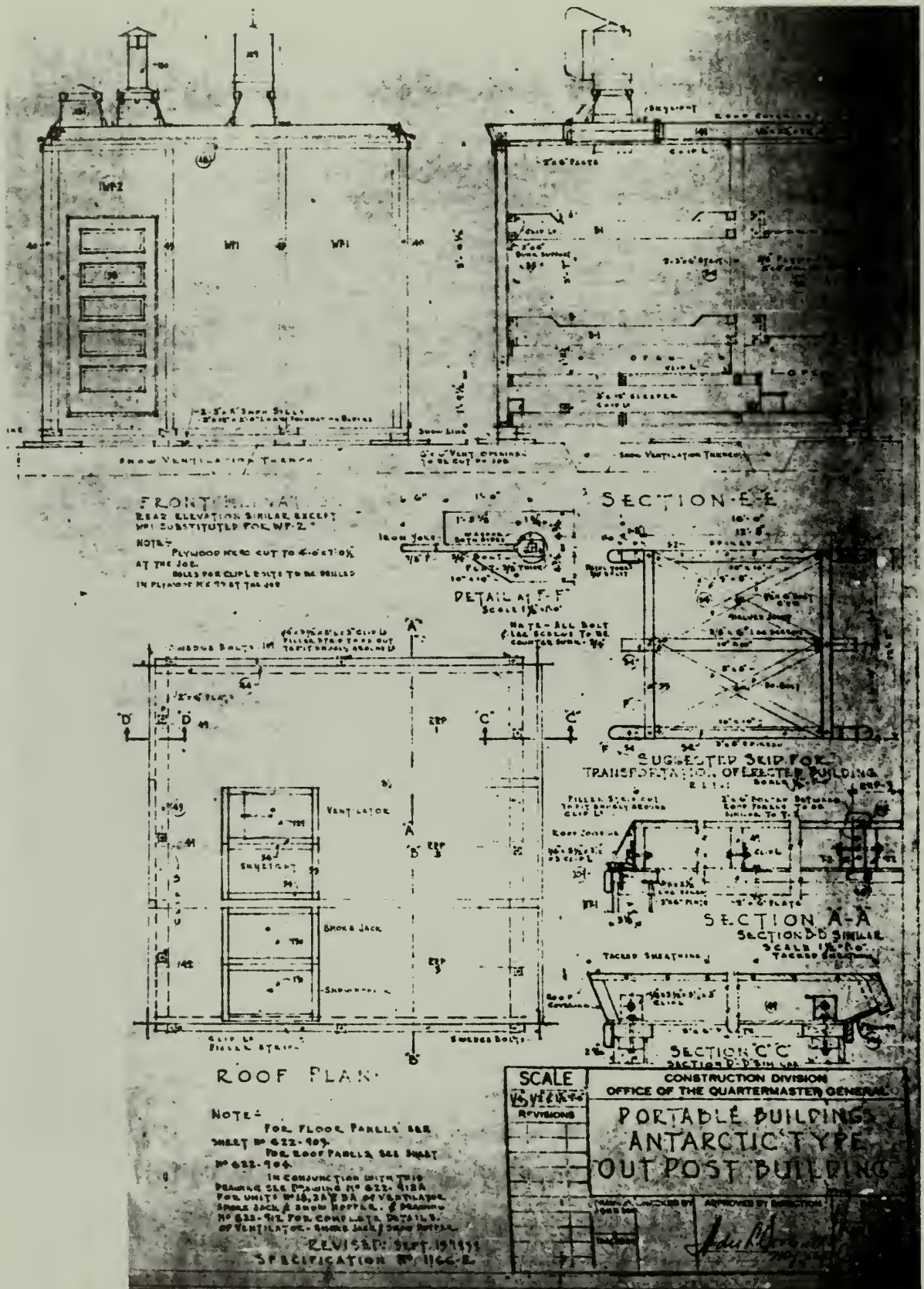
After RARE the British reoccupied the base, and Lipps quoted their use of the Ronne hut for an emergency generator.¹⁶ The outpost building now has a concrete foundation in the floor, which was for the generator. The interior has further been altered by the addition of shelves in the northeast corner and the site of the bunk. Otherwise, the general configuration remains the same as it was when it was left in 1948. Tar paper was added to the exterior walls and the roof by the British.

13. Ronne, *Antarctic Destiny*, pp. 104-106.

14. Black, "Narrative of East Base," p. 25.

15. Ronne, "Some Facts Concerning American Base."

16. Lipps, "United States' East Base," p. 218; Lipps, "East Base, Stonington Island," p. 232.





Top: Finn Ronne relaxing in his bunk in the outpost building on October 28, 1940 (National Archives, 126-AS-722).

Bottom: Edith and Finn Ronne in the outpost building (Ronne hut) during RARE, 1947-1948 (Ronne Antarctic Research Expedition).

STORAGE SHED

A wooden platform measuring 14 feet, 3 inches by 10 feet lay to the west of the machine shop and appears on the 1941 USAS map as a storage shed. Mrs. Ronne called it the issue shack.¹⁷ It was built in March 1940 from packing crate parts and excess lumber. The walls and roof have since been removed. USAS photographs indicate that a canvas addition connected it to the machine shop, and that it was used to house the light tank.



The storage shed platform, as it appeared on February 23, 1991. The machine shop is to the right.

17. Ronne, "Woman in the Antarctic," p. 6.

RADIO SYSTEM¹⁸

During the USAS use East Base had radio contact with San Francisco and Honolulu, as well as an antenna pointing in the opposite direction for West Base (Little America III). During RARE the aerials were directed to New Orleans and to New York, especially to transmit news stories.

The towers at East Base have been removed, but much evidence of the system can be found. Coils of wire are frequent, as well as solid, copper-clad steel, secured with some knots of braided cotton line and tape. The wire gauge is about number 12, typical for aerial use. The copper cladding is tarnished but has outlived the steel core. The core has disappeared for a length of one inch leaving a hollow and split tube of copper foil.

Insulators abound. Some have part numbers and manufacturers' names that can be read: "JOHNSON" is the most common. Types found include twin lead spreaders and strain insulators, round and rectangular, of various lengths. There were no egg insulators and only one broken strain, made of clear glass.

Sectioned steel pipe was used for aerial support with various guys – for example, a quadrangular guy attachment fixture that would fit around a pipe at a juncture of different sizes or a point where it would have been supported by a locking collar or pin. This fixture has four ears or tabs, bent at the proper angle and drilled to send a guy line in the right direction. Wires are attached and the device lies among other coils of the wire previously described. There are two more or less concentric circles of anchor points around the location of the central mast. These anchors were effected by the use of steel pitons driven into convenient cracks. Some guy lines were stranded steel, some of the same copper-clad steel that comprises the aerials. Turnbuckles are in abundance, some much too large to be of use for these guy lines. In a few locations the first thing attached to an anchor point was a length of what appears to be dog chain. The possibility exists that sled dogs were on occasion secured within the antennae array, perhaps for feeding or preparation for sledging or to keep seals away from the guy lines.

Secondary masts appear to have been of the same general style except that the anchor points were wooden deadmen under cairns of locally borrowed stone. There is little clear evidence of the secondary masts and no sections of mast were found in situ or in a dump. Low mounds of stone and cairns were visible at the ends of the West Base rhombic aerial. Here, too, were the deadmen of 2-foot by 4-foot cut wood.

A single circuit telephone plug, brass with red bakelite backshell of a type today called PJ-055B, was found inside the outpost building, lying on the concrete generator foundation. Outside, in the dump immediately adjacent to the front deck of the hut (see below) and incongruously located amidst a pile of wooden matches and vitamin pills, was found the armature of a manual telegraph key. The key is of steel with brass knurled adjustment knobs and a bakelite finger rest. There were also several lengths

18. This section was written by Al Oxtan, Communications Specialist, Antarctic Support Associates, stationed at Palmer Station.

of assorted wire: bare stranded copper attached to a small insulator, labeled CBU61088, and a rubber-insulated extension cord. Also found were several D-cell carbons and cardboard spacers and one glass fuse, AGC style.

Outside the science building, on the opposite side of the door from where the aircraft engine rests, is a metal foil and mica capacitor, rectangular, about 2 inches long and 1 inch wide. In the same location there were some large strain insulators, brown, 14 inches long, about an inch square, marked CAL-61374. In the dump behind the science building was found an intact, albeit very rusty, vacuum valve of a size and shape similar to today's 6K6.



A radio antennae tower that had blown over onto the science building, May 17, 1940 (National Archives, USAS, Photographs, 126-AS-441).

COAL CACHES

Three coal caches were recorded in the immediate vicinity of the base buildings (caches J, K, and N). All three caches consist of lump coal packed in burlap bags. Exposed bags are broken open, but it appears that buried bags may be intact. All appear to maintain considerable integrity in location and configuration.

Cache J is located on the south side of the main building, surrounded by an approximately 2-foot-high rock outcrop, and is well protected. This cache is marked on the 1941 map and so may be related to USAS use. Ronne reported that abundant coal supplies had been left by USAS and appeared to be undamaged by the intervening occupants of the site.¹⁹

The cache's position proximate to the outpost building suggests that it was the source of fuel for that building. Finn Ronne lived in the hut during both expeditions and is likely to have chosen the same location for his own fuel cache during both expeditions.



Coal cache J, west of the outpost building facing south. February 23, 1991.

19. Ronne, letter to the secretary of state, dated March 13, 1947, the day after landing on Stonington Island.



Top: Cache K, in front of the main building. February 23, 1991.

Bottom: Coal cache N, on top of the wood platform to the northeast of the science building looking toward the glacier. February 23, 1991.

Cache K is located about 25 feet east of the main building door and a little to the south, conveniently placed for use by the inhabitants. The coal is contained in the same type of burlap bags as the other two caches.

Cache N is located about 35 feet to the northeast of the science building and is approached by a 4-foot-wide wooden walkway. It is piled on top of a 10-foot by 10-foot square wooden platform. A RARE photograph by Ronne, taken after May 1947, shows that the platform has nothing on top of it. A privy appears immediately to the south of the platform, which may have served as a decking for the front of the privy.²⁰ The coal was probably cached in this location later, after the May 1947 photograph, but during the Ronne expedition.

Darlington mentioned that the USAS cached their coal on a hill about 1/8 mile from the camp.²¹ This location is shown on the 1941 map in the general vicinity of what would later become the FIDS base. No evidence of that coal cache was found. Darlington states that the RARE group took 250 bags from the earlier cache and placed loose coal in "canvas" bags. Ladaty mentioned that the RARE coal was packed in 100-pound bags.²² All cached coal currently on the site is in very coarsely woven burlap bags. It is possible that the older coal was used first, as Jennie Darlington intimated that it may have been a better grade product than the anthracite brought by the Ronne party.

20. Ronne, *Antarctic Conquest*, p. 141.

21. Darlington, *Antarctic Honeymoon*, p. 129.

22. Ladaty, "Antarctic Interlude."



Top: Cache L outside the main building. February 23, 1991.

Bottom: One of the crates, with a cardboard lining and containing tin cans. Note address to Paul Siple. February 23, 1991.

FOOD CACHES

A single food cache remains from the USAS. It consists of two loci, labeled caches L and M, located on the south and west sides of the bunkhouse, respectively. The caches were comprised of wooden crates, each measuring 18 inches by 24 inches by 18 inches. Some open crates suggest that a cardboard carton lines each crate and that canned goods are packed inside the cartons. The crates are labeled with the contents on one end panel, indicating the number and size of the cans, the contents, and the name of the packager, PHILLIPS PACKING CO., INC., BALTIMORE, MD., U.S.A. No attempt was made to dislodge the crates from their positions for fear of damaging the wood. All crates seemed to be stuck to adjoining ones by a layer of ice.

The lid of each box was stenciled with the address:

DR. PAUL SIPLE
U.S. ANTARCTIC SERV.
MAIN BUILDING
SECTION D-W ARMY BASE
SOUTH BOSTON, MASS.
P.O. NO. X-231

Paul Siple was second in command (under Admiral Byrd) of the 1939-1941 expedition and base leader at West Base. He was responsible for acquiring all supplies for the combined USAS. He had been to Antarctica with Byrd's previous expeditions.

Most of the crates also had a large "F" painted in light blue paint. An inventory of all supplies taken by the USAS is located in the National Archives and includes an "F" inventory, consisting of the food supplies. It is interesting to note that Mrs. Darlington included a sketch of the interior of the bunkhouse upon her first sight of it in 1947. The mess includes an open crate marked with an "F."²³ Both food caches were obviously left by the USAS. Apparently Ronne had more than enough fresh supplies and did not need to use the cached food abandoned by the earlier expedition.

A summary of "F" supplies sent to East Base and those left when the base was abandoned in 1948 is shown in table 1. As can be seen, literally tons of food supplies were taken to the base, and more than two-thirds were consumed during that expedition. Ronne reported that food supplies were among the few items that remained after the Chilean, Argentine, and British use of the base in the 1940s. Darlington stated that, at least in the early days of the RARE occupation, certain of the earlier supplies were consumed by their group, including eggs, butter (1,300 pounds), Limburger cheese, lemon extract, and crackers. She mentioned helping to remove "the food found behind the galley" (in the location of cache M?), which included 48 cases of shelled walnuts, four cases of malted milk tablets, one case of lard, six of flour, six of sugar, four of gingerbread mix, and "several" cases of Campbell's soup. She reported that the former doctor's quarters, which became hers and Harry's, were "eighteen inches deep in cocoa, ointment

23. Darlington, *Antarctic Honeymoon*, p. 145.



Top: USAS's empty box dump to the southwest of the main group of buildings. Note that most of the boxes had contained "F," or food supplies, illustrating the enormous amount of supplies originally at the base (National Archives, USAS, Photographs, #1221).

Bottom: A closeup of cache L on the south side of the main building, on February 23, 1991. Note the Phillips Packing Co. and contents labels.

Table 1: Summary of Supplies in 1939 Manifest and 1941 Inventory

Item	1939	1941
canned meat, fruit, and vegetables	786 c.	591 c.
dehydrated vegetables	3783 lb.	275 c.
mashed potatoes	55 c.	0 c.
dried fruit	612 lb.	62 lb.
meat, cheese, and butter, mostly frozen	20,212 lb.	5c*+10 barrels
eggs, mostly frozen	2740 dozen	0 dozen
frozen vegetables and fruits	387 c.	0 c.
instant hot and cold beverages	150 c.	41 c.
powdered milk	1720 lb.	0 c.
sugar	13,568 lb.	9,688 lb.
syrup, honey, and molasses	38 gals.	14 gals.
preserves	23 c.	3.5 c.
instant desserts	10 c.	2.5 c.
cookies and crackers	1003 lb. + 38 c.	10 c.
candy and nuts	69 c., 180 lb.	150 lb.
flour	9630 lb.	1050 lb.?
baking mixes	18 c.	8 c.
starches such as grains, cereals, beans, and pasta	131 c.	55 c.
Eugenia Whole Wheat Cereal	230 lb.	2 c.
cooking oil	18 gals.	4 gals.
lard (4,620 lb.)	66 c.	58 c.
miscellaneous other items such as spices, flavoring extracts, vitamins, and popcorn	511 c.	18 c.

"U" Inventory (selected)

Meta tablets	1 c.	½ c.
matches	500 c.	200 c.

*cheese only



The location of numbered boxes in cache L. The corresponding inventory can be found in appendix D.

tubes, bandage rolls, frozen medicines, and broken chocolate bars."²⁴ Ronne, in addition, recounted consuming seven-year-old tea, cookies, and lemon pudding.²⁵ However, with the exception of the butter, all of these items appeared to have been used incidentally and were not significant portions of the later expedition's diet. The remains from the 1940-1941 expedition were obviously regarded as treats, or, in the words of Kevin Walton, a dog handler with the FIDS base from 1946 to 1947, a "lucky dip,"²⁶

During the 1991 assessment trip, both caches were mapped horizontally and vertically; crates were labeled with numbers in their upper right corner and an inventory taken of the contents as stated on the crate (appendixes D and E). No attempt was made to open the crates, as the wood appears to provide some protection to the badly oxidized cans.

A snow drift obscured most of cache M on the west side of the main building. The crates appear to be stacked at least five deep; photographs taken in 1990 indicate the cache is stacked six high, and the cache extends as far west as the storage hut platform. Only three of the visible crates were marked with contents: coffee, oatmeal, and hominy grits. A large tin can of Ovaltine was also observed. It should be noted that photographs taken on March 22, 1990, showed this cache to be almost entirely free of ice and snow, indicating that the drift moves from year to year. Another season may open more of the cache for labeling and inventory.

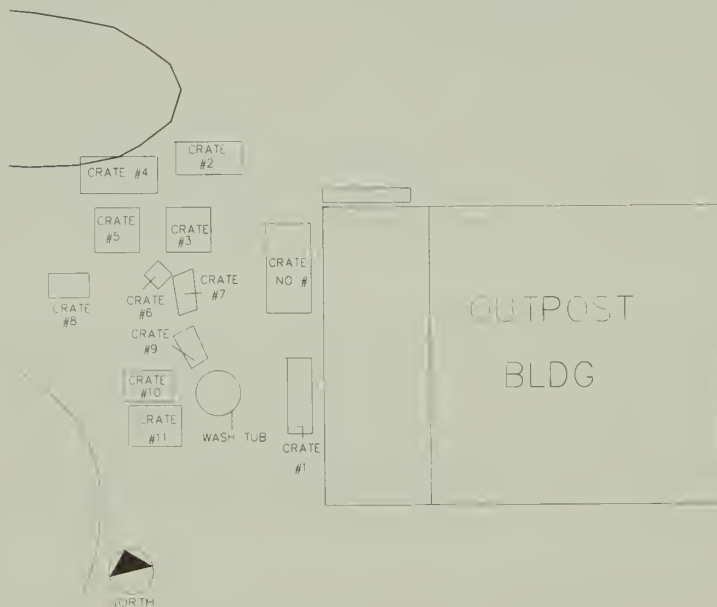
Cache L was less encumbered with the snow drift, which covered only the lowest layer at the western end of the cache. While most of the cache appears intact, visitors have opened some crates. The cache is only two crates deep and five crates high. The crates are stacked so that 47 of the 77 crates had visible labels (appendix D). They represent a wide variety of canned vegetables, salmon, pork and beans, and soups, all in relatively large cans. There is no apparent patterning to the location of individual crates, although pork and beans and chile con carne with beans are more frequent on the east end of the cache than on the west. There may have been a deliberate mixing of food types to provide variety at times of the year when the expedition cook was forced to chisel crates out of the snow and ice.

In a personal interview, Edith Ronne indicated that RARE received a large donation of tomato soup from one of the contributors, and that no other types of soup were available. She remarked that the entire group became so tired of tomato soup that none of them will eat it to this day. The presence of vegetable soup, pea soup, and clam chowder in cache M, which surely would have provided some variety to the tomato soup, suggests that the caches were covered with snow, making knowledge of the contents inaccessible to the later expedition.

24. Darlington, *Antarctic Honeymoon*, pp. 128, 133, 152, 161.

25. Ronne, *Antarctic Conquest*, pp. 64, 81.

26. Walton, *Two Years in the Antarctic*, p. 56.



Top: The Ronne cache to the west of the outpost building (Ronne hut). Note the upside-down box marked "UK" and one marked "F" directly to the left and behind.

Bottom: Location of numbered boxes in the Ronne cache. General contents are listed in appendix F.

RONNE CACHE

One cache of supplies is clearly associated with RARE: cache A. It is located immediately to the west of the outpost building (Ronne hut), between the 4-foot-wide decking and the rock outcropping used to shelter coal cache J. Edith Ronne indicated that a canvas-covered lean-to was attached to the west side of their living quarters and used for storage; the cache is clearly the remains of the supplies stored in the lean-to.

The cache consists of a 2-foot-diameter washtub and a dozen wooden crates arranged in a roughly rectangular pattern measuring approximately 12 feet by 12 feet. The truncated remnant of a 2-by-4 post located 12 feet north of the northwest corner of the hut marked the corner of the canvas lean-to described by Mrs. Ronne in a personal interview. A 4-foot-wide wooden decking ran the length of the west side of the hut, separating the remains of the cache from the hut.

The washtub contained a jumble of wooden matches, which also littered the entire southeast quadrant of the area. One crate contained about 40 packages of vitamins in a capsule form of about 48 per package, each nested in a perforated card. Other crates included 16-oz. glass jars of Horlick's malted milk, boxes of fuel sticks labeled "META,"²⁷ instant coffee, and portable stove parts. A number of small canvas sacks were apparently packed for trail use and included instant coffee, tea, matches, chocolate, and "Meta" fuel sticks (a more detailed inventory is available in appendix F). Notable among the debris is a makeup container, which may have been used by Mrs. Ronne. Miscellaneous objects were scattered over the cache, including bones, remnants of clothing, and electrical cords. These latter items probably represent post-abandonment trash scattering by later visitors to the site.

Interestingly enough, some of the crates appear to have originated with either USAS or FIDS and reused by RARE. One (crate 9) is marked with an "F" (for food) but contained survival gear, and crate 10, marked "UK," was found near Primus stove parts. Ronne remarked that a number of boxes marked for the use of the British had been found at the site when RARE occupied the base in 1947.²⁸

In a 1992 visit to East Base by the National Science Foundation, the Ronne cache area was excavated using archeological techniques. It is notable that a dog skeleton was found under the boxes and washtub in the central portion of the cache. It was probably one of the animals left by the USAS during the 1941 evacuation. The presence of snow and ice on the ground when Ronne reoccupied the site in 1947 no doubt prevented its discovery by that party.

27. Meta tablets are metaldehyde fuel sticks measuring about 2 inches long and 1/2 inch square, consisting of a dense white material. They were used to preheat stoves and lamps and as a fuel source when it is so cold that other fuels will not ignite. USASE, requisition form.

28. Ronne, *Antarctic Conquest*, p. 62.



USAS photograph of the Primus stoves and kits used on the trail. Note the white Meta sticks and cardboard container in the foreground (National Archives, USAS, Photographs, 126-AS-5055).



A closeup photograph of the Ronne cache (cache A). Note the matchsticks littering the ground and the prominent washtub.



Top: Dump C in front of the main building (center).

Bottom: Items sampled from dump C. February 25, 1991.

THE DOMESTIC DUMPS

Two principal areas were used for primary domestic trash disposal. Dump C is a large refuse pile located directly to the east of the science building; dump E lies to the north of the science building and machine shop.

Dump C

Dump C spreads to the east of the science building but is oriented on a northeast to southwest axis, so that the primary origin of disposal activities appears to be from the main building. It is largely egg-shaped in horizontal extent, with a main pile of debris about 4 to 5 feet deep located about 40 feet from the bunkhouse door. An increasingly shallow layer of debris stretches another 80 feet to the northeast, down the slope toward Back Bay.

A nonsystematic sample was taken by ASA employees, and so is biased (appendix A). In addition, an inventory of observable surface artifacts was made in order to provide a general idea of the contents of the dump (appendix G). While a good deal of used, no longer useful items were present, it also appears that supplies from the first expedition had been unceremoniously disposed of out the front door. Toothbrushes, eating utensils in perfect condition, film spools loaded with film, clothing items, magazines, bottles, and canisters of liniment still wrapped in newspaper with 1939 dates indicate that the contents of the buildings, items left during the hasty abandonment by the USAS, were summarily deposited in this location. A box of red meteorological balloons indicates that not all of the dump contents came from the main building, as meteorological observations were made daily from the two-story tower at the southeast corner of the science building.²⁹

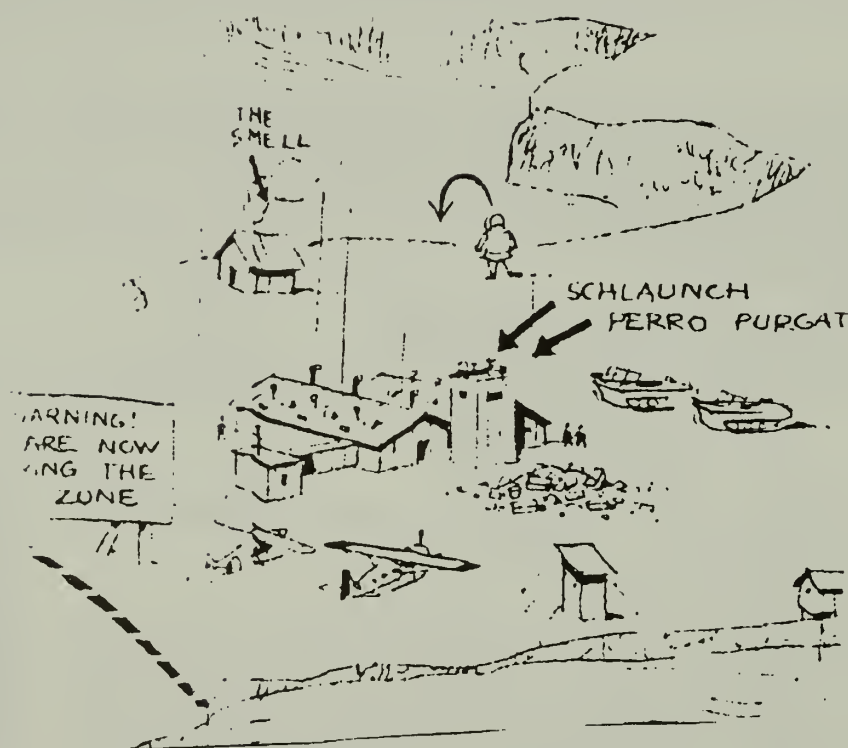
This dump was probably reserved for domestic use as early as the USAS occupation. A photograph in the USAS files at the National Archives, dated October 31, 1940, clearly shows a pile of cans just to the north of a trail running toward the main and science buildings.³⁰

That the dump predates RARE use of the site is amply demonstrated by Walton's 1946 description of East Base:

Outside, awaiting removal and not yet covered by the new season's snow, was the incredible mass of old tins and evil kitchen refuse, dumped not five yards from the hut's main entrance. It never ceased to amaze us why the Americans, with all the advantages that numbers and mechanical aids must have given them, had left their supplies and fuel dumped so

29. Ronne, *Antarctic Conquest*, p. 60.

30. National Archives, 126-AS-703.



Top: The east side of the buildings at East Base on October 31, 1940. Note the pile of empty tin cans in the location of dump C, on both sides of the tire tracks (National Archives, 126-AS-703).

Bottom: Jennie Darlington's recollection of East Base featured the prominent "kitchen midden" in front of the main building and science building (*Antarctic Honeymoon*, end plate).

haphazardly all over the island. The kitchen refuse heap was utterly unforgivable.³¹

The dump was certainly well established by the time Jennie Darlington set foot on Stonington Island in 1947, a few weeks after RARE's arrival.

Harry, Chinook and I picked our way through the vast agglutination of refuse forming a malodorous aspic [*sic*] by the front door. Our Antarctic garbage disposal, I learned then, was conducted in the same manner as on a ship at sea. There was only one difference. Here nobody paid attention to which way the wind was blowing. Everything – food cartons, crates, rusted five-gallon drums, cracker tins, a tube of tannic acid, a Noxema jar, and an antitoxin kit for tetanus dated 1940 – had been thrown or shoveled out the door, where, with the exception of the summer months, the debris remained obscured by a blanket of snow. On our arrival the layers of kitchen midden, awaiting future Antarctic archaeologists, were fully exposed.³²

Among the items observed in dump C was a case of Noxema creme jars, although it was not inventoried in either the 1940 manifest or the 1941 inventory of abandoned supplies. An antitoxin kit for tetanus was also observed in dump E (see below).

Darlington also mentioned the dump in her third-hand account of the Ronne's first sight of East Base in 1947, when she described "a hanger of a building [the main building], almost hidden by the garbage dump at the front entrance."³³ She further gave the dump prominent attention in the sketch provided on the inside of the back cover of her book, in which it is quite accurately placed in front of and between the two large buildings. It is also discernible through the snow in RARE photographs.

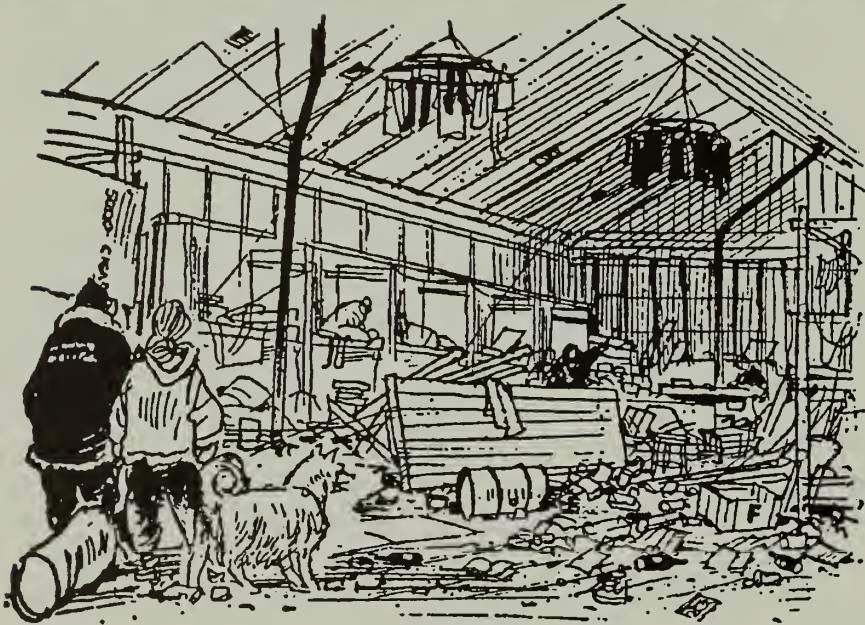
Both Ronne and Darlington make a point of blaming Argentine, Chilean, and British visitors to the site for the "mess" made of it before the arrival of the 1947 expedition. Correspondence from Ronne on file in the National Archives supports these accusations. Major Butler, at the FIDS Base E, reported that Chilean and Argentine naval vessels had allowed as many as 200 men to loot and demolish the base only four days before RARE's arrival in March 1947 and claimed there were just too many for him to control. He maintained they had tried to "tidy up" the camp. Ronne stated that he had found boxes and cartons marked with British labels in the trash.³⁴ Both Ronne and Darlington noted that the inside of the main building was in considerable disarray and that a substantial "cleaning" effort was undertaken to make the place useful for their own

31. Walton, *Two Years in the Antarctic*, p. 52.

32. Darlington, *Antarctic Honeymoon*, p. 147.

33. *Ibid.*, p. 117.

34. Ronne, *Antarctic Conquest*, p. 56.



Top: Photographic supplies of the USAS. Note the large spools of film next to the paper cutter on the table (National Archives, 126-AS-1034).

*Bottom: Jennie Darlington's recollection of her first sight of the interior of the main building showed the havoc wreaked by Argentine visitors. Note the "F" or food box from the USAS expedition. (*Antarctic Honeymoon*, p. 145).*

habitation. Ronne in particular made a point that they cleaned up the mess left by the visitors.

British accounts dispel Ronne's accusations. Kevin Walton, living at the British Base E in 1946-1948, reported that his countrymen had spent some time trying to tidy up the American camp. They had found it in some disarray when they occupied Stonington Island in February 1946, but had used the American buildings for only 15 days, until they were able to build their own structures. They had found the American buildings too large and drafty for their purposes; snow and ice had filled the science building and machine shop, and some general disorder suggested that others had visited the base before them. In fact the Argentine *Primero de Mayo* had stayed at East Base for two days in early March 1943 and had salvaged the valuable equipment and scientific collections for return to the United States.³⁵ It was not until December 1944 that this material began to reach Washington, D.C. The British had made some substantial effort to clean up the American base and had used the buildings for the storage of supplies during the winter of 1946. On hearing that RARE was to reoccupy the base, they had removed their supplies.³⁶

Then, on February 18, 1947, a few days before RARE arrived, the visiting Chilean ship *Iquique* had allowed shore leave to its sailors, who proceeded to wreak havoc on the American buildings, making the mess far worse than it had been before the British arrived. Kevin Walton wrote:

Leave to go ashore was given to the ship's crew and in a few short hours all our winter's work of tidying up was forgotten. The American huts were stripped from end to end; the proverbial bull in a china-shop was nothing by comparison. Boxes that had stayed happily unopened for seven years were smashed, unexposed film was opened and strewn around like paper streamers, in the snow outside. A locked case of surgical instruments was emptied save for a few old needles. The American sledges, never I admit of much practical value, were removed and used by cheerful sailors as toboggans down the crevassed glacier behind. I suppose logically the contents of the American huts were still American, even if while we were at war they had set up their base on what we considered British soil, yet by the accepted code of Antarctica the unused equipment of expeditions is always left for use of those who follow. This wholesale and wanton destruction by a passing ship's company was unfortunate, and after all our hard work, difficult to accept. It seemed probable that a similar visit had been the reason for the state of the American huts when we first arrived.³⁷

35. Anonymous, "Argentine Antarctic Expedition," p. 286.

36. Walton, *Two Years in the Antarctic*, pp. 26, 51, 59, 97.

37. *Ibid.*, p. 108.

It is interesting that loose spools of film, all exposed to the sun, were noted in dump C. Ronne's report to the secretary of state regarding the state of the base on March 12, 1947, amplifies on Walton's earlier and Darlington's later observations:

We looked at the three large and two small American buildings carefully and found shocking evidence of complete and utter vandalism. I doubt that any property could have been ransacked more completely. Things were

thrown in every direction and the entire place was littered with rubbish in an indescribable manner. . . . I estimate that over eighty percent of valuable material had been taken or made unusable. . . .

I should now like to give you some specific examples of the deplorable conditions found. We had a very complete cabinet containing many drawers of excellent surgical instruments. We had found the drawers thrown to the seven winds with only two needles and part of one bone instrument left. The library which contained exceedingly valuable books of Cook's explorations loaned to the former expedition by the Library of Congress, etc., were missing and many volumes of the Harvard Classics were found moldy and ruined, thrown all over the room. The Radio room was found with every instrument pulled from its place, all wiring and tubes torn out, crushed, ruined over the floor, with the exception of that which had been stolen. The machine shop had been wrecked apart. Paper and film had just been pulled out of boxes and left strewn around. Much had been stolen. The galley was littered with cooking utensils. Just about everything of value had been taken from there, including a very fine electric mixer. The main living quarters was indeed a sad sight, showing things smashed, broken, vandalism so evident over every square inch. Each person on the previous expedition had from one to three personal boxes of gear all of which had to be abandoned and left at this Base when it was evacuated by air in 1941. Of all the boxes which remained, there was only one which had not been broken into with all contents removed. That one box was found half buried [sic] in the snow outside the main bunk house. In all this mess, we found evidence of destruction of property and inexcusable conditions all of which could not have happened four days ago. The two generators which we had left completely drained had been used and left with water in them so that they had cracked and are not now usable. This could not have been done four days ago. The cooking stove has been wrecked but not recently.³⁸

Photographs taken by RARE show remnants of the dump as late as August 1947, so it is obvious that RARE's "cleaning up" only entailed removal of items from the inside of the buildings. Ronne maintained that they dumped most of the "rubbish" into the ocean, but the evidence on site indicates that a good portion of it remained in Dumps C and E.³⁹

38. Ronne, letter to the secretary of state.

In conclusion, dump C is largely the remains of material culture left by the USAS inside the buildings in their hasty abandonment of the post. The dump may have been started by the USAS itself as a "kitchen midden," as suggested by Walton, Darlington, and the USAS photo, but was added to substantially during the raiding parties by first the Argentine and Chilean sailors, then the British in their "tidying-up" efforts, and most certainly by RARE when they reoccupied the base. True trash (useless items) from the later expedition may have formed a final layer. It is apparent from the personal testimony of Mrs. Ronne and from the photographs that snow fields remained to the east of the buildings throughout the 1947-1948 season, and the Ronne party may not have had access to the pile of debris in order to clean it. Finally, its presence may not have been disturbing to the expedition members. Its location is consistent with observations made on historic sites of the early 20th century, in which secondary trash deposits are often located about 40 feet from building doors.

39. Ronne, *Antarctic Conquest*, p. 64.



Top: Dump E, at the side of the science building (left) and machine shop (right).

Bottom: Charles W. Sharbonneau in his bunk in the main building on January 13, 1941. Note the brass nameplate attached to the bunk and found in dump E (National Archives, 126-AS-889).

Dump E

The second domestic dump was located to the north of the machine shop and science building. It is considered a domestic dump because it appears to be related to activities occurring inside the science building and machine shop. As at dump C, a biased sample was removed and placed in the outpost building (appendix B).

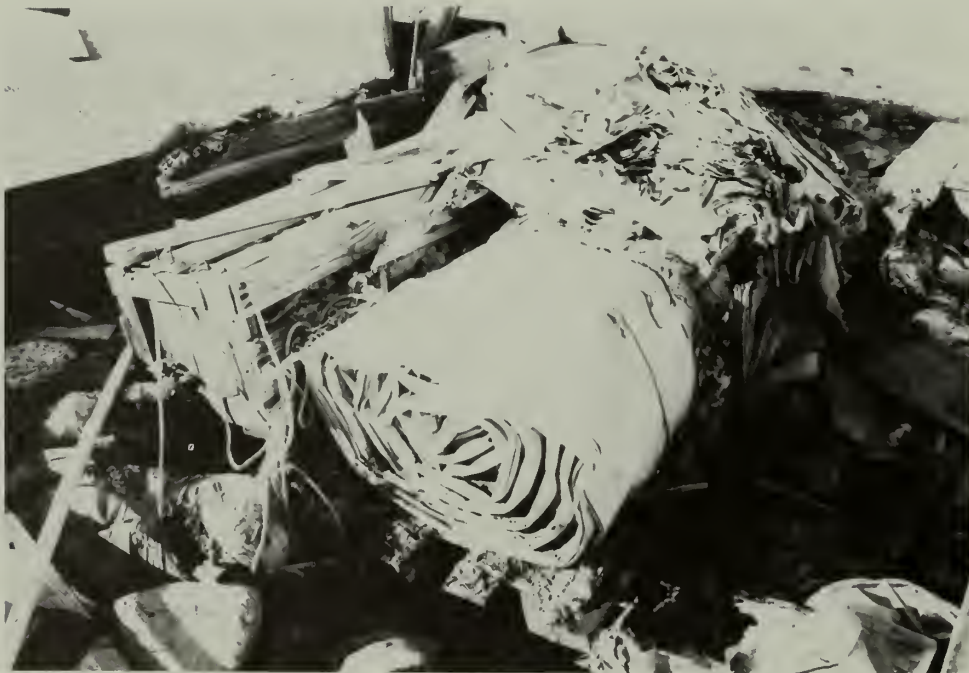
Dump E consists of two piles of trash surrounded by a surface scatter trending from the northwest corner of the machine shop to a point about 22 feet north of the northwest corner of the science building. The westernmost pile shows evidence of burning and appears to have contained true trash, i.e., material that was no longer useful. Slag and melted glass were relatively abundant.

The eastern pile resembled the contents of dump C in that a considerable amount of usable goods had been disposed. These include a large amount of medical materials, such as antigangrene toxin, triangular hospital slings, hypodermic needles, and cast wrappings. A large number of bottles of pills and capsules were also observed. Not all of the dump material was medical in nature, however. Some bottles contained chemicals involved in the processing of film. These are all items that would have been used in the machine shop and science building. Personal items included a fur-backed glove and a metal plaque with the name of C.W. Sharbonneau, the carpenter with USAS. This sort of plaque had been used to label each man's bunk and was, without a doubt, disposed of by RARE when they occupied the base. These personal items indicate that some items from the main building were also disposed of in this location.

Fourteen metal tags bearing the name of dogs were also recovered from the general vicinity of dump E. The names Donkey, Rocky, Castro, and Kong are all discernible. RARE photographs show a chain-link enclosure in the general vicinity of the dump, which was probably used to house the bitches with pups. These four names were not included in the roster of 86 dogs listed on the East Base manifest, so they were probably associated with RARE. Despite the fact that almost everyone who wrote personal stories of life on the base mentioned dogs by name, none of these animals were noted.⁴⁰ Unfortunately, only limited records of RARE are available, and they could not be used to confirm an association with the later expedition.

Like dump C, the debris in dump E appears to have been largely generated during the looting by Chilean and Argentine sailors and cleanup activities preparatory to the occupation by the second expedition. Most items appear to have been brought for use by the USAS. There was undoubtedly some additional deposition, however, made by RARE, as suggested by the dog tags.

40. Ronne, *Antarctic Conquest*, pp. 109, 110, 168, 191, 250; Darlington, *Antarctic Honeymoon*, pp. 48, 49, 170, 217, 254, 266, 267; Ladaty, "A Year on the Antarctic Continent," p. 281; Ronne, "Woman in the Antarctic," p. 13.



Top: Members of the USAS erecting the wall panels of the machine shop on April 1, 1940. Note the insulation layer and canvas that will later be placed over the building (National Archives, 126-AS-384).

Bottom: Rolls of canvas observed next to the machine shop on February 23, 1991.

STRUCTURAL DUMPS

Three areas consisted largely of structural trash. All three also contained some cached items in crates; although designated as dumps, they are actually small caches with considerable structural debris surrounding them. Other than a few isolated items, mostly crates with machinery or supplies for building construction, the scattered debris originated with the structures and have very little research value.

Dump D

Dump D is located to the west of the machine shop and surrounds the storage shed. It is a very light surface scatter of nails, hardware, and other structural debris from the buildings. The principal items of interest in this area are three large wooden crates filled with unused rolls of canvas, originally intended to be placed on the buildings. Ronne reported that RARE replaced all of the canvas covering the buildings.⁴¹ It is unclear, however, whether these rolls originated with the first or second expedition.

Two wood platforms within the dump D area are the remains of generator supports, used by both expeditions. The diesel engine located next to the back wall of the machine shop powered the generators. The area between the storage shed and the machine shop is saturated with a petroleum product, which also covers the northwest quadrant of the latter building platform. A line of stones extending from the northeast corner of the storage shed platform to the machine shop may be the remnants of a raised walkway between the two structures. If so, it implies that access to the storage hut was gained through the north side.

Seven items were sampled from the dump, all of which were personal in nature (appendix C). Of some note is a duffle bag with the name "Lytton Musselman, U.S. Antarctic Service at East Base 1939 1941," containing a leather pouch and shoes. As with most of the personal debris found around the site, these items appear to have been generated by the cleanup of the first expedition's personal effects in 1947.

41. Ronne, "Some Facts Concerning American Base."



Top: The area between the machine shop (foreground) and the science building. The airplane engine crate is to the right; turnbuckles lie on the ramp into the door. February 23, 1991.

Bottom: The spare engine for the Curtiss-Wright Condor used by the USAS, still in its crate. February 23, 1991.

Dump G

The area between the machine shop and the science building was designated as dump G. Photographs by RARE indicate that the area was covered by a canvas structure during the 1947-1948 expedition and was probably used for storage of machinery parts and scientific equipment. Evidence of that function appeared in the form of a pile of strap iron near the northwest corner of the science building, a cache of five turnbuckles on a ramp leading to the science building and another nine on the ground to the north of the ramp, as well as a concentration of 6-inch spikes.

The most notable artifact in this combined cache/structural dump – in fact, the most notable one on the entire site – is a spare airplane engine, crated in a wooden box measuring 5 feet, 6 inches by 5 feet, 2 inches. It included a plate labeled "Wright Aeronautical Corp/Patterson, NJ/Cyclone engine/ Mfgr #1644/ Model _820__." This engine was brought by the USAS as a spare for the Curtiss-Wright Condor airplane. It appears that it was never used.

The remainder of the dump area was covered with structural debris of little research value or integrity, such as shattered window glass, insulation material, scraps of torn canvas insulation, tar paper, and broken wooden crates. A quart-capacity glass bottle with a glass stopper may contain nitric acid, a hazardous material. Its presence suggests that caution should be exercised during future cleanup activities.



A glass bottle of nitric acid lying next to the airplane engine. February 23, 1991.



Top: USAS personnel cleaning out the snow between the main building (right) and the science building/machine shop (left) on October 31, 1940. A high drift obscures the back of the main building (National Archives, 126-AS-728).

Bottom: The area between the machine shop/science building (left) and the main building (right) with with snow drift and structural debris. February 22, 1991.

Dump F

Located between the main building and the combined machine shop/science building, the western half of this area was covered by an ice bank. Photographs taken during the 1990 visit suggest that some crates from cache M at the west end of the bunkhouse may be spilling over into this area. The bottom portions of a single row of wooden food crates are located along the north wall of the bunkhouse; coal sacks line the south wall of the science building. Most of the area is covered by a mass of structural debris: fragments of wooden crates, insulation, tar paper, and canvas. Other than the remnants of the caches, the structural debris have little or no research value or integrity.

The food crates and coal sacks suggest that this sheltered area was used for the storage of consumables by RARE. Darlington commented that each day's meal had to be chiseled out from the snow banks,⁴² suggesting that the labor involved in merely removing a food crate probably prompted the cook to procure supplies from the most sheltered location he could find. It is unclear whether the crates were labeled for the USAS or for RARE, as only the bottoms remain.



The area between the science building (right) and the main building (left) with structural debris. February 22, 1991.

42. Darlington, *Antarctic Honeymoon*, p. 133.



Top: The artillery tractor to the west of the buildings on January 18, 1941. Note also the canvas-covered food cache on the west end of the main building (right), the canvas cover over one of the diesel generators on the west end of the machine shop (far left), and the storage shed (behind the men) (National Archives, 126-AS-908).

Bottom: The artillery tractor, lying on its side wedged between large rocks. February 22, 1991.

THE NORTHWEST DUMPS AND CACHES

A large rock outcrop lies to the north of the building complex. In several alcoves of the outcropping lie five caches or concentrations of debris. To the west of the outcrop is a large secondary dump, designated Dump H, dominated by two small tracked vehicles and a burned wooden sledge. Desiccated remains of seals are ubiquitous throughout the area, reflecting its most important function as a seal-butcher area.

The Tracked Vehicles

The two tracked vehicles dominate the dumps. Both lie on their sides, suggesting that they had been parked on a snow or ice field that has subsequently melted. The rock piles under the vehicles would have prevented the vehicles being placed in their current positions under their own power. This area was originally located at the base of the ice ramp that connected Stonington Island to the mainland glacier.

An army light artillery tractor T3E4, brought by the USAS, lies on its side on the southeast quadrant of the dump. Lipps referred to use of the tractor to move supplies around the base.⁴³ It proved only marginally effective. The tractor may have been built by Caterpillar. It has a standard "Hercules 6 engine" (stamped on the engine block), which had six cylinders and was powered with gasoline. A "Champion" spark plug remains visible, as does a "Willard" battery. The tractor has 8-inch treads, which were too narrow for use in snow.

Nearby are the remains of a bamboo and chicken-wire contraption used as a security net for the tractor driver, in case the tractor should plunge into a crevasse. Lipps reported that the device was never needed, so its success was not tested.⁴⁴

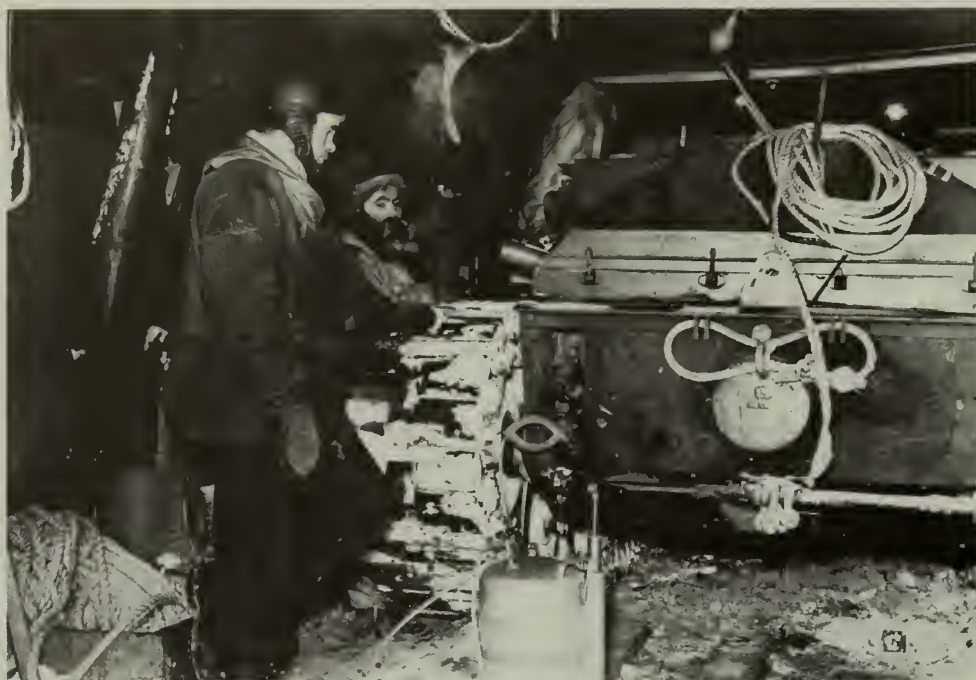
An Army light tank M2A2 sits in the southwest quadrant of the dump. The tank was also brought by the USAS. It, too, was of minimal utility in hauling supplies. Lipps and Bertrand both mentioned the use of these army vehicles by the expedition.⁴⁵ The tank gun turret is missing and probably was never shipped to the Antarctic. The tank has an eight-cylinder, air-cooled engine. An engine part reads "Cuno Engineering Corp., Meriden, Conn., U.S.A." in raised letters. The treads measure 8¾ inches.

The remains of a wooden sledge measuring 16 feet by 5 feet, 5 inches sit about 5 feet northwest of the tank. It is badly burned and lies in the general vicinity of the taxidermy shop shown on the 1941 map. A metal towline cable lies on the ground between the sledge and the tank.

43. Lipps, "United States' East Base," p. 217.

44. *Ibid.*

45. *Ibid.*; Bertrand, *Americans in Antarctica*, p. 444.



Top: The army tank in the storage shed. USAS personnel are preheating the engine on October 2, 1940. Note the 8-inch extension under Griffith's left hand, added to make the track wider (National Archives, 126-AS-5249).

Bottom: The army tank on its icy pedestal near the original location of the taxidermy shed. February 23, 1991.

All three vehicles lie within the immediate vicinity of the USAS taxidermy shed, which had been built out of an airplane wing crate. This structure was originally meant to serve as a work space for the earlier expedition's biologist and ornithologist for preparing specimens. The two men were drafted as blubber renderers during the winter, and their laboratory was used to prepare dog pemmican for the later trail work.⁴⁶ RARE also used this building for the latter purpose and referred to the structure as the "blubber shed."

As can be seen on the map, the two tracked vehicles are in the immediate vicinity of the taxidermy shop. It is curious that neither Walton, Ronne, nor any of the members of later expeditions mention their presence at the base. Richard Black had intended taking both of the vehicles with them when the USAS left Stonington in 1941, along with the airplane and radio equipment, leaving everything else for future American use, as the original plan had been to staff the base continuously.⁴⁷ He was not able to do so when the base was evacuated by plane. Why he wanted to return them is not clear. Both he and Ronne complained that the vehicles were not terribly effective, as their track widths were too narrow and they tended to sink into the snow. In fact, the USAS photographs show that makeshift extensions were added to the tank's tracks to double their width⁴⁸; these extensions were not found on the 1991 visit.

Photographs indicate that the tank was sometimes parked in the storage shed during the USAS, probably to provide a sheltered environment for warming the engine. It seems likely that the vehicle would have been left there when the base was abandoned. Ronne complained that nothing valuable, other than a few food supplies, the diesel generators, coal, and some aviation gasoline, remained when he occupied the base in 1947. Surely he would have mentioned the presence of the tracked vehicles had he seen them. It is here suggested that one of the visiting Argentine or Chilean parties moved the vehicles from where the USAS left them (and where Ronne would have known to look) and abandoned them next to the taxidermy shop, where they were subsequently buried in snow. A RARE photograph (very long-distance, aerial) suggests that the area around the subject building was deeply drifted over.

46. Bryant, "Biology at East Base," pp. 256-269.

47. Black, "Narrative of East Base," p. 66.

48. USASE, Photographs #5248 and 5249.



Base map of the dump H area, showing the relative locations of the tank, tractor, burned sledge, stovepipes, and the original location of the taxidermy shop. The 1940-1941 features are shown in lighter lines.

Lipps reported seeing no evidence of the taxidermy shop during his 1975 visit.⁴⁹ The burned sledge and general scorching throughout the area suggest that the building was destroyed by fire. Lipps also noted that the BAS cleaned the grounds around East Base in 1974⁵⁰; it is possible that the building was burned at that time.



The dump H area, with the tank in the foreground. The cadastral point rock is to the right, and the tractor is under the reflection star. February 25, 1991.

49. Lipps, "United States' East Base," p. 218.

50. Lipps, "East Base, Stonington Island," p. 232.



Top: An old fuel can on the rocks above dump H. February 25, 1991.

Bottom: The hay cache covering the rocks in the foreground, left of the photographer's shadow. February 25, 1991.

Dump H

Dump H is a true dump, consisting of items no longer useful. A metal chimney and stove top, probably from the taxidermy shed, are located about 30 feet to the east of the burned sledge. The ground and debris are badly scorched. Debris include a short-handled, square-ended shovel, a heavy electrical extension cord, and a 2-inch-diameter rope. Seal parts are ubiquitous, including a well-cleaned mandible and upper jaw. Otherwise bones were relatively infrequent. Other items in the vicinity of the dump include two compressed-gas cylinders, which probably originally contained helium for the meteorological balloons.

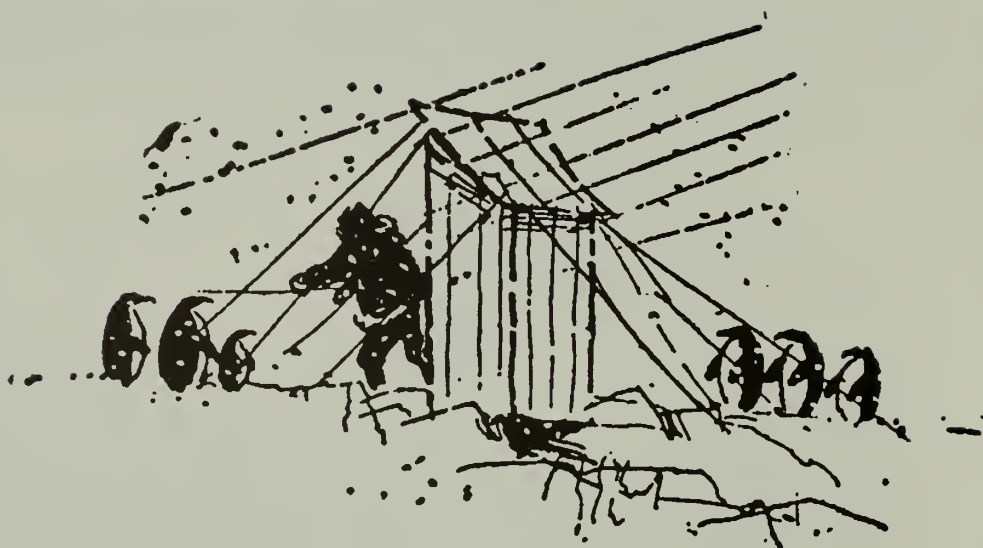
Kevin Walton recorded that the British used "old oxygen cylinders" – most assuredly helium canisters – to roll a crate containing the British airplane up the beach in February 1947.⁵¹

Hay Cache

At least 12 bales of hay, each bound with a single wire, were concentrated in a rock alcove to the northeast of dump H. The tops of some of the upper bales were scorched, probably by the same fire that destroyed the taxidermy shop. Harry Darlington had purchased a pair of alpacas in Chile during the cruise south in 1947, thinking they would serve as pack animals to replace the dogs that had died during the voyage. He also had purchased sufficient hay to feed them for the year. The alpacas were killed by dogs on the ship, but the hay was retained, ostensibly for use as bedding for the chickens that were brought along by the cook. Walton indicates that RARE used the hay to bed down the dogs in "Dog Heaven."⁵²

51. Walton, *Two Years in the Antarctic*, p. 104.

52. *Ibid.*, p. 147. The British tethered their dogs in the open and were somewhat contemptuous of the American practice of providing a shelter for their animals.



Top: USAS personnel constructing the science building on April 8, 1940. Note the privy standing to the right of the main building (left) (National Archives, 126-AS-404).

Bottom: Jennie Darlington's recollection of the privy (Antarctic Honeymoon, p. 185).

Honey Bucket Dump

A concentration of at least 18 crates containing two large canisters each was located about 50 feet north of dump H. Each wooden crate measured 21 inches by 10½ inches by 15 inches; the canisters were rectangular, measuring 14 inches tall by 9½ inches square. Each canister had an 8-inch-diameter opening on the top. They were all filled with fecal material, which in at least one case still retained its original odor and texture, leaving no doubt as to its identity. Three intact crates were emptied of their canisters and used to store the sampled artifacts from other areas in the outpost building.

Despite the fact that both Ronne and Darlington discussed a minor disagreement with the FIDS personnel on the use of the privy, no description of its location is given in either source. Several sources referred to the privy "on the hill" above camp; as there are two "hills," one north and one south, it is difficult to determine which outcrop was meant. If the privy had been used by the British, it makes sense that the southern one was its location. A privy can be seen next to the coal cache platform northeast of the science building in a RARE photograph (see cover photo, part I); it is positively identified by Britisher Kevin Walton from Base E as the "loo."⁵³

Only one USAS photograph revealed a privy; taken during the construction of the machine shop, the structure can be seen sitting less than 50 feet directly west of the main building. It is not in that location in later photographs, nor can it be seen in any photograph taken by that expedition in any other location.

The fact that at least three different locations are suggested by the photographs and literature imply that the privy was portable and occupied each of the locations at different times during the base's use. RARE probably moved the structure to the coal platform after the argument with the British on the latter's use of the facility. Mrs. Ronne, in a personal interview, indicated that the privy was located on a rock outcropping extending over the water, where the waste material could drop directly into the sea; this location may correspond to the coal platform.

That the British abandoned use of the American privy is evident from several sources. In particular, Kevin Walton provided a sketch and description of Base E, in which he touts the luxury of an indoor, two-seater "loo" attached to the British base after the territorial dispute over "squatters' rights".⁵⁴

53. Walton, *Portrait of Antarctica*, pp. 68-69.

54. *Ibid.*, p. 67; Walton, *Two Years in the Antarctic*, pp. 130-131.



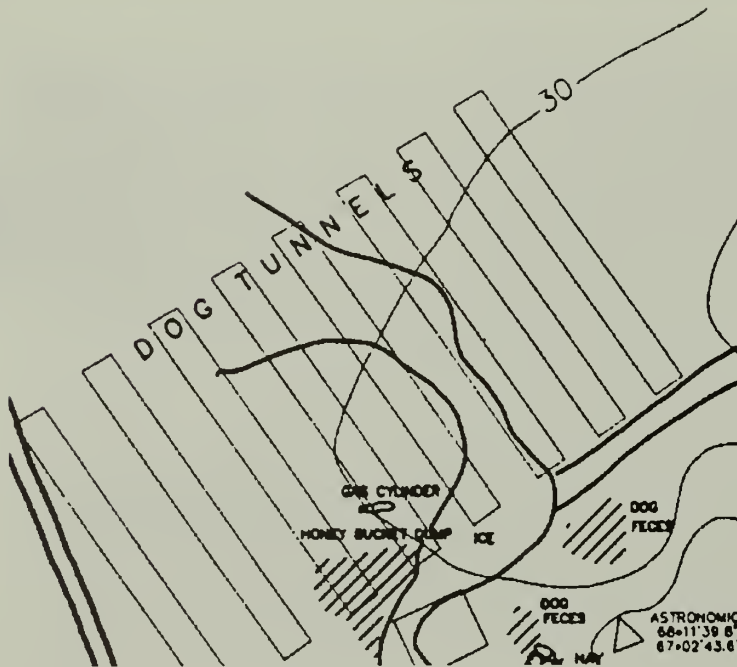
Top: Dehydrated potatoes being packed in a warehouse in the Washington, D.C., area for shipment to Antarctica. The cans are identical to those found in the honey bucket dump. The February 1941 inventory stated that no mashed potatoes were left (National Archives, 126-AS-8).

Bottom: The crates in the honey bucket dump can be seen above and to the left of the gas cylinder. February 22, 1991.

The portable American privy and especially the British indoor "loo" probably used a canned catchment system rather than a pit, an impossible thing to create in the frozen Stonington gravel. That they were left at all is curious, as sanitary awareness would surely have suggested disposal on the bay ice, where they would have disappeared into the briny deep come the next summer.



An overview picture of East Base, showing the privy to the left of the main group of buildings. (Ronne Antarctic Research Expedition).



Top: Construction of the dog kennels on May 23, 1940. Looking toward the base buildings (National Archives, 126-AS-465).

Bottom: The dog tunnels as portrayed on the 1940 map, superimposed on the archeological base map. Note the location of the kennels relative to the concentrations of dog feces.

Dog Kennels

Dogs were essential to the success of both the USAS and RARE, as it was only with sledge teams that ground control could be established for the aerial photography. The story of the emergency evacuation of the base in 1941 is made tragic by the fact that half the dogs had to be shot before the evacuation. The remainder were destroyed by a dynamite charge set on an eight-hour delay charge in case the last plane load did not reach the *Bear* and the expedition was forced to winter over. Unfortunately, the homemade bomb was apparently not entirely successful. It is sad to note that both Darlington and Walton discussed finding dog carcasses away from the area where they were supposedly killed. Darlington recounted finding more than one frozen animal in the aviator's hut on the glacier,⁵⁵ and Walton mentioned finding a carcass in the machine shop when cleaning out the ice.⁵⁶ NSF archeologists discovered a dog skeleton under the Ronne cache in 1992.

The 1941 map of Stonington indicates that the eight tunnels forming the dog kennels were excavated in the glacial ramp by the USAS. An overlay of the 1941 map on the work performed for this survey indicates that the tunnels were located on the area between the honey bucket dump and the point of land called Skua Point by the 1991 reconnaissance team. Photographs taken by the USAS indicate that the dog "tunnels" were constructed over individual box-like enclosures, one for each animal. The doghouses were placed in a row, with 2-by-4 triangular lumber frames supporting chicken wire assembled over them to support later snow loads and then covered with canvas. The "tunnels" probably evolved as winter snows accumulated. Unlike at Little America, it appears that very little snow excavation took place during the original construction.

Very little physical evidence of the dog tunnels was found scattered along the northern edges of dump H. A tethering cable was located on the northeast edge of the cadastral point rock outcrop, surrounded by a concentration of dog feces. The rocks immediately north of the hay bale cache were also covered with dog feces. Tethering cables and chains were located north of the honey bucket dump. Darlington mentioned that FIDS "had disposed of the dog carcasses still chained to their tethers, that had been shot in 1941,"⁵⁷ and Walton, as well, discussed disposal of the bodies.⁵⁸ It is likely that the British also disposed of the frames for the tunnels and the individual "houses." Most of the kennels had been constructed on the base of the glacial ramp. When this feature melted, whatever else may have been left must have been washed out to the bay.

55. Darlington, *Antarctic Honeymoon*, p. 165.

56. Walton, *Two Years in the Antarctic*, p. 51.

57. Darlington, *Antarctic Honeymoon*, p. 117.

58. Walton, *Two Years in the Antarctic*, p. 23.

Paper Dump

To the south of the cadastral point and at the base of the rock outcropping was an approximately 15-foot-diameter concentration of paper products, almost exclusively nested conical-shaped "Dixie" cups and rolls of paper towels. Many had been scorched, as if this was the bottom portion of a dump that was buried in the ice, and only the exposed upper part burned. It may be part of the USAS inventory, ruined by water, that was "cleaned up" by FIDS or the Ronne group.

The 1940 manifest for the USAS listed 250 rolls of paper towels for East Base; the February 1941 inventory before abandonment does not mention paper towels. Neither inventory listed paper cone cups. It is therefore difficult to assess whether these materials were left by the USAS, RARE, or one of the British groups.

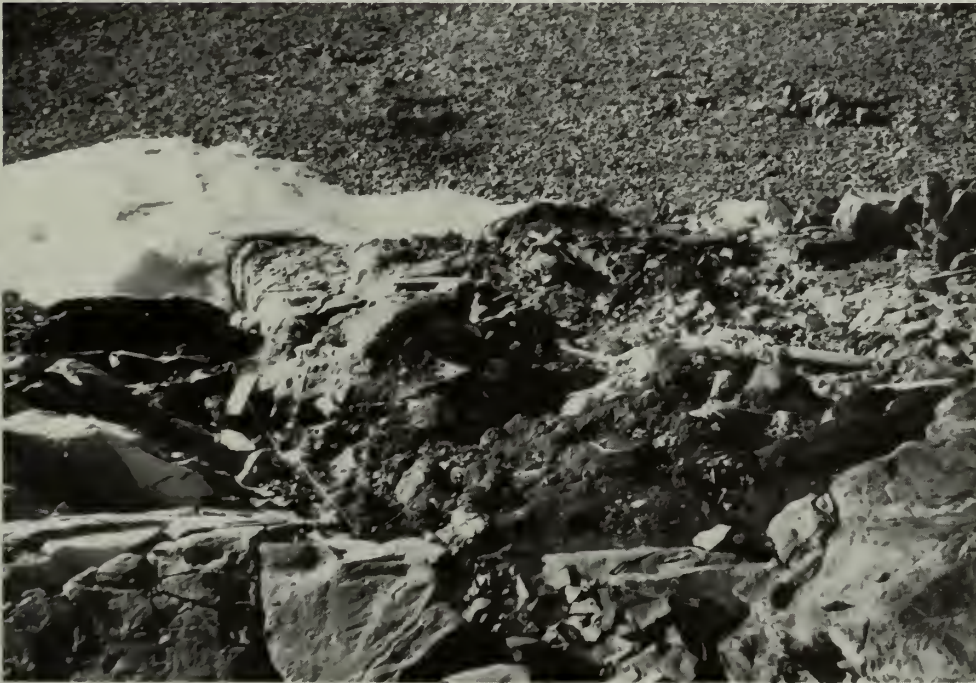
The southern edge of the paper dump is obscured by a 20-foot-wide snowdrift. South of the drift was a very thin surface scatter of a paper-like insulation material and ferrous metal objects, mostly nails, cans, and cables. It may be a part of the same dumping episode that generated the paper cups and towels.



The paper dump as it appeared on February 25, 1991.

Insulation Dump

Also at the base of the rock outcropping, but to the east of the cadastral point, was a cache or dump of insulation material mixed with seal parts. A sample was taken to determine whether it contains asbestos. Its origin is unclear. The USAS used a dark-colored “rock wool” to insulate the buildings. The insulation dump contains spare rock wool and early fiberglass-like insulation material.



The insulation dump on February 25, 1991, from the cadastral point rock.



Top: Harry Darlington butchering a seal for dog food near East Base, February 19, 1941 (National Archives, 126-AS-1020).

Bottom: Seal tails lying on rocks near the cadastral point. Stains on the surrounding rocks are more common remnants of seals.

Evidence of Seal Processing

The processing of seal carcasses appears to be the most dominant and most recent activity throughout the site. The main building was used by FIDS and later by BAS for the cold storage of meat and blubber for their sled dogs. The brownish-colored, desiccated, gelatinous organic matter observed throughout the site area is without a doubt the remains of sealskin. Very few bones were observed; only one jaw was noted in the vicinity of dump H. A number of people familiar with the habits of the scavenger skuas expressed surprise that the birds had not disposed of the seal remains. Bryant mentioned that the skuas were used by the USAS to clean skeletons for his biological collections,⁵⁹ reinforcing the observation that the ubiquitous birds serve as excellent grounds police. It seems likely that the remnants have only recently been exposed and are now so desiccated that they are unattractive even to skuas.

Besides those in the main building, seal remains were most noticeable near the cadastral point rock outcrop, especially in the vicinity of dump H. The remains of an entire seal carcass were located 41 feet to the west of the tank; another 12 feet beyond the carcass were two seal heads and a number of flippers frozen into the ice. A concentration of seal tails was located on the northeast edge of the main portion of dump H. Ronne noted that 60 seal bodies were found at the base when he arrived in 1947.⁶⁰ Darlington also mentioned a pile of seal carcasses.⁶¹ Neither indicated the location. Bryant stated that over 100 seals were killed by the USAS for dog food.⁶² Both expeditions used the time between settling in at the base and the arrival of winter blizzards to kill seals for dog food and to render blubber for the pemmican. The British, much more than the Americans, also consumed seal meat themselves.

The taxidermy shop used by the USAS was located at dump H; both expeditions used it as a blubber-rendering shack for the preparation of dog pemmican. Ronne indicated that the RARE group stacked the summer carcasses near the blubber shack, then spent much of the winter hacking up the meat and fat.⁶³ It is inevitable that seal parts would be lost during snowstorms.

59. Bryant, "Biology at East Base, p. 262.

60. Ronne, *Antarctic Conquest*, p. 56.

61. Darlington, *Antarctic Honeymoon*, p. 128.

62. Bryant, "Summary Report," n.p.

63. Ronne, *Antarctic Conquest*, p. 75.



Top: The British Base E, near the south end of Stonington Island. February 25, 1991.

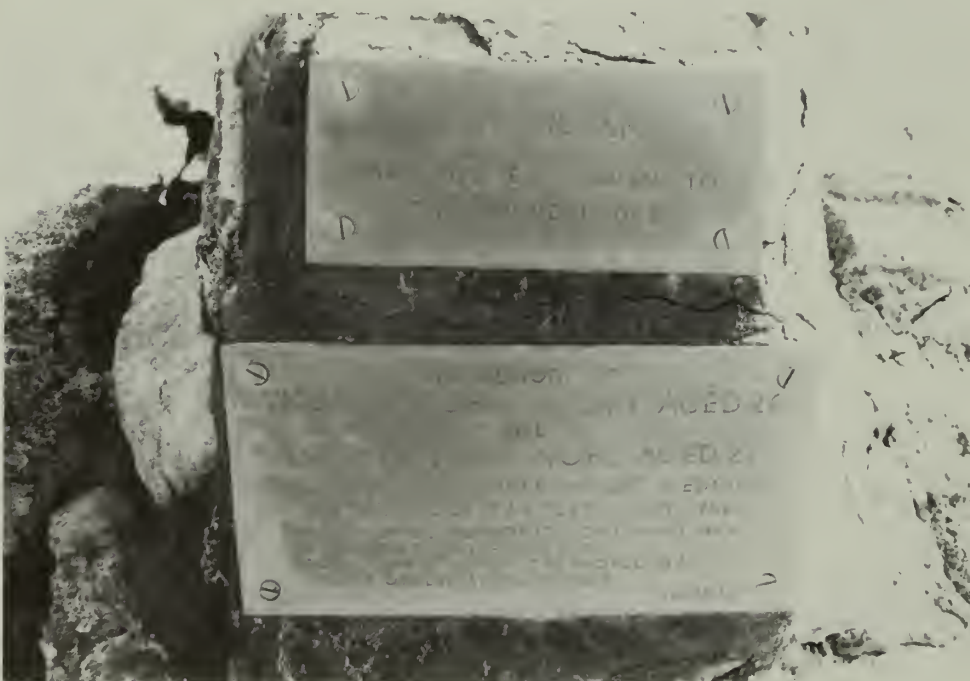
Bottom: Wooden floor and dog kennels in the original location of the British Base E, about 500 feet south of East Base. February 25, 1991.

NONRELATED FEATURES

A number of other features were observed on Stonington Island, all of which were associated with FIDS and BAS activities at Base E. They include Base E itself, located to the south of East Base. In addition some dog kennels made of chain link on galvanized steel frames sitting next to a large wooden platform are in the original location of Base E. Nearby are several piles of burned bone.



Map of Stonington Island showing the location of features not related to American use of the island.



Top: The wooden cross on the monument to British sledgers. Note the flagpole to the left. February 25, 1991.

Bottom: Brass plaques on the monument to British sledgers. February 25, 1991.

On a point of land on the western portion of the island is a concrete and stone monument marked by a large wooden cross. The monument contains two plaques to Thomas Allan and John Noel, BAS personnel who disappeared on a sledging journey in 1966. Finally, a small tar-paper-covered shack lies about 200 feet to the south of East Base and appears to be part of the base. However, it is a later British construction.



A small hut about 200 feet from East Base, associated with British activities on the island.

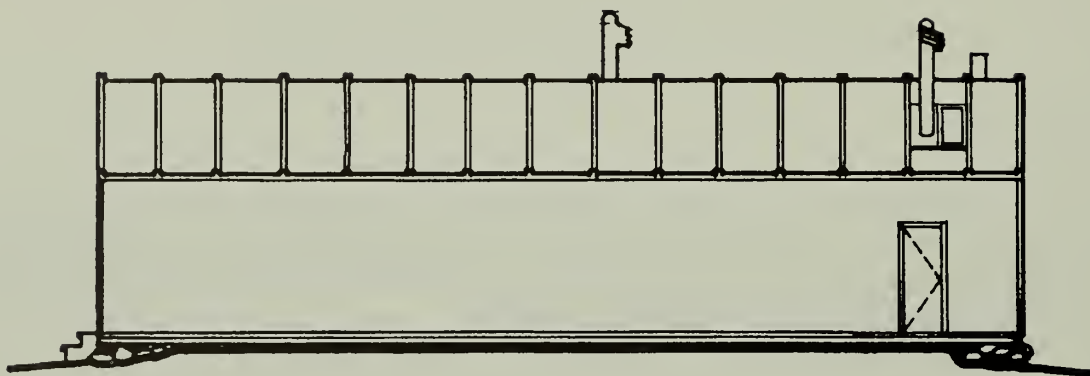
CONCLUSIONS

In conclusion, the structures and most of the material culture left at East Base appear to have originated with the USAS during its 1940-1941 occupation of Stonington Island. However, the placement of these artifacts may have little to do with activities engaged in by that expedition, except perhaps cached items such as the two food caches and the airplane crate. Chilean and Argentine use of the base for recreation is most evident in the large amount of perfectly good materials in dumps C and E and the location of the tracked vehicles in what later became a snow drift. The RARE left evidence of its occupation with the coal caches, the hay bales, and cache A, which most assuredly was associated with some of the Ronnes' winter activities. British activity is evident in the form of tar paper on the buildings, remodeling of interior spaces (including construction of the generator pad in the outpost building and total transformation of the main building), and the ubiquitous evidence of seal processing and storage.

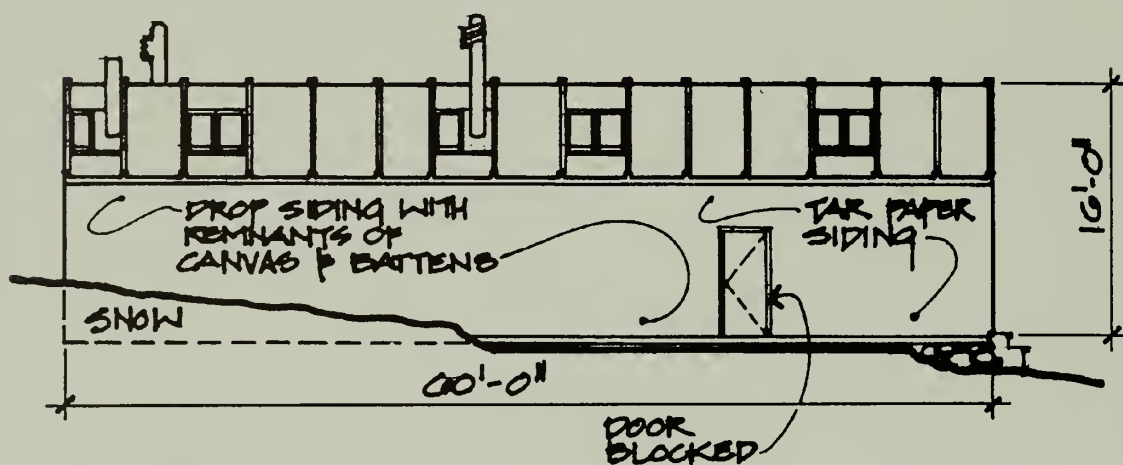
RECOMMENDATIONS FOR MANAGEMENT

INTRODUCTION

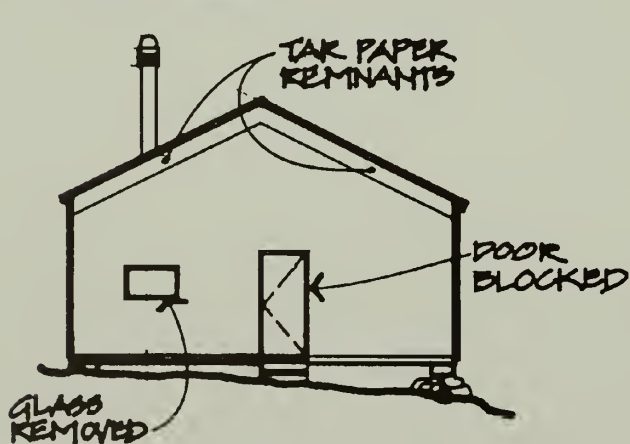
In part I of this report, broad recommendations for management of the resources at East Base were given. The following section details immediate actions and makes recommendations for long-term management of the East Base Historic Monument. The section is divided by structure and dump or cache.



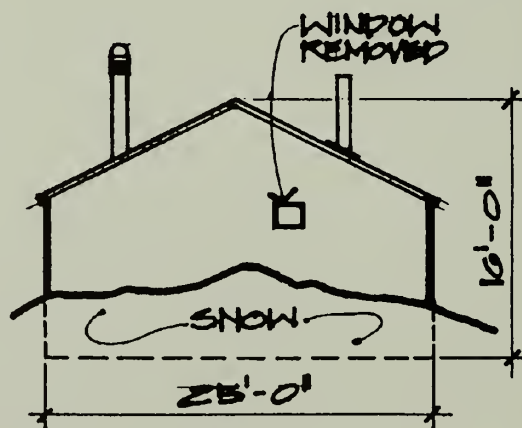
WEST ELEV.



EAST ELEV.



FRONT ELEV.



REAR ELEV.

MAIN BUILDING (BUNKHOUSE)

ELEVATIONS

SCALE: $3/32" = 1' - 0"$

MAIN BUILDING (BUNKHOUSE)

Objective

To provide for the preservation and interpretation of the main building (bunkhouse).

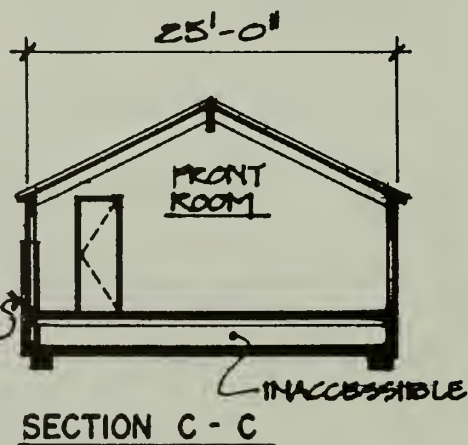
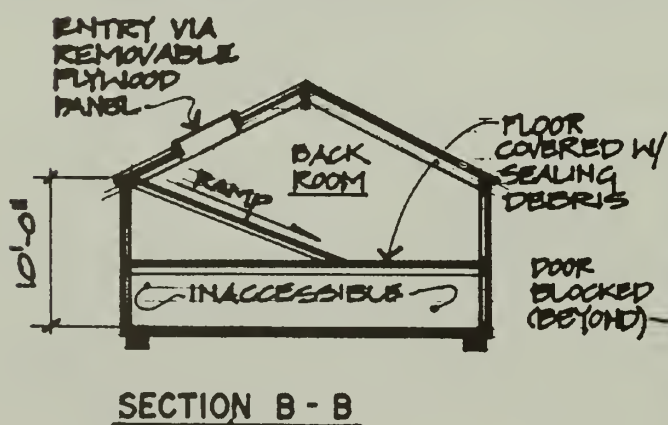
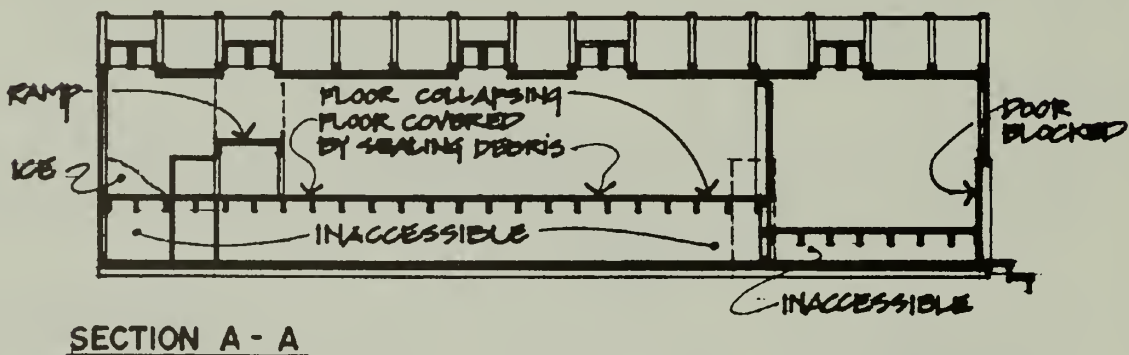
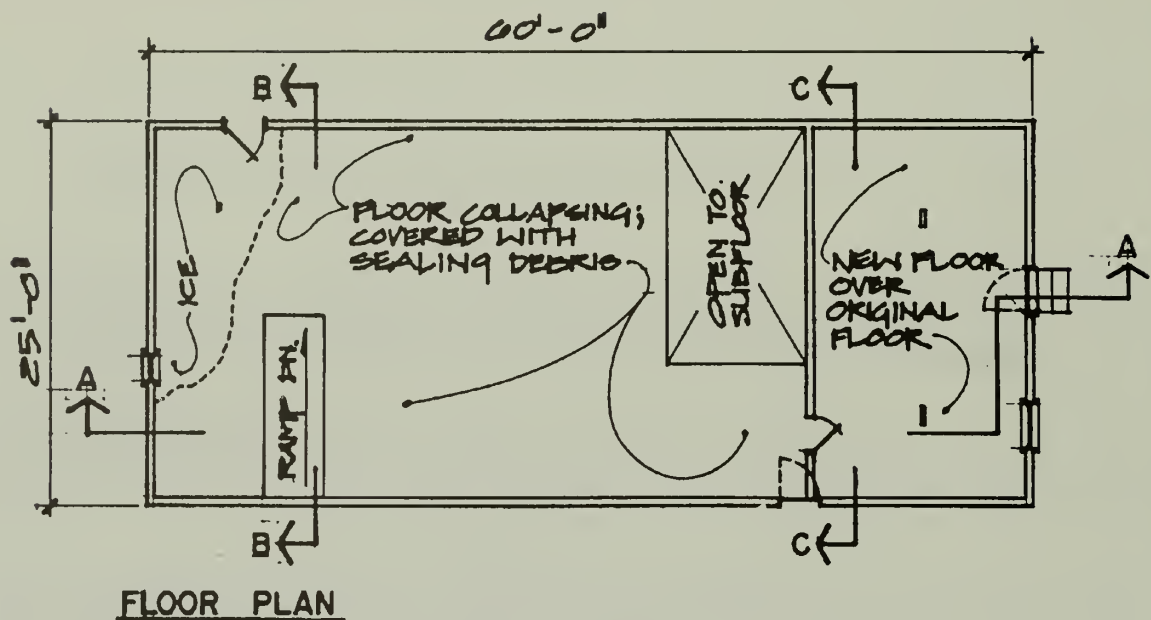
The main building, built in March 1940, was used as bunkhouse, mess, kitchen, and office by both the USAS and RARE. In the 1950s to 1960s, the British Base E crew used the building for seal storage.

The building's interior is a mess of seal debris and ice. The rear door is broken open, as is the roof entrance. Windows are also broken. The ice at the rear of the building is approximately 6 feet thick. Its extent is unknown because of the overlay of seal debris. Also, mattresses and other objects can be identified under the mess.

The building has not been inspected by an architect or a structural engineer, and work on the building should be limited to maintenance until these professionals can visit the site and make recommendations. The foundation may be failing, and the roof structure may be unsound.

Recommendations

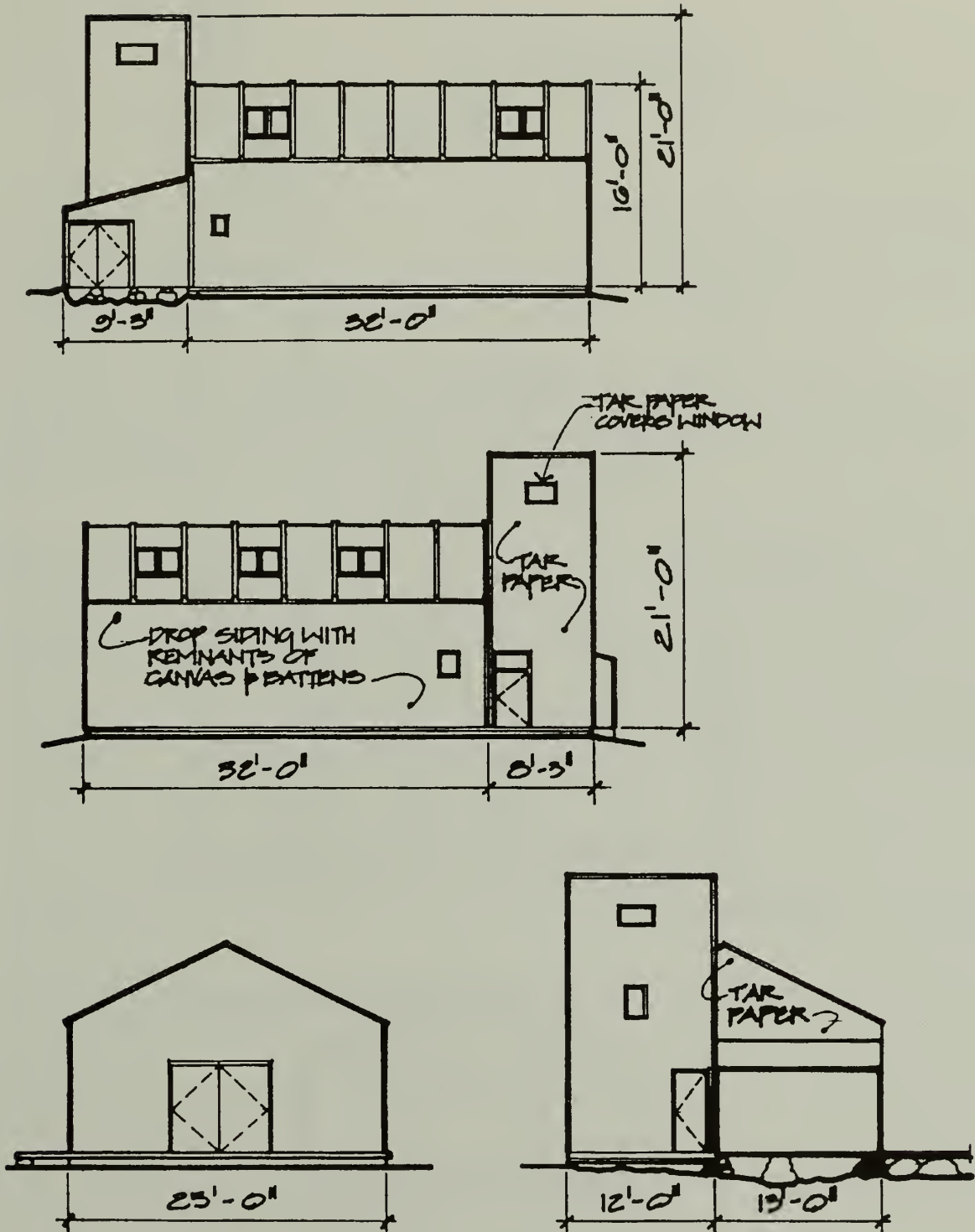
1. Have an architect inspect the structure and prepare a historic structure report to guide any long-term work. The report should include a discussion on removal of ice and seal debris while ensuring the preservation of the building's structural integrity.
2. Immediately cover open windows and repair and close the rear and roof entranceways in order to make the building weather tight. Replacement of any exterior covering, either canvas or tar paper, and any major structural repair should await the recommendations of an architect.
3. Prepare Historic American Building Survey documentation of the structure.
4. Provide for the interpretation of the building either by pamphlet or interpretive signage.
5. Close the building to visitors and install warning signs about the interior condition.
6. Assess the possible use of the clean front room for artifact storage.



MAIN BUILDING (BUNKHOUSE)

PLAN & SECTIONS

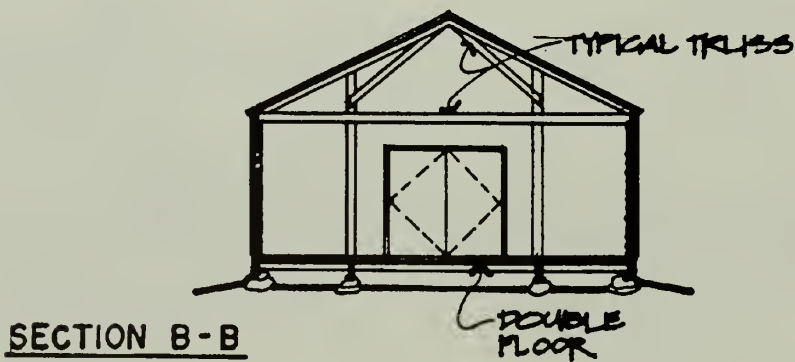
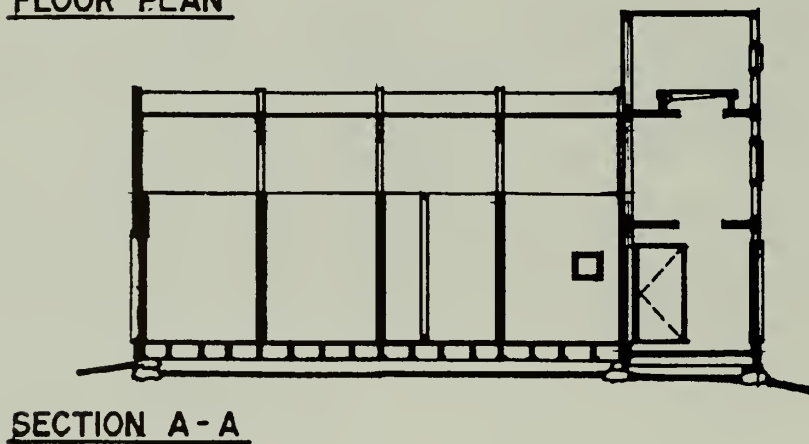
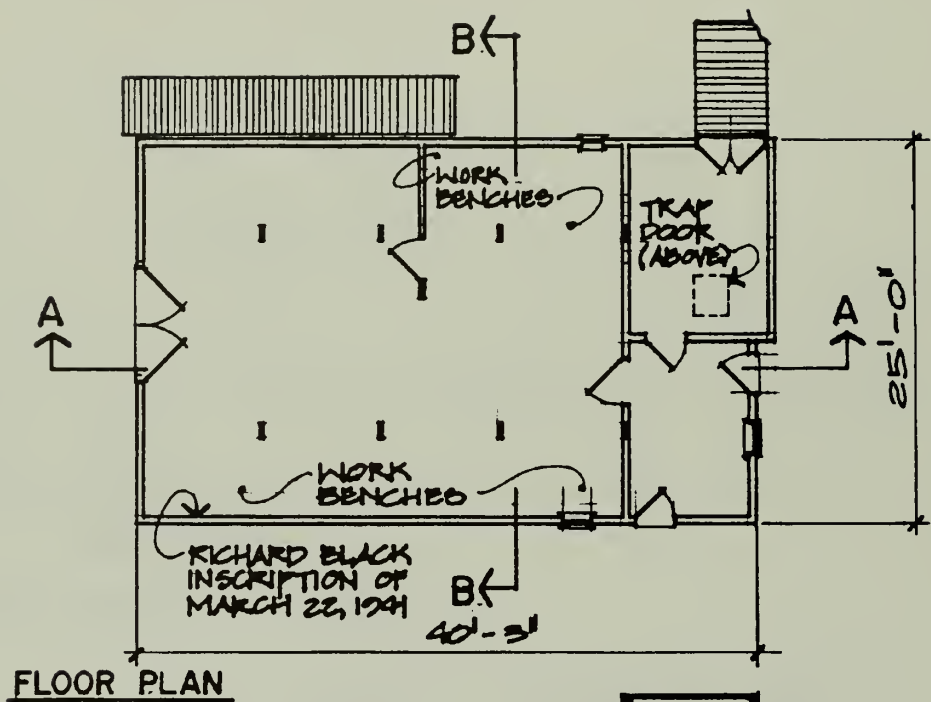
SCALE: $3/32" = 1' - 0"$



SCIENCE BUILDING

ELEVATIONS

SCALE: 3/32" = 1'-0"



SCIENCE BUILDING

PLAN & SECTIONS

SCALE: $3/32" = 1' - 0"$

SCIENCE BUILDING

Objective

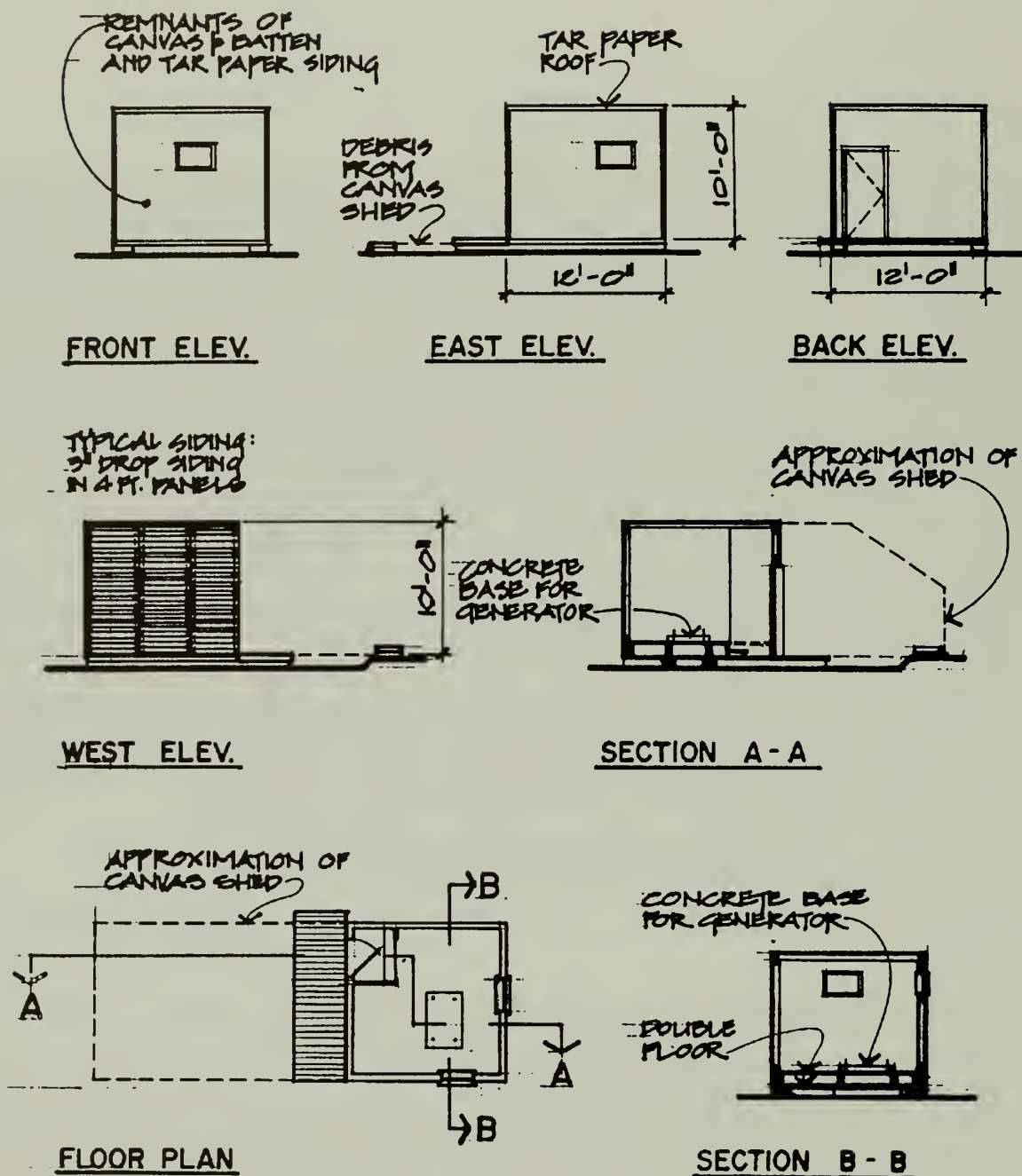
To provide for the preservation and reuse of the science building and to protect historic stenciling and messages on walls.

The science building was constructed in April 1940 to house the scientific instruments of both the USAS and RARE. A tower, divided into three levels, was attached to the south end for meteorological work. An addition to the south end of the building added a more protected entrance and space for a seismograph. The interior was remodeled by the British in the 1950s for sled storage. The structure is vacant and unused.

The building has not been inspected by an architect or structural engineer, and work on the building should be limited to maintenance until one can visit the site and make recommendations. Some doors and windows are open. The foundation may be failing, and the roof structure may be unsound.

Recommendations

1. Have an architect inspect the structure and prepare a historic structure report to guide any long-term work.
2. Immediately cover open windows, place the front door back on its hinges, and repair the rear door so it can close in order to make the building weather tight. Replacement of any exterior covering, either canvas or tar paper, and any major structural repair should await the recommendations of an architect.
3. Prepare Historic American Building Survey documentation of the structure.
4. Provide for the interpretation of the building either by pamphlet or interpretive signage.
5. Provide for the protection of the Richard B. Black message of March 22, 1941.



OUTPOST BLDG. (RONNE HUT)

SCALE: $3/32" = 1' - 0"$

PLAN,
ELEVATIONS,
& SECTIONS

OUTPOST BUILDING (RONNE HUT)

Objective

To provide for the preservation and reuse of the outpost building (Ronne hut).

The outpost building was constructed in March 1940 to house USAS personnel. In 1947-1948, during the Ronne expedition, it served as quarters and office for Finn and Edith Ronne and was known as the Ronne hut. A canvas addition to the south end of the building added a more protected entrance and space for doing routine chores, such as the preparation of trail boxes, as described in the “Ronne Cache” section elsewhere in this report.

The interior was remodeled by the British in the 1950s for an emergency generator shed. The hut is vacant and unused. A concrete pad for the generator is in the center of the floor.

The building has not been inspected by an architect or structural engineer, and work on the building should be limited to maintenance until one can visit the site and make recommendations. The building windows have been covered by plywood. The door latch needs repair. The canvas shed addition has been removed. Of the three buildings standing at East Base, it is the most weather tight. The foundation may be failing, and the roof structure may be unsound.

Recommendations

1. Have an architect inspect the structure and prepare a historic structure report to guide any long-term work.
2. Immediately repair the front door latch. Replacement of any exterior covering, either canvas or tar paper, and any major structural repair should await the recommendations of an architect.
3. Prepare Historic American Building Survey documentation of the structure.
4. Provide for the interpretation of the building either by pamphlet or interpretive signage.

MACHINE SHOP

Objective

To provide for the preservation and protection of the remains of the machine shop.

The machine shop was built in March 1940 by the U.S. Antarctic Service. The building served as machine shop during both the USAS and Ronne expedition years. Afterwards, the building fell into disrepair because it lacked a cold sink under the floor as in the other buildings. Today, only the floor and one wall remain. The remaining walls and roof are absent from the site.

Recommendations

1. Have an architect inspect the structure and make recommendations on the removal or stabilization of the remaining wall.
2. Retain the floor in situ.
3. Interpret through interpretive signage or by reference in a site-interpretive pamphlet.
4. Evaluate the generator pad adjacent to the machine shop for removal because of diesel and oil contamination.



STORAGE SHED

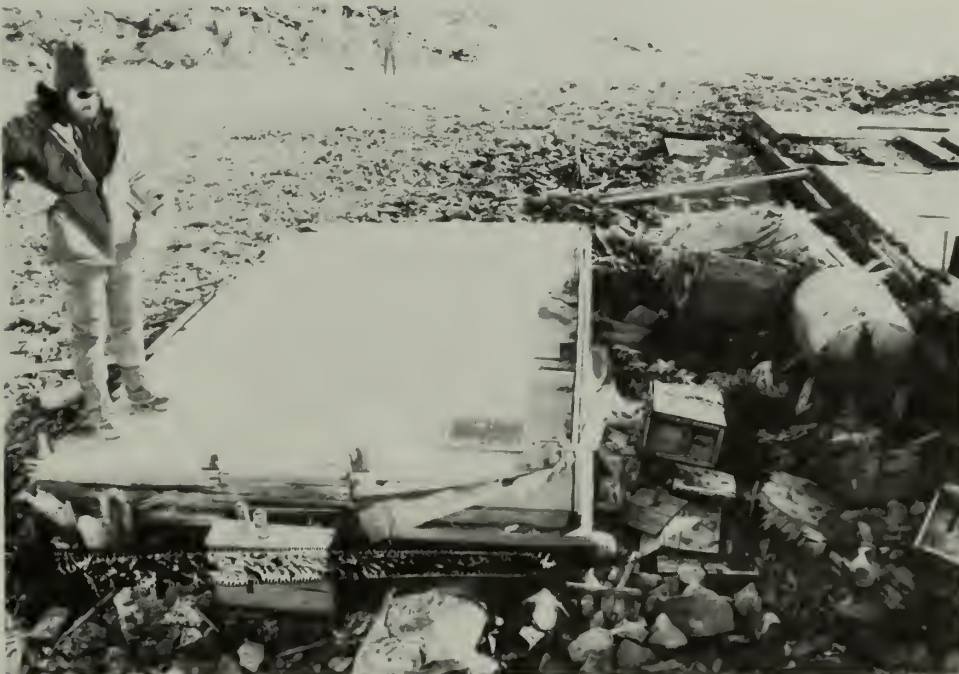
Objective

To provide for the preservation and protection of the remains of the storage shed.

The storage shed was built in April 1940 by the U.S. Antarctic Service. The building served as shed during the USAS and Ronne expedition years. The building fell into disrepair, and today only the floor remains. The walls and roof are absent from the site.

Recommendations

1. Retain the floor in situ.
2. Interpret through interpretive signage or by reference in a site-interpretive pamphlet.



TANK AND TRACTOR

Objective

To provide for the protection of the tractor and the tank.

The U.S. Antarctic Service brought the light tank and the tractor to East Base in March 1940 to support base activities. The vehicles were abandoned at the time of the March 1941 evacuation and have not been used since. The tractor probably was left on a snow bank and, with the melting, tipped on its side. The tank is stuck on a snow pedestal. Both vehicles are corroded and inoperable. They both contain batteries that are hazardous.

Recommendations

1. Retain the vehicles on site. Remove the batteries.
2. Provide for the interpretation of the vehicles either through interpretive panels or by inclusion in an interpretive pamphlet.



AIRPLANE ENGINE

Objective

To provide for the protection of the airplane engine.

The Antarctic Service brought the spare Curtiss-Wright airplane engine to East Base in March 1940 in case of an accident to the Condor, the expedition's plane. The engine was abandoned at the time of the March 1941 evacuation. It was probably never used. It is in its original crate located behind the science building.

Recommendations

1. Retain the airplane engine on site.
2. Provide for the interpretation of the engine either through interpretive panels or by inclusion in an interpretive pamphlet.





FOOD CACHE

Objective

Provide for the protection and interpretation of the food cache. Warn visitors of possible toxic contents.

The food cache stored along the south and west sides of the bunkhouse is associated with the USAS, 1940-1941 (caches L and M). The cache appears to be the only material culture related to the early expedition that remains in its original location and that is largely unadulterated. Most of the wooden crates in the food cache are unopened. Contents of the crates should be in good condition, but the food is probably no longer edible and may well be toxic.

The wooden crates containing cans of food are significant for their association with the expedition. They are a vivid reminder of the large amount of food that had to be brought with any expedition wishing to winter over in the isolated Antarctic and as such can be used as an interpretive device. They are especially impressive when it is understood that these are the supplies that remained after a year of occupation on the site.

The caches are also significant for the scientific information that may be contained therein. An analysis of the spatial location of different food types in the cache may provide information on how provisions were organized in the camp. Other scientific data may include answers to questions on the relative decay of metals in a polar environment, the length of time canned foods remain edible, and the types of foods believed to be of nutritional value in the harsh polar conditions in the middle of the 20th century.

Lipps reported that some of the food remained usable as late as 1975, when the British claimed that USAS popcorn was still edible. Visitors' curiosity about food edibility in the future may prove to be detrimental not only to human health, but also to the long-term preservation of the resource.

Recommendations

1. Post warning regarding toxic contents.
2. Clean up the immediate vicinity (remove loose canvas, broken wood fragments, etc.).
3. Interpret in display and pamphlet.
4. Complete inventory of items covered by snow bank.
5. Arrange for a longer term evaluation by a conservator.



COAL CACHES

Objective

Provide for the protection and interpretation of the coal caches.

Three coal caches remain in the immediate vicinity of the three standing structures. All three are probably associated with RARE, 1947-1948. The coal is stashed in cloth bags, which are deteriorating. The coal itself may have been brought to the site by the United States Antarctic Service in 1940, but appears to have been resacked and placed in its current positions by the later expedition. Cache J is associated with the outpost building and was used by Finn and Edith Ronne; cache K is immediately outside the east door of the main building and was used to warm the living and eating quarters of the rest of the expedition; the cache on the platform to the northeast of the science building and a small one a few feet east of the door in the RARE addition were no doubt used by the expedition members working in that structure.

The coal caches are most significant in their interpretive potential to explain the nature of heating structures in the harsh Antarctic climate in temperatures that were so cold that liquid fuels were undependable. Because both expeditions were so isolated from any source of assistance, it was mandatory that highly flammable fuels be stored away from the shelters. Otherwise a fire could have destroyed not only the buildings, but all source of fuel. Therefore the more stable, less dangerous coal was the fuel of choice by both expeditions.

A limited amount of scientific information may also be contained in the caches, especially in the type of coal that was used and in the specific location of the caches, near doors, but removed at least 25 feet from the structures.

Recommendations

1. Clean up the immediate vicinity of the caches.
2. Stabilize the platform to the northeast of the science building (e.g., replace deteriorating structural members).
3. Interpret through pamphlet.
4. Take sample of each cache.



THE RONNE CACHE

Objective

Provide for the protection and interpretation of scientific information in the Ronne cache. Clean up potentially hazardous materials. Remove unsightly, "trashed-out" areas.

The Ronne cache (cache A) is associated with RARE, 1947-1948. It is a cache of trail supplies and canvas bags lying to the west of the outpost building in the area that was originally covered by a canvas lean-to. This structure was occupied by Finn and Edith Ronne, and appears to be directly associated with their winter-time activities packing trail kits for summer exploration.

The items in the cache do not appear to be in their original crates. The 11 boxes have no lids, and all items are exposed to the elements; therefore, they are suffering a slow deterioration. Matches and other small items scattered haphazardly on the ground create an atmosphere of disorder. A casual examination of the area may lead a visitor to the conclusion that the items are trash and therefore can be mined for curiosities.

The primary significance of the Ronne cache is in its association with travel away from the base and in the types of items that were deemed necessary for emergency survival in the harsh Antarctic climate (e.g. matches, fuel sticks, Primus stoves, chocolate bars, tea, and coffee). While the cache may have additional value for interpreting those aspects of life at East Base, preserving that value may be extremely difficult, given the difficulty of monitoring the site.

Recommendations

1. Record and remove the cache using archeological techniques. Store all items in a secure designated storage area [science building, outpost building, main building?].
2. Seek conservator assistance in the preservation of items outside the cold, abacterial Antarctic environment. Identify a repository for these items for ultimate storage. Transport to that repository only when assured that transportation conditions will be sufficient to meet preservation needs.
3. Interpret in an interpretive panel and pamphlet.



THE DOMESTIC DUMPS

Objective

Provide for the protection and interpretation of the domestic dumps. Clean up unsightly trash and provide for the safety of visitors and animals.

Domestic dumps lie to the east and north of the main group of buildings. While both probably served as kitchen midden areas for the American expeditions, the majority of items appear to be associated with the USAS, 1940-1941. Most of the dump contents were probably deposited by members of RARE when they prepared the base for their own occupation in 1947. Argentine, Chilean, and British activities on the base between 1941 and 1947 may also have contributed to the dumps.

The primary significance of the dumps lies in the scientific information they may contain. Much of the material culture was discarded before it became useless. The dumps therefore have the potential to yield additional information on the types of supplies that were deemed necessary in the mid-20th century for survival in the harsh Antarctic climate and in many cases may provide outstanding examples of items no longer available. Additional information may be available regarding the degradation of medicines over time. Lower levels of dump C may contain kitchen midden, which would reveal the types of items actually consumed by the earlier expedition.

The large extent of each dump makes scientific recovery and subsequent curation almost prohibitively expensive. The presence of medicines and chemicals in the northern dump (dump E) suggests that some hazard may exist to investigators and site visitors if they are careless when rummaging through areas that are inviting “exploration” sites. The dumps are unsightly and contribute to a general atmosphere of neglect at the site.

Recommendations

1. Cover the dumps with a layer of indigenous gravel. This action will remove them from sight, thereby tidying up the site without removing the dumps from their context. It will also hide hazardous materials from curious visitors or animals traversing the surface. Drainage of water through the gravel should not significantly change the abacterial environment.
2. Conduct a systematic sampling of each dump; store material culture on site in a secure area, unless specific repositories are identified in advance of site visit.
3. Allow archeological recovery under permit by legitimate scientists who have identified repositories in advance of site visit.



STRUCTURAL AND OUTLYING DUMPS

Objective

Provide for the safety of indigenous fauna and visitors. Protect the integrity of the site by removing unsightly trash.

Three areas in the immediate vicinity of the buildings (dumps D, F, and G) and four surrounding the cadastral point rock (dump H, the insulation dump, the paper dump, and the small area of structural debris to the southeast of the paper dump) consist of cultural debris with little or no scientific data potential. Their association is uncertain and is probably related to later British use or removal from their original context by other visitors. Debris in dump F consist mostly of damaged fabric that has fallen or blown off the three main structures.

A few artifacts of interest are located in the structural dumps. In particular, the airplane engine and two tracked vehicles are of interpretive value to the site. All three are associated with the USAS, 1940-1941.

Hazardous materials are known to lie in Dump G. Oil saturates the ground in the area between the machine shop and storage shed platforms. Old helium tanks lie in the general vicinity of dump H and the honey bucket dump.

Recommendations

1. Remove the dumps and dispose off site. Remove any snow in the vicinity of the dumps to continue complete cleaning.
2. Salvage any items of obvious interest (e.g., stove parts, turnbuckles, ski gear). Store in secure area on site unless a repository is identified in advance.
3. Remove any hazardous materials; test the depth of oil stain in the vicinity of the machine shop.
4. Retain the airplane engine and tracked vehicles in situ. Interpret these items in the pamphlet.

HAY BALES

Objective

Provide for the protection and interpretation of the hay bales. Provide for the safety of visitors and indigenous fauna.

The hay bales are associated with RARE, 1947-1948. They were purchased in Chile as feed for two alpacas, which were killed by dogs in transit to East Base. The hay was used as bedding for chickens and dogs kept by the expedition.

The primary significance of the hay bales lies in their interpretive value, illustrating an anecdote associated with the second expedition and alternative uses for materials. They are also a striking example of the preservative powers of the Antarctic climate.

It is possible that the hay could harbor anthrax or other nonindigenous biota.

Recommendations

1. Retain in place and permit natural degradation.
2. Sample for anthrax and other nonindigenous biota. Destroy if found to be hazardous.
3. Interpret in pamphlet.



HONEY BUCKET DUMP

Objective

Provide for the safety of visitors and indigenous fauna. Clean up unsightly debris.

The honey bucket dump cannot be associated with any particular group using Stonington Island. It appears to have no historic or scientific significance.

The dump is unsightly and possibly hazardous. The fecal material may contain disease organisms that could adversely affect the health of visitors or indigenous fauna. The cool, dry environment creates conditions such that the contents may not be immediately identifiable to visitors exploring the site.

Recommendations

1. Remove surface debris, especially broken wooden crates.
2. Sample for disease organisms.
3. Cover with local gravel, or remove and dispose off site.



DOG TUNNELS AND SEAL PARTS

Objective

Provide for the interpretation of dog sledging during the expeditions.

At least two concentrations of dog feces and some random tethering cables lie on the north side of the cadastral point rock outcrop. These items are in the immediate vicinity of the dog tunnels used by the USAS, 1940-1941.

In addition, a few seal tails and flippers can be found on the west side of the rock outcrop, and at least three heads and a carcass were observed protruding from the snow bank to the west of dump H. Brown, gelatinous stains on the rocks covering both the cadastral point rock and the outcrop to the south of the building complex are also remains of seals. Seal meat and blubber were processed as dog food by both American expeditions at the taxidermy shop, originally located at the south end of dump H. In addition, the British used the main building for the storage of seal carcasses, also used to feed dogs.

It is unlikely that any of these organic remains pose a hazard to either humans or indigenous fauna. If, under unusual conditions, canine parasites remain viable in the dog feces, they could infect seal populations.

Recommendations

1. Retain in place.
2. Sample dog feces for viable infectious parasites. If present, remove.
3. Interpret seal remains and dog tethers in pamphlet.



FLAGPOLE

Objective

Provide for the protection and interpretation of the flagpole.

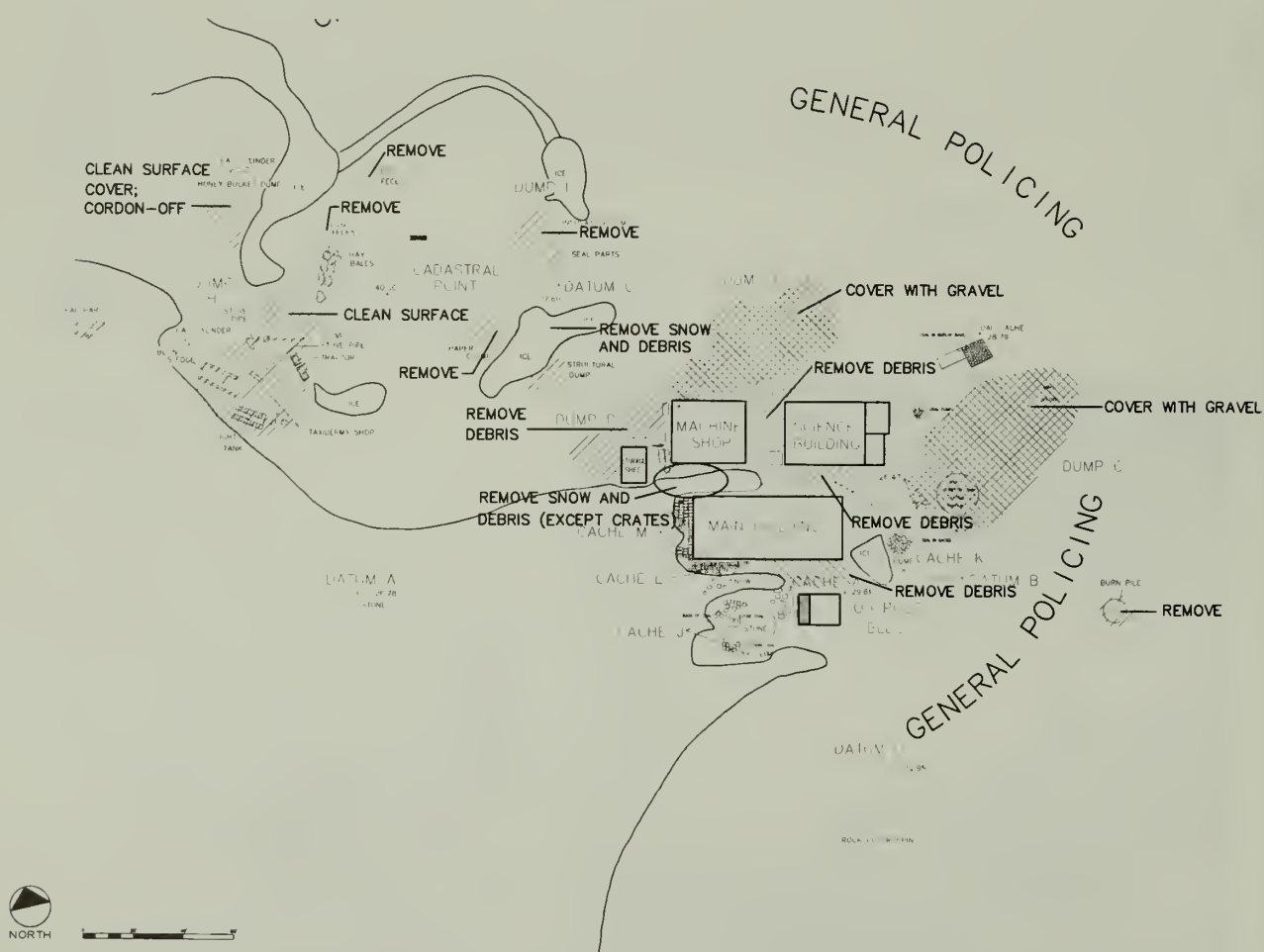
The flagpole was erected by USAS in 1940 and was the site of a symbolic territorial dispute between RARE and FIDS expedition occupying Base E. It appears to have been maintained in the years since by the British.

The primary significance of the flagpole is as a symbol of joint American and British use of Stonington Island.

Recommendations

1. Retain and maintain, possibly through an agreement with BAS.
2. Interpret in pamphlet.





Cleanup Plan.

SUMMARY OF SHORT-TERM RECOMMENDATIONS

In a meeting between the NSF, ASA, and the NPS in Denver on September 17, 1991, a number of actions specific to a planned February 1992 cleanup trip to Stonington Island were developed. Four types of actions were specified:

cleanup of debris and covering of dumps

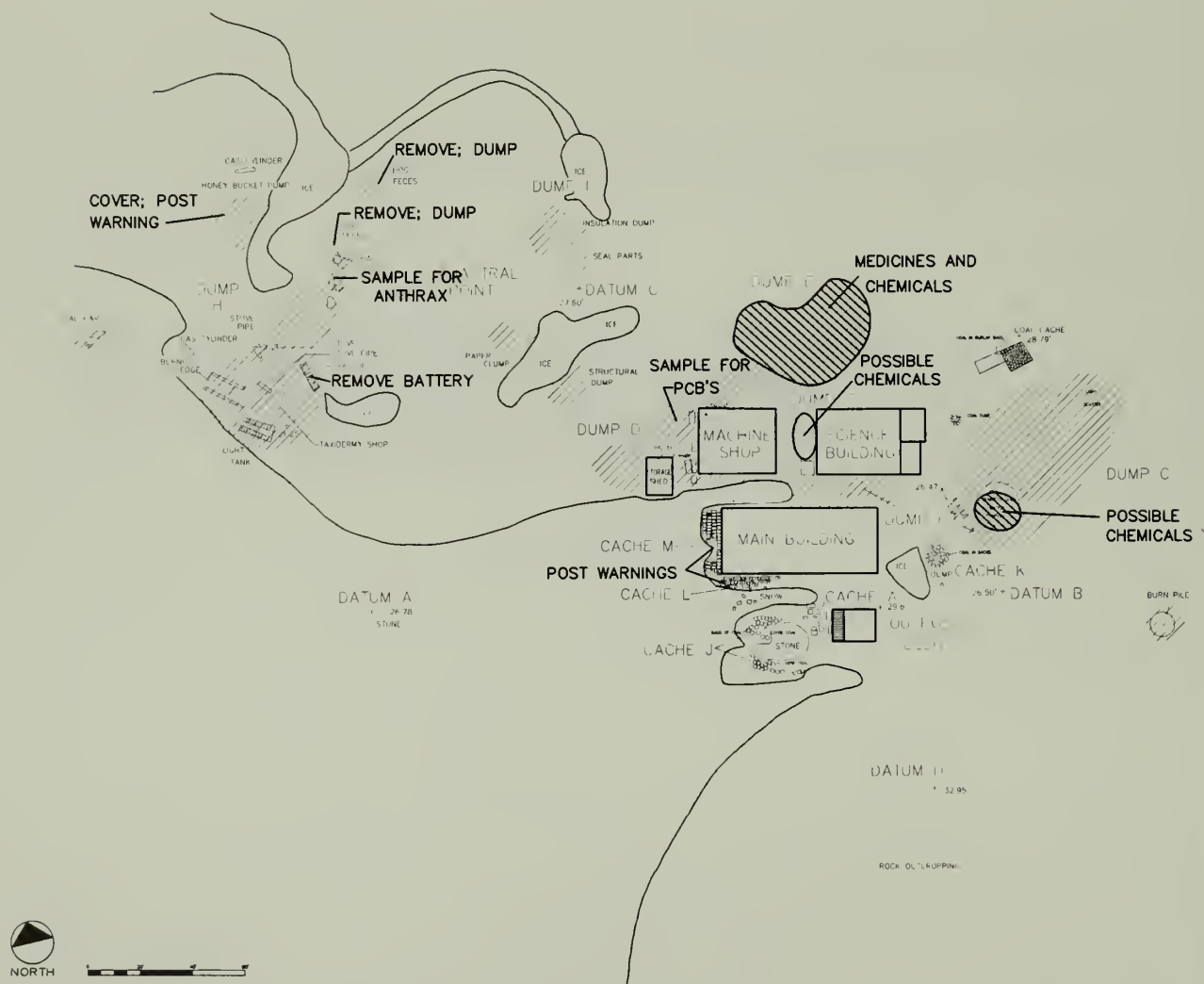
documentation, disposal, and/or warnings of hazardous materials

systematic archeological recovery of the Ronne cache and sampling of dumps to be covered

architect supervision of repair of doors and closing of open windows and other openings to ensure that the structures are weatherproof

CLEANUP

The ASA has been directed by the NSF to clean up East Base. Loose surface structural debris should be removed from the structural dumps, and the domestic dumps should be covered with a layer of indigenous gravel mined from Stonington Island. The mine should be out of sight from the base and should be taken from an extensive area to prevent creation of a large hole. Historic tractor roads will be avoided.



Location of Hazardous Wastes

Hazardous Materials

An inventory of hazardous materials identified in the 1939 manifest of supplies taken to East Base was examined. A listing of those materials, as well as other items observed on site or noted in other documents, appears in appendix I. Inventories from the Ronne expedition or British occupations were not available, so other hazardous materials may not appear on this list.

Obvious hazardous chemicals can be removed directly from the surface of the domestic dumps, but no digging or rooting through the dumps should occur to minimize loss of scientific data and injury to workers. The dumps will be covered with gravel.

The oil-saturated area to the northwest of the machine shop should be tested for depth and sampled for polychlorinated biphenyls (PCBs).

The surface of the honey bucket dump may be cleaned of loose debris and covered until appropriate disposition of the mixed crates, tins, and fecal remains can be arranged. The dump should be posted as hazardous.

The batteries in the tank and tractor should be removed.

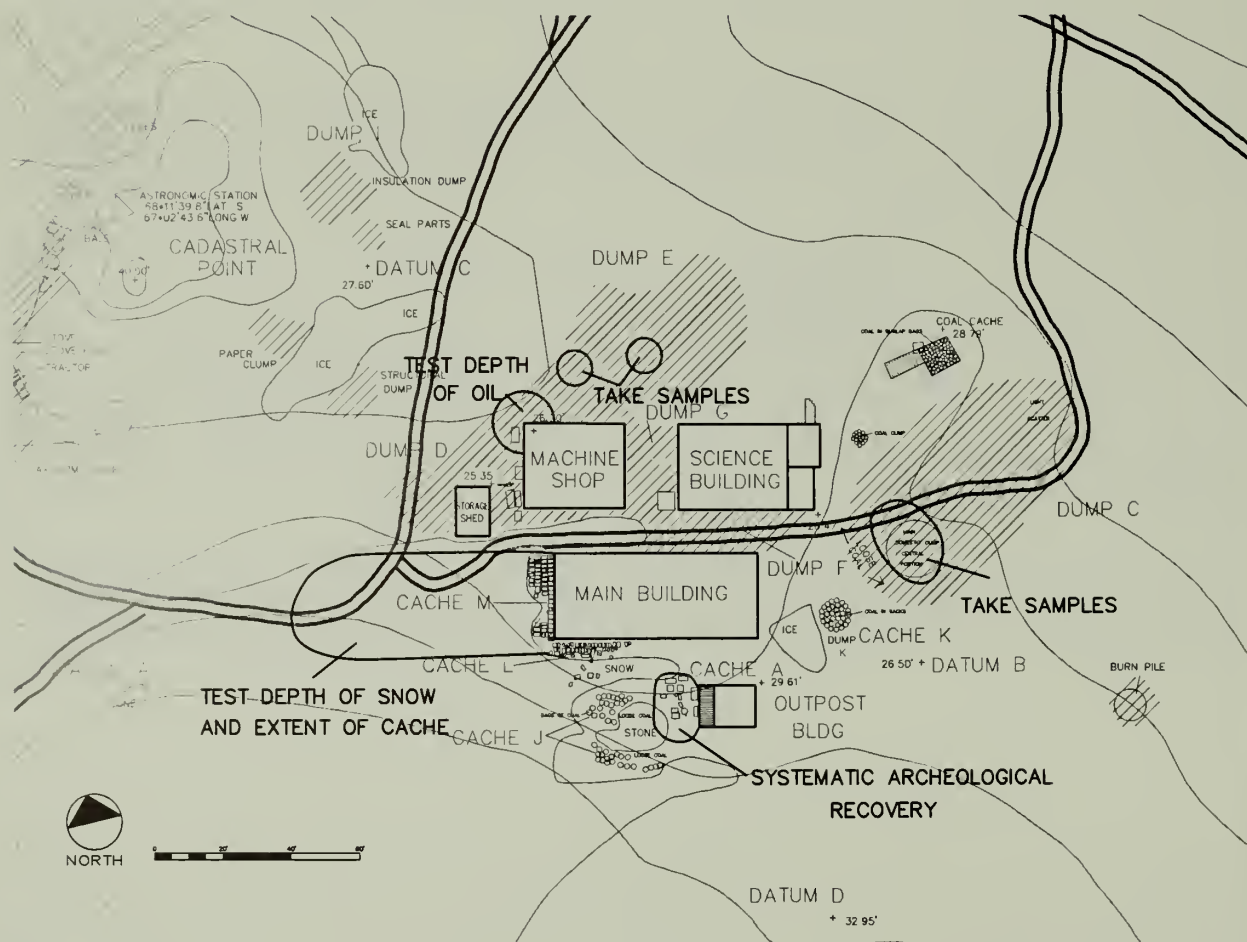
The hay bales should be sampled for anthrax.

The dog feces should be removed if they are found to contain infectious parasites.

Seal remains are indigenous to the area and do not pose a hazard. They may be retained for interpretive purposes.

The food caches may contain toxins; they should be posted as unfit for human consumption. The scientific and interpretive value of the caches far outweighs any small potential threat to indigenous fauna, which are unlikely to find tainted, canned human food attractive.

PART II: DESCRIPTION OF THE CULTURAL RESOURCES AND RECOMMENDATIONS



Archeological Recovery and Sampling

The Ronne cache is in danger of being destroyed by visitors and, though unsightly, contains important scientific information. A formal, systematic archeological recovery of the cache is recommended. A repository for the artifacts should be identified prior to start of the cleanup trip, and sufficient allowance for refrigeration of approximately 20 crates of artifacts should be made during transport to the repository. Barring the ability to provide for an appropriate environment for transport and ultimate repository, the artifacts should be stored on site in a secure location, in sealed, modern wooden boxes.

Standard archeological recording techniques should be used by a professional archeologist. A detailed, quantified inventory of the items should also be prepared if the items are left on site.

Additional sampling of the domestic dumps may be undertaken if time allows, although a rather large sample has been taken and is now stored in the outpost building (Ronne hut). The samples should be removed only if an appropriate environment is maintained and a repository identified in advance. It is recommended that any additional sampling be systematic and quantified; i.e., all human-made items recovered from a source location, with a quantified inventory as the end result. Sampling should not be "grab-bag" in nature.

LONGER TERM RECOMMENDATIONS

HISTORY

The NSF should initiate an oral history program as part of a larger historic resource study of East Base. Members of the USAS and RARE should be interviewed about the uses of and activities at the base.

Records of the British Base E are located at the British Rothera Base. The daily logs and annual reports should be reviewed for information about the use of the American East Base after 1948.

Records of the USAS and RARE should be located and their owners encouraged to provide for long-term retention at the National Archives or other suitable public repositories.

ARCHITECTURE

The NSF should initiate a historic structures report for the long-term stabilization of the buildings remaining at East Base. The report should be completed by a qualified historical architect.

Historic American Buildings Survey documentation for the buildings should be completed as part of the historic structures report or as a separate project.

Decisions should be made on stabilization of the main building. Ice and seal debris should be removed while stabilizing the structure. The science building and outpost building (Ronne hut) should be stabilized in accordance with the short-term recommendations detailed above and the historic structures report.

ARCHEOLOGY

The domestic dumps have the potential to yield important information of interest to scientists studying such things as human disposal patterns or the degradation of materials (medicines, organics) over time. Historians, sociologists, and archeologists are increasingly discovering that the difference in what people say they did and what actually occurred can be revealed through archeological methods and techniques. It is incumbent upon preservationists to protect such outstanding records as those provided by the domestic dumps at East Base as a repository of knowledge.

The size of the dumps and the wealth of the material culture precludes a 100 percent recovery of data at this time. Travel to the site is difficult and expensive, and such a large-scale project would take several weeks of field work on site. The NSF should encourage scholars to use the East Base dumps as a mine for scientific information if they meet NSF criteria for professional qualifications, have legitimate research concerns,

PART II: DESCRIPTION OF THE CULTURAL RESOURCES AND RECOMMENDATIONS



Interpretive Plan

and have identified public repositories with curation plans for any collected material and/or documents generated during the course of study.

CONSERVATION AND CURATION

The NSF should undertake a curation plan for items remaining on site. While on-site degradation appears to be slow, it is occurring nonetheless. In particular, metal parts (e.g., tin cans; the tank, tractor, and airplane engine) may disappear without appropriate conservation treatment. It may be the ultimate finding of a curator that the items cannot be preserved after a certain time on site, until another repository is identified.

A curation plan can also make recommendations regarding longer term storage of artifacts collected during archeological investigations on site and the appropriate types of monitoring that should be undertaken.

SIGN AND INTERPRETATION RECOMMENDATIONS

In order to identify buildings, small, routed wooden signs should be placed on the science building, main building (bunkhouse), and outpost building (Ronne hut). These should be placed on the Back Bay side of the buildings, in corner locations. The signs should read: "Science Building," "Main Building," and "Ronne Hut."

A dedication plaque should be affixed to a boulder on the site or to a sturdy concrete base. The plaque should be made of bronze alloy and securely fastened to the base. The plaque should be modeled after national historic landmark plaques given to property owners by the NPS. The plaque should read as follows:

EAST BASE
Has Been Designated A
HISTORIC MONUMENT
This Site Possesses Significance
In Commemorating the History of
Antarctica
1989
National Science Foundation
United States of America

A warning sign about hazardous waste needs to be placed at the honey bucket dump, the hay bales, and on the main building. The warning signs should have black letters painted on yellow, and the signs should be diamond-shaped pieces of metal. Text should be written in English, Spanish, French, and Russian. It should read as follows:

WARNING
This area contains
potential hazards to humans.
Avoid.

Signs stating that East Base Historic Monument is a protected site under the Antarctic Treaty should be placed at the obvious beach landings on Stonington Island. The signs should have black lettering on a white background, painted onto rectangular-shaped pieces of metal. The signs should be in English, French, Spanish, and Russian. They should read as follows:

EAST BASE
is a protected
HISTORIC MONUMENT
under the
Antarctic Treaty

Interpretive signs for the site should be prepared and placed inside the science building. They should contain historic information and photographs. Placement of the signs should not damage the message of Richard Black on the wall.

An interpretive brochure on East Base should be prepared.

APPENDIX A: SAMPLE OF DUMP C

- 1 pair wool pants
- 1 can Scotch herring
- 1 glass (jar?) top
- 1 6-oz. glass bottle
- 1 can of popcorn
- 1 *Reader's Digest*, Dec. 1939
- 1 ski pole boot, ferrous metal
- 1 rubber tape
- 1 English grammar book
- 1 jar of Noxema
- 1 shovel head
- 6" by 8" metal plate: "OFFICIAL RECD"
- 1 salt shaker
- 1 stick Vaseline (lip balm?)
- 1 tube boric acid
- 1 lantern top
- 1 lantern bottom
- 1 Canada Dry bottle, 12-oz.
- 1 pickax head
- 1 ski pole shaft bottom
- 1 ointment jug
- 1 box matches
- 1 1-oz. eye dropper
- 1 glass bottle of "lunch tablets"
- 1 4-oz. medicine bottle
- 1 Vaseline jar
- 1 dog choker
- 2 spoons
- 1 fork
- 1 12-oz. glass science bottle
- 1 whole fruit jar
- 1 medicine bottle, 10-oz.
- 1 tea cup
- 1 bacterial ointment
- 1 beef bar
- 1 ointment jug wrapped in paper
- 1 film footage
- 1 wine bottle
- 1 A-1 Sauce-type bottle
- 1 6-oz. tin
- 1 ski tip for repair
- 1 cribbage board
- 1 white china bowl
- 1 2-oz. glass medicine bottle
- 4 broken china plates
- 1 ice pick head
- 1 Horlicks malted milk jar

APPENDIX B: SAMPLED ITEMS FROM DUMP E

- 1 wool shirt
- 1 signal mirror
- 1 spoon marked "USN"
- 7 large bottles, no labels
- 12 small bottles, no labels
- 1 oil bottle
- 1 Kodak bottle (short), with lid
- 1 glass jar
- 1 green dropper bottle
- 1 corked swab bottle
- 1 rusted tin, marked "MARTIN'S OINTMENT"
- 1 ink bottle, "HIGGINS DRAWING INK"
- 1 distress signal, "SCHERMULY"
- 1 radio tube, "RADIOTRON"
- 1 2-piece wire insulator, "JOHNSON"
- 1 metal film roll with canister
- 1 large film roll
- 1 light bulb with curious filament, "WABASH SUPERFLASH"
- 8-oz. bag of desiccant, "PROTEK-SORB"
- 1 ammo belt accessory, snaps on to carry a shovel/ax?
- 1 fur-backed glove
- 1 canister with lid, cardboard, marked "BIOLOGICAL SPECIMENS BOX II"
- 14 dog tags: identifiable names include:
 - Nog (Hog?)
 - Rocky
 - Castro
 - Konga
 - Donkey
 - Rag (?)
- 2 16-gauge shotgun shells
- 1 clear glass jar top
- 1 metal plaque reading:
 - C.W. SHARBUNNEAU
 - CARPENTER. EAST BASE
 - U.S. ANTARCTIC SERVICE
 - 1939-1941
- 1 corked, clear glass, partially filled bottle labeled "REAGENT FERRIC ____"
- 1 large brown bottle with cap containing pills
- 1 small brown bottle filled with large tablets
- 1 glass-stoppered bottle labeled "CLEANING SOLUTION – DICHROMATE IN
CONCENTRATED SULFURIC ACID"
- 1 brown bottle, partially filled with liquid, with special cap, plastic tubes protruding
- 1 clear glass bottle with broken glass stopper
- 1 rubber-stoppered bottle, "SQUIBB" with illegible label
- 1 60-ml bottle of intravenous fluid
- 1 corked brown bottle, with glass dipper (for oil immersion microscopy?)
- 1 brown, corked bottle filled with pills/tablets
- 2 rusted cans (opened), "KELBRO-BAND, ELASTIC STICKING ROLL-BANDAGE"

- 1 broken, narrow-necked tube
- 1 black plastic enema tube tip
- 1 intact, unopened box, "TETANUS GAS GANGRENE ANTITOXIN"
(contents of a similar box include a hypodermic needle, "DILUTION OF TETANUS,"
"TETANUS GAS-GANGRENE ANTITOXIN," and devices for injection)
- 1 metal tube, "VASELINE CAMPHOR/FOR CHAPPED HANDS, LIPS..."
- 2 glass ampules, "AROMATIC SPIRIT OF AMMONIA AMPOULE"
(one specimen is in a cardboard wrapper)
- 2 large glass syringes with tetanus gangrene solution
- 1 hypodermic needle in glass tube
- 1 glass medicine vial with insert stuck to vial, "MULFORD"; probably is insulin
- 1 package of "AMMONIA AMPOULES/THE AMERICAN NATIONAL RED CROSS"
- 1 package of "40 IN. TRIANGULAR BANDAGE/AMER. NAT. RED CROSS"
- 3 unwrapped triangular bandages

APPENDIX C: SAMPLED CONTENTS OF DUMP D

- 1 WOOLRICH shirt, size 15
- 1 seal-fur pouch
- 2 sealskin straps
- 1 canvas duffel bag, containing leather pouch and shoes, labeled
LYTTON MUSSELMAN
U.S. ANTARCTIC SERVICE
AT EAST BASE
1939 1941
- 1 box LUDEN'S COUGH DROPS
- Monopoly game cards, 1 legible: "GO TO JAIL"

APPENDIX D: CONTENTS OF CACHE L, SOUTH SIDE OF BUNKHOUSE

B-001: ?	B-048: ?
B-002: Vegetable soup	B-049: Pork and beans
B-003: Mixed vegetables	B-050: Pork and beans
B-004: [Illegible]	B-051: Vegetable soup
B-005: ?	B-052: Lima beans
B-006: Green asparagus	B-053: Hominy
B-007: Vegetable soup	B-054: ?
B-008: Lima beans	B-055: ?
B-009: ?	B-056: Spinach
B-010: Whole potatoes	B-057: Chili con carne
B-011: ?	B-058: Black-eyed peas with pork
B-012: Spinach	B-059: Spinach
B-013: ?	B-060: Pork and beans
B-014: Tomatoes	B-061: Pork and beans
B-015: ?	B-062: Pork and beans
B-016: ?	B-063: ?
B-017: Black-eyed peas with pork	B-064: Chili con carne with beans
B-018: Lima beans	B-065: ?
B-019: ?	B-066: Pea soup
B-020: Chili con carne with beans	B-067: Pork and beans
B-021: Tomatoes	B-068: ?
B-022: Mixed vegetables	B-069: ?
B-023: ?	B-070: Spinach
B-024: Tomato soup	B-071: ?
B-025: ?	B-072: ?
B-026: Vegetable soup	B-073: ?
B-027: Grape jelly	B-074: ?
B-028: ?	B-075: Stringless beans
B-029: Mixed vegetables	B-076: ?
B-030: ?	B-077: Lima beans
B-031: Spinach	
B-032: Spaghetti	
B-033: [Illegible] soup	
B-034: ?	
B-035: Spinach	
B-036: Salmon	
B-037: [Illegible] vegetables	
B-038: Pork and beans	
B-039: ?	
B-040: Stringless beans	
B-041: Corn	
B-042: ?	
B-043: Clam chowder	
B-044: Chili con carne with beans	
B-045: Pork and beans	
B-046: ?	
B-047: Spinach	

APPENDIX E: CONTENTS OF CACHE M WEST OF BUNKHOUSE

A total of 47 boxes were observed above the snowdrift and labeled D-078 through D-124. The contents are unknown except for the following:

D-089: Coffee

D-099: Hominy grits

D-101: Quaker oats

Also, 1 large can of Ovaltine

APPENDIX F: CONTENTS OF CACHE A

CRATE 1

40 packages of vitamins, tablet form, 48+ per package, nested in perforated cards

POT

1 gallon, made of white metal, containing thousands of matches

CRATE 2

thousands of matches

1 6-oz. glass vial with metal lid

2 16-oz. glass jars of Horlick's malted milk. Molded lettering reading
"Made in Racine Wis - USA"

metal screw-on cap

fragments of Horlick's malted milk bottles

2-ft. black 2 avt power cord

toilet paper throughout crate

disintegrating canvas sack with:

6-oz. jar of instant coffee mix, sealed

badly oxidized 8 oz. can

tea bags

scrap pieces of metal

bar of wax

cork with "Thermos" written on top

METAL WASH BASIN

half-filled with matchsticks, rags, and vitamin packs

CRATE 3

packages of Nestle's semisweet chocolate packaged in paper sacks,
plus a tin crate inside the wood crate

leather dog collar

CRATE 4

36 paper containers filled with sandy, soil-like material
twine

1 2-oz. jar of makeup

CRATE 5

4 canvas sacks as noted in crate 2, with coffee mixes

4-qt. pot with smaller pots inside

2 metal funnels, 4. diameter

Quaker rolled white oats can in a nylon sack

glass bottle, possibly a meat condiment sauce

6-oz. coffee bottle

#10 can

1-inch vials
16-oz. jar filled with Meta tablets⁶⁴
12-oz. oats can

Next to crate 5 was some nylon mesh material in a bundle with a broken knife on top and a potato sack filled with #5 cans.

CRATE 6

marked "45 lbs net/Pineapple Canned/ Libby Moncill Libby/ Contract No 64912/ Canned
Aug 1938"

2 #5 cans
small canvas sack
canvas sack, tied, containing a #5 can
matches
ferrous metal strapping
ferrous metal discs

CRATE 7

matches
ferrous metal screw and washer
2 small 3-way valves
gasket

CRATE 8

approximately 23 intact 6-oz. jars of instant iced coffee
broken pieces of coffee jars
spilled instant coffee

GROUND IN VICINITY OF CRATE 8

small coffee jars
key-type can opener
2-inch-wide metal strip, 12 inches long
Meta tablets
thousands of matches
scrap pieces of wooden crate
5 ft. of fuel hose, copper meshed outer covering

-
64. Meta tablets are metaldehyde fuel sticks measuring about 2 inches long and 1/2 inch square, consisting of a dense white material. Instructions on a printed wrapper indicate they can be burned completely or extinguished by removing from the source of heat. The label cautions the user to store in a cool place (mission accomplished) away from light and heat (not so good...). A requisition slip dated August 18, 1939, explained their use:

Meta is a white, chalky, heat tablet which will ignite easily with a match at any temperature and burn with a blue flame without smoke or ash. It is indispensable to polar exploration as a means of preheating kerosene stoves, lights and for fuel when other products prove inadequate. It has the properties of a liquid fuel but with the decided convenience of a solid.

One case of Meta tablets was taken to East Base by the USASE; a half case was left by February 1941. It is unclear whether these items were meant for use by the USASE or RARE.

NORTH OF CRATE 8

2 #10 cans with cloth covering
small stove generator
stove burner
coffee sack
small can with key-type can opener
small vials
#3 cans

CRATE 9

[not examined]

CRATE 10

Meta tablets in boxes of 100, 20 boxes
matches

GROUND AROUND CRATE 10

2 Grate Primus stove parts
thousands of matches
vitamin packages
wood blocks

CRATE 11

Primus stove parts
fuel generator
burners
thousands of matches
miscellaneous stove parts

SOUTH SIDE OF DUMP

D-cell battery
link chain with clips, oxidized
1-oz. vials
16-oz. bottle
remains of light bulbs
matches
6-inch bolts
strips of nylon tarp
vertebrae (seal?)
metal grilling

CENTER OF DUMP

wool blanket
white canvas tarp
valve hardware
thousands of matches
2-ft.-long ferrous metal rod/screw with washer, about 1/4-inch diameter
seal skull
small box of matches
6-oz. glass jar
Meta tablets
small bail of sticks

50 match boxes, 100 matches per box

2-oz. vial, red with cotton

6-oz. coffee jar

NORTH SIDE OF DUMP

rusted cans

oat cans

2 wine bottles

5 vials

broken ski pole with leather handle

broken wire-reinforced window glass

6 white candles

screws

APPENDIX G: PARTIAL INVENTORY OF DUMP C

SOUTHWEST PORTION

C-cell battery
rubber boot
2 wooden crates of cans
#10 can
exposed film
wires
tin box
16-oz. tin cans
cardboard box remains
eye dropper
light bulb
sock
metal spike
broken plate
4-way valve
injectable vial with a white powder
6-oz. glass bottle
wine bottle cork
"Atlas Wholefruit Jar" with metal bale
50+ small cans
knife
8 #10 cans
yarn
ski tip
black nylon tape spool
spool of film
cribbage board
"shackles"
leather boot
screw-in light base
carpeting
toothbrush
wooden light socket
package of many red weather balloons

WEST CENTRAL PORTION

broken china plate marked "U.S.Q.M.C."
chains with 1-inch links
copper fitting
spliced piece of rope
3-inch pipe wrench
metal top to gas lantern

metal clips
large amount of coal
4-qt. pot
gear
dog chain
copper 1/2-inch pipe, 2 ft. long
fuel pump for stove
gas lantern top and bottom
35mm film
#10 cans
12-inch pipe collar
gas bottle top
ferrous metal disk
film reel, overexposed
gas bottle tops
electric hose

NORTHWEST PORTION

shovel head
stove valve
small propane bottle
ski tip fix
lantern top
2 forks, silver plated
2 spoons
pickax
chain links
tent pegs
piton
ski binding parts
dogsled runner
end cap fluorescent light
shovel
Ace bandage
small can of Kraft cheese
pickax head
overhead light fixture
stove tri-valve
large tent stake
turnbuckle
icebreaker head
ice pick head
lots of "shackles"

APPENDIX H: INVENTORY OF ARTIFACTS FOUND ON THE FLAGPOLE HILL

1 flagpole with 3 anchoring wire lines
20+ spent rifle shells
1 rubber glove
several wooden boards
several feet of rope
1 orange plastic bag labeled "ANTHRACITE – PACKED FOR BAS"
holes drilled in rocks
very small collection of trash (bits of clothing, burned wood, cardboard, etc.)

APPENDIX I: LIST OF HAZARDOUS MATERIALS

ITEMS NOTED IN THE 1941 INVENTORY⁶⁵

Photographic Equipment

[photographic] developing outfit, portable. [who knows what that included?]	1
--	---

Meteorology Equipment

alcohol, pints	1
calcium chloride, bottles	3
camphor, pounds	1
ether, quarts	2
fixative, bottles	3
glycerine, ½ pint	1
oil, low temperature, clock	3

Aviation Supplies

carbon tetrachloride, gals.	0
fuel, quart gauge, Unit float type	1
castor oil	0
diacetone alcohol	0

Sailmaking Equipment

oil Res. No. 210910	1
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Summary of "C" Property (Clothing)

lanolin, jars	0
mouthwash, bottles	0
Vaseline, white, ½ lb. jars, doz.	0

Summary of "U" Property (Fuel and Fueling Equipment)

Meta tablets, cases	½
carbon tetrachloride refills for fire extinguishers	0
Prestone, cases	27
3-in-1 Oil, cans	0
gasoline, for Beechcraft use only, drums	29
gasoline, white, unleaded, drums	13
gasoline, 87 octane, leaded, drums	79

65. Taken from the Inventory of Supplies, East Base, February, 1941 (National Archives, Record Group 126, Box 15).

APPENDIX I: LIST OF HAZARDOUS MATERIALS

diesel fuel oil, drums	92
lubricating oil, drums	6
lubricating oil, cases, 10 gals. to a case	59

Carpenter Tools and Machines

glycerin, 5-gal. tins, 50 lb. cans, gals.	1
---	---

Biological Property

rock salt, lbs.	800
kerosene oil, 5-gallon cans	0
tank, copper, 8-gallon, filled with alcohol	1
tank, copper, 16-gallon, filled with alcohol	1
arsenic, cans	2
lanolin, cans	1
dope, gallons	0
dope thinner, gallons	0

Medical Supplies

cresol, saponated solution 1-qt. can	2
glycerin, 2-4,4,½ lb. can	3
Neo-Synephrin HCl, 1% sol., 15 cc vial	2
iodine applicators, 3 vials per box	4
Holmspray Nasal Atomizer	1
magnesium sulfate, 5-lb. tin	1
Trephine ¾ (Galt)	1
Tr. gentain compound, 16 fl. oz. bottle	2
sulfur sublimed, 1-lb. bottle	2
bismuth subcarbonate, 1-lb. bottle	1
Tr. camphorated opium, 16 fl. oz. bottle	1
camphor and soap liniment	1
Tr. ferric chloride 8-oz. bottle	1
alcohol, methyl absolute 1-lb. bottle	1
local anesthesia set (vim)	1
ammonia ampules, 10 pkgs. per box	4
tannic acid jelly, 5 pkgs. per box	9
castor oil, 10 pkgs. per box	3

ITEMS NOTED ON SITE, BUT NOT APPEARING IN MANIFEST OR INVENTORY

antigangrene toxin kits
film spools, exposed to sunlight
helium canisters
bottle of nitric acid
all sorts of medicines not noted on inventories

ITEMS MENTIONED IN PERSONAL ACCOUNTS

dynamite

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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