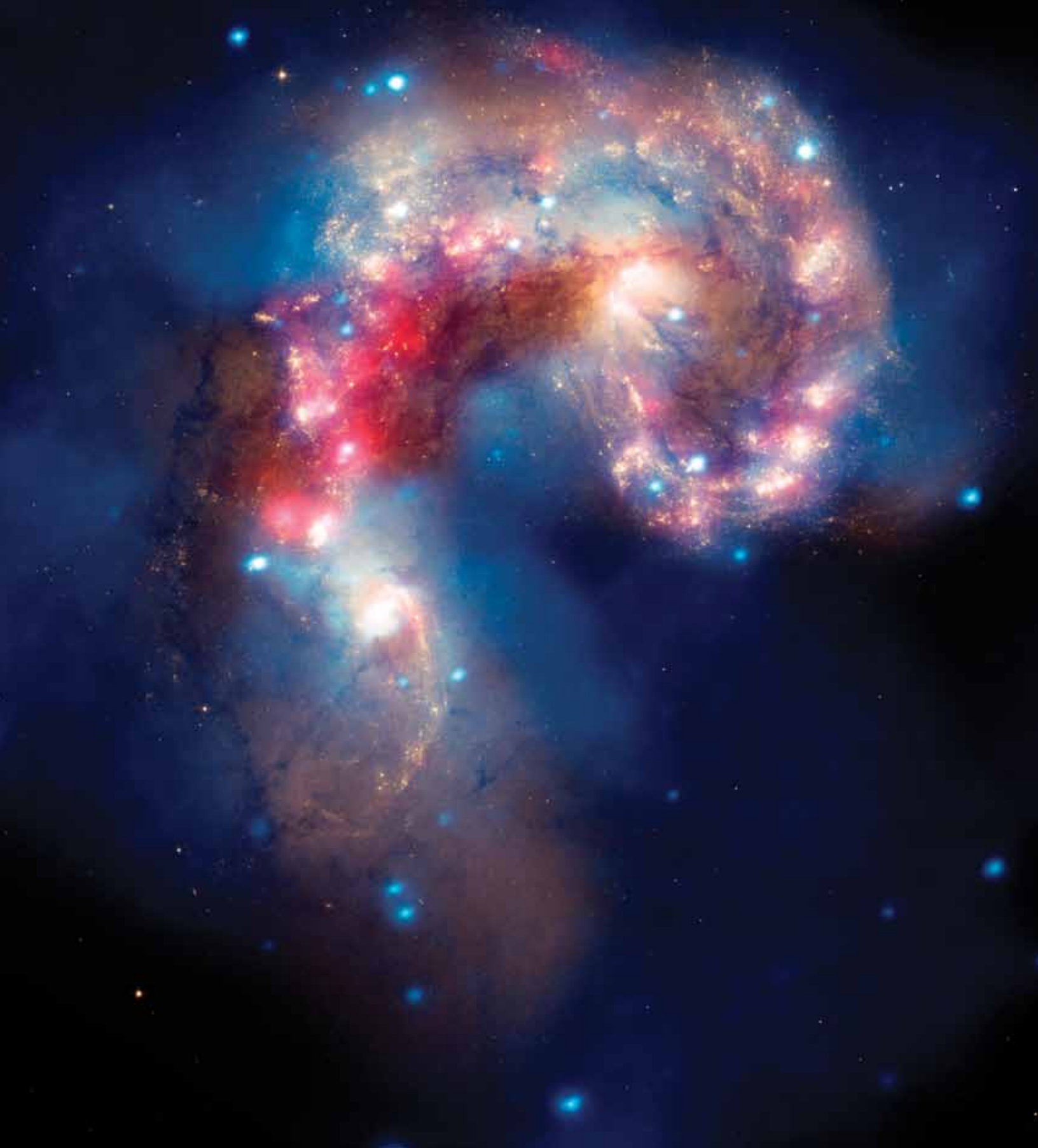


Ka‘Elele

The Messenger

The Journal of Bernice Pauahi
Bishop Museum | Winter 2013



Upcoming Events

January

17
Traditions of the Pacific Lecture: Preparing for the Voyage, 6:00–7:30 p.m. (Atherton Hālau). General: \$10, **Members: FREE.** *Reservations required (808) 847-8296 or membership@bishopmuseum.org.*

18
Two Museums and a Royal Palace: Hawaiian Music Festival, 5:00–9:00 p.m. (Bishop Museum, Honolulu Museum of Art, 'Iolani Palace). One entry fee gets you into all three institutions with free shuttle service. Adults: \$19.95, \$10 for kama'āina and military with valid ID, children 17 and under: **FREE, Members: FREE.**

20
Charles Reed Bishop's Birthday, 9:00 a.m.–5:00 p.m. Noon: special program in honor of our founder. (Hawaiian Hall). **Kama'āina and military with valid ID: FREE.**

25
Charles Reed Bishop Society Event, 5:30–7:30 p.m.

*** The Sky Tonight Planetarium Program,** 8:00 p.m.

February

1
*** The Sky Tonight Planetarium Program,** 8:00 p.m.

*** The Sky Tonight Planetarium Program,** 8:00 p.m. every first and third Friday of the month (J. Watumull Planetarium). General Adult: \$6, Children 4–12: \$4 (cash only), **Members: FREE.** *Reservations required (808) 848-4168 or membership@bishopmuseum.org.*

15
*** The Sky Tonight Planetarium Program,** 8:00 p.m.

21
Mary Kawena Pukui Society Luncheon, 11:00 a.m.–1:00 p.m. (Hawaiian Hall Atrium and Courtyard).

March

1
*** The Sky Tonight Planetarium Program,** 8:00 p.m.

9
American Heroes: Japanese American WWII Nisei Soldiers and the Congressional Gold Medal Exhibition opening day festivities. Opening event is from 10:00–11:00 a.m. with activities through 2:00 p.m. (Great Lawn). **Kama'āina & military with valid ID: FREE.**

15
*** The Sky Tonight Planetarium Program,** 8:00 p.m.

17
Science Alive! Family Sunday Event, 9:00 a.m.–3:00 p.m. (Mamiya Science Adventure Center/Great Lawn). **Kama'āina and military with valid ID: \$5, Members: FREE**

Current Exhibits



Through February 25, 2013
Castle Memorial Building, First Floor.
Experience the timeless creations of master printer Alfred Shaheen. Immerse yourself in the largest collection of vintage aloha wear ever shown in Hawai'i.

On the Cover



PHOTO CREDIT | X-ray: NASA/CXC/SAO/J.DePasquale; IR: NASA/JPL-Caltech; Optical: NASA/STScI

Visitors to the museum can now experience cosmic phenomena like The Antennae galaxies like never before. On December 15, Bishop Museum reopened the doors to a renovated Jhamandas Watumull Planetarium, which now features some of the most cutting-edge planetarium technology in the world. Popular programs like “The Sky Tonight” are now enhanced with a “hybrid” system which ties the planetarium’s new Chronos II star machine and Digistar full-dome video system together.

For more information on the planetarium, visit www.bishopmuseum.org/planetarium.



Through March 31, 2013
Richard T. Mamiya Science Adventure Center.
Explore the world of insects with this dynamic exhibit featuring giant animatronic insects. Get up close and see these gigantic creatures come to life!



Jhamandas Watumull Planetarium
Come by and see our newly renovated planetarium, with a new state-of-the-art hybrid system—new star machine, digital full dome video system; and new carpeting, lighting, and sound system.

Over 62 million light years away and more than 100 million years old, The Antennae galaxies represent the nearest and youngest example of two colliding galaxies. The galaxies take their name from the long, antenna-like arms visible in wide-angle views of the system. Separate images from the Chandra X-ray Observatory (blue), the Hubble Space Telescope (gold), and the Spitzer Space Telescope (red) were combined to create one composite image.

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Dear Friends of Bishop Museum:



Blair D. Collis

Pulu 'elo i ka ua o ka ho'oilō ~ Drenched by winter's rain.
—'Olelo No'eau 2738

On December 17, 2012, the sky darkened, the rains poured forth, and the winds resounded as one of the greatest statesmen of our generation passed on. U.S. Senator Daniel K. Inouye, *Nisei* World War II veteran, Medal of Honor recipient, and Hawai'i's senior Senator, had died at the age of 88 at the Walter Reed National Military Medical Center. The state of Hawai'i and the nation lost a man whose loyalty to country and love of his island home was truly unequalled.

Bishop Museum will always remember U.S. Senator Daniel K. Inouye as a compassionate man who possessed an unwavering commitment to the culture and history of Hawai'i and its native people. His support of the Museum spanned decades. Through his visionary leadership, key measures, such as the Native Hawaiian Culture and Arts Program (NHCAP) and the Native Hawaiian Education Act, enabled the creation of lasting programs and publications that ensured the preservation and perpetuation of Hawaiian traditions. Pua Van Dorpe rediscovered the secrets of *kapa* and the art of *lua* was revitalized. Indeed, *Hawai'i'loa* herself, the first contemporary long distance voyaging canoe made using native materials, was carved here on our campus with support from NHCAP.

Senator Inouye's commitment to Native Hawaiian culture and history also resulted in the Museum partnering with several Alaska Native, Native American, and national museums. These partnership projects, New Trade Winds and ECHO (Educational through Cultural and Historical Organizations), were the backbone of innovative cultural education programs at the Museum and ultimately led to the renovation and restoration of Hawai'ian Hall in 2009.

But Senator Inouye was also a fierce advocate for science education and directed numerous funding sources toward supporting our museum, including grants under the National Aeronautics and Space Administration (NASA). His commitment helped us to establish the Richard T. Mamiya Science Adventure Center in 2005.

Were it not for Senator Inouye, Bishop Museum would not be the community and educational institution that it is today. Tens of thousands of children annually benefit from programs he put into place, and Native Hawaiian cultural practices thrive because of his visionary leadership.

The last time I had a chance to personally sit down at length with the Senator was in October of 2012 at his D.C. offices. With a calm smile that spoke to his wisdom about the needs of both Bishop Museum and the people of Hawai'i, he listened to me update him on how we were doing, at moments asking a probing question to ensure he knew the details that would allow him to formulate ideas on how next he would support our museum. Probably more revealing was our time after the meeting, when he provided me a tour of his personal office, pointing out pictures of family and friends, as well as artwork and images of his beloved Hawaiian Islands. I was struck by the passion and pride in his eyes for all that Hawai'i meant to him, and it brought home to me the tremendous humanity and humility of a man who'd spent a lifetime in service of that which he most truly loved.

As we reflect on all that Senator Daniel K. Inouye has done for Hawai'i, the nation, and the world, may we remember that just as the earth ultimately reaps the bounty of winter's rains, so too will all of Senator Inouye's many legacies continue to flourish for generations to come.

Mahalo nui,

Blair D. Collis, President & CEO



Senator Inouye smiling before his own panel in the *Tradition and Transition: Stories of Hawai'i's Immigrants* exhibition during an APEC International Trade Reception on November 11, 2011.



Blair Collis and Senator Inouye attended a recent press conference in Washington, D.C., for the announcement of a traveling exhibition on the Congressional Gold Medal honoring Japanese American veterans of World War II.

The Color of *Kapa*

by Kamalu du Preez | Christina Bisulca



BISHOP MUSEUM HAS INITIATED RESEARCH TO SCIENTIFICALLY IDENTIFY THE DYES, PIGMENTS, AND RESINS USED TO DECORATE *KAPA* IN ORDER TO UNDERSTAND THE MATERIALS AND METHODS USED IN PRE-20TH CENTURY *KAPA* PRODUCTION.



PREVIOUS PAGE | The Emerson Collection contains the largest group of *kapa* and *kapa* implements received by Bishop Museum in its early years. The *kapa* collected by Emerson in the 1880s, is decorated with *pa'i 'ula* ("beaten in red"). This particular *kapa* was made using Turkey red cloth that was dyed with synthetic alizarin, showing that the barkcloth was made shortly before it was purchased. (BPBM 02361, Emerson Collection.) DETAIL | Microphotograph showing the cotton fibers from Turkey red cloth that was beaten into the *kapa* fabric.

The departments of Conservation and Cultural Collections at Bishop Museum are investigating colorants used in the production of traditional *kapa*, or Hawaiian barkcloth. *Kapa* is fashioned from beaten plant fibers, usually from the inner bark of paper mulberry. The labor-intensive manufacture of barkcloth, mainly by women, was a central activity in everyday life, as *kapa* was the principal textile at the time. *Kapa* is distinguished from other Pacific barkcloth by the use of a broad palette of colorants derived from native plant sources, as well as the deliberate application of a "watermark" pattern or design on the surface of the material.

Kapa was important in pre-contact Hawaiian society, used as clothing, bedding, and as a form of tax collected by the chiefs. Special *kapa* was made and used in significant life events such as birth, marriage, and death. As Western influences brought other fiber materials to the islands, the production of *kapa* waned, along with other traditional practices, as Hawaiians transitioned to a capitalistic, Western trade-influenced economic and social lifestyle. In comparison to the time-consuming, skilled labor needed to create *kapa*, other materials were easier to obtain and more efficient to purchase. Eventually, these imported textiles replaced *kapa* as the materials of daily living, and the production of *kapa* became less common.

After a period of relative dormancy among the wider Hawaiian population, *kapa* production, along with other traditional practices, resurged in the 1970s during the Hawaiian Renaissance period. Without an anticipated need to preserve descriptions at the time, traditional *kapa* makers prior to the modern period left few records,

leading practitioners to scour whatever sources they could find, like missionary writings, the journals of explorers, and the physical collections and remnants of *kapa* production collected and preserved in museums and other institutions. These same driven individuals were also led out of Hawai'i to other Polynesian island groups, like Tahiti and Samoa, to witness related processes for producing barkcloth.

This small group of experienced makers, working independently, was able to form a foundation of processes and experiences from which contemporary *kapa* makers draw their knowledge. While some of this knowledge was passed from teacher to student, in other instances, *kapa* makers learned through personal trial and error, integrating those experiences in order to hone their skills. Currently, practicing *kapa* makers are also experimenting with different techniques and resources to produce barkcloth similar in quality to those found in Bishop Museum's collection of Hawaiian *kapa*. One of the biggest challenges current practitioners face is the use of traditional colorants in the manufacture of contemporary *kapa*. While the plants used in the dyeing process are named, the processes used to prepare the dye colors were not usually described.

Bishop Museum has initiated research to scientifically identify the dyes, pigments, and resins used to decorate *kapa* in order to understand the materials and methods used in pre-20th century *kapa* production. Samples were taken for analysis at the Department of Conservation and Scientific Research (DCSR) at the Freer|Sackler Galleries (Smithsonian Institution). The DCSR's specialized forensics laboratory makes chemical

Kapa was important in pre-contact Hawaiian society, used as clothing, bedding, and as a form of tax collected by the chiefs. Special kapa was made and used in significant life events such as birth, marriage, and death.

identification of materials used in art and artifacts possible. The DCSR, established in 1955, is one of the oldest conservation science laboratories in the country, and is one of very few museum laboratories with specialized analytical equipment that can be used for the identification of dyes. Only exceedingly small samples are required, approximately the size of a pin-head. Analysis was completed by Bishop Museum's senior conservator Christina Bisulca, a former research chemist at the DCSR specializing in the analysis of dyes.

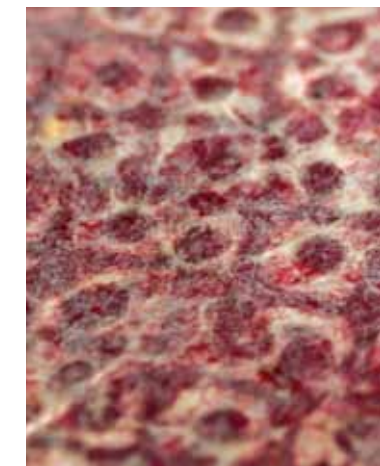
This field of research, called "conservation science," focuses on materials identification in order to understand the deterioration of artifacts, optimize protocols for preservation, to enhance historic studies, or to authenticate an item's provenance. Identification of the colorants in Hawaiian *kapa* will be used to understand the materials and methods to decorate traditional *kapa* and how it evolved with Western contact. Analytical results were interpreted with the help of assistant cultural collections manager Kamalu du Preez in order to understand how the materials were used, and their significance in light of the history of *kapa* making in Hawai'i.

To date, results indicate that most traditional red and yellow dyes are from *noni* and *'ōlena*, corroborating early historic accounts. Bishop Museum is also working with practitioners and ethnobotanists such as Lisa-Schattenburg Raymond in order to collect appropriate reference plant samples. One interesting facet of *kapa* making in the 19th century is its incorporation of imported Western materials. Commonly used in post-contact *kapa* is "Turkey red cloth," so named because it was first imported from Turkey. This is a specific

fabric made from cotton and dyed with alizarin, a red dye extracted from the roots of madder plants. Turkey red cloth was beaten into the top of uncolored *kapa*, a process known by the traditional term *pa'i 'ula*, literally "beaten in red." A brightly colored pinkish red *kapa* resulted (see image on opening spread).

In the 19th century, a range of synthetic pigments and dyes were invented in Europe. In 1868, German chemists created a synthetic alizarin by modifying coal tar extracts from the petroleum industry. This cheaper synthetic version quickly overtook the natural madder dye market by the early 1870s. Identification of these new materials present in *kapa* will aid in determining when the specimen was manufactured. The *kapa* collected by J. S. Emerson in the 1880s used red cloth dyed with synthetic alizarin, showing that the *kapa* was made shortly before it was purchased. A crucial question to be answered by this research is determination of how long traditional *kapa* making continued before its replacement with Western textiles. As in this case, identification of colorants will guide a better understanding of the time period in which many were made.

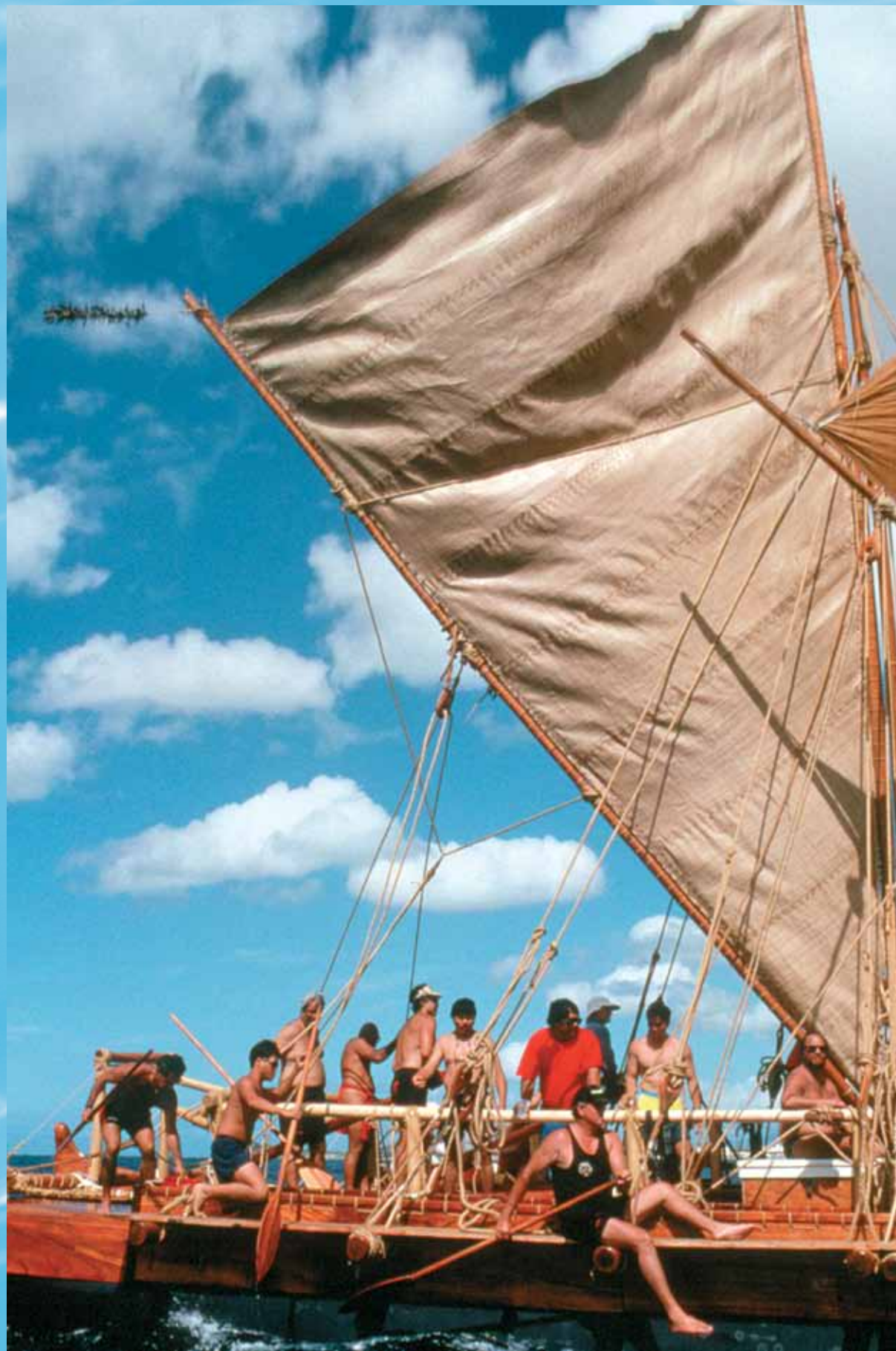
With further financial support for analysis and by extending community and professional partnerships, Bishop Museum expects to continue and expand this research. The analytical methods will then be applied to assay traditional dyes, pigments, and resins in Hawai'i and the broader Pacific. Understanding colorants and their use in traditional materials will result in a body of new information, stimulate new important questions, and vitalize the understanding of the impact of foreign innovations on traditional activities.



OPPOSITE PAGE, TOP LEFT | Comparison of *kapa* with traditional and imported red dyes. TOP RIGHT | Kamalu du Preez and Christina Bisulca review *kapa* from the Museum's collections. BOTTOM LEFT | *Noni* root collected by ethnobotanist Lisa Schattenburg-Raymond. According to historic accounts, the root and bark of the *noni* plant were used to create both red and yellow dyes to decorate *kapa*.

THIS PAGE, ABOVE | Detail of *pa'i 'ula* with a *maka 'upena pūpū* watermark pattern. LEFT | Sample piece of *kapa* (BPBM 2395) decorated with a sea urchin design. The stamped pink stripes are made from a dye derived from the *noni* plant.

Friends of Hōkūle‘a and Hawai‘iloa



Rebuilding the Past, Wayfinding the Future

by Lynn Cook

At a Sand Island boat yard, fine craftsmen and enthusiastic volunteers brush away dust, walk in ankle-deep mud, or take aim at bombarding mosquitos—all for the love of a double-hull canoe called *Hawai‘iloa*.

Billy Richards, president of Friends of Hōkūle‘a and Hawai‘iloa, and Wayne Sterling, executive director of the Friends, talk about master woodworker Jerry Ongies, who is spearheading the canoe restoration. Ongies is bringing in his 20-year-old grandson, Timmy, into the world of power tools and sweat equity in a dream. Experts at restoration and canoe building, Jay Dowsett and Tay Perry work side-by-side with the volunteers *du jour*. On a recent day, the work crew was the management team from the Outrigger Reef on the Beach. Along with Bishop Museum, Outrigger is a committed partner, signed on until the restoration of *Hawai‘iloa* is complete.

In June of 2011, to build awareness of *Hawai‘iloa*’s restoration, Blair Collis, president and CEO of Bishop Museum, welcomed FHH with access to the entire museum for “Restore–Relaunch *Hawai‘iloa*: Celebrate Celestial Navigation,” a fund-raising event for the project. Wayne Sterling invited Mapuana de Silva and Hālau Mohala ‘Ilima. They invited other *hālau*, and filled all the hours of a Family Sunday with music and dance.

The crowd tried their hand at lashing and learned that it was not only difficult, but a massive job that needed many miles of ropes. Chad Baybayan, wayfinding navigator-in-residence at Hawai‘i Island’s ‘Imiloa Astronomy Center, taught visitors how to use the voyaging star chart. Adding the perfect highlight to the day was the presence of the captains and crews of seven new canoes voyaging from South Pacific nations and New Zealand. They shared their voyaging adventure stories and presented a chant of their united energy and respect for the canoe masters of Hawai‘i.

In the 1970s, historic accounts of ancient voyages fired the imaginations of Hawaiian sailors and surfers, artists and anthropologists. The time was called the Hawaiian Renaissance. Hawaiian language, music, dance, and traditional arts were brought to the forefront again.



OPPOSITE PAGE | Testing a woven *lauhala* sail on *Hawai‘iloa*. THIS PAGE, TOP | The next generation of voyagers tries their hands at lashing. BOTTOM | ‘O*iwi* TV crew formulating a shot list with Jerry Ongies and his grandson, Timmy. Photo: Olivier Koning.



TOP | Chief of the restoration Jerry Ongies puts sweat equity into the project. Photo: Olivier Koning. ABOVE | FHH executive director Wayne Sterling sanding, then checking for a perfect fit. Photo: Olivier Koning. BACKGROUND IMAGE | The restoration of the voyaging canoe *Hawai'i'loa* nearing completion. Photo: Olivier Koning.

Canoe building began to flourish, based on the theory that in a time when Europeans had not ventured from the sight of their own shores, Polynesians were making voyages of discovery and then returning to settle far-off islands. A voyaging society was organized, a 61-foot, double-hulled voyaging canoe named *Hōkūle'a* was designed and built, and the theory was proved when the canoe was successfully sailed from Hawai'i to Tahiti and beyond, with only the stars, wind, and waves as a navigational guide.

Navigator Nainoa Thompson acknowledges that *Hōkūle'a*, "Star of Gladness," voyaged to destinations that were instinctively recognized but not charted on any written history. He was trained by the late Micronesian Mau Pailug from Satawal Island, one of the only masters who still knew the art of blue water voyaging and wayfinding. The epic voyages touched the hearts of thousands in Hawai'i, then hundreds of thousands of people, worldwide. *Hōkūle'a* was soon joined by two more canoes, the *Makali'i* and *Hawai'i'loa*. Dozens more voyages have been completed to all the Pacific islands, Japan, New Zealand, Canada, and along the coast of the U.S. continent, allowing new dreams to grow.

Richards and his team are bringing life back to the *Hawai'i'loa*, using as much native material as possible. He recalls the challenges of the initial construction of the great canoe. "In the late '80s, I was part of the team asked to do a tree search in the koa forests of the Big Island," Richards explains. They needed a *koa* tree tall enough and big enough around to carve into a canoe.

When they finally found a tree they had no way to get it off the mountain. He laughs when he says, "I called the U.S. Marines to see if they could air-lift something that was five to six tons. They said 'no problem' until they heard it was up where the air was too thin."

Looking for "Plan B," they made contact with the Tlingit tribe, owners of the Sealaska Corporation, who offered two Sitka spruce logs that were 200 feet tall, seven feet in diameter, and over 400 years old. Historic journals described the largest canoe ever seen in the islands, somewhere between 60 and 100 feet, carved from the trunk of a pine tree. To those who doubt, a visit to Ka Lae, South Point, on Hawai'i Island will reveal drift logs that have floated in from Alaska.

Woodworkers Jerry Ongies and Jay Dowsett are charged with restoration of the great canoe. Dowsett explains that the *Hawai'i'loa* was built from spruce, *koa*, *ōhi'a*, and other canoe woods. At one time, there were dreams of creating the sails from *kapa*, beaten bark of the mulberry bush. After one sail was created and tested, it quickly became obvious that it would take legions of *kapa* makers to accomplish the task, so modern sail materials and lashings were used.

The 57-foot vessel logged thousands of miles of open ocean sailing. On its maiden voyage, *Hawai'i'loa* traveled 6,000 miles to Tahiti and throughout French Polynesia to the Marquesas and back. Minimal maintenance, exposure to weather, and termite damage took a toll on the canoe as it sat on exhibit. Like a fish out of water, it dried out. It had multiple cracks, filled and mended with *pewa*, traditional

Hawaiian butterfly patches. Dowsett explains that the canoe had to come apart to go back together. Unfortunately, no one made a master list, so putting *Hawai'i'loa* back together is a bit like a jigsaw puzzle in the round.

Bishop Museum has played a part in the revival of canoe voyaging and has felt its influence as well. Collis describes the Museum's planetarium as a study hall for Nainoa Thompson and other voyagers, a map of the stars, inspiring navigators, experienced and new. He says, "The canoe restoration has been a source of learning for us as we restored Hawaiian Hall. We watched their progress and were very careful as we took things apart, numbering everything so we could more easily put it back together."

The *Hawai'i'loa* restoration takes money. Volunteers will fill some jobs, but thousands of hours must be invested by craftsmen who have to earn a living. Five miles of lashings need to be funded and then tied. Richards wants to bring the expert lashers in from the Big Island. To carry out this part of the restoration process, Richards worked with Hawaiian Airlines so that supporters can go to their website and give their award miles to FHH to help fly in the master craftsmen.

In dire need of hundreds of feet of lumber to complete the next phase of restoration, Richards called a key Bishop Museum volunteer, MaryLou Foley. She called David Lundquist, head of Hardware Hawaii who answered, "Yes!" The canoe builders requested Alaskan yellow cedar. The response was that the new growth yellow cedar is too soft and fir would work better. Before anyone could get out to take a photo of the donation, hundreds of board feet of fir were delivered, ready to cut and fit.



To fire the imagination of young adventurers, *Hōkūle'a* is cruising toward their monumental plan for a 2013 voyage around the world. As many as forty legs for the trip will allow new crews to make their own history. Richards says, "We are training now. We've sailed 16,000 miles since April of '08 and it's only 21,000 miles all the way around the earth, at the equator."

Soon *Hawai'i'loa* will join *Hōkūle'a* and *Makali'i*. The three giants, restored and revitalized, will be sailing against the wind, rising up to meet the dreams of people who may never voyage across an ocean, but believe—because of these brave navigators in the great canoes—that they can.

ABOVE | The captain and crew of seven new voyaging canoes perform a *haka* at the "Restore-Relaunch *Hawai'i'loa*" event. BELOW LEFT | Outrigger Reef on the Beach management team members put many hours of labor, sanding steering paddles. Photo: Olivier Koning. BELOW RIGHT | (L to R) Wayne Sterling, executive director, FHH; Bill Comstock, general manager, Outrigger Reef on the Beach; Billy Richards, FHH president. Photo: Olivier Koning.





Photo: Olivier Koning.

What's in a Name?

DEMYSTIFYING SCIENTIFIC
NOMENCLATURE



by Dr. Neal L. Evenhuis

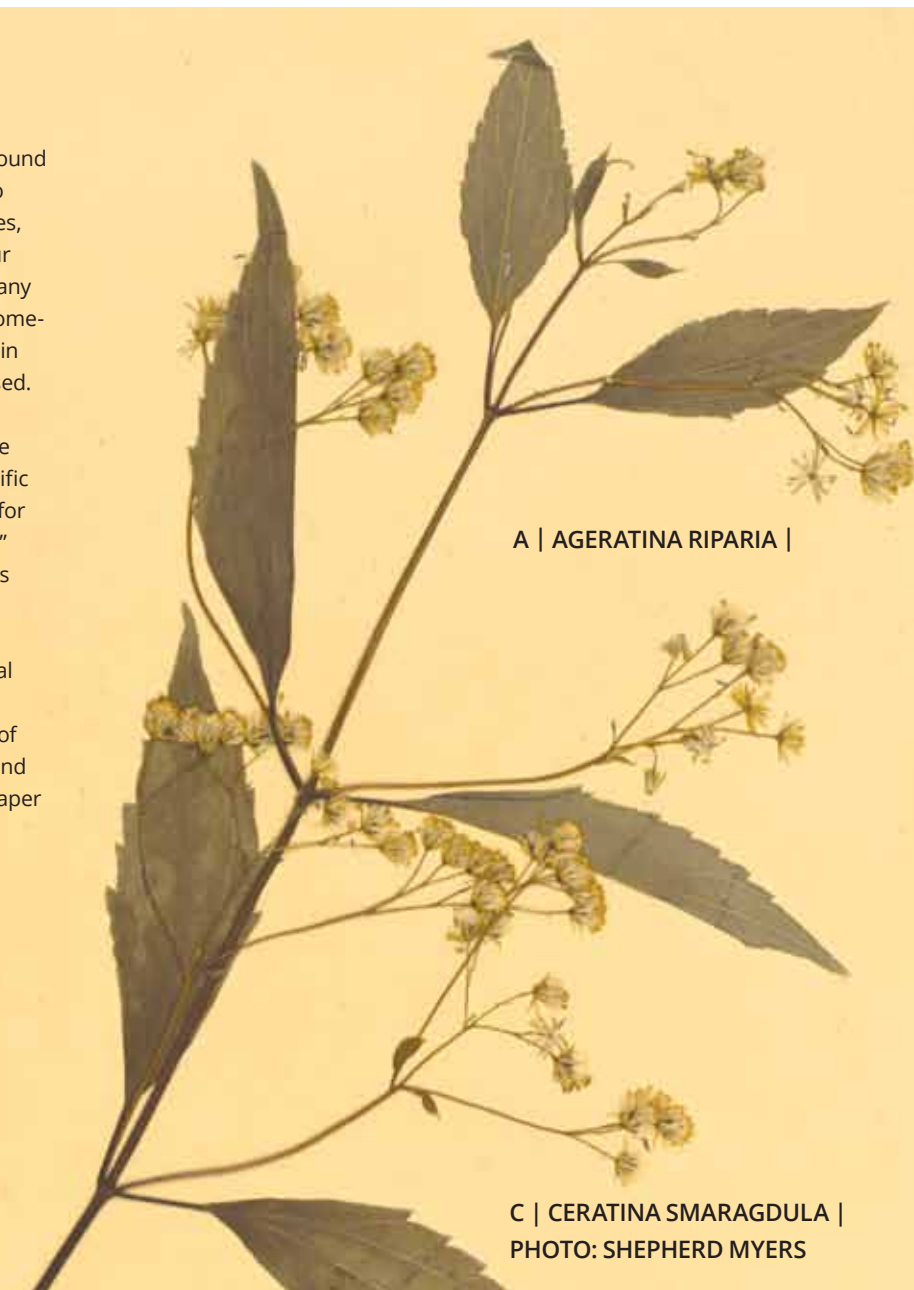
Names are our way of making sense of the world around us and how we tell others what we see. We give names to virtually everything we encounter—plants, animals, places, buildings, our children, our pets, and sometimes even our cars. But there are some plant and animal names that many people outside of science may find rather unusual and sometimes hard to pronounce. These are the scientific names in italics we see in articles and may wonder why they are used.

Well, it all boils down to effective communication. Every known plant and animal on this planet has a unique scientific name that is given to it by a specialist in a scientific publication. Scientific names have been used since 1753 for plants and 1758 for animals, and generally have a “genus” name (which is capitalized) and a “species” name (which is all lower case). For example, the Kamehameha butterfly is *Vanessa tameamea*, where “*Vanessa*” is the genus name and “*tameamea*” is the species name. Latin is the universal language for naming plants and animals, and these are unique to each species. There are millions upon millions of known plants and animals with these names that are found in hundreds of thousands of books, journals, and newspaper articles.

B | AEDES ALBOPICTUS |
PHOTO: W. P. MULL



A | AGERATINA RIPARIA |



C | CERATINA SMARAGDULA |
PHOTO: SHEPHERD MYERS



D | PTEROIS SPHEX |
PHOTO: JOHN E. RANDALL



To allow for easy communication among non-scientists, more frequently encountered plants and animals, or those that are economically or medically important, also come with their own common names. The common names are not necessarily unique, but are often localized common names in the language of the area concerned; thus, there may be more than one name for a plant or animal that occurs in more than one area. For example, *kalo* here in Hawai‘i, is called *taro* in Tahiti and *dalo* in Fiji, yet they all have the same scientific name, *Colocasia esculenta*.

SO, HOW ARE SPECIES NAMED?

Upon finding a new species, a specialist needs to determine what genus it belongs to and then make a detailed description of it for others to be able to refer to. Then comes the naming of the species. Often, the name is a Latin word or combination of words that refers to something unique to that species. Say a new beetle is found and it has a red head, which no other related species have. The specialist could name that species *rubracephala*, which is Latin for “red” (*rubra*) and “head” (*cephala*). If another species was found only in Hawai‘i and no place else, it could be named *hawaiiensis*, which is Latin for “from Hawaii” (the *-ensis* ending means from a place).

In the last few decades, there has been a trend to use the local language in scientific names to respect the local language and culture of a particular area. An example of this is the new picture-winged fly *Drosophila kikiko*, where the species name *kikiko* means “spotted or mottled” in Hawaiian because the species has spotted wings. Once a name is properly described and named, the manuscript is submitted by the specialist to a scientific journal. Once it is approved by reviewers and the editor, the manuscript gets published and the scientific name is official from the date of publication.

Bishop Museum’s natural scientists have been describing Hawai‘i’s plants and animals since the Museum’s founding over 100 years ago. During that time, Museum staff and affiliates have named over 90% (about 18,000 species) of the native plants and animals found in the Hawaiian Islands. Many of our staff have been or are world leaders in their field and highly-respected researchers. Some, like Museum Ichthyologist Emeritus Dr. John E. Randall, have described more species in their speciality (shore fishes in Dr. Randall’s case) than anyone else in the world. On March 17, 2013, you’ll be able to meet some of these scientists at the Museum’s *Science Alive!* Family Sunday (see back cover). There you will be able to ask them questions about what they do and also see up close some of the incredible plants and animals they study.

Now that you have a better idea how species are named, here are a couple of interesting examples among our Hawaiian species: *Cavaticovella aaa* is a cave bug that was named *aaa* because it was found in an *a’a* lava tube (the ending “*a*” was added to match the “*a*” ending of the genus). *Campsicnemus ridiculus* is a predaceous water skating fly found on Maui. The species name means “laughing”, which is what the describer may have been doing after having discovered that the new fly skated on water.

The images of plants and animals depicted on these pages are accompanied by their scientific names. Use a dictionary or Google Translate to see if you can tell what the species names mean. Answers can be found on the back page.



Dr. Neal L. Evenhuis is senior entomologist and a 35-year staff member of the Bishop Museum. He is a past president of the International Commission on Zoological Nomenclature (the organization that makes the rules for naming animals), and has discovered and named over 600 new species himself.



E | CAULERPA
RACEMOSA |
PHOTO: LARRY
BASCH

F | METROSIDEROS
POLYMORPHA |
PHOTO: CLYDE IMADA

A Very Special Flag

by Betty Lou Kam

“She (Queen Lili‘uokalani) paid another visit to Troop Five at Kapi‘olani Park and brought a gift with her—a beautiful silk Hawaiian flag made very special with her personal crest and motto, said to have been embroidered by the queen herself. The queen’s motto, ‘Onipaa’ or ‘Stand Firm,’ was fitting for Troop Five. Troop Five became known as ‘The Queen’s Own Troop.’”



While Bishop Museum staff often refer to three beloved *ali‘i wahine* whose personal possessions stand out as founding collections, a fourth *ali‘i wahine* is prominent in the Museum’s history. The treasures of Princess Bernice Pauahi Bishop, Queen Emma Kaleleonālani, and Princess Ruth Ke‘elikolani lay at the foundation of the Museum, but Queen Lili‘uokalani recognized its importance early on, and participated directly and indirectly in its development. She was the first visitor to officially sign into Bishop Museum’s guest register on June 22, 1891, and personally made many gifts of artifacts to the fledgling museum shortly after.

On November 16th, Bishop Museum received a special gift that initially came from the hands of the queen and passed through a century of other hands. The Aloha Council of Boy Scouts of America presented president and CEO Blair Collis with a treasured Hawaiian flag, one upon which Lili‘uokalani had embroidered her seal and motto nearly a century ago. The ceremony included Boy Scout executives John Henry Felix (Distinguished Eagle Scout, Chairman of the Aloha Chapter of the National Eagle Scout Association), Rick Burr (Scout Executive, CEO of the Aloha Council), Rick Blangiardi (Director, Aloha Council), scouts, and their families.



LEFT | Boy Scouts at camp with Wade Warren Thayer, ca. 1920. Thayer, a successful Honolulu businessman, became the scoutmaster of The Queen’s Own Troop Five in 1917, and later the Scout Commissioner of Honolulu. INSET | Lili‘uokalani riding in an automobile, Hawai‘i. | ABOVE | Members of the Aloha Council undrape the flag that was presented as a gift to Bishop Museum. Bishop Museum’s Blair Collis stands to the left, and at right are Rick Blangiardi (Aloha Council President) and Rick Burr (Scout Executive). All photos: Bishop Museum Archives.

Lili'uokalani was known for her generosity, her immediate willingness to help those in need, and her efforts to provide nurturing and growth to youth. Societal and economic changes within the Kingdom had great affect on Hawaiians of almost every class, and she was attentive to those in need even when her own resources were spare. Gracious and warm, Lili'uokalani presented gifts to visitors, to those celebrating special occasions, and to those she wished to bestow with recognition and support.

The story of the Aloha Council flag has been preserved over the years. The first Boy Scout troop in Hawai'i was founded in 1910. In 1913,

Lili'uokalani was riding past Kapi'olani Park, and saw a group of boys engaged in drills. Curious about their purpose, she stopped to inquire about their military exercises. These scouts of Troop Five enthusiastically explained the concept of scouting to her. Their explanation and their spirit must have impressed the queen, as a few weeks later, she paid another visit to Troop Five at Kapi'olani Park and brought a gift with her—a beautiful silk Hawaiian flag made very special with her personal crest and motto, said to have been embroidered by the queen herself. The queen's motto, "Onipaa" or "Stand Firm," was fitting for Troop Five. Troop Five became known as "The Queen's Own Troop."



Bishop Museum received another flag that originally came from the hands of Queen Lili'uokalani. This flag is in the form of a quilt, gifted by Lili'uokalani to a young couple at the celebration of their marriage in 1899. The quilt, bearing Hawaiian flags in an up-side-down orientation said to express distress, was accompanied by a yellow ribbon with Lili'uokalani's signature. The quilt was donated by the Duebner Family in 2005 and is now displayed in Hawaiian Hall.

The queen's deep sense of what the Hawaiian flag symbolized is captured in journal entries during the aftermath of the overthrow. Her journal describes her feelings one day while riding in her carriage in unpleasant rain. She drove by the Palace, but would not look at the American flag flying over the building. "The feelings of injury may wear off by and by... my dear flag... that ever a foreign flag should wave over it." Expressions of her love of the Hawaiian flag and all it represented was kept vibrant through precious items such as these that she gifted to others.

The fragile condition of the silk flag donated by the Aloha Council of Boy Scouts will be evaluated by a conservator, and recommendations made for its preservation. Bishop Museum looks forward to being able to temporarily display it on significant celebrations!



OPPOSITE PAGE, TOP | Hawaiian girls appliquéing a Hawaiian flag quilt, 1923. BOTTOM LEFT | Bishop Museum CEO and president Blair Collis and John Henry Felix at the presentation ceremony, November 16, 2012. John Henry Felix, President and CEO of the Hawaii Medial Assurance Alliance, is a Distinguished Eagle Scout and the Chairman of the Aloha Chapter of the National Eagle Scout Association. BOTTOM RIGHT | Queen Lili'uokalani, 1913. THIS PAGE, TOP | Excited scouts beginning an adventure, ca. 1940s. Since the establishment of boy scouting in Hawai'i a century ago, scouting has enriched hundreds of thousands of lives across Hawai'i and the Pacific. The Aloha Council's mission is to develop leaders for life. BOTTOM | Lili'uokalani's flag removed from 'Iolani Palace at the overthrow of the Hawaiian monarchy on January 17, 1893; ca. 1935. Photo by Kenneth P. Emory. All photos: Bishop Museum Archives.

Most scientists believe that proto-Austronesian peoples developed in mainland southeast China and Taiwan between 5,000–7,000 years ago.



map with early Austronesian migrations

by Betty Lou Kam

PACIFIC HALL

A Means to Discover Oceanic Homelands

RIGHT | Dr. Tianlong Jiao excavates at the Damaoshan site, Fujian Province, China.
BELOW | Atayal villager wearing traditional headdress. Austronesian cultures have persisted in Taiwan for more than 5,000 years. Modern day groups such as the Paiwan and Atayal share characteristics of Austronesian cultures in Oceania, including an emphasis on hunting, slash and burn agriculture, the practice of bodily ornamentation to signify one's rank and status, and the creation of craft goods for exchange.



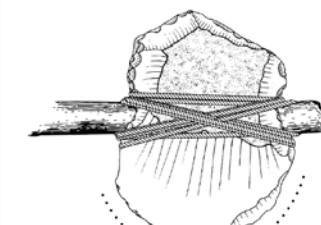
When Bishop Museum's newly renamed Pacific Hall reopens next fall, visitors will be enthralled by a new focus on discovering and telling stories through an archaeological approach. A natural expectation for an institution more than 123 years old, and one with a deep history of anthropological research throughout the Pacific where Bishop Museum was at the forefront of field work and research, one would think!

Formerly known as Polynesian Hall, the renovated and upgraded Pacific Hall will feature major archaeological discoveries made by the Museum's archaeologists over the past century. Most of these finds have never been displayed to the public before, or explained in such a way to excite and teach the average museum visitor. The renewed Pacific Hall will do just that.

The Pacific story on the upper floor of the hall will be completely delivered through the vehicles of anthropological research and archaeological field work. Bishop Museum archaeologists have conducted extensive archaeological investigations in Polynesia. Pacific Hall will feature the classic finds of Dr. Kenneth Emory and Dr. Yoshihiko Sinoto from the Society Islands and the Marquesas Islands. Important archaeological materials from key sites in Hawai'i will also be featured.

Polynesians and many other Pacific cultural groups speak languages that belong to a family that anthropologists call "Austronesian." Most scientists believe that proto-Austronesian peoples developed in mainland southeast China and Taiwan between 5,000–7,000 years ago. With a lifestyle oriented towards the ocean, proto-Austronesian peoples interacted with each other along the coast and across the Taiwan Strait through seafaring. These cultures manufactured sophisticated ceramics, stone adzes, and canoes. They lived by farming, hunting, and fishing. Their voyaging is associated with the earliest phase of the extraordinary seafaring expansion in the Pacific.

Austronesians introduced the primary components of the Lapita culture, settling both Near and Remote Oceania around 3,500 years ago. Lapita refers to an early Pacific culture believed by many archaeologists to be the common ancestor of several cultures in Polynesia, Micronesia, and some coastal areas of Melanesia. The term is applied to distinguishing geometric dentate-stamped



Dr. Tianlong Jiao and colleagues survey in Fujian Province.



Bishop Museum's Yoshihiko Sinoto at the Fa'ahia excavation on Huahine, Society Islands. Dr. Sinoto stands next to the well-preserved canoe mast found there.



Bishop Museum archaeologists excavated at the Huangguashan site, China.



pottery first found at New Caledonia in 1952 by American archaeologists Edward W. Gifford and Richard Shulter, Jr. The new exhibit will feature the replica of the extraordinary pottery from a number of Lapita sites.

Research and field work evidence indicate purposeful settlement with the aid of simple water craft. Near Oceania became a "voyaging nursery" where navigational concepts and technological innovations were developed. This set the stage for the tremendous burst of voyaging that resulted in the settlement of the more distant islands of Remote Oceania, including western Polynesia, by Lapita peoples who spoke Austronesian languages.

The second floor of Pacific Hall will showcase new archaeological finds from major proto-Austronesian sites on mainland China and the island of Taiwan. It includes a replica of a canoe paddle that is 7,000 years old, one of the earliest paddles in the world. Replica of pottery from the Damaoshan site in Fujian Province, made 4,300–5,000 years ago and recently excavated by Bishop Museum's archaeologist Dr. Tianlong Jiao, will be also be featured.

This floor of Pacific Hall will not only be filled with information gathered by Museum staff and others over recent decades. Display and interactive stations will present the process through which information is uncovered and theories are formed. There will be a stratigraphy display—a slice of an archaeological field pit that demonstrates how items collected from layers of soil and time provide evidence of activities at that

site over past decades and centuries. Visitors will also learn how languages and cultural materials from the vast Pacific are studied, and the manner in which comparative analysis provides clues on Pacific migrations and interactions that took place in early times.

Less than a year away—look forward to experiencing the beauty and flawless craftsmanship of unique oceanic artifacts from Bishop Museum's world-renowned collections. Anticipate learning about how researchers uncover the knowledge of the past through the fascinating field of anthropology. Be prepared to be captivated at the reopening of Pacific Hall!

BELOW | Bishop Museum archaeology collections manager Summer Moore and Chinese colleagues excavate at Tianluoshan site, China.



BACKGROUND IMAGES | Exhibit planning for the renovated Pacific Hall involves the development of content, drafting of text, and selection of images and artifacts. These are all laid out in illustrations and case diagrams prior to finalizing the content and look of the case. Illustrations by Diana Izdebski.

Smithsonian Traveling Exhibition:



ABOVE | Congressional Gold Medal. Each Congressional Gold Medal is created by the United States Mint to specifically commemorate the individuals and the achievement for which the medal is awarded and is therefore unique.

TOP RIGHT | U.S. Senator Daniel K. Inouye and Blair Collis attend the announcement of the Congressional Gold Medal National Tour at a press conference held in Washington, D.C. on September 13, 2012.

BELOW RIGHT | Jennifer L. Jones, curator of Military History at the Smithsonian National Museum of American History, discusses the Congressional Gold Medal with four of the recipients (left to right) Kelly Kuwayama (442), Sus Ito (442/522), Ray Murakami (MIS), and Terry Shima (442).

BOTTOM | Deactivation ceremony of the 442nd Regiment at Kapiolani Park after the end of World War II, 1945.

Congressional Gold Medal Awarded to Japanese-American World War II Veterans Comes To Bishop Museum

From March 9 to April 14, 2013, Bishop Museum will have the honor of being only one of seven museums nationwide to host the Congressional Gold Medal, which was awarded in 2012 to Japanese-American, or *Nisei*, World War II veterans in recognition of their exceptional service, sacrifice, and loyalty to America. Collectively presented to the 100th Infantry Battalion, the 442nd Regimental Combat Team (RCT), and the Military Intelligence Service (MIS) veterans, the Gold Medal represents Congress's highest expression of national appreciation for distinguished achievements and contributions.

The Smithsonian Institution Traveling Exhibition Service (SITES) partnered with the National Museum of American History and the National Veterans Network to share the inspiring story of these men who fought with bravery on the battlefields of Europe and Asia, even while many of their parents and other family members were held in internment camps.

"It is an honor and a privilege to be among the few museums in the nation selected to host the medal," said Blair Collis, president and CEO of Bishop Museum. "This is a wonderful opportunity for Hawai'i to recognize and celebrate the valor and legacy of these World War II Japanese-American veterans who changed Hawai'i's history and uplifted a generation through their unwavering loyalty and sacrifice."



Bishop Museum is pleased to be working with various veterans organizations to plan the exhibition's opening on Saturday, March 9th, as well as to create weekend programming around the exhibition during its limited five-week run. Please see www.bishopmuseum.org for more detailed information on these events.

The medal will be accompanied by an educational package with an iPad application, social learning website, and curriculum developed by the National Veterans Network in partnership with the Smithsonian's Asian Pacific American Program. Centered on the character values associated with Japanese-American veterans—courage, respect, humility, perseverance, compassion, and citizenship—these materials will provide users with a constantly-growing, social learning community.

The national tour of the *Nisei* Congressional Gold Medal is made possible by the support of AARP, Comcast/NBC Universal, Cole Chemical, Southwest Airlines, and Pritzker Military Library. Upon the conclusion of the tour, the Congressional Gold Medal will be on permanent display at the Smithsonian's National Museum of American History in Washington, D.C.



Sustaining Our 'Āina:
An Update on Campus Sustainability

Keep up to date with Bishop Museum's photovoltaic project by visiting: http://webkiosk.mypvdata.net/c/bishop_museum/ and http://webkiosk.mypvdata.net/c/bishop_museum/

Learn more about Bishop Museum's clean energy partners: **Energy Industries:** <http://www.energy-industries.com> and **Better Place Hawaii:** <http://hawaii.betterplace.com>

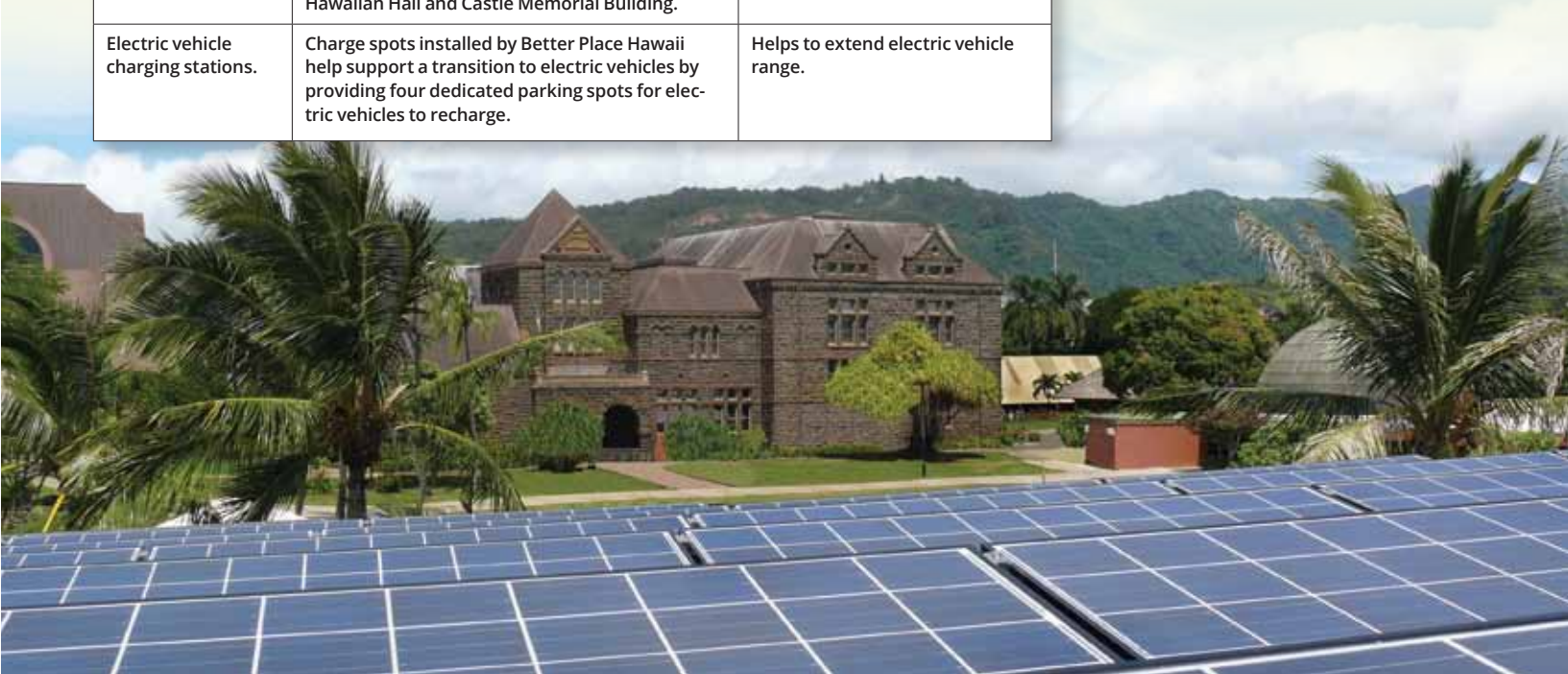
In 2009, the Hawai'i State Legislature signed arguably one of the most impactful pieces of legislation in Hawai'i's history into law. Aimed at increasing the state's renewable portfolio standard (RPS)—the legal mandate which requires renewable energy production increases—Act 155 served as an important milestone towards making a sustainable future for Hawai'i a reality. For nearly a century, Hawai'i has depended on imported oil for its electricity. Last year alone, over \$5 billion was spent to import 46.3 million barrels of petroleum to the islands. Roughly one-third of that was burned to create electricity, making our state the highest

in the nation in electric energy costs. With growing concerns over availability and the rising price of oil, Hawai'i is increasingly vulnerable to disruptions in supply and high costs associated with importing an ultimately finite supply of fossil fuel. In order to increase energy security and keep local dollars at home, Hawai'i will need to utilize local, renewable resources. As mandated by its RPS, Hawai'i must generate 70% of its energy through clean sources by 2030. This will require 40% of electricity sold by Hawaiian Electric Company to come from renewable resources while reducing overall consumption by 30% through various energy efficiency measures.

Over the past two years, Bishop Museum has taken a number of steps towards being more responsible stewards of our 'āina by introducing new clean energy technology to the campus as well as updating outdated equipment to reduce energy consumption. In May of 2011, the Museum "flipped the switch" on its 10,800-square-foot, 170-kilowatt photovoltaic system installed by premier clean energy services company, Energy Industries. To date, the system has already reduced energy consumption by over 500,000 kilowatt hours, and is expected to save the Museum over 5 million in its lifetime.

COST-SAVING ENERGY IMPROVEMENTS IN 2012:

IMPROVEMENTS	PROJECT DESCRIPTION	SAVINGS
Castle Memorial Building chilling system.	Old chilling equipment was replaced by state-of-the-art chillers with high rpm oil-free compressors on magnetic bearings.	Savings: \$60,000 a year in electricity costs.
Museum lighting retrofit.	Non-gallery light fixtures and bulbs were upgraded to energy efficient models. Estimated savings: Over \$50,000 a year in electricity costs. Old gallery lighting replaced with LEDs.	Savings: Approx. 85% reduction in electricity usage; UV-free; reduction in cooling loads.
Variable frequency drives.	Air handling units were installed to manage air flow levels necessary to maintain environmental settings.	Estimated Savings: \$15,000 a year in electricity costs.
Low-flow water fixtures.	Restrooms were outfitted with fixtures that regulate the amount of water used.	Estimated savings: Over 1 million gallons of water; approx. \$12,000 a year in water costs.
Variable primary chilled water flow.	Handling units were installed to manage the amount of chilled water provided to cooling coils necessary to maintain environmental settings for Hawaiian Hall and Castle Memorial Building.	Estimated savings: Over \$5,000 a year in electricity costs.
Electric vehicle charging stations.	Charge spots installed by Better Place Hawaii help support a transition to electric vehicles by providing four dedicated parking spots for electric vehicles to recharge.	Helps to extend electric vehicle range.



Growth, Change, and New Beginnings

Bishop Museum's membership program is growing, and in this new year, we are pleased to offer fresh ways to participate as a part of the Museum's membership 'ohana. On January 1, 2013, new membership rates and categories were introduced, including the expansion of our premier membership program and the introduction of a Student (\$35) membership. We also bid farewell to the Family & Friends level, giving these members the option to provide additional support as a Patron (\$120), or to continue to enjoy the Museum with their immediate family at the Dual/Family (\$85) level. Of course, all members will be able to enjoy their current benefits through their expiration date.

The exciting changes in the premier level membership program will allow us to better thank and recognize the tremendous generosity of these members, as well as provide meaningful new opportunities for engagement for those closest to the Museum. The growth of this program was inspired by the outpouring of support from members of the Charles Reed Bishop Society since its inception in 2008. Now, four years later as we look to implement a membership structure that can provide a sustainable foundation for the Museum's growth and development, it seems only fitting that the names of our founder Charles Reed Bishop, and his wife Princess Bernice Pauahi Bishop, preside at the top of our program.



As deeply-valued Bishop Museum members, your generous support and active participation in the Museum's programs has fueled the growth of Hawai'i's museum as a gathering place where all can come to celebrate and learn about Hawai'i's cultural and natural heritage. **HE HALE KOU.** This is our home. Our Museum. To learn more about our new membership rates and categories, please visit www.bishopmuseum.org/membership.

We invite all members to consider support at these premier levels, which will provide vital funding for the conservation of our priceless collection of Hawaiian and Pacific artifacts and specimens, as well as important progress in research and education:



MUSEUM EXPLORER (\$1,000)

All Visionary benefits, plus:

- Invitation for two to the annual *Chairman's Reception* and select events
- Invitations to attend intimate Explorers gatherings highlighting timely Museum topics
- Free admission for a total of four guests per visit—when accompanied by a member
- Two additional guest passes (six total—a \$120 value)
- A special membership card



PRESERVATION COUNCIL (\$2,500)

All Museum Explorer benefits, plus:

- Reserved seating for select Museum events (*Traditions of the Pacific, The Sky Tonight*, etc.)
- Invitation to *An Evening with DeSoto Brown*, highlighting treasures from the Library & Archives
- Two additional guest passes (eight total—a \$160 value)



CHARLES REED BISHOP SOCIETY (\$5,000)

All Preservation Council benefits, plus:

- Invitation to attend an exclusive birthday celebration honoring Museum founder Charles Reed Bishop
- Exclusive opportunities to view the Museum's collections at select events
- Opportunity to reserve one private docent-guided tour of Hawaiian Hall for up to ten people
- One Patron-level gift membership for the recipient of your choice



PAUHAHI CIRCLE (\$10,000)

All Charles Reed Bishop Society benefits, plus:

- Personal updates from the Museum's President
- Private collections tour for up to eight people
- Exclusive invitation to attend a private event with the Museum's President and Chairman of the Board

Legacies: Gulab and Indru Watumull

Gulab and Indru Watumull have supported Bishop Museum in just about every possible way since 1989. The fascinating story of this family's philanthropy begins with Gulab's father, Jhamandas Watumull. Jhamandas grew up in the city of Hyderabad, now part of Pakistan. He had minimal education and started working when he was 13 years old. Through his diligence, in 1914 he was able to set up a small retail store in Hawai'i selling imported goods from Asia.

Throughout his life, Jhamandas wanted to help young students with their education. When he died in 1986 at age 101, he left his estate to the Jhamandas Watumull Fund. Today, his son Gulab administers the \$10 million fund, which provides assistance to many non-profit organizations in Hawai'i. The fund also assists Indian students studying in America, fosters better understanding of the history, art, and culture of India, and furthers health care and higher education in India.

Gulab has admirably built upon his father's legacy. In 1947, after completing studies in English literature, chemistry, and physics at the University of Bombay, Gulab Watumull joined his brother Rama in their father's business in Hawai'i. After a period off-island, in 1953 Gulab returned to Hawai'i with his bride Indru, and soon headed up the newly-separated retail operation of the business, Watumull Brothers. Through the hard work of his entire family, Watumull Brothers has continued to prosper.

Indru Watumull's love of the arts first influenced Gulab to appreciate and enjoy museums. "Indru is a long-time board member of the Honolulu Museum of Art, and whenever we travel we visit all kinds of museums," says Gulab, with a smile. This enthusiasm caught hold of Gulab, who joined Bishop Museum's Board of Directors in 2008.

As an active member of the Museum's Board, Gulab believes it is essential for board members to give financially to the organizations they serve. The Jhamandas Watumull Fund has provided major support for the Museum's planetarium, now named after Jhamandas, and Gulab and Indru have personally contributed to the Science Adventure Center catwalk, which allows visitors a closer look at the lava-filled volcano. The gift shop in the Castle Memorial Building is named for the couple in appreciation for their significant unrestricted support.

Recently, Gulab made a generous legacy gift through a Charitable Gift Annuity. This type of gift is particularly appealing because he will receive income for life, and after his passing, the remainder of the



"I am very proud to be associated with Bishop Museum. We are lucky that it is in Hawai'i. It is one-of-a-kind in the world, and the only museum to preserve the history and culture of Polynesia."

annuity principal will provide further unrestricted funding to the Museum. "It's a win-win," he says. "It provides income for my family now and a future gift for the Museum."

"I am very proud to be associated with Bishop Museum," Gulab continues. "We are lucky that it is in Hawai'i. It is one-of-a-kind in the world, and the only museum to preserve the history and culture of Polynesia." He hopes that others will join him in making a planned gift so that this great institution can continue to flourish.

Bishop Museum is deeply grateful to Gulab Watumull for his longstanding leadership and generosity, and to Indru for her generosity and passion for the arts. Their commitment to Bishop Museum is central to the treasured Watumull legacy in Hawai'i, a legacy that has created opportunities for cultural appreciation and exploration for many generations to enjoy.

To learn how you can receive income for life while providing a generous gift for Bishop Museum's future, please contact our Development Office at (808) 848-4187 or visit www.bishopmuseum.org.

Supportersi Mahalo to Our

On behalf of the Board of Directors, staff, and volunteers of Bishop Museum, we wish to recognize and thank those who contributed to Bishop Museum between August 1, 2012 and November 30, 2012. Mahalo for your support of the Museum.

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As "The Museum of Hawai'i," Bernice Pauahi Bishop Museum's mission is to be a gathering place and educational center that actively engages people in the presentation, exploration, and preservation of Hawai'i's cultural heritage and natural history, as well as its ancestral cultures throughout the Pacific. Bishop Museum is open Wednesdays through Mondays from 9 a.m. to 5 p.m. Closed Tuesdays and Christmas Day.

Admission:	
Adults	\$19.95
Youth (4 – 12)	\$14.95
Seniors (65+)	\$16.95
Children (3 & Under)	FREE
Bishop Museum members	FREE

Kama'āina rates and ample, free parking available. Admission fees include guided tours, live demonstrations, music and dance performances, planetarium shows, and admittance to all exhibits, including the Richard T. Mamiya Science Adventure Center. For more information or the current daily schedule, please call (808) 847-3511 or visit our web site at www.bishopmuseum.org.

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Science Alive! Family Sunday

Sunday, March 17, 2013 | 9 a.m. to 3 p.m.
Bishop Museum Great Lawn

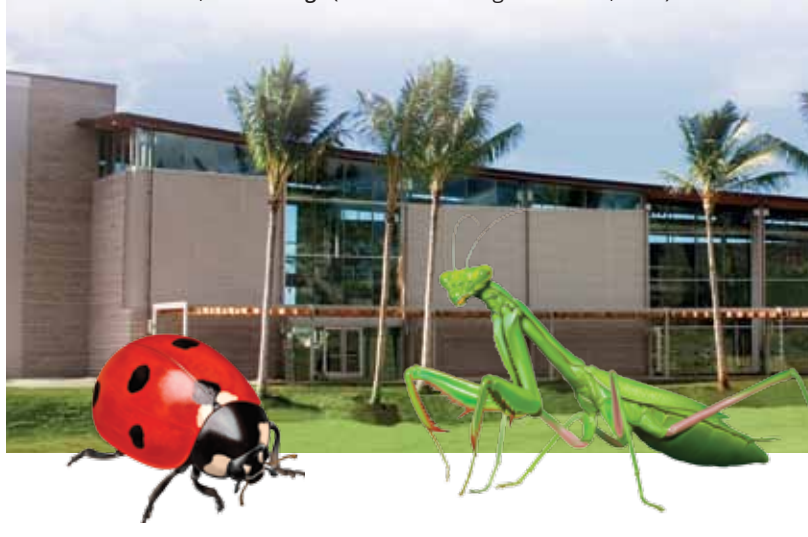


Bishop Museum is known internationally for its ground-breaking research throughout the Pacific in botany, entomology, invertebrate zoology, ichthyology, malacology, and vertebrate zoology.

The Museum is also committed to education on issues of science, conservation, sustainability, and climate change through its permanent Science Adventure Center exhibit, new digital planetarium,

and educational outreach programs.

At **Science Alive!**, Bishop Museum will join forces with other science-based community organizations to showcase the research projects and collections of Bishop Museum's core science areas through fun and engaging activities, all the while surrounded by the larger-than-life insects of Bishop Museum's visiting science exhibition, **Xtreme Bugs** (on exhibit through March 31, 2013).



ANSWERS TO SCIENTIFIC NAMES ON PAGES 12-13:

A | *Argeratina riparia*: *riparia* is from the Latin "riparius" meaning "from the banks of a stream"

B | *Aedes albopictus*: from the Latin albus = "white" + pictus = "painted"; referring to the white bands on the legs of this mosquito

C | *Ceratina smaragdula*: from the Greek smaragdinus = "emerald green"; referring to the metallic green color of this carpenter bee

D | *Pterois sphex*: from the Greek sphex = wasp; probably referring to the stinging spines of this lionfish

E | *Caulerpa racemosa*: from the Latin racemus = "cluster of grapes"; referring to the common name of this seaweed as "sea grapes"

F | *Metrosideros polymorpha*: from the Greek polys = "many" + morphos = "shape"; referring to the many different sizes and shapes of the 'ōhi'a tree in Hawai'i

O KE ALI'I WALE NO KA'U MAKEMAKE.

My desire is only for the chief.

An expression of loyalty and affection for one's chief, used in chants of praise. In honor of the birthdays of Princess Bernice Pauahi Bishop and Charles Reed Bishop.

Selection #2452 from Mary Kawena Pukui's *Ōlelo No'eau: Hawaiian Proverbs and Poetical Sayings*, Bishop Museum Press, 1983.