

KAMEHAMEHA I SCULPTURE CONSERVATION TREATMENT REPORT



September 20, 2001

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CONSERVATION TREATMENT REPORT

TITLE: Kamehameha I

ARTIST: Thomas Ridgeway Gould

OWNER: State of Hawai'i

ADMINISTRATING AGENCIES: State Foundation on Culture and the Arts
King Kamehameha Celebration Commission

LOCATION Island: Hawai'i
District: North Kohala
Building: North Kohala Courthouse
Akoni Pule Rd.
Kapa'au, Hawaii

DATE OF CAST: Plaster Model: 1879 Sculpture Cast: 1880

MEDIUM: Brass, Iron Armature, Blue-Stone Base

DIMENSIONS: Sculpture: H: 8'5" x W: 3'11" x D: 4'5"
Spear: H: 11' 1" x 1 1/4"
Circular Base: H: 4 3/4" x W: 25 3/4"
Polygonal Stone Base: H: 33 1/4" x W: 29" x D: 29"
Square Stone Base: H: 5'1/2" x W: 6'1" x D: 5'
11 1/2" Concrete Footing W: 15' 9" x D: 15' 8"

FOUNDRY: Barbedienne Foundry / Paris, France

DATE OF INSTALLATION: Original installation in Āinakea: May 8, 1883
Moved to present location: 1912

INSCRIPTIONS: On front of circular base in relief:
KAMEHAMEHA I

On back of circular base inscribed:
T.R. Gould INV CT Fecit / Florence 1879

DATE OF REPORT: 20 September 2001

EXECUTIVE SUMMARY

The conservation project was conducted between September 1998 and June 2001. Because of the importance of the monument to North Kohala and widespread concern for its care, a community based project model was employed. The primary aim of the project was to conserve the monument, which was threatened by chloride induced corrosion. Driven by a need for physical conservation, an additional goal of the project was to stimulate public dialogue on the contemporary significance of the Hawaiian past, and how to present the monument to future generations.

The conservator worked jointly with the Hawai'i Alliance for Arts Education (HAAE), which served as the coordinating agency for the project. HAAE is a private non-profit, serving communities statewide and is the Hawai'i member of the Kennedy Center Alliance for Arts Education Network in Washington D.C. The project was coordinated in conjunction with the King Kamehameha Celebration Commission in Honolulu. Many individuals and local organizations engaged in the conservation process, including representatives from the North Kohala Kamehameha Day Celebration Committee, North Kohala Hawaiian Civic Club, North Kohala Senior Citizens Group, the Ka'ahumanu Society, and the Royal Order of Kamehameha.

The official archive for the project is the State Foundation on Culture and the Arts, and copies of reports are kept at the King Kamehameha Celebration Commission in Honolulu and the Bond Memorial Library in Kapa'au.

In addition to the material analysis referred to in this report, the conservator conducted archival and ethnographic research which will be published in the future. An independent film about the project is being produced by Ki'i Productions. An instructional film will also be created by Ki'i Productions to assist in training future maintenance technicians.

The brass sculpture was gold leafed in 1880, but prior to this project the knowledge of its original gilding had been completely lost. The sculpture was painted brown in 1883 during a restoration project after recovery from a shipwreck. Archival photographs indicate that it has been painted in different colors at least since 1908. The question of whether to gild the surface or continue painting it offered an opportunity to use the conservation

process as a vehicle for civic dialogue about the monument and representation of the Hawaiian past.

Community dialogue and public engagement were stimulated through many project activities, including workshops and staging of a *hula ki'i* (puppet *hula*) production by the Halau 'O Ha'alelea *hula halau*, school art projects, Hawaiian Studies high school student research, Girl Scout participation, newspaper articles, and public access television interviews. The High School Speech Club staged a public dialogue about the benefits of painting vs. gilding. The public dialogue included local *kūpuna* (elders) who *talked story* about the sculpture. A community ballot was conducted in December 2000. The ballot resulted in a 71% vote to maintain the local tradition of painting the sculpture rather than returning it to the original appearance intended by the artist (Thomas Ridgeway Gould), the Hawaiian Legislature, and King Kalākaua. These community projects were organized by Sharon Hayden, Raylene Lancaster, Nani Svendsen, Margaret Hoy, Fern White, and Kealoha Sugiyama.

A team of local community leaders met with the conservator to select the final colors and decide whether to keep the bronze spheres (eyeballs) that were added to the sculpture in the 1970's. Their decisions were taken to local *kūpuna* Marie Solomon for her wisdom and approval.

The committee's decisions on paint colors included red on the *kā'ei* (sash) which was matched to a feather from the Hawaiian honey-creeper *'i'iwi*. The yellow on the *kīhei* (cloak), *mahiōle* (helmet), and *kā'ei* (sash) was matched to feathers from the *'ō'ō* bird. The skin tone was selected to represent Kamehameha I. According to *kūpuna* Marie Solomon, his mother was Keakea Hawaiian (light skin), and his father had darker skin. The interior of the *kīhei* is tan representing the woven cordage that supports the feathers, and the top section of the base is brown, representing the earth upon which Kamehameha stood. The community leaders who met with the conservator to select the colors include: Stephanie Na'ihe Cabinis (Hawaiian Civic Club), Emma Glory (Senior Citizens Club), Sharon Hayden (Kamehameha Day Celebration Committee), Ernest Kanehailua (Royal Order of Kamehameha), Dora Lincoln (Ka'ahumanu Society), Raylene Lancaster (Hawaiian Civic Club, *kumu hula*), Daniel Otake (student, Kohala High School Speech Club), Laddie Shim (Royal Order of Kamehameha), Marie Solomon (*kūpuna*), Kealoha Sugiyama (Hawaiian Civic Club).

The physical conservation work included removing the paint, sealing cracks with epoxy putty, chemical inhibition of future corrosion, re-painting the sculpture, spraying on a clear polyurethane top coat, and applying a sacrificial wax coat. Bowden Painting, a Kona based firm, erected scaffolding and applied the primer and top coat, while the painting and all other phases of the project were carried out by Glenn Wharton, Michael Jones (a sculpture maintenance technician based on Oahu), and Nalani Cabrera (a Kohala community resident).

Funding of the project was made possible through grants from the following organizations: Americans for the Arts' Animating Democracy Lab funded by the Ford Foundation, Atherton Family Foundation, Getty Trust Grant Program, Hawai'i Community Foundation, National Center for Preservation Technology & Training, National Endowment for the Arts, and Save Outdoor Sculpture! (Heritage Preservation & Smithsonian Institution). Grants from Pacific Islanders in Communications are supporting the documentary film being made by Ki'i Productions.

HISTORY OF THE MONUMENT

Thomas R. Gould, a neoclassical Boston sculptor residing in Florence, was commissioned to create the Kamehameha I monument by the Hawaiian Legislature in 1878 (see attached timeline). The original intention of the commission was to commemorate the centennial of the “discovery” of the Hawaiian islands by Captain James Cook. In a deliberate attempt to portray Kamehameha I in the stance of a Roman emperor, the figure was modeled after the marble *Augustus Caesar of Prima Porta*. Although a number of locations were considered, the legislature initially selected the courtyard in front of the Judiciary Building in Honolulu for its installation. The artist first modeled the image in clay then cast it in plaster. The plaster cast was sent from Florence to the Barbedienne Foundry in Paris for casting in brass over an iron armature.

Gould corresponded frequently with Walter Murray Gibson (and others) of the Hawaiian Legislature during the modeling process. Original correspondence and other documents are now located in the Hawai‘i State Archives. Photographs were sent to Gould of John Timoteo Baker and Robert Hoapili Baker (two part Hawaiian half brothers) for the purpose of modeling. John Timoteo Baker wore the original feathered garments of King Kamehameha I that are now at the Bernice Bishop Museum in Honolulu. King Kalākaua and others took part in the discussion of how to portray Hawai‘i’s first King, who had united the island archipelago.

After the sculpture was cast, it was shipped from Bremen Germany in 1880. Unfortunately it sank in a shipwreck off the coast of the Falkland Islands. After the loss, a second cast was commissioned with proceeds from an insurance settlement. The insurance compensation allowed the artist to begin work on four gilt bronze panels depicting scenes from the life of King Kamehameha. The artist died while modeling the first panel, and his son (Marshall S. Gould) completed the commission.

This original cast was found within several years of its sinking in the Falklands and placed in front of a store in Port Stanley. Captain Jervis, the captain of a British ship, recognized the sculpture and purchased it, then brought it to Honolulu on March 27, 1882 and sold it to the Hawaiian government.

The sculpture arrived in Honolulu damaged. It had lost its right hand and forearm, it was gouged in its feather cape (see condition diagram), and it had lost its spear. A new right forearm was fabricated at the Paris foundry and a new (modified) copper alloy spear was cast, most likely at the foundry. The repairs were carried out in Honolulu in 1883. The second cast and four relief panels were installed in front of the Judiciary building in Honolulu, and dedicated on February 14, 1883 during the coronation ceremonies for King Kalākaua. After repairs were complete, the original sculpture was shipped to North Kohala for installation, near Kamehameha I's birth place. It was installed in front of the boys school in Āinakea on May 8, 1883. The sculpture was moved to Kapa'au in 1912, and installed on a new blue-stone base in front of the Courthouse (now the Kohala Senior Citizen's Center).

A third sculpture was cast from molds of the Honolulu sculpture in 1968 for the Statuary Hall collection of the U.S. Capitol, in Washington D.C. In 1997, an oversized artist-rendered version was installed in Hilo. This fourth cast had originally been made for the Princeville resort on Kaua'i, but residents protested its installation since Kamehameha I had never conquered their island. The Kohala cast is therefore the first of four casts of the monument.

ENVIRONMENTAL CONCERNS

The monument to Kamehameha I is located on a lawn in front of the North Kohala Courthouse in Kapa'au. The figure of Kamehameha faces north, and is exposed to frequent rain, strong ultraviolet radiation from the tropical sun, and strong trade winds from the east and south. Due to its proximity to the ocean (less than one mile), it is exposed to airborne chlorides which is an extremely corrosive agent to copper alloys. Since the sculpture sank into the ocean shortly after fabrication, the residual core material in the interior is infused with chlorides. Chlorides cause a specific type of corrosion known as "bronze disease", which initially takes the form of small pale green, powdery spots on the surface. When exposed to moisture and oxygen, bronze disease may advance quickly, and cause serious structural damage to copper alloys. A number of small spots of bronze disease were noted on initial examination, and later tested positive for chlorides.

Although the sculpture is located on a lawn, it is unlikely that it is sprayed with hard water from sprinklers or hoses, because of its height on top of the stone plinth. Adjacent trees include palms and mimosas. The state maintenance staff regularly trims the trees and mows the lawn. The trees are not close enough to drop sap on the sculpture. The sculpture attracts birds, and receives regular droppings of guano. Spider nests are constructed in deep recesses of the surface.

Despite its public exposure, the sculpture receives little graffiti. The only graffiti in recent memory was blue spray paint applied to the stone plinth in the mid 1990s. The infrequent graffiti is in part due to the inaccessibility of the sculpture on top of the plinth, but it is also due to local pride and the nature of the tourists who visit the site. The public is more likely to present offerings to Kamehameha in the form of *lei*, ti leaf bundles, *pohaku* (stones) and flowers than to vandalize it.

The monument is the central focus of a parade and offerings made on June 11, Kamehameha Day. During the celebrations, the sculpture is covered with floral *lei*. The *lei* are draped around the neck and both arms of the figure with bamboo poles, then removed several days later.

PHYSICAL DESCRIPTION

The monumental figure of King Kamehameha I is hollow cast in brass over an iron armature. The cast was made in nine separate sections, then welded together (see attached diagram). The figure of the King wears a *kīhei* (cloak), *mahiōle* (helmet), *kā'ei* (sash), and Western classical style sandals. His left hand holds a copper alloy *pololū* spear (unlike the original), which was fabricated during the restoration, and loosely inserted into the hand and welded to the circular base. His right arm is outstretched with an open palm, in a Western gesture of welcome.

The metal alloy was analyzed using x-ray fluorescence employing a Kevex 'Omicron' x-ray microanalyser on a single sample extracted from a tear on the back side of the cape. Surprisingly, the analysis indicated that the sculpture is a lightly leaded brass of moderate zinc content with a small amount of tin - rather than bronze. The sample was analyzed twice, at different locations. The composition according to the two analyses are as follows:

Copper	93.9%	95.4%
Zinc	4.49%	3.28%
Tin	0.94%	0.84%
Lead	0.29%	0.23%
Iron	0.34%	0.21%

Analysis conducted by David Scott, The Getty Conservation Institute

This analysis is surprising since ^{brass}bronze was more commonly used than ~~bronze~~ in late nineteenth century French foundries. The original contract with the artist is for "a heroic, bronze statue of not less than seven feet and four inches in height, of King Kamehameha First", and all correspondence between the artist and monument commission committee referred to bronze (State Archives, 18 April 1879). However, brass was sometimes used late nineteenth century France. The conservator will perform additional research to learn more about the history of the cast in Barbedienne Foundry archives.

Full characterization of the investment, or core material inside the sculpture was impossible because of its alteration in firing. However, x-ray diffraction analysis with a Siemens D5005 in detector scan mode indicates that it is a silicate base material, such as sodium aluminosilicate and calcium silicate matrix. (Analysis conducted by David Scott, The Getty Conservation Institute).

The figure is welded to a circular bronze(?) base. The circular base is in turn bolted onto a polygonal blue-stone base, which is carved from a single stone. The polygonal base is mounted to a large blue-stone faced plinth. Blue-stone is a local stone, and is volcanic in origin. The ashlar blocks are rough-hewn on their central faces. The plinth is set on a square concrete foundation, which is sloped upwards in the center. Vertical iron pipes are embedded at each corner of the concrete foundation that had originally supported (iron?) poles surmounted with spheres. The poles were cut off at some point, perhaps due to excessive corrosion. Vertical blue-stone bollards (posts) are installed at the corners of the foundation, which support a galvanized chain extending around the sculpture.

Cross sections were made of ten paint samples. Four were sent to James Martin (first at Williamstown Art Conservation Center then at Orion Analytical) and six were sent

to David Scott (The Getty Conservation Institute). The results of these analyses reveal up to twenty layers of paint in some areas, clearly demonstrating a long history of painting. Many of these layers contain lead based pigments. The variation in these layers tell a complex story of paint choices over the years, and will be described in future publications by the conservator. Pigment and binding media analysis was not conducted because they were not relevant to the conservation project. All paint was applied since 1883, and according to previous caretakers, house paint has been used for a long time (Joe Chang, Kealoha Sugiyama). Samples of the gilding and all layers of paint are archived for future analysis.

The feathered garments, sandals, and letters on the circular base were originally gold leafed (future publication by the conservator will include more extensive description of the history of the gilding and painting). According to x-ray diffraction analysis, the gold alloy is 99.8% gold or more, indicating a 24karet leaf. Scanning electron microscopy with energy-dispersive x-ray fluorescence spectrometry (SEM-EDS) indicated that the gold alloy contained gold, silver and copper (James Martin, Orion Analytical).

The entire surface of the figure was painted brown during the restoration in 1883, most likely due to the condition of the gilding after recovery from the sea. According to oral tradition and archival photographs, a tradition of painting the sculpture polychrome developed by the early part of the twentieth century.

According to interviews with past care takers, the sculpture has been washed each year before Kamehameha Day (June 11). Periodically, loose paint was removed with hand tools and occasionally a pressure washer, and it was repainted.

The *kāhei* (cloak), *mahiōle* (helmet), and *kā'ei* (sash) were painted yellow when the sculpture was examined in 1996. Later that year, Kealoha Sugiyama, a local volunteer, painted the interior band of the *kā'ei* (sash) red. The skin is painted brown. The interior of the *kāhei* (cloak), the finger nails, the toe nails, sandals, eyes, lettering on the circular base, and the polygonal base were painted white when the sculpture was first examined. Mr. Sugiyama painted the finger nails, toe nails, sandals, and polygonal base brown. The pupils of the eyes, the circular base and the grout around the ashlar blocks on the plinth were painted black when the sculpture was first examined. Mr. Sugiyama painted the circular base brown.

Although it is impossible to distinguish all layers of paint on the sculpture and determine when they were applied, cross section and visual analysis indicate the following variations over time:

Skin: various shades of medium, dark, and light brown

Feathered garments: pale yellow, white, bright yellow, yellow ocher

Interior of *kīhei* (cloak): off-white, white, a few layers of yellow

Hair: black

Polygonal stone base: medium gray, light gray, white (many layers), black, brown

The grout on the stone base has been painted various colors over the years. Although the sequence of paint could not be determined with certainty: cross sections and visual analysis indicates the following chronological order: white, red, white, black, brown.

CONDITION

During an interview with Joe Chang, who was on the County, then State maintenance team from 1968–1988, he described attaching bronze spheres in the eye sockets in the mid 1970s, using an epoxy adhesive. Since then, the “eye balls” have been painted in a lifelike manner.

The sculpture is structurally in sound condition. The previous repairs and original welds are secure, although there are gaps along some of the weld lines. There are four areas of stress cracking, as noted on the attached diagram. The circular base is dented and cracked on the top and proper right side (see diagram). The crack is open in some areas. It is not known when this damage occurred, although it is not recent. Corrosion has developed within the cracks, and there are no signs of recent advances.

There are two areas of damage on the back proper right side of the cloak (see attached diagram). One of these was reported in newspaper articles from 1883, when it was noted that the cloak was damaged either during the shipwreck or from knocking against the boat as it was raised from the sea. One of these areas consists of a rectangular cast panel

that has been lead soldered in place. A small sample of solder was analyzed by x-ray fluorescence, and indicates an alloy of 89.5% Sn, 10.44% Pb, a few parts per million of copper and antimony, and no iron. (David Scott, The Getty Conservation Institute). The other is a complex open crack. This complex crack could be a casting flaw, since the metal is very thin along its edges. There are many round plugs in the cast that were inserted by the foundry to cover casting flaws. Some are carefully chased to match the adjacent surface, and some are not. There are approximately 25 small holes in the brass from air pockets in the original cast.

The interior iron armature was not examined by radiography, fiber optics or other analytic devices. The only visible evidence of iron corrosion is iron oxide stains running down the side of the circular base onto the stone base adjacent to the dented and cracked area. No iron oxides were seen on the surface of the paint. Although most of the iron wires from gates and vents of the original cast were removed in the foundry, some were not, as noted by small areas of local iron corrosion on the brass surface.

The corrosion on the surface of the sculpture is relatively thin and tightly adhered in most areas. Visual inspection before and after paint removal indicated a fairly continuous layer of black and red copper oxides, with isolated patches of green corrosion, including random spots of pale green powdery corrosion. The pale green powdery corrosion indicates the presence of nantokite, or bronze disease (particularly on the left hand and left side of chest). Samples taken early in the project and analyzed by x-ray fluorescence and scanning electron microscopy indicated the presence of chlorine. (David Scott, The Getty Conservation Institute). Because of the presence of isolated spots of bronze disease and the positive identification of chlorine, a decision was made by the conservator to remove the paint and treat the metal surface with a copper corrosion inhibitor.

After paint removal, visual inspection indicated that there were no deep corrosion pits. Further x-ray powder diffraction analysis of the corrosion revealed a combination of clinoatacamite and atacamite, but no nantokite was found. This indicates that although basic copper chlorides are present, little or no deep seated corrosion is occurring on the sculpture. This finding is somewhat surprising, and very good news. Despite the fact that the sculpture was submerged in salt water for approximately one year, and exposed to a harsh tropical environment for 118 years, it has suffered very little corrosion. It is likely

that the sculpture was extensively washed of soluble chlorides after it was removed from the sea. The more or less continuous film of paint on the surface since 1883 has successfully served as a barrier against the elements.

The only other corrosion product identified in the analysis of four samples was pure cuprite, a copper oxide. Corrosion analysis was conducted using x-ray powder diffraction, polarized light microscopy, and microspot tests. (David Scott, The Getty Conservation Institute).

There was very little gold leaf remaining on the surface of the metal prior to conservation.

The paint on the surface prior to conservation was severely deteriorated. It was lifting from the surface in many areas, and had developed cracks and losses throughout. The high ultraviolet content of the sunlight caused accelerated deterioration of the paint, as evidenced by the chalked surface and dramatic change in color from 1996 when Mr. Sugiyama painted it to 2001, when it was removed. As the polymer chains broke down within the paint, opacifiers and other additives migrated to the top, creating the chalky surface. The paint was up to one half inch thick in some areas.

The monument was generally soiled before conservation treatment. There were droppings of bird guano on some of the top surfaces, and spider nests in deep crevices.

The stone base is structurally sound. There are no major cracks through the blue rock facing, and only several small losses along the edges. The grout is in relatively good condition. Approximately 5% was missing or loose before the conservation project. White, yellow and black lichen grows on the stone, particularly the east side. Algae also grows in small areas. The stone bollards (vertical posts) and galvanized chain are in good condition.

The concrete foundation has developed many cracks and stains. Weeds are growing in some of these cracks.

CONSERVATION TREATMENT

1. The monument was photographed with color prints, slides, and black and white film to document its condition before conservation treatment.
2. Cross section analysis of paint samples and gilding were performed to identify the surface stratification. Lead was detected in many of the paint layers.
3. The sculpture was scaffolded by Bowden Painting. The scaffolding was covered with tarps during treatment steps that required spraying. Four warning signs describing the use of dangerous chemicals were posted around the scaffolding, and caution tape was installed around a large circumference of the monument during all phases of work.
4. The bronze spheres epoxied into the eye sockets were removed with methylene chloride gel (Jasco Premium Paint & Epoxy Remover®).
5. The paint was removed from the sculpture with methylene chloride gel* (primarily Jasco Premium Paint & Epoxy Remover®), and intermittent use of medium steam pressure blasting (approximately 3200 psi). Approximately 90% of the paint was removed during this process. The remaining paint was well adhered, and left on the surface for future documentation of prior paint layers. Small sections of gilding were left on the surface adjacent to the raised letters on the circular base. The paint residue (containing lead) was allowed to dry, then placed in plastic bags and properly disposed by Bowden Painting.
6. After paint removal, the condition of the monument was further assessed. Old repairs and original welded joints were found to be structurally secure. Four areas of stress cracking, gaps between the separately cast sections, small casting flaws, the tear on the proper right back side of the cape and the crack through the circular base were noted on the attached diagram for future monitoring

Samples of metal and corrosion were taken for analysis. The corrosion contained chlorine, supporting the visual identification of the cuprous chloride based corrosion known as *bronze disease*.

7. Following the condition assessment, the metal components were further cleaned with distilled water and Triton XL 80-N®, a non-ionic detergent. They were rinsed with a hose, and given a final wash with distilled water. Drying of the sculpture was accelerated by minimal use of a propane torch in areas where water could accumulate on the interior.
8. All holes in the metal and gaps between the original weld lines were filled with Pliacre®, a pH neutral epoxy putty. Additional holes and gaps that were noted after the primer was applied were filled with PC-7® epoxy putty.
9. Following a decision by a committee of local community leaders and *kūpuna*, the bronze spheres were reattached, using Pliacre® epoxy putty.
10. Loose grout was removed from the stone plinth, and repointed with Jahn M110®, a cementitious pointing mortar.

11. The metal components of the sculpture were degreased with acetone.
12. A warm benzotriazole solution (60°C) was misted on the metal surface (3.5% by weight in ethanol:water 75:25). Benzotriazole is a complexing agent that develops a chemi-absorbed film on the surface of copper alloys that serves as a corrosion inhibitor. After drying for 24 hours, the benzotriazole crystals were wiped off with clean rags. Small amounts of ethanol were used to clean several areas of extensive crystal formation.
13. Adhesion tests for the primer were successfully conducted on the proper right shoulder and right forearm, using ASTM Standard Designation: D 3359-97 (Standard Test Methods for Measuring Adhesion by Tape Test).
14. A three part DuPont paint system designed for the automotive industry was applied to the metal, the mortar, polygonal stone base, chain, and adjacent flag poles. A Valspar paint was selected for the skin to match the color specified by local committee members. Material Safety Data Sheets for these products are provided in the Maintenance Notebook:

Primer: DuPont Corlar 824S® corrosion inhibiting epoxy primer
 Paint: DuPont Imron® 5.0VOC polyurethane enamel
 Valspar LIC-40® polyurethane enamel
 Top Coat: DuPont Imron 500S® polyurethane clear coat

The primer and top coat were applied with a high volume low pressure airless spray unit. The paint was applied by hand brushing. Three months after application, the high gloss of the top coat was selectively reduced by gentle hand scuffing with abrasive pads. The following paint colors were used:

Brown (skin, sandals)
 LIC-40 Polyurethane Enamel D42 (minus 10g black pigment for one gallon)

Brown: (spear, flag poles)
 DuPont IMRON Baja Brown D8116X
 Car: Ford Morot Co. Code: 701926 Yr::1993

Brown (Metal, Blue-stone and concrete on upper base)
 DuPont IMRON Brown NO518X
 Car: Fleet Selector Code: 3699 Yr:1998

Tan (interior of cape)
 DuPont IMRON Cameo Beige K8022X
 Car: Nissan Infiniti Code: 928 Yr:1981

Yellow (feathers)
 DuPont IMRON Sun Poppy B/C N3027X
 Car: Fleet Selector Code: 3699 Yr:1998

Red (feathers on *kā'ei* (sash))
 DuPont IMRON Red Orange N412X
 Car: National Fleet Color Code: DT 5219 Yr:1977

White (eyeballs)

DuPont IMRON White 55769X
Car : Chrysler Corp Code: Yr:1978

Black (hair, pupils)

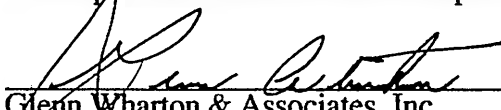
DuPont IMRON Black D9X
Car; Fleet Selector Code 3699 Yr: 1951

15. Butchers Bowling Alley® paste wax, a commercial blend of carnauba and microcrystalline waxes in petroleum solvents was applied to the painted surfaces. After thinning with mineral spirits, the paste was applied by brush, then lightly buffed with cotton rags. This sacrificial coating serves as a graffiti barrier, and it further reduces the gloss of the polyurethane top coat.
16. The scaffolding was removed following the conservation project.
17. The condition of the sculpture was documented with color prints, color slides and black and white photographs after conservation treatment.
18. A maintenance training session was held on June 6, 2001. A separate Maintenance Notebook and instructional film were produced for future maintenance of the monument.

* Safety gear, including toxic vapor masks, protective gloves, goggles, and appropriate clothing was worn during all phases of the project that involved the use of toxic substances.

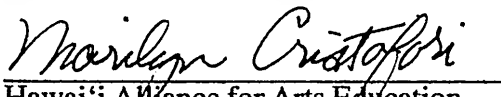
NOTE: During the conservation project, some gold was left around the raised letters on the circular base for future analysis. Approximately forty chips of paint that retain gold leaf and previous paint layers have been archived.

This report was submitted on 20 September, 2001.


Glenn Wharton & Associates, Inc.

20 SEPT. 2001
Date

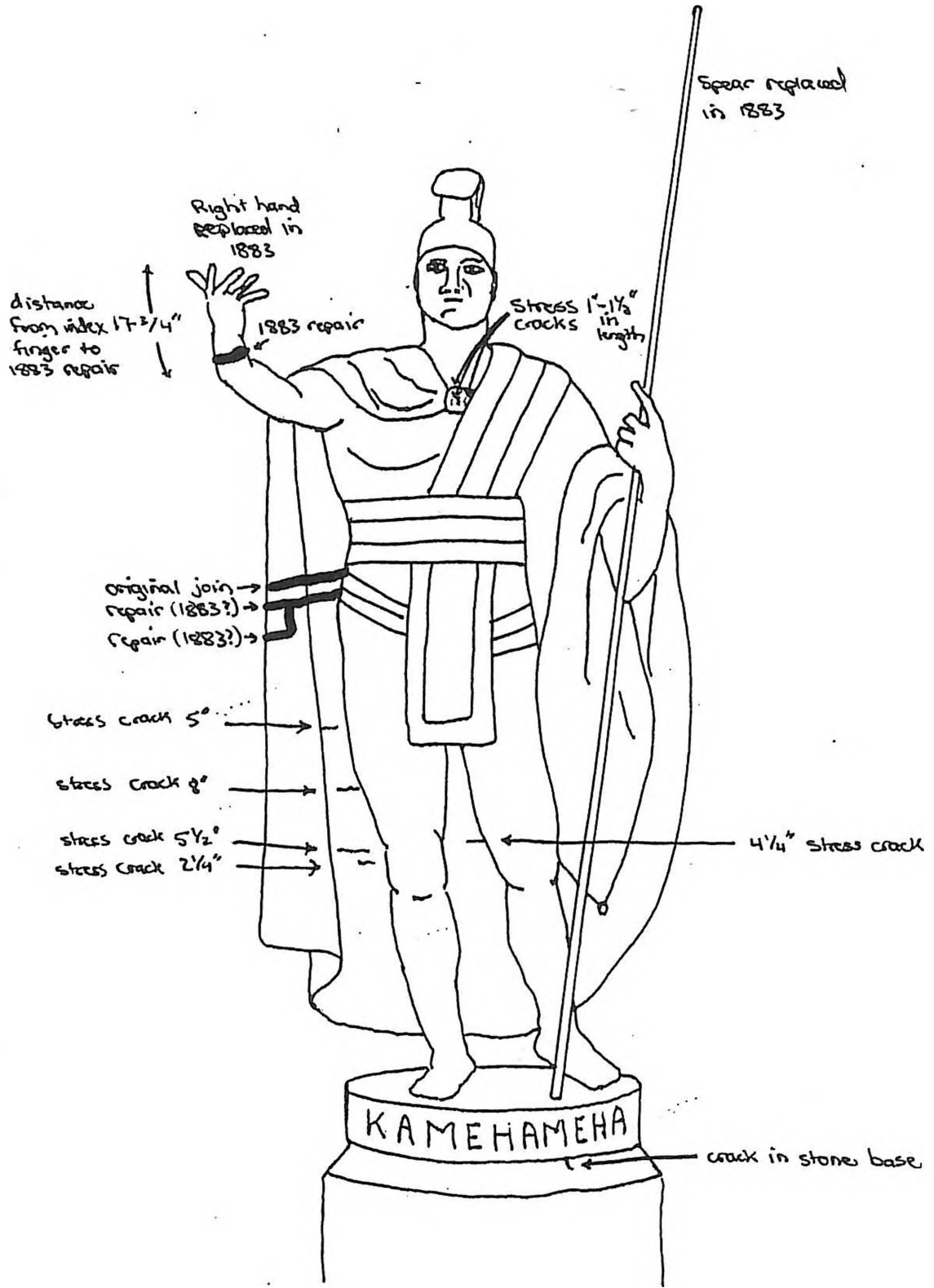
The Conservator's conservation treatment has been completed as authorized and is satisfactory.


Hawai'i Alliance for Arts Education

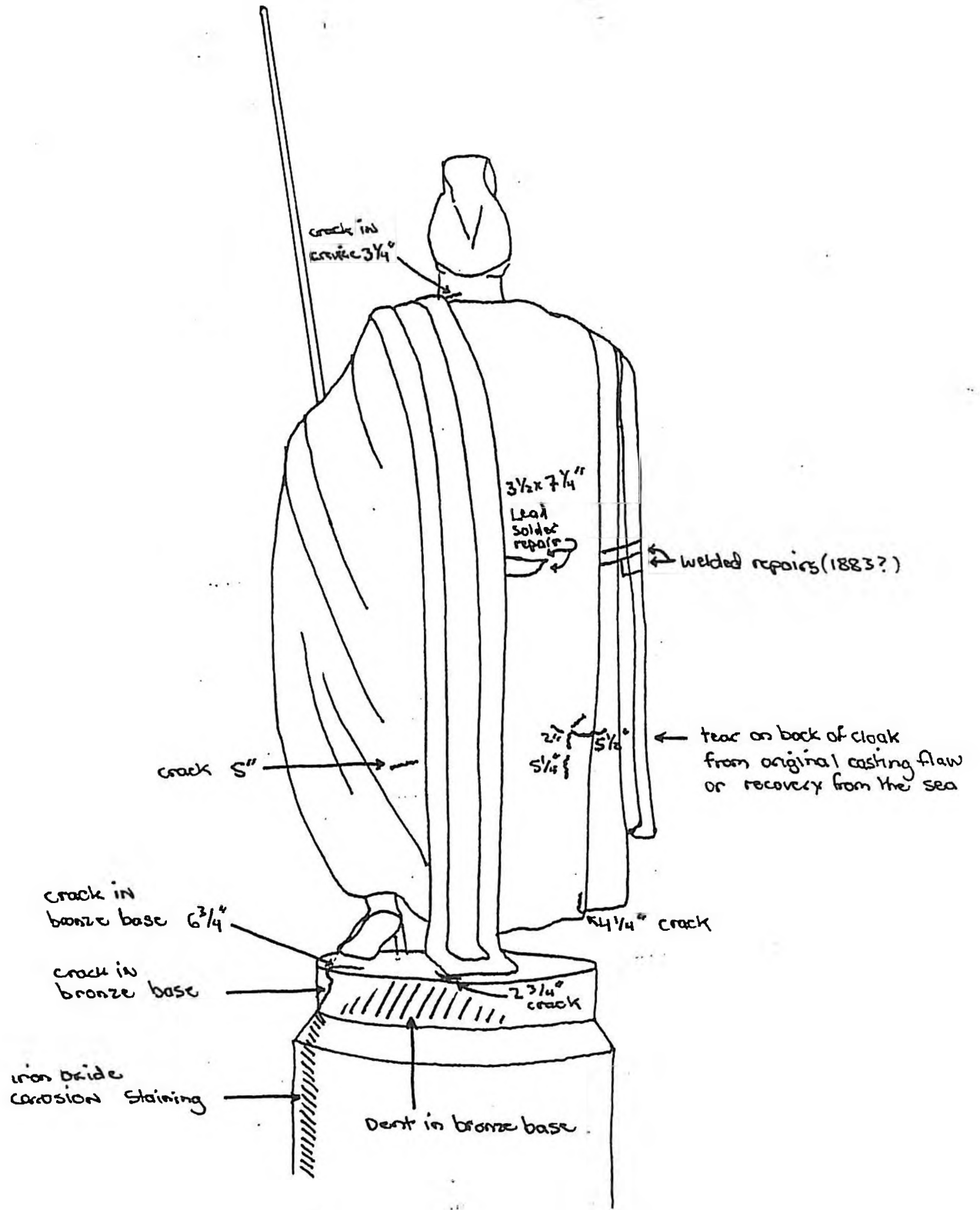
8 OCT. 2001
Date

SIGNIFICANT DATES IN THE HISTORY OF THE FOUR KAMEHAMEHA I MONUMENTS

1878	The Hawaiian legislature passed an initiative to commission the sculpture
Sept. 1878	Thomas Ridgeway Gould was commissioned
1880	The sculpture was cast at the Barbedienne Foundry in Paris
Aug. 21, 1880	The ship Geo. F. Haendel, carrying the sculpture, left Bremen for Honolulu
Nov. 15, 1880	The Geo. F. Haendel sunk off the coast of the Falkland islands, near Argentina
Feb. 22, 1881	It was learned in Honolulu that the ship had sunk
July 23, 1881	The second sculpture was commissioned
Nov. 1881	The second sculpture was cast at the Barbedienne Foundry
Nov. 26, 1881	Thomas Ridgeway Gould died
Dec. 1881	The artist's son, Marshall S. Gould, completed four reliefs depicting the life of Kamehameha
March 27, 1882	The first sculpture (found in the Falkland islands) arrived in Honolulu on the ship Earl of Dalhousie
April 1, 1882	A fence was built around the first sculpture in Honolulu for future repairs
Jan. 31, 1883	The second sculpture arrived in Honolulu, along with the new forearm for the first sculpture on the ship Aberaman
Feb. 14, 1883	The second sculpture was unveiled in Honolulu during the coronation of King Kalākaua
May 1, 1883	The first sculpture was shipped to Mahukona on the ship Likelike
May 6, 1883	King Kalākaua arrived in Kohala on the Russian ship Navezdnik
May 8, 1883	The first sculpture was unveiled in Āinakea, North Kohala
1912	The first sculpture was moved from Āinakea to Kapa'au
April 16, 1969	The third sculpture was unveiled at the U.S. Capitol building
June 11, 1997	The fourth sculpture was unveiled in Hilo



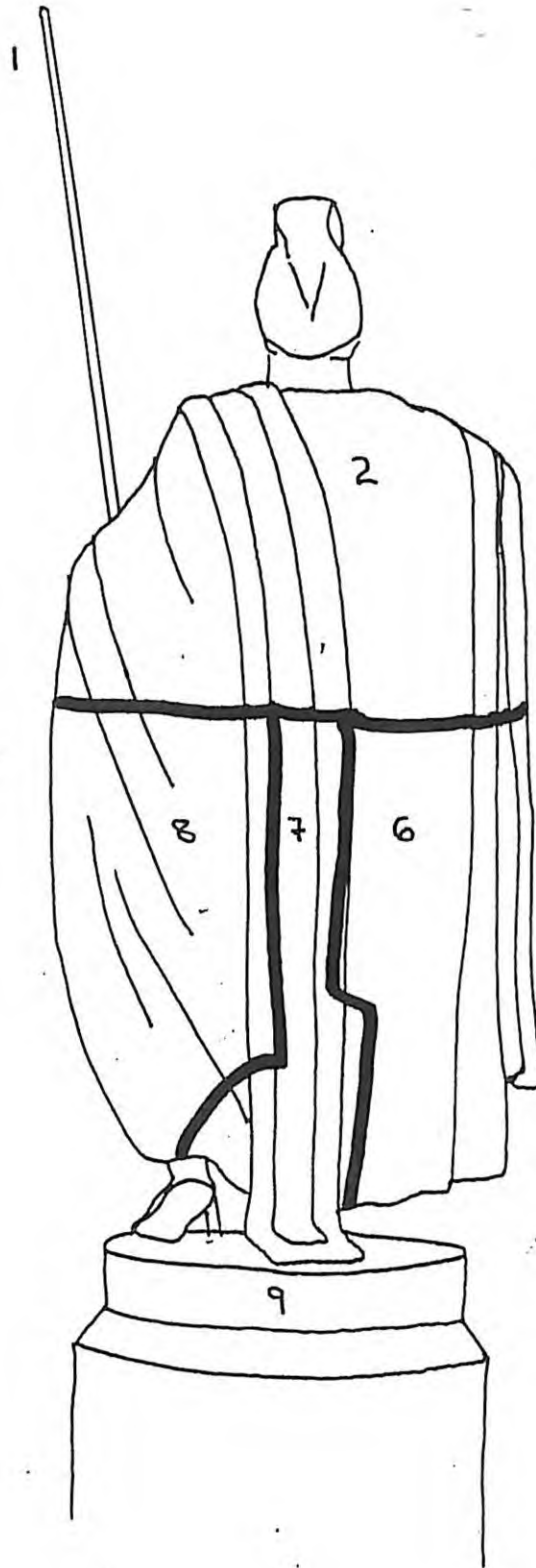
Condition Notes from March 2001 Conservation Project: FRONT



Condition Notes from March 2001 Conservation Project: BACK



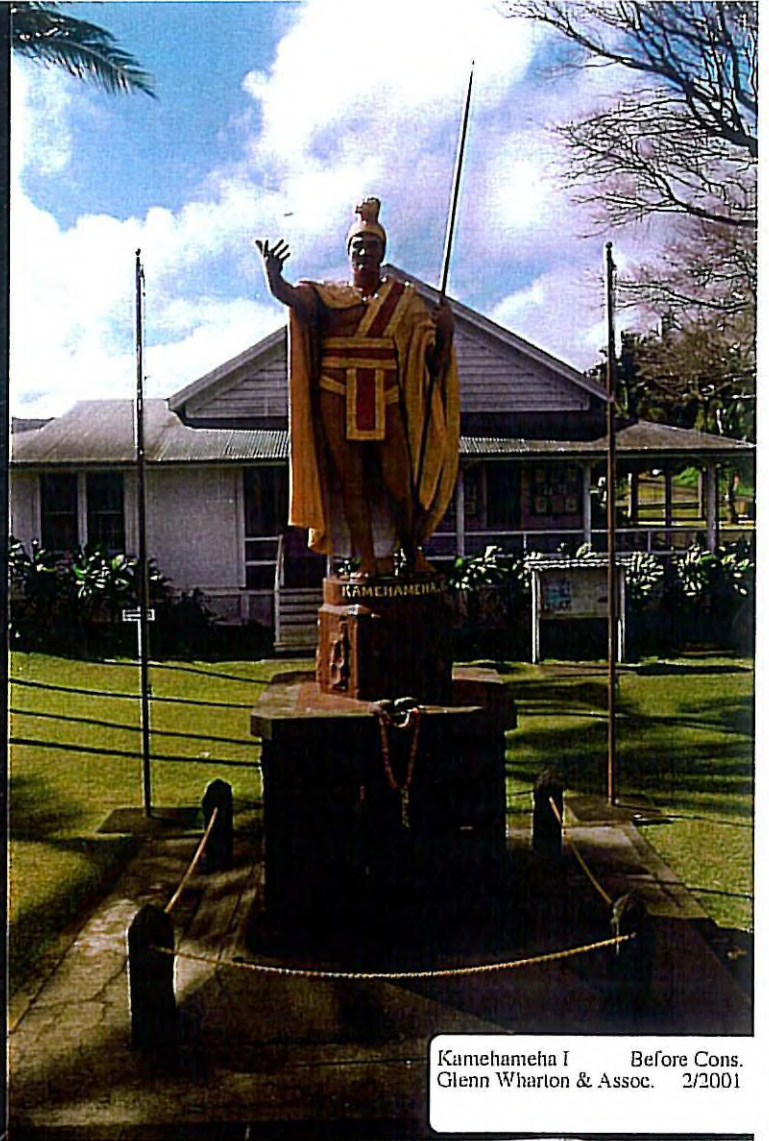
Original Fabrication in Nine Separately Cast Elements: FRONT



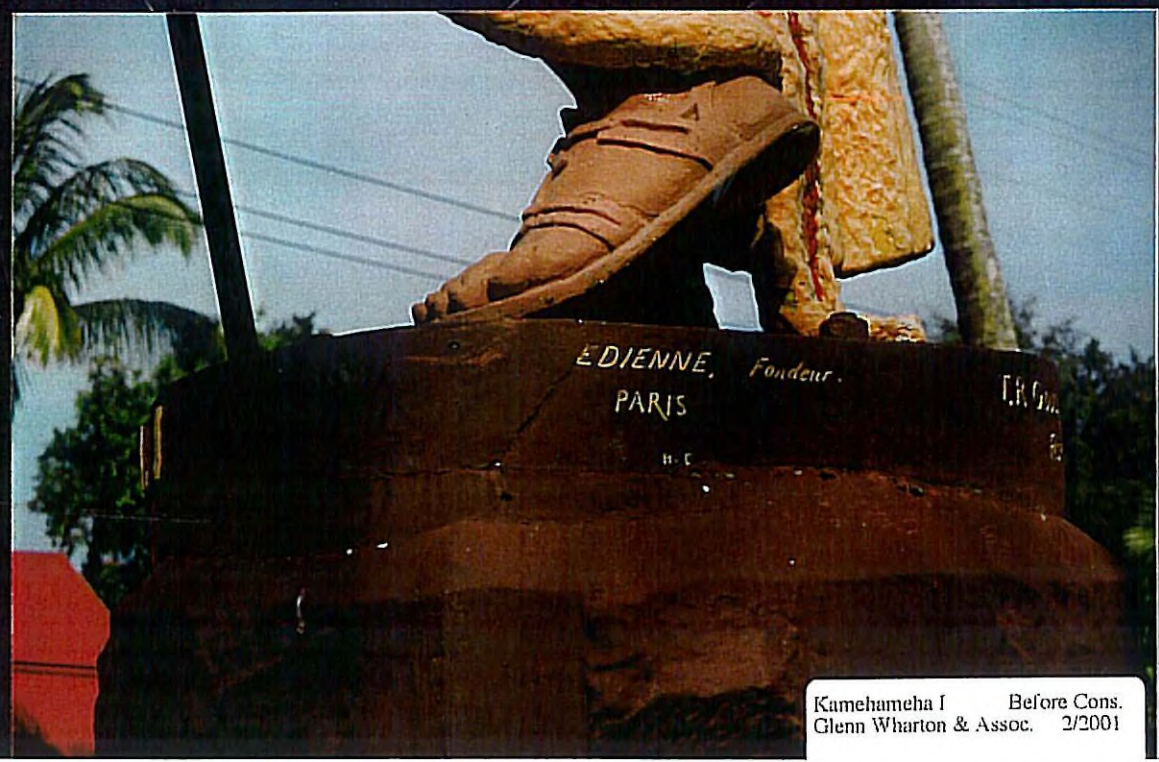
Original Fabrication in Nine Separately Cast Elements: BACK



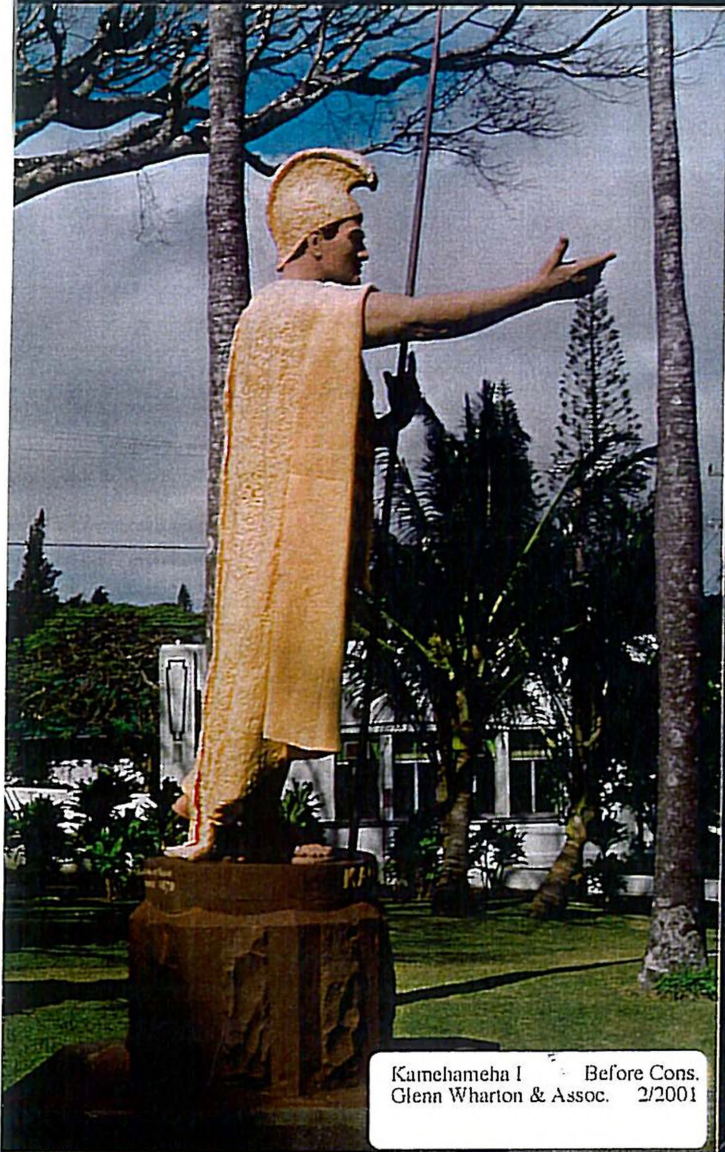
Kamehameha I Before Cons.
Glenn Wharton & Assoc. 3/96



Kamehameha I Before Cons.
Glenn Wharton & Assoc. 2/2001



Kamehameha I Before Cons.
Glenn Wharton & Assoc. 2/2001



Kamehameha I Before Cons.
Glenn Wharton & Assoc. 2/2001



Kamehameha I Before Cons.
Glenn Wharton & Assoc. 2/2001



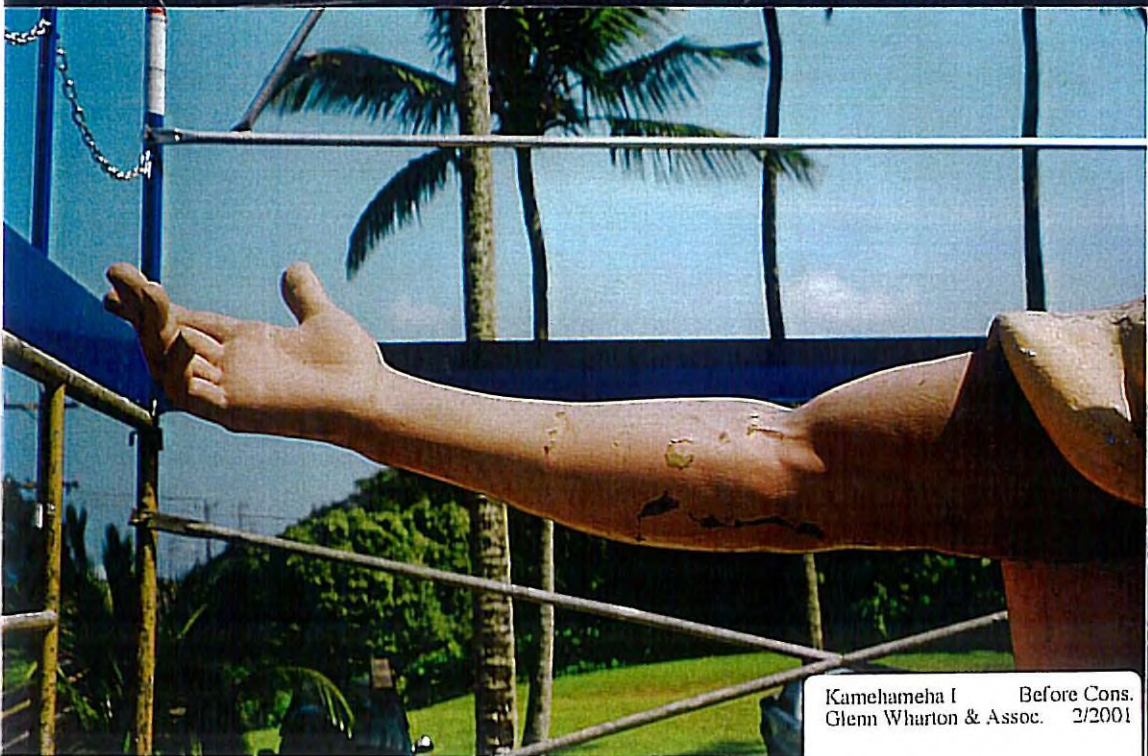
Kamehameha I Before Cons.
Glenn Wharton & Assoc. 2/2001



Kamehameha I Before Cons.
Glenn Wharton & Assoc. 2/2001



Kamehameha I Before Cons.
Glenn Wharton & Assoc. 2/2001



Kamehameha I Before Cons.
Glenn Wharton & Assoc. 2/2001



Kamehameha I During Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I During Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I During Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I
Glenn Wharton & Assoc. 3/2001
During Cons.

THE KAMEHAMEHA I SCULPTURE CONSERVATION PROJECT

ADMINISTERED BY THE HAWAII ALLIANCE FOR ARTS EDUCATION, IN PARTICIPATION WITH THE KING KAMEHAMEHA CELEBRATION COMMISSION, THE KOHALA HAWAIIAN CIVIC CLUB AND THE KOHALA KAMEHAMEHA CELEBRATION COMMITTEE. FUNDS FOR THIS PROJECT ARE PROVIDED BY: THE HAWAII COMMUNITY FOUNDATION, THE ATHERTON FAMILY FOUNDATION, THE GETTY GRANT PROGRAM, THE SAVE OUTDOOR SCULPTURE PROJECT! (HERITAGE PRESERVATION & SMITHSONIAN INSTITUTION), THE NATIONAL CENTER FOR PRESERVATION TECHNOLOGY & TRAINING (NATIONAL PARK SERVICE), THE NATIONAL ENDOWMENT FOR THE ARTS, AND AMERICANS FOR THE ARTS. ANIMATING DEMOCRACY LAB FUNDED BY THE FORD FOUNDATION. A DOCUMENTARY VIDEO PROGRAM IS IN PREPARATION BY KIP PRODUCTIONS TO BE PRODUCED BY THE HAWAII ALLIANCE FOR ARTS EDUCATION IN PARTNERSHIP WITH HAWAII PUBLIC TELEVISION AND FUNDED BY PACIFIC ISLANDERS IN COMMUNICATIONS.

Kamehameha I
Glenn Wharton & Assoc. 3/2001
During Cons.

SCULPTURE CONSERVATION IN PROGRESS

THE KAMEHAMEHA I MONUMENT IS UNDERGOING A CONSERVATION TREATMENT TO REMOVE HARMFUL CHLORIDE CORROSION AND REPAINT THE BRONZE SCULPTURE, FOLLOWING A UNIQUE TRADITION OF PAINTING THAT HAS DEVELOPED IN NORTH KOHALA. DUE TO THE USE OF CHEMICALS USED IN THE CONSERVATION, WE REGRET THAT THE MONUMENT WILL NOT ALWAYS BE VISIBLE DURING THE PROJECT; FROM FEBRUARY 26-MARCH 18.

THE SCULPTURE CONSERVATOR AND OTHERS WILL BE AVAILABLE TO TALK STORY ON FRIDAY AFTERNOONS AT 5:00 PM DURING THE PROJECT.

PLEASE JOIN US!

Kamehameha I
Glenn Wharton & Assoc. 3/2001
During Cons.

Kamehameha I
During Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I During Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I During Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I During Cons.
Glenn Wharton & Assoc. 3/2001



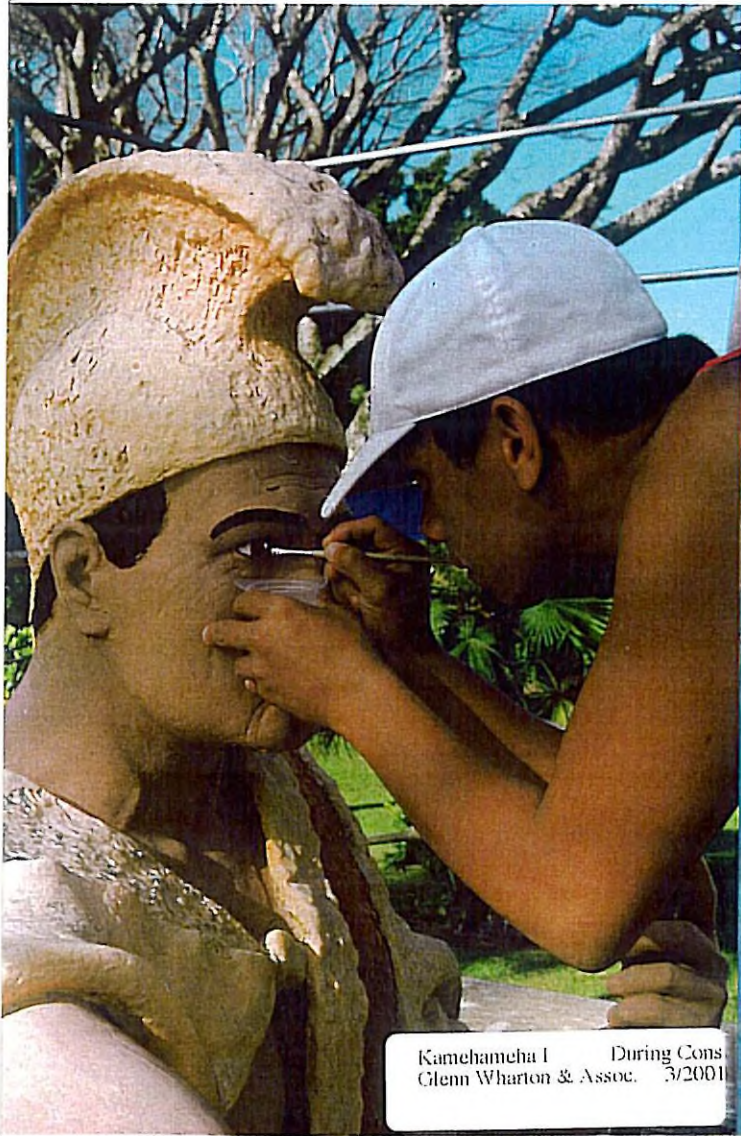
Kamehameha I During Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I During Cons.
Glenn Wharton & Assoc. 3/2001



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Glenn Wharton & Assoc. 3/2001



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Kamehameha I During Cons
Glenn Wharton & Assoc. 3/2001



Kamehameha I During Cons
Glenn Wharton & Assoc. 3/2001



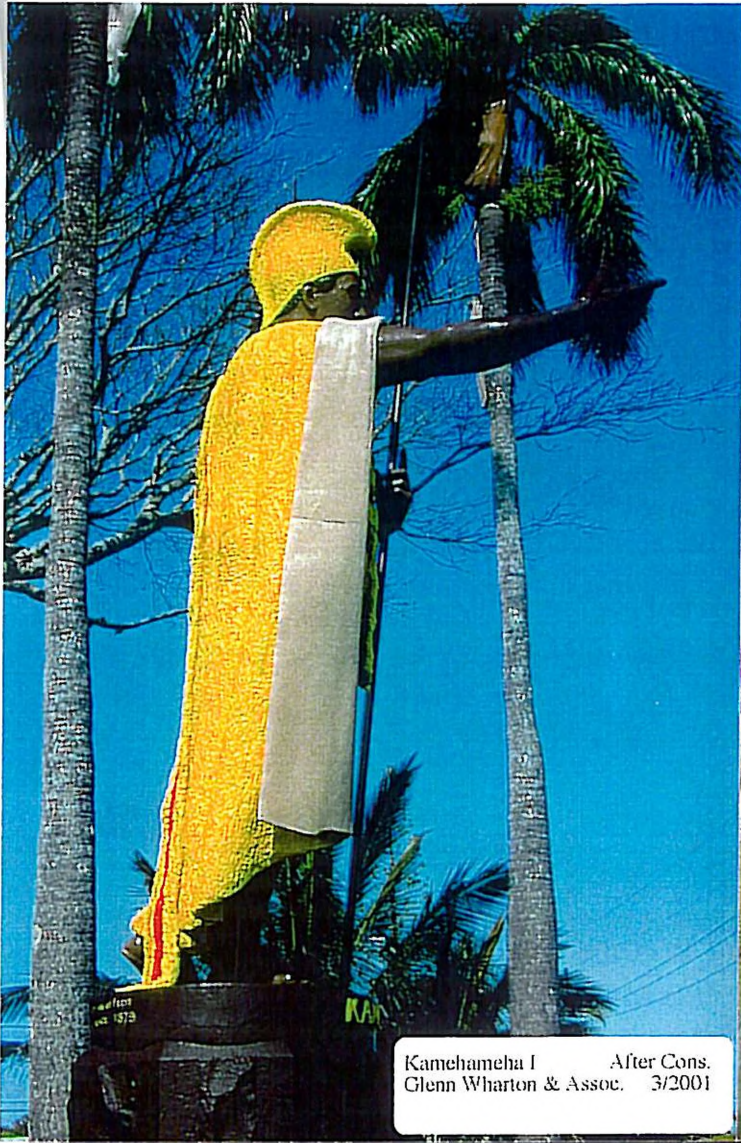
Kamehameha I After Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I After Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I After Cons.
Glenn Wharton & Assoc. 3/2001



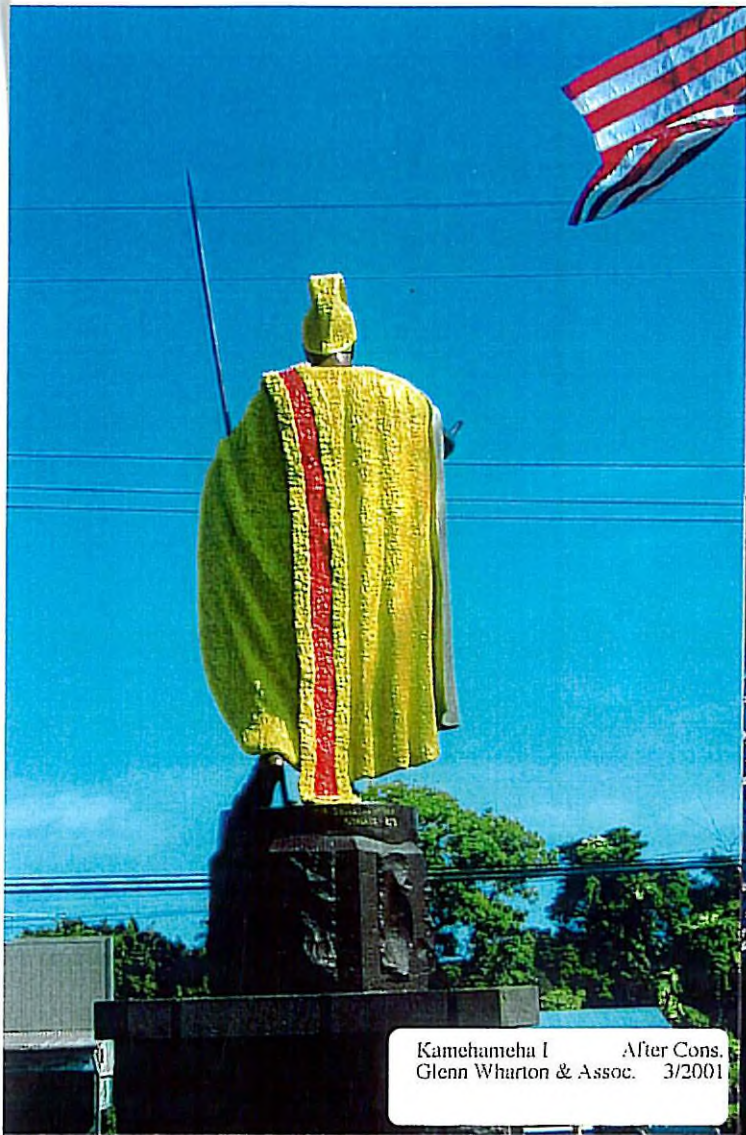
Kamehameha I After Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I After Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I After Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I After Cons.
Glenn Wharton & Assoc. 3/2001



Kamehameha I Lei Draping
Glenn Wharton & Assoc. 6/2000



Kamehameha I After Cons.
Glenn Wharton & Assoc. 3/2001