

UNIVERSITY OF CALIFORNIA

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

LAWRENCE HALL OF SCIENCE  
A RESEARCH CENTER IN SCIENCE EDUCATION  
(415-642-4193)

BERKELEY, CALIFORNIA 94720

June 6, 1985

Marlene Among  
Secretary  
Polynesian Voyaging Society  
Honolulu, HI 96821

Dear Marlene,

At last, we have finished our report on the Wayfinding Art project. The report has several purposes: 1) to concretize the ideas generated during the January meeting; 2) to report our progress to NEH; 3) to gather feedback from consultants before we actually build the things; and 4) to raise additional funds.

We are also working on the map of Hokule'a's current Voyage of Rediscovery. It will be finished in about two weeks and we will send one copy to Walter Steiger by airmail, for placement in the rotunda outside the planetarium. At Lawrence Hall, we will place PVS brochures next to the map. We would also like to sell PVS materials in the Discovery Corner store.

I sent Pinky a letter with a copy of the report and some requests. In brief, I asked him to:

1. Please send comments and suggestions on the white copy of the enclosed report.
2. If you want additional "slick" copies of the report for your own fundraising, please tell me how many you need.
3. Send me 3,000 - 5,000 PVS brochures for us to put next to the map of "Hokule'a's Voyage of Rediscovery."
4. Can we sell PVS materials in our Discovery Corner Store starting this summer? If yes, please send me the wholesale and suggested retail prices of items such as: the Polynesian Seafaring Heritage teachers' guide, Books for Children on Sea Voyaging, and the beautiful parchment booklet on The Voyage of Rediscovery.

As he will probably ask for your help on these items, I thought you'd like some advance notice!

Page 2

Thank you again for your continuing contributions to "The  
Wayfinding Art," and to my personal appreciation of Hawaii!

Aloha,

A handwritten signature in cursive script, appearing to read "Cary", followed by a long horizontal flourish.

Cary Sneider  
Director  
Astronomy and Physics  
Education



OFFICE OF PUBLIC INFORMATION

101 SPROUL HALL, BERKELEY, CA 94720  
(415) 642-3734

6/16/86--Rose--File #9957

ADVISORY TO SCIENCE AND FEATURE EDITORS -- RE: WED. A.M. PRESS BRIEFING

The fantastic voyage of the canoe "Hokule'a"--in search of clues to how the first Polynesians reached Hawaii--will be described at a special press briefing Wednesday (June 18). The briefing will precede the most demanding leg of the canoe's ongoing, two-year voyage throughout Polynesia.

WHAT: "Hokule'a," a double-hulled Hawaiian canoe that is navigated only by means of the wind and stars, has already sailed several thousand miles in an attempt to rediscover how the first Polynesians reached Hawaii. Within the next few weeks, it is scheduled to begin the challenging journey eastward from Samoa to the Cook Islands.

In October 1986, a major museum exhibit inspired by this "Voyage of Rediscovery" will open at both U.C.-Berkeley's Lawrence Hall of Science and the Bernice P. Bishop Museum in Honolulu.

WHO: Gail Evenari, a Bay area writer who sailed with the crew of Hokule'a from Tonga to Samoa, will recall her adventure and show a videotape of the canoe under sail, from a documentary she produced for Chevron USA.

Cary Sneider, director of astronomy, and Jennifer White, exhibits director, both of U.C.'s Lawrence Hall of Science, will discuss the significance of Hokulea's journey. They will also describe the Hall's upcoming joint exhibit--"The Wayfinding Art"--which will explore both the science and art of the early Polynesians' ocean voyages.

WHEN: Wednesday, June 18, 10:30 a.m.

WHERE: U.C.-Berkeley's Lawrence Hall of Science (Centennial Drive just below Grizzly Peak)

PHOTOS AND VIDEOTAPE OF HOKULE'A ARE AVAILABLE BY CONTACTING DEBORAH ROSE AT U.C.-BERKELEY'S OFFICE OF PUBLIC INFORMATION (415) 642-3734.

For more information about the entire voyage, press can also call Marlene Among, of the Polynesian Voyaging Society, (808) 955-7878, or Will Kyselka, of the Bishop Museum in Honolulu, (808) 941-4856, who is press liaison for the voyage and is also arranging the Bishop Museum's "Wayfinding Art" exhibit.

NOTE: WRITERS WHO ARE ALSO EXPERIENCED SAILORS, AND WHO WOULD LIKE TO JOIN THE CREW OF HOKULE'A ON ANY OF THE REMAINING LEGS OF THE VOYAGE, SHOULD CALL MARLENE AMONG AT (808) 955-7878.

-ljr-

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### "The Wayfinding Art: Ocean Voyaging in Polynesia"

A joint exhibit of the Lawrence Hall of Science in Berkeley and the Bernice P. Bishop Museum in Honolulu, Hawaii

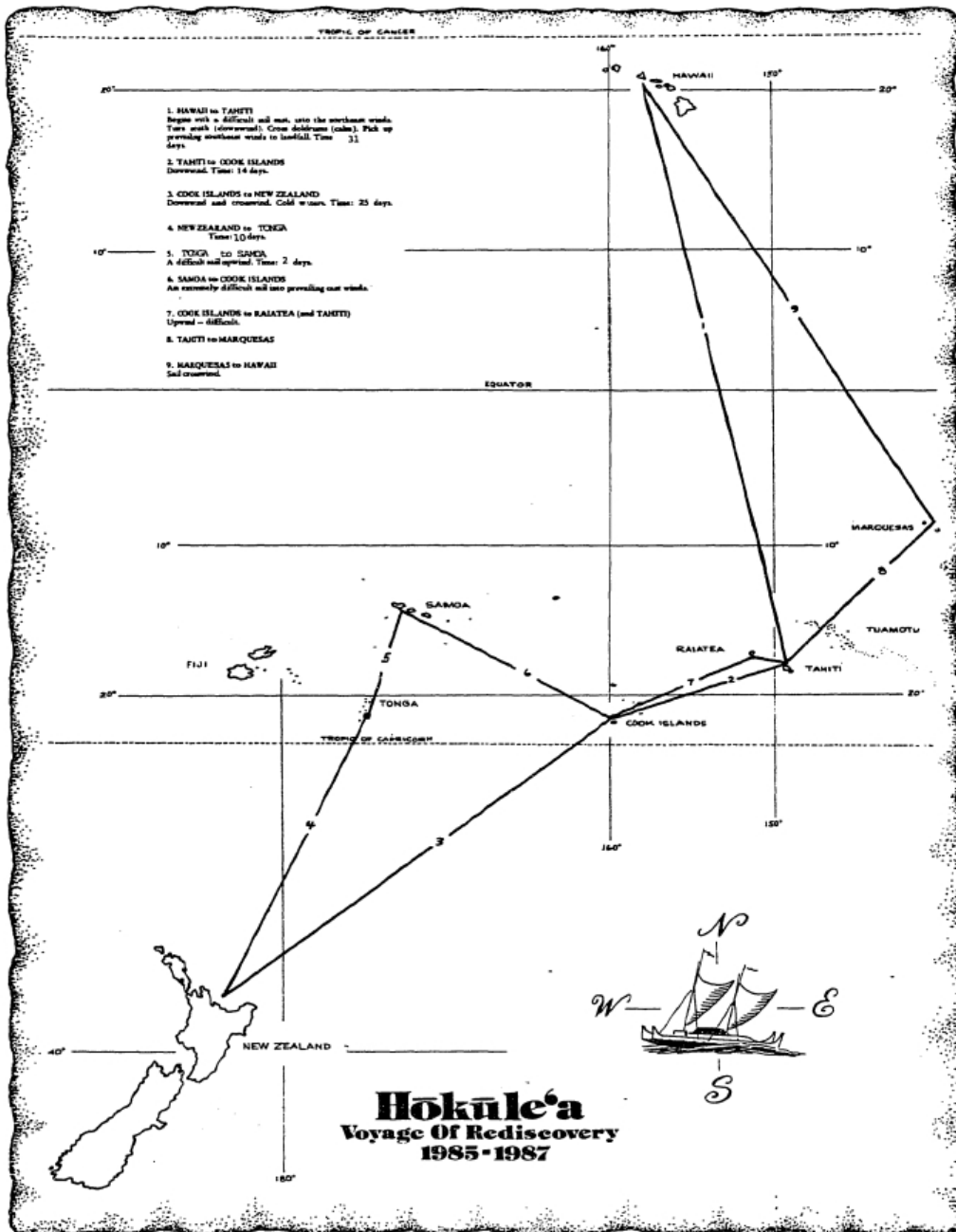
"The Wayfinding Art: Ocean Voyaging in Polynesia" is an exciting new project underway at the Lawrence Hall of Science, University of California, Berkeley, and the Bernice P. Bishop Museum, Honolulu, Hawaii, with the assistance of consultants from the Polynesian Voyaging Society, the University of Hawaii, and the Lowie Museum of Anthropology. The project will create a major exhibition and participatory planetarium program to communicate how scientists of many disciplines have collaborated to learn about where the Polynesians came from, the methods they used to construct and sail ocean-going canoes, and how they might have navigated between islands dispersed over the vast Pacific Ocean. "The Wayfinding Art" will open at the Lawrence Hall of Science and the Bishop Museum in October, 1986.

The staff and project consultants have developed basic designs and commenced work on fifteen major components of the museum program. These components guide visitors in learning about "The Wayfinding Art" through successively deeper levels: Level I. The Challenge, is a series of three interactive exhibits and panels that introduce the fundamental question, "Where did the Polynesians come from?" Level II. Keys to the Past, includes eight more exhibits to communicate how the diverse disciplines of archaeology, linguistics, and experimental anthropology have been applied to the question of Polynesian origins, settlement patterns, and technological capabilities. Level III. A Deeper Understanding, helps visitors learn more about each of the topics

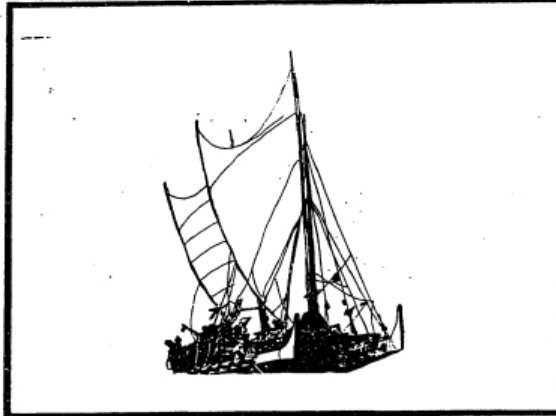
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introduced by the exhibits through a participatory planetarium show on navigation of the Hokule'a, a twin-hulled Polynesian canoe now sailing the Pacific; a lecture program; a book of essays; and hands-on workshops.

"The Wayfinding Art" is supported by a grant from the National Endowment for the Humanities, with supplementary grants from AT&T and the L. J. and Mary C. Skaggs Foundation, and technical assistance from Chevron USA.



# Voyage of Rediscovery



## Hoku'le'a '85-'87

A Cultural, Educational, and Scientific Expedition

## Stage Set For Voyage of Rediscovery

The wa'a hulu, Hoku'le'a, first sailed into the hearts and minds of Hawai'i's people in March, 1975, when it was launched at Kaula Beach Park near Hali'ima'u, on Oahu's windward side.

Kaula was a fitting place for the launching. In ancient times, it was a sacred place of refuge where great chiefs gathered for recreation and counsel. Legend also has it that when the Hawaiian Chief Kamehameha returned from Raiatea, with the first breadfruit tree introduced to Hawai'i, it was at Kaula that he landed.

When Hoku'le'a slid into the calm waters of Kaula Bay, she became the first wa'a hulu (two-masted, voyaging canoe) to grace Hawaiian waters since the time of Kamehameha the Great.

Since being launched, Hoku'le'a, named after Hawai'i's smith star, Arotuna, Star of Gladness, has become a vision realized for her designers and builders, among whom were included Herb Kane, Rudy Choy, Ben Finney, and Tommy Holmes.

These men all shared a love for Hawaiian canoes and an unshakable belief that ancient Polynesians had not simply drifted to South Pacific landfalls from the Americas as others had theorized. But, rather, they had used voyaging canoes and a system of non-instrument navigation, perfected after thousands of years of experimentation, to purposefully colonize the Pacific from points near Asia.

Through a collaboration of efforts, they set out to test their belief using Hoku'le'a as their vessel, and together they founded the Polynesian Voyaging Society to foster and manage the project (for more early history of the Hoku'le'a, see Herb Kane's story, "Woman of the Canoe", in the latter section of this booklet).

On May 1, 1976, during the year of our bicentennial celebration, Hoku'le'a, piloted by Captain Keriha Kapahulehua and the Micronesian navigator, Masi Fiala, set out on her first test when she sailed from Honolulu Bay on Maui bound for Tahiti. Thirty-three days and 2,800 miles later, she sailed into the lagoons at Papeete and in so doing, made modern naval history.

Welcoming the canoe at Papeete was an estimated throng of 25,000 Tahitians, the largest crowd ever believed to have assembled for an event in the French administered islands. Her arrival was celebrated as a national holiday.

A month later, Hoku'le'a was asked back to Hawai'i and on July 25th, after a 22 day, 2,000 mile voyage, she and her crew arrived in Honolulu to another heroes welcome.



Witnessed by a host of onlookers, Hoku'le'a returns to Honolulu in 1976.

In 1980, Hoku'le'a proved the first voyage was not a fluke by completing a second round trip voyage to Tahiti under the leadership of Captain Gordon Fritch and Navigator Naima Thompson. Thompson became the first Polynesian since ancient times to navigate a voyage without instruments.

However, in between the joy and celebration of the two round trips to Tahiti, the saga of Hoku'le'a was also marked by tragedy. On a planned voyage to Tahiti in 1978, Hoku'le'a was swamped in high seas off the island of Molokai's soon after leaving Honolulu. Her crew clung all right to the capsize canoe's hull.

As morning broke, crewman Eddie Akana, one of the best he wave surfers to come out of Hawai'i, volunteered to paddle a surfboard to Lani'i to seek help. Shortly after he left the canoe, an isolated offshore pilot spotted the swamped canoe and crew and radioed the Coast Guard, which rescued the crew and towed the sailing canoe back to Honolulu. Sadly, Akana



Crew members paddle to Hoku'le'a at start of 1978 voyage.

never reached Lani'i and was believed to have been lost at sea.

Akane's courage and heroism will never be forgotten by those close to Hoku'le'a. And though little more can be found in his loss, particularly for his family and friends, his love for Hoku'le'a (for which he composed a song) and the voyaging tradition of his Polynesian ancestors will always be remembered.

Akane's loss also regrettably brought to bear the fact that voyaging, though it can appear glamorous and exciting to the uninitiated, can also be extremely dangerous. It is not inconceivable, that of all the seagoing voyages made by the ancient Polynesians, there were probably many which were unsuccessful, and some on which brave sailors perished without ever seeing land again.

And so it is now, after 10 years of testing and experimenting with Hoku'le'a, that the Polynesian Voyaging Society has announced its most ambitious and perhaps, most dangerous voyaging mission to date -- the Voyage of Rediscovery -- a two year cultural, scientific, and educational expedition through the South Pacific which is tentatively scheduled to embark in July of this year.

In a time frame of 27 months, the voyage will attempt to compress the 1500 year voyaging adventure which made Polynesia the largest nation on earth. The Society's goal is to retrace as many of the ancient Polynesian voyaging routes as time, budget, and weather permit.



Large sand grass Hoku'le'a at Hali'ima'u at the end of 1980 voyage.



Crewman, Sam Kahi, removes the Kahi (small) from Hoku'le'a's mast after 1980 voyage.

According to archaeological evidence, the people who were to become Polynesians, first, sailed their way from Southeast Asia to Western Polynesia, reaching Fiji, Tonga, and most importantly, Samoa. They then crossed to Eastern Polynesia -- to Tahiti, the Tuamotus, the Cooks and the Marquesas. From this eastern land base, they made the long voyages north to Hawai'i, southwest to New Zealand, and east to Easter Island. Some evidence suggests that Polynesians may have ventured as far as South America, but it is a theory which may never be satisfactorily proven.

As planned, the voyage of rediscovery includes nine different segments. Race, weather, and repair steps will be made in the various ports along the route.

### HAWAII-TAHITI

On the first leg, Hoku'le'a will be sailed to the Tuamotus and then Tahiti, the largest, most populous, and most famous of the Society Islands. Three-fourths of the approximately 96,000 people who live in the Societies are Polynesian. The second wave of Polynesian migration (around 1200 A.D.) came from this group. This segment of the voyage is expected to take 12 days and begins with a difficult sail east, into the Northeast winds. After crossing the doldrums into the Southern hemisphere, Hoku'le'a will pickup prevailing Southeast winds to landfall.

### TAHITI-COOK ISLANDS

The Cooks, Hoku'le'a's second destination, is made up of fifteen widely scattered islands, the largest of

which is Rarotonga. These islands are the link between Western and Eastern Polynesia.

Under British Colony, the Cooks are now self governing in free association with New Zealand. Cook Islanders number about 31,000, of which only 15,000 live in the island group. The majority of them live in New Zealand where job opportunities are greater. The sail from Tahiti to the Cooks is downwind and is expected to take two weeks.

### COOKS-NEW ZEALAND

Cold waters and uncertain weather make the third leg of the voyage from the Cooks to New Zealand one of the most challenging. Sailing both downwind and cross wind, this segment should take about 25 days. However, unsafe weather (climatic conditions make this area a breeding ground for hurricanes) could force a re-routing through Tonga.

New Zealand, an independent nation, consists of two main islands. Over 250,000 Polynesians (Maori) live here, but make up less than 10% of the total population. Most of the Maori live on the North Island.

In recent years there has been extensive cultural exchange between the Maori and native Hawaiian people. Some Maori believe their ancestors came from Hawai'i. Their oral tradition indicates they may have departed from Ka Lae (South Point) on the Big Island of Hawai'i well over a thousand years ago.

### NEW ZEALAND-TONGA

According to archaeological evidence, the people who settled Tonga and Samoa about 3,000 years ago became the first Polynesians and went on to explore and settle the other Polynesian islands.

### TONGA-SAMOA

The fifth leg, the voyage from Tonga to the Samoa, is the first of three segments in which Hoku'le'a will be traveling directly into a prevailing west wind, making it a difficult upwind sail.

The Samoa are considered the "cradle of Polynesia", having been inhabited for over 2500 years. They are divided into Western Samoa, population 152,000, and American Samoa, population 31,000. Western Samoa gained its independence from New Zealand in 1962 and is the first independent Polynesian state of modern times.

American Samoa is a territory of the United States. Through the years, much debate has centered on the issue of American Samoa's continued political association with the United States. At this point, however, the issue seems far from being resolved.

### SAMOA-COOKS

On the sixth leg of the voyage, Hoku'le'a will be

sailed from the Samoa back to the Cooks. Although not the longest leg in terms of distance, it should be the longest time wise (approximately 35 days) because of the difficult upwind sail.

### COOKS-RAIATEA-TAHITI

Another difficult upwind sail, the seventh leg will take Hoku'le'a from the Samoa to Raiatea and then Tahiti, where it will prepare for its voyage to the Marquesas. Estimated sailing time is 25 days.

Raiatea lies 100 miles west of Tahiti, and after Tahiti is the largest of the Society Islands. It has a small population of just over 6,000 residents. Raiatea's original name was Hava'i or Havaiki, homeland or spirit land of the ancients. Today it still remains an important religious and cultural center of Polynesia.

### TAHITI-MARQUESAS

The trip to the Marquesas is a crosswind sail from Tahiti which should take an estimated 22 days. The first Polynesian migration to Hawai'i (around 800 A.D.) came from the Marquesas, which gives added cultural significance to Hoku'le'a's visit.

Made up of ten high islands, the Marquesas are also a part of French Polynesia. Once thought to have a population of between 50,000 to 100,000 people, Marquesas' residents now number approximately 5,500 according to a 1977 census.

### MARQUESAS-HAWAII

The last leg of the voyage of rediscovery is an estimated 22 day sail from the Marquesas to Hawai'i. Initially, Hoku'le'a will sail northward on southeast tradewinds. After crossing the doldrums into the northern hemisphere, she will encounter light easterlies which will gain in strength as she moves northward. Finally, Hoku'le'a should take a northwest course, reaching across the wind until landfall in Hawai'i.

Whether all of this will be possible remains to be tested during the course of the voyage. Whereas ancient Polynesians might have, in some instances, waited for years for the right sailing conditions to make their voyage, Hoku'le'a's crew will not have that luxury.

The Polynesian Voyaging Society, which is a non-profit, tax-exempt, volunteer organization, has established the several scientific, cultural, and educational objectives for the voyage. It hopes to record the voyage through media and navigational documentation and to establish an educational center at Honolulu Harbor on Hoku'le'a and the Voyage of Rediscovery.

According to the Society's officers and directors, this historic voyage will cost an estimated one million dollars, most of which it hopes to raise through fund-raising, grants, and donations.

So, with a performance-accurate replica of the voyaging canoe, a navigator, and dozens of trained crew (for more information about the voyage crew see story, "Experienced Crew Preparing for Long Voyage", in this booklet), the stage is set for the Voyage of Rediscovery.

## Ancient Tools and Implements of the Polynesian Canoe

Stone anchor with choiled puka (Puka) for securing anchor lines.



Small cordage made with braided coconut fiber. On the canoe, it was used for lashings, rigging, and anchor lines.

Bone drill with shell's tooth point. An implement used to drill lashing holes in the canoe.



Caulking tool. In building a canoe, this tool was used to fill joints with caulking material made from breadfruit sap and coconut fiber.



Bamboo adze with palm bark cord lashing. In Polynesia the adze, a tool used for shaping canoe hulls, was brought to its highest development, both in function and aesthetic form. Some were raised to the status of ceremonial objects and carried much mana (power).



## Design and Construction of Hokule'a

The Hokule'a was designed and built to help test the theory that Polynesians could have migrated to South Pacific landfalls thousands of years ago via eastward migration routes which originated in Asia. As theorized, these were carried out in a purposeful manner using a system of non-instrument navigation (using natural elements, such as stars, wind and ocean currents as guides) — a system which was, in all probability, perfected after centuries of experimentation.

### DESIGN:

The conceptual design of Hokule'a was done by Herb Rawinski Kane, an architectural designer and illustrator by profession and a well-known island artist, writer, and historian.

The craft was designed as a re-creation of an ancient Hawaiian wa'a kaula (two-hull, voyaging canoe), a task made difficult by the fact that there were no existing canoes of this type which could be used as a model. Much of the design, therefore, had to be derived from the recorded observations of western explorers like Cook and Vancouver who described the double-hulled canoes they had seen during their visits to Polynesian ports in the latter part of the 18th century.

It is also interesting to note that the final geometric design of Hokule'a's sails was taken from an ancient Hawaiian petroglyph.

### CONSTRUCTION:

Construction plans for Hokule'a were prepared by the firm of Choy, Seemana, and Kumaki. Rudy Choy, a senior partner in the firm, and Herb Kane supervised and coordinated the construction which was carried out by amateur boatbuilders, Tommy Heen and Olo Colton, under the guidance of boatwrights Curt Ashford and Malcolm Waulfron.

Also making significant contributions to the construction effort were Vally Probst and Wright Bowman. Bowman, an expert pattern maker and canoe builder, assisted in the hull construction, while Probst, a well-known island water man and canoe enthusiast, did the lashings.

Although built according to ancient form, modern materials were used in the construction of Hokule'a. The decision to forego the use of traditional materials was based on several factors including (1) the difficulty in locating low trees of the required size to fashion dugout hulls, (2) the non-existence of wa'a lalaki (boatwrights experienced in the construction of two-hulled voyaging canoes), and (3) the short time available to ready the canoe for its bi-centennial voyage to Tahiti in 1976.

In their final analysis, the builders of Hokule'a believed it was more important to focus their efforts on making Hokule'a seaworthy and performance accurate, including the critical ability to sail up wind. To prove

that ancient wa'a kaulas were seaworthy and could sail to windward, they reasoned that it was only necessary to shape Hokule'a's hulls and sails in the same geometric fashion as that of the wa'a kaula and that the use of traditional construction material was not essential to proving their theory.

### CONSTRUCTION MATERIALS:

**Kuaka's (Hulls)** — Traditionally, the hulls of Hawaiian wa'a kaulas were dugouts, each fashioned from a single log of koa. The hulls of Hokule'a, however, were formed by using a combination of marine plywood, spruce, and layers of fiberglass.

The masts (the curved sections at the ends of the hull) were traditionally made from the wood of ulu (breadfruit) trees, but for Hokule'a, they were constructed in the same manner as the hulls.

**'Iako (Crossbeams)** — Hokule'a's iako, which connect the twin hulls and support the platform, were built up from ten laminations of 1/2 inch white-oak. Traditional iako were made from hau trees.

**Poa (Platform)** — In constructing Hokule'a's poa, 12 feet long planks of Douglas Fir were substituted for the bamboo shafts used on traditional wa'a kaulas. The planks are tied together and lashed to the iako.

**Kia (Masts)** — The kias on Hokule'a are made of pine wood. Traditional material for the kias consisted of young koa trees.

The o (paddles) and paeape (curved bows) are each built from laminations of Douglas Fir planking. The kaula hau (lines for staying masts and hauling sails) were formerly made from woven strips of hau bark. On Hokule'a, dacron ropes are used.

Hokule'a's kias hu (foremast) stands 29 feet, 6 inches high, while the kias hope (mainmast) is 21 feet high.

The sails, traditionally of lalaki, are now made of cotton.

**Hoe (Paddles)** — All the paddles of Hokule'a are shaped in the traditional fashion. Originally, the paddles were all made from koa, as was the ancient custom.

Hokule'a's successful roundtrip voyages to Tahiti in 1976 and 1980 have supported the theories expounded by her builders. The craft has proven both seaworthy and capable of sailing as much as one and one-half points to windward. And, though modifications have been made to her original hull and sail construction, she remains essentially the same wa'a kaula that was first launched in March of 1976.

Source — Choy, Dain, and Rhodes, "On The Design, Construction and Sea Performance of the Polynesian Voyaging Canoe Hokule'a." A paper presented at the Spring Meeting/Sea Symposium, Honolulu, Hawaii, April 20-23, 1982.



Visuals Desired from Hokule'a 1985-7 voyage

to: Myron Thompson, President of PUS

from: Alan Friedman and Cary Sneider

for: NEH Exhibits

date: February 4, 1985

\* High quality color negatives of Hokule'a sailing, taken from different viewpoints, suitable for poster-size enlargement

\* Color slides of Hokule'a on different tacks, taken from windward direction

\* Color slides of Hokule'a on different tacks, taken from the stern, with a wide angle lens showing the set of the sails

\* If possible, color slides of Hokule'a on different tacks, taken from above

\* Color slides of the steersman, navigators, captain, and crew

\* Color <sup>slides</sup> of Hokule'a illustrating different construction processes that might have been used by ancient Polynesians, such as lashings, hull shape, etc.

\* Color slides of Hokule'a at sail during moonlit night, taken from stern, and from escort vessel

\* Color slides of provisions taken on board for the 1985-7 voyage

\* Color slides of plants and animals that were brought by the Polynesians to Hawaii

\* Color slides of sea showing swells

\* Black and white photos of Nainoa and Mau together, and the Captain, looking at the camera, suitable for enlargement to life-size

\* A series of black and white photos of the Hokule'a at sail, taken from different viewpoints

\* A half-hour tape recording of Hokule'a sailing, with sounds of wind and waves on a calm sea

\* A tape recording with five-minute segments of Hokule'a sailing under different conditions, some in heavy seas, some with crew talking or playing music on board, etc.

\* 5 seconds of film or video tape taken each day of ocean and sky and part of the bow, taken from exactly the same place at the same time, to show the daily weather conditions.

Pinky:

Draft

The Polynesian Voyaging Society

**Hokule'a Legacy**

January 2, 1985

The 1976 voyage of **Hokule'a** showed

- that a replica of an ancient Polynesian voyaging canoe can hold "close to the wind" for the month it takes to reach Tahiti
- that human navigation, as expressed in the art of wayfinding, can assure continuous orientation and successful landfall over that long Hawaii-Tahiti route

The 1980 voyage of **Hokule'a**

- verified the results of 1976 and validated investigations in canoe performance and human navigation.
- demonstrated that it is possible for a person to generate the navigational knowledge needed in maintaining continuous orientation over 10,000 kilometers of open ocean voyaging.
- interested the National Endowment for the Humanities in granting \$185,000 to two museums of diverse commitment--the Lawrence Hall of Science in Berkeley and the Bishop Museum in Honolulu--to cooperatively develop an exhibit to be viewed by an estimated 3.5 million persons in the next five years, **The Wayfinding Art: Ocean Voyaging in Polynesia.**

In addition:

- Each year an estimated 30,000 persons view "Polynesian Skies," a program by the Bishop Museum Planetarium and based on the star research that formed the basis of Nainoa Thompson's wayfinding system.
- <sup>book</sup> **An Ocean in Mind**, documenting the cognitive system that Nainoa developed and his experiences in practicing the art, is forthcoming from the University of Hawaii Press.

Will Kyselka [REDACTED] +/-/+/+/+/+/+/

January 21, 1985

The Lawrence Hall of Science/Bishop Museum project, The Wayfinding Art: Ocean Voyaging in Polynesia is getting underway. Details are enclosed.

A group of local consultants specified in the proposal will be meeting Monday morning. They include

Dave Kemble, Yoshihiko Sinoto, Pat McCoy, Walter Steiger, Donald Duckworth, Will Kyselka, all of the Bishop Museum,

Ben Finney and Dixon Stroup, University of Hawaii

Myron Thompson, president of the Polynesian Voyaging Society, and Nainoa Thompson

Cary Sneider, P.I., and Jenny White, Exhibits, the Lawrence Hall of Science

Alan Friedman, director of the New York Science Museum.

We ask you to join them in a reception Monday the 28th, 4:30 p.m. at the home of Lee and Will Kyselka, [redacted] Honolulu. Take either Tantalus or Round Top road five miles up the hill. It's near the top. Phone if you need, [redacted] bring a spouse or friend if you wish.

Through the work of the Polynesian Voyaging Society our knowledge of human navigation has greatly increased. And largely through the effort of Cary Sneider we have a project funded. It was Cary who, in seeing the Bishop Museum Planetarium program, Polynesian Skies, realized a connection with his Lawrence Hall of Science participatory planetarium program on Micronesian navigation. He saw the potential in two institutions of vastly different scientific endeavor developing a way of presentin clearly to the general

public the concepts of human navigation.

Friday evening the 1st of February, Laura and Myron (Pinky) Thompson are hosting a dinner at their home in Niu Valley. Here consultants, participants, Hokule'a crew, and Polynesian Voyaging Society board members will have a chance to share knowledge, experience, and points of view. Please come.

Will Kyselka  
[REDACTED]



## University of Hawaii at Manoa

Curriculum Research and Development Group  
(Including University Laboratory School)  
Castle Memorial Hall 132 • 1776 University Avenue • Honolulu, Hawaii 96822  
Telephone: 948-7961 • 948-7962

April 29, 1983

Principal and Staff:

Two brochures are enclosed: one, the University Laboratory School's computer education program, SCOPE; the other, the 14th annual Summer Science Enrichment Program.

SCOPE is for students at all levels. The day program is 80 hours of instruction for students in grades 7-12. The evening program is a four week 24-hour computer program for students in grades 3-6 with their adult companions. On Saturday mornings, pre-school through 2nd grade children will be working on computers under the direction of researcher, Dr. Richard Hinze. A separate component of SCOPE is teacher training under the direction of Dr. Sidney Rachlin.

SCOPE addresses computer education in the areas of mathematics and science. Word-processing is also included as a way of enabling students to more easily express thought through the written word.

We particularly encourage upper level high school students to enroll in SCOPE. They'll receive 1/2 credit in Computer Mathematics, 80 hours of computer work, and the added advantage before graduating of experience in knowing how to make the computer work for them.

The Summer Science Enrichment Program is an activity-centered science program for students in grades 4-9. Three-hundred twenty students from 99 schools were in last year's program.

We will be visiting high schools and intermediate schools soon to talk with principals and interested staff members about these programs, and to furnish you more brochures.

Lee Kyselka, Director

AN EQUAL OPPORTUNITY EMPLOYER

The Polynesian Voyaging Society

**Hokule'a** Legacy

January 21, 1985

The 1976 voyage of **Hokule'a** showed

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The 1980 voyage of **Hokule'a**

- verified the results of 1976, validating concepts in canoe performance and human navigation.
- demonstrated that it is possible for a person to generate the navigational knowledge needed in maintaining continuous orientation over 10,000 kilometers of open ocean voyaging.
- interested the National Endowment for the Humanities in granting \$185,000 to two museums of diverse commitment--the Lawrence Hall of Science in Berkeley and the Bishop Museum in Honolulu--to cooperatively develop an exhibit to be viewed by an estimated 3.5 million persons in the next five years, **The Wayfinding Art: Ocean Voyaging in Polynesia.**

In addition:

- resulted in "Polynesian Skies," a Bishop Museum Planetarium program based on Nainoa's star research and unique wayfinding system, presented to 30,000 persons a year.
- documented that system in a book **An Ocean in Mind** to be published by the University of Hawaii Press.

Will Kyselka  
[REDACTED]

in pottery shards along the old Lapita trail clues to 40,000 years of human mind and movement in the Pacific.

--chanters, dancers, singers, story-tellers familiar with the activity of generating storing, retrieving, and transmitting knowledge.

--investigators in right-brain, left-brain thinking... learning theorists interested in cognitive structures and heuristic processes that enable the wayfinder to find the way.

#### Procedure

Early in 1984 we will meet with persons in diverse disciplines to learn of research significant in orientation and wayfinding and who might be invited to the conference.

We will then set up a tele-communications network among the invited participants for the exchange of ideas and the development of themes pertinent to the conference. The network will enable those who might not be able to attend the conference an opportunity of participating in it.

Conference sessions will provide exchange of ideas and information at the colleague level. A public symposium, or series of lectures, could bring the ideas to the attention of the general public. The content of the conference will provide a basis for a wayfinding anthology.

#### Areas of Interest

##### Anthropology Pat

Kirch, Bishop Museum, the Lapita pottery trail and Easter Island.

Botany Sy Sohmer, Bishop Museum. Barbara Siegel, UH.

Education Vic Kobayashi, UH, philosophy, cognition.

Morris

Lai, UH, Sailing Gordon Pi'ianai'a Entomology Frank

Radovsky, Bishop Museum. Genetics (?) Gene Pool

enrichment; pioneers in Polynesia. Asian Pacific Studies

Abe Pi'ianai'a, UH. Linguistics Emily Hawkins, UH.

Oceanography Dixon Stroup, UH. Meteorology & Climatology

Saul Price, NOAA. Bernie Kilonsky, UH. Jim Sadler, UH.

Press Release

Draft

February 3, 1985

recognition.

The Bernice P. Bishop Museum, founded 1889 in Honolulu, is recognized as one of the world's leading scientific and historical institutions. It houses the largest collection of Hawaiian and Pacific cultural and natural history research specimens, and its scientific contributions at an international level are matched by its role in providing public service to Hawaii and its visitors. The Department of Anthropology is responsible for the Museum's considerable reputation for research in the peoples of Oceania.

For several years the Bishop Museum Planetarium has contributed to our understanding human navigation--navigation without instruments as it might have been done by the peoples of old. A young man of Hawaiian descent, Nainoa Thompson, worked for hundreds of hours with Planetarium Lecturer Will Kyselka studying points of light on the 30-foot dome for clues to ways for finding tiny islands in the sea.

From Mau Piaiug, the master wayfinder from the island of Satawal in the Central Carolines of Micronesia, Nainoa learned the ways of the sea and how to integrate his knowledge into a cogent wayfinding system ready for testing.

Then in 1980, Nainoa trusted mind and senses and guided Hokule'a to Tahiti and back 6000 miles (10,000 kilometers) of open ocean voyaging to two successful landfalls, all without the use of instruments.

The collaborative effort of the Lawrence Hall of Science and the Bishop Museum on the Wayfinding Art will bring to the general public the problems and possibilities in human navigation that has been going on in the Pacific over the past tens of thousands of years.

The project is funded by a grant from the National Endowment for the Humanities, in the amount of \$185,000, as well as from other donors. Prototype models of the exhibit will be built in Berkeley and tested at both Lawrence Hall of Science and the Bishop Museum. Refinement will take place on the basis of the results. By mid-1986 the exhibit will be available to other museums throughout the country. During the next five years we expect 3.5 million visitors to become involved in The Wayfinding Art.



THE SKY FOR NOVEMBER (CONT.)

PHASES OF THE MOON

New Moon . . . . . November 4 at 12:21 p.m.  
First Quarter. . . . . November 12  
Full Moon . . . . . November 20  
Last Quarter . . . . . November 27

Currently showing at the Bishop Museum Planetarium is "JOURNEY BY STARLIGHT" in which is explored the role played by stars in guiding voyagers over the surface of the Earth and into space. Show times are daily, Monday thru Sunday, at 3:15 p.m. and also Friday and Saturday at 8:00 p.m., continuing thru December 4. "POLYNESIAN SKIES", dealing with Polynesian navigation and the voyage of the Hokule'a, shows daily, Monday thru Sunday, at 11:00 a.m. The telescope in the observatory is available for public viewing, free of charge, on Friday and Saturday evenings, weather permitting. There is an admission charge for the planetarium shows. For further information call the Bishop Museum at 847-3511.

Press Release

Draft

February 3, 1985

**Lawrence Hall of Science/Bishop Museum Project**

The Bishop Museum in Honolulu and the Lawrence Hall of Science in Berkeley are collaborating in creating an exhibition and participatory planetarium program on **The Wayfinding Art: Ocean Voyaging in Polynesia**

The two institutions, vastly different in scientific commitment, have received funding from the National Endowment for the Humanities for a joint project that will bring to museum visitors an clearer understanding of the patterns of migration of the peoples of Oceania throughout the Pacific and how the human mind is capable of maintaining orientation over vast oceanic distances.

Interactive or "hands-on" exhibits will give museum visitors experiences in

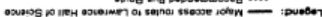
- Inferring settlement patterns through correlating artifacts from various sites
- Investigating the performance characteristics of various types of canoes and its relationship to sail design
- Practicing the art of wayfinding in a computer simulation voyage between Hawaii and Tahiti
- Learning the changes in the sky that take place with a change through a participatory planetarium program

A book of essays **Excavation and Experiment—Keys to Understanding the Wayfinding Art** will be made available to visitors.

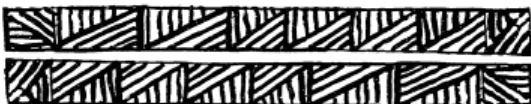
The Lawrence Hall of Science is a public science museum operated by the University of California. Each year a quarter of a million people visit the museum. Classes, exhibits, and special programs are aimed at integrating science, art, and the humanities. Presentations by chamber orchestras, Shakespearean troupes, dance groups, individual musicians, poets, artists, and scientists are regular features of the museum, and staff members collaborate with those in the humanistic disciplines in presentations in diverse programs in anthropology, Afro-American studies, and the dramatic arts.

The Holt Planetarium at the Lawrence Hall of Science is a leader in developing participatory planetarium programs, and for its innovative contributions has received national

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# ART





## CELEBRATE POLYNESIA!

*Five hundred years before Columbus, the early Polynesians sailed thousands of miles across the Pacific to settle far-flung islands including Samoa, Tahiti, and Hawaii.*

*Their incredible achievement—accomplished without navigational equipment—is the subject of a new exhibition at the Lawrence Hall of Science, University of California at Berkeley.*

The Lawrence Hall of Science  
cordially invites you to attend a  
reception for

**The Wayfinding Art:  
Ocean Voyaging in Polynesia**  
a new permanent exhibit

Wednesday, November 12, 1986  
5 p.m. to 8 p.m.

Wine and hors d'oeuvres  
RSVP (415) 642-5133