

Ka‘Elele

The Messenger

The Journal of Bernice Pauahi
Bishop Museum | Winter 2015



■ UPCOMING EVENTS

February

26
Mary Kawena Pukui Society Luncheon, 11:00 a.m.–1:00 p.m. (Atrium & Courtyard).

27
Dinosaurs Unleashed Members Preview, 5:30–8:00 p.m. (Flanders Lawn).

28
11th Annual Grow Hawaiian Festival at Amy Greenwell Garden, 9 a.m.–2:30 p.m. (Amy Greenwell Garden, Captain Cook, Kailua-Kona). Cultural practitioners, woodworkers, *kapa* makers, botanists and entomologists available for questions, music, food and more. For more information visit us online www.bishopmuseum.org/greenwell



March

5
Traditions of the Pacific Lecture: “Traditional Hawaiian Practices of *Hāpai* and *Hānau*,” with Ka’iulani Odom and Puni Jackson, Kōkua Kalihi Valley, 6:00–7:30 p.m. (Atherton Hālau). General: \$10, **Members: FREE**. Reservations required (808) 847-8280 or membership@bishopmuseum.org.

15
Science Alive! Family Sunday, 9:00 a.m.–3:00 p.m. (Science Adventure Center/Great Lawn). *Kama’āina* and military with valid ID: \$5, **Members: FREE**.

27
Nani I Ka Hala Member Preview, 6:30–8:00 p.m. (Atrium & Courtyard). 5:00 p.m. for Museum Explorer Members and above. 6:30 p.m. for General Members.

April

18
Traditions of the Pacific Lecture: “*Huaka’i* – Birthstones of Kūkaniloko,”

with Thomas Lenchanko, Hope Pelekikena ‘Ekahi, Wahiawā Hawaiian Civic Club, 9:00–11:00 a.m. (Kūkaniloko State Historic Park). General: \$10, **Members: FREE**. Reservations required (808) 847-8280 or membership@bishopmuseum.org.

25
HECO Grow Hawaiian Festival, 9:00 a.m.–3:00 p.m. (Great Lawn). Celebrate Hawaiian culture, native plants, and sustainable lifestyles. Learn *kapa* making, *lau hala* weaving, and *lei* making. Learn about clean energy, conservation, and electrical safety. Shop our marketplace of native plants and support Hawai’i nonprofits, community groups, and small businesses. **Kama’āina and military with valid ID: FREE**.

May

16–17
10th Annual Native Hawaiian Arts Market, Saturday & Sunday, 9:00 a.m.–5:00 p.m. (Gallery Lawn, Flanders Lawn, & Great Lawn). Enjoy over 30 Hawaiian artists selling,

displaying, and demonstrating their work. A part of Maoli Arts Month, presented in partnership with PA’I Foundation. Made possible with support from the City and County of Honolulu and the Office of Hawaiian Affairs. *Kama’āina* and military with valid ID: \$5; **Members: FREE**.

21
Traditions of the Pacific Lecture: “Traditions & Insights in Native Hawaiian Child-Rearing Practices,” with Carol Titcomb, MD, 6:00–7:30 p.m. (Atherton Hālau). General: \$10, **Members: FREE**. Reservations required (808) 847-8280 or membership@bishopmuseum.org.

June

18
Traditions of the Pacific Lecture: “Hawaiian Beliefs and Perspectives of Aging,” with Kahu Emeritus David K. Kaupu 6:00–7:30 p.m. (Atherton Hālau). General: \$10, **Members: FREE**. Reservations required (808) 847-8280 or membership@bishopmuseum.org.

Current & Upcoming Exhibits



Change: 125 Years through the Eyes of Bishop Museum
December 13, 2014 – March 16, 2015
J. M. Long Gallery

An exhibit to commemorate Bishop Museum’s 125th anniversary. Photographs, objects, music, and media interactives help us to reminisce about the past through various societal themes – entertainment, transportation, fashion, education, food, and communication. This exhibit is a window onto the shifting social and environmental landscapes of Hawai’i. Drawing on the vast resources of the Bishop Museum Archives and private collectors, this exhibit offers a nostalgic walk through the past century and a quarter.



Nani I Ka Hala
March 28 – July 27, 2015
J. M. Long Gallery

The leaves of the *hala* (*Pandanus*) plant were widely used in Hawai’i for the making of containers, mats, and other items of daily use and importance. On display will be a full size *lau hala* canoe sail from Kapingamarangi (Micronesia). Experience a *hala* grove and hear contemporary *hala* master weavers share about *hala*, its significance and uses. Try on different hats in a virtual hat gallery and see Princess Pauahi’s personal hat collection. Learn about the current statewide environmental threats to the plant and how to protect this valuable resource.



Dinosaurs Unleashed
February 28 – September 7, 2015
Castle Memorial Building, First Floor

See a wide variety of animatronic prehistoric dinosaurs and reptiles that walked, swam, and flew over the Earth in the distant past in dynamic scenes displaying how these creatures lived during the Mesozoic period. Experience an adolescent *T. rex*, at 12 ft tall with other popular dinosaurs such as a *Stegosaurus*; a 9 ft tall *Triceratops*; the duck-billed *Maiasaurus*; and the bullet-headed *Pachycephalosaurus*. Kids can go on a dinosaur dig in the excavation station, create crayon art and see animatronic technology used to bring the animals to life.

Sky This Month

Evening Planetarium Show
J. Watumull Planetarium

Saturdays, 8:00 p.m.:

February 14 & 28
March 7 & 21
April 11 & 25
May 9 & 23
June 13 & 27

Planetarium lobby doors open at 7:15 p.m. Please arrive by 7:45 p.m. No late seating. Show length is 1 hour. Telescope viewing offered after the program, pending weather conditions. Tickets: \$8 adults; \$6 ages 4–12. **Members: FREE**. Reservations are required due to limited space. RSVP (808) 848-4168 or online at www.bishopmuseum.org.

COVER | A leaf insect of the genus *Phyllium*, found along the Kokoda track in New Guinea. These herbivorous (plant-eating) insects avoid predators by closely resembling leaves.

Dear Friends of Bishop Museum:



Blair D. Collis

Aloha Kākou,

As we bid aloha to 2014 and an incredibly memorable 125th anniversary year for Bishop Museum, I want to thank you for all that you’ve done in the past year to support the Museum and the legacy of *Ke Ali’i* Pauahi and Charles Reed Bishop. One of my favorite stories of 2014 is our capstone anniversary exhibit, *CHANGE: 125 Years through the Eyes of Bishop Museum*. To create this exhibit, the Museum opened its vaults to share over 1,000 archival photographs and print materials celebrating Hawai’i’s

evolving cultural, environmental and economic landscape over the past five generations, as well as the Museum’s role in stewarding these important moments to help inform Hawai’i’s future.

As Hawai’i’s window to the world, Bishop Museum pledges in 2015 to continue this work by delivering quality exhibits and stories of Pacific research that might not otherwise be available to our *kama’āina* and *keiki*. And as the world’s window to understanding Hawai’i, the Museum will also focus on building capacity and programs, both at home and beyond, to spread knowledge and appreciation of Hawai’i’s cultural and biological heritage.

I’m particularly pleased to share that Bishop Museum will soon unveil *Nani I Ka Hala: Weaving Hawai’i*, in the J. M. Long Gallery. This exhibit pushes the Museum’s boundaries in two important ways. First, it is the culmination of a three-year collaborative research project with Michigan State University Museum and Hawai’iinuiākea: The School of Hawaiian Knowledge at the University of Hawai’i, Mānoa to document the knowledge and artistry of Hawai’i’s most senior generation of weaving *kūpuna*. Second, this exhibit represents the next step in our journey to push the physical boundaries of our galleries to create dynamic multisensory experiences that make the most of both our cultural and biological collections, scholarship, and community partnerships. *Nani I Ka Hala* opens with a special evening preview on March 27th.

I hope you’ll enjoy these stories and insights into the work that you continue to make possible.

Mahalo once more for a great 125th anniversary year—here’s to a momentous 2015!

Blair D. Collis
President & CEO



ABOVE | A panel on the environmental changes in Hawai’i, displayed in the exhibit, *Change: 125 Years Through the Eyes of Bishop Museum*.

BELOW | At the Exhibit Preview for CHANGE, Matson President & CEO Matt Cox and Vice President Vic Angoco; Museum President & CEO Blair Collis and Board Chair Allison Holt Gendreau receiving a donation from Matson.

Nani I Ka Hala

WEAVING HAWAII

MARCH 28 – JULY 27, 2015 IN THE J. M. LONG GALLERY

On the strength of this leaf,
we have come to these Islands.

Sabra Kauka, Hawaiian cultural practitioner and educator, speaking on the use of pandanus for the sails of canoes of early Polynesians who traveled to Hawai'i.

The traditional Hawaiian practice of weaving *hala* (pandanus, *Pandanus techtorius*) has been a cultural force throughout time, from its functional roots in pre-contact Polynesia to its widespread recognition today as a celebrated visual art form. On March 28th, Bishop Museum will unveil *Nani I Ka Hala: Weaving Hawai'i*, an original exhibition that addresses the vital need to collect, share, and perpetuate this tradition as part of Hawai'i's heritage and vibrant living culture.

The beauty and significance of *hala* is woven throughout our history and throughout this exhibit. In ancient times, the sails of voyaging canoes were plaited of *hala*, and utilitarian *hala* baskets and mats were commonplace. The introduction of foreign items that replaced Hawai'i-made mats and baskets encouraged weavers to further their creativity, leading to a distinctive and truly exquisite Hawaiian style of *hala* hats that are coveted and treasured as fine art.

Although the current market for woven items reflect a dominant influx of woven *hala* items from outside the state, there is an active group of practicing weavers in Hawai'i whose numbers are growing. These individuals design and produce unique masterpieces and expand the range of *hala* products that are offered, from water bottle holders to iPad covers, eye-glass cases and more. Most importantly, Hawai'i weavers understand their essential roles as bearers of culture and as protectors of valuable resources.

In communities such as Kona on the island of Hawai'i, *ulana lau hala* continues to provide an important means of supplementing family income. Established in 1914, the famed Kimura's Lauhala Shop in Hōlualoa on Hawai'i Island is a known retail outlet for fine hats, purses, and other *lau hala* products made in the area.

Awareness is on the rise about the ethnobotany of the *hala* plant and current environmental threats to its health and well-being. Disease and insects threaten the health of *hala* statewide. Weavers are finding themselves entrenched in an effort to protect this vital plant. These themes are also captured in a new publication related to this project, entitled *'Ike Ulana Lau Hala: The Vitality and Vibrancy of Lau Hala Weaving Traditions in Hawai'i*, which was just released by Hawai'i inuiākea: The School of Hawaiian Knowledge at the University of Hawai'i, Mānoa and the University of Hawai'i Press. The book is now on sale in Bishop Museum's Shop Pacifica.

Nani I Ka Hala arises from the work of three partnering institutions—Michigan State University Museum and their specialists in folk arts, Hawai'i inuiākea at the University of Hawai'i-Mānoa who provided resources and expertise in Hawaiian language and interviewing, and Bishop Museum Cultural Resources division.

Funding from the National Endowment of the Arts (NEA) and the Institute of Museum and Library Services (IMLS) enabled project researchers to collect more than a dozen separate interviews with known weaving *kūpuna* (teachers/experts); and to facilitate the exchange of ideas among Hawaiian cultural and language advisers, weaving masters, folk life experts, communities and program officers from both funding agencies for the purpose of creating a narrative and exhibition about this tradition.

The result is powerful—a multisensory experience that transports you to a realm where the science and culture of *lau hala* weaving intersect. A dramatic "wall" of hats creates a natural focal point, demonstrating the range of patterns and styles that today's weavers have developed/adopted over time. Creative use of sound, light patterns, and dramatic floor-to-ceiling textile scrims create the illusion that one is walking through a grove of *hala* trees, including the subtle rustling sound you'd hear while strolling through dried *hala* leaves that have fallen to the ground. The voices and words of weavers, *hala* enthusiasts, hat store owners, and scientists bring the gallery to life, while interactive elements flow beyond the gallery and onto the Hawaiian Hall lawns, where the Museum's own historic *hala* trees grace the lawn.

Come walk through the stories, the beauty, and the wisdom of *ulana lau hala* in *Nani I Ka Hala: Weaving Hawai'i*, on exhibit in the J. M. Long Gallery from March 28 through July 26, 2015.



ABOVE | Woven *lau hala* hat made by Michael Naho'opi'i.

LEFT | Mary Paakiki Kanei preparing *lau hala* for weaving, Lumaha'i, Kaua'i, ca. 1920.

BELOW LEFT | Europeanized Hawaiian fans, ca. unknown. Image from Library and Archives.

OPPOSITE PAGE | Bracelet woven in the style of *lau hala* bracelets. Made with *loulou* and *iwa* fern by Pohaku Kaho'ohanohano.



A heartfelt mahalo to our partners and supporters:

Michigan State University Museum

Hawai'i inuiākea: The School of Hawaiian Knowledge at the University of Hawai'i



HALA

Puna, kai nehe i ka ulu hala.

Puna, where the sea murmurs to the *hala* grove. — 'Ōlelo No'eau #2745

by Clyde Imada

ABOVE | *Hala* fruit imprint in lava flow, Puna coastline.

BELOW | *Hala* scale infestation on leaf undersurface.



Hawaiian poetic literature is rich with references to the outstanding *hala* groves in Hawai'i Island's Puna district. So it was fitting that, while hiking along the Puna coast near Hā'ena Beach in 2000, we chanced upon a remarkably clear imprint of a *hala* fruit (*Pandanus tectorius*). The fruit had been partially encased in a *pāhoehoe* lava flow, but had long rotted away to reveal the remaining impression.

In 1993, a similar find was made along the Hanalei coast of Kaua'i, ending a difficult scientific debate on whether *hala* first made its way to Hawai'i as a propagule aboard a voyaging vessel, or if it had already arrived in the Islands prior to human habitation via oceanic drift, made possible by its buoyant fruit. The Hanalei discovery of a fossilized *hala* fruit imprint in an ancient lava flow—later estimated to be over 1.2 million years old—proved that the species was present in the Islands long before humans arrived. Further proof of its native status has also been cemented by findings of *hala* pollen in prehuman archaeological layers going back 10,000 years at Māhā'ulepū, Kaua'i. Nevertheless, it's very likely that any forward-thinking Polynesian voyager seeking to set up shop on an unknown island with unknown resources would have included the *hala* among the canoe's propagating plant stores.

Bishop Museum's dried, pressed herbarium collections of *Pandanus* is world-renowned among plant specialists. Dr. Tim Gallaher, a recent Ph.D. graduate of the University of Hawai'i at Mānoa's botany program, extensively studied the Museum's *Pandanus* specimens for his degree work, and calls it the largest and most comprehensive collection in the world for the breadth of species and geographic areas represented. While many major herbaria elsewhere contain two or three full-sized herbarium cabinets of *Pandanus* specimens,

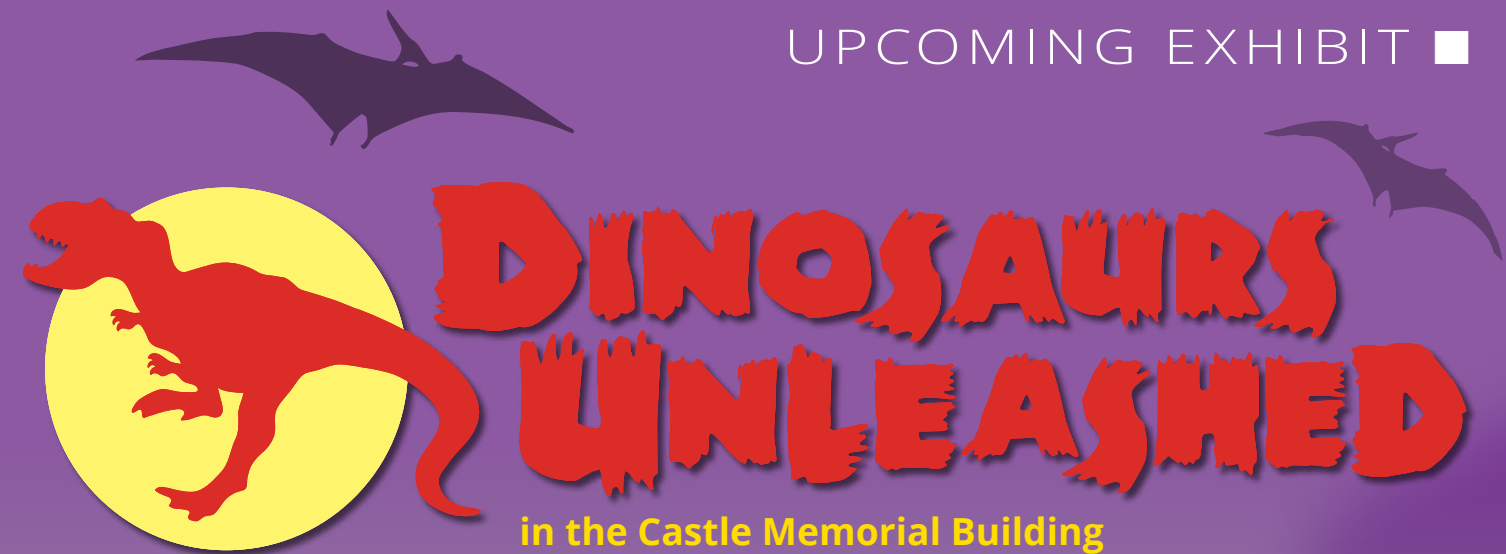
Bishop Museum's Herbarium Pacificum holds over 40 cabinets of *hala* from all parts of its worldwide distribution! The oldest *Pandanus* collections date back to 1864.

A present threat to *hala* plants statewide is posed by a tiny sucking insect called the *hala* scale, scientifically named *Thysanococcus pandani*. It was first noted in Hāna, East Maui, in 1995. The infestation has now spread island-wide throughout Maui's *hala* groves. The once lush, picturesque *hala* groves dominating the windward coasts of East Maui have been reduced to a shadow of their former glory—trees with yellowing, deformed, stunted leaves covered with white "fluff," rendered useless as weaving material for the *lau hala* practitioner. The scale insect has been reported on parts of northern Moloka'i, and isolated areas on O'ahu have also been received.

If you suspect your *hala* plants have been infested by *hala* scale you can investigate further at www.reportapest.org or call the statewide pest hotline at 643-pest.



LEFT | Botany collections manager Barbara Kennedy with specimens from the *Pandanus* collection.



in the Castle Memorial Building
February 28 through Labor Day, September 7, 2015

For nearly 190 million years, during the Mesozoic Era, reptiles were the dominant class of animals on the planet, evolving into hundreds of species of dinosaurs, fast swimming marine reptiles, and taking to the sky as soaring pterosaurs. Today, 65 million years after they went extinct, these prehistoric monsters still spark fascination in children of all ages.

Dinosaurs Unleashed features a wide variety of animatronic prehistoric reptiles that walked, swam, and flew over the Earth in the distant past. No dinosaur show is complete without a *Tyrannosaurus rex* and this exhibit is no exception.

The featured *T. rex* is three-quarters the size of a full grown adult *T. rex*, measuring 12 feet tall and 22 feet long. The exhibit also includes other popular dinosaurs such as a *Stegosaurus*; a 9-foot tall *Triceratops*; the duck-billed dinosaur *Maiasaurus*; and the bullet-headed *Pachycephalosaurus*.

Many dinosaurs on display are grouped in a series of scenes to give visitors a better idea about how they lived: a duck-billed dinosaur cares for her eggs; the *Triceratops* tends to three of its young; and a pack of carnivorous *Deinonychus*, cousins of the infamous *Velociraptor*, attack a larger plant-eating *Tenontosaurus*. *Dinosaurs Unleashed* also features other ancient creatures that shared the Mesozoic with the dinosaurs: a long necked ocean-going *Elasmosaurus*; the sharp-toothed marine predator, *Mosasaurus*; and a flying *Pteranodon*.

Go on a dinosaur dig and reveal the fossilized remains of a dinosaur in the excavation station. Get a

behind the scenes look at the animatronic technology used to bring the animals to life by controlling the movements of a duck-billed dinosaur robot. We'll also have stations to create colorful takeaway crayon art of everyone's favorite prehistoric creatures. Best of all, the Gulab & Indru Watumull Gift Shop will have books, posters, figurines, t-shirts, and more to satisfy the budding paleontologist in your life.

Animatronic dinosaur exhibits are among the most popular family-friendly exhibits brought in by the Museum, especially for our members! Stay tuned, for details of added special programming for children and families visiting *Dinosaurs Unleashed* during the course of the exhibit's six-month run.

Watch for your invite in the mail for the Members Preview Friday, February 27, 5:00-8:00 p.m.



TRADITIONS OF THE PACIFIC presents

HAWAIIAN PERSPECTIVES OF HEALTH: FROM BIRTH TO DEATH

An educational series in partnership with the Department of Native Hawaiian Health's Native Hawaiian Center of Excellence at the John A. Burns School of Medicine, University of Hawai'i at Mānoa.

Our popular Traditions of the Pacific program explores Hawaiian and Pacific cultural themes chosen by our community through educational lectures, workshops, and fieldtrips. This spring, join us for four unique conversations about Hawaiian perspectives on birth, child rearing and aging.

*Mai ka hikina a ka lā i Kumukahi
a ka welona a ka lā i Lehua.*

*From the sunrise at Kumukahi
to the fading sunlight at Lehua.*

From birth to death.

Selection #2058 from Mary Kawena Pukui's
ʻŌlelo Noʻeau: Hawaiian Proverbs and Poetical Sayings,
Bishop Museum Press, 1983.



Thursday, March 5, 2015 | 6:00 p.m. – 7:30 p.m.

Traditional Hawaiian Practices of Hāpai and Hānau

Ka'iulani Odom and Puni Jackson,
Kōkua Kalihi Valley
Atherton Hālau, Bishop Museum

The progression from pre-gestation to birth encompasses an array of physical and metaphysical responsibilities to ensure a pathway of health for child, mother and family. Knowledgeable Native Hawaiian cultural and clinical practitioners will provide insightful perspectives about traditional approaches to pregnancy and child birth and how families can be empowered to incorporate cultural practices into the birthing experience. At Kōkua Kalihi Valley, Ka'iulani Odom is a registered dietician and Director of the Roots Program and Puni Jackson is the Ho'oulu 'Āina Community Educator. Both presenters have extensively researched diverse traditional Native Hawaiian health practices and conduct a maternal and child health class entitled *Birthing a Nation*. They use the term *pale wahine*, to describe their role with mothers and families-to-be.



Thursday, May 21, 2015 | 6:00 p.m. – 7:30 p.m.

Traditions & Insights in Native Hawaiian Child-Rearing Practices

Carol Titcomb, MD
Atherton Hālau, Bishop Museum

How does one raise a healthy Hawaiian child? Parents are eager to learn how to best guide children through challenging contemporary times and carry Hawaiian values and traditions into the uncharted future. Dr. Carol Titcomb, a pediatrician who has practiced medicine in Wai'anae, Waimānalo and Papakōlea, conducted a descriptive study involving in-depth interviews of 21 *kūpuna*, elders, documenting recollections of child-rearing practices. Their reflections provide a guide to creating family resilience and well being. Dr. Titcomb conducted this study as part of a research fellowship at the University of Hawai'i, School of Medicine's Department of Native Hawaiian Health.



Thursday, June 18, 2015 | 6:00 p.m. – 7:30 p.m.

Hawaiian Beliefs and Perspectives of Aging

Kahu Emeritus David K. Kaupu
Atherton Hālau, Bishop Museum

The culmination of the series takes us to the setting years of the life span. In Hawaiian tradition, *kūpuna*, elders, are venerated centerpieces of society. *Kūpuna* attain respect and longevity through *maiau*, meticulous work, and *ma'ema'e*, cleanliness. Penetrating and revealing aspects of Hawaiian views of living and aging will be discussed by esteemed Kahu Emeritus David Kaupu, of Kaumakapili Church. Kahu Kaupu continues to be active as a Coordinator of Hawaiian Ministry for the Council of Hawaiian Congregational Churches and conducts classes using the *Baibala Hemolele*, Hawaiian language Bible, to teach both Christianity and *ʻōlelo Hawai'i* to congregation members.



Saturday, April 18, 2014 | 9:00 a.m. – 11:00 a.m.

Huaka'i – Birthstones of Kūkaniloko

Thomas Lenchanko, Hope Pelekikena 'Ekahi, Wahiawā Hawaiian Civic Club
Kūkaniloko State Historic Park

Return to the *piko*, center, of O'ahu with a trip to Kūkaniloko a sacred and historical site renowned as a birthing place for chiefs and a center for education. The Wahiawā Hawaiian Civic Club serves as a steward for this *wahi pana*, storied place. Club members, Hope Pelekikena 'Ekahi Thomas Lenchanko, a respected and dedicated caretaker of Kūkaniloko, will provide a guided tour and share traditions, legends and history of the *āina*, land, and *pōhaku*, stones, of the site.



Reservations required (808) 847-8280 or sign up online at www.bishopmuseum.org

These four presentations were made possible with support of the University of Hawai'i John A. Burns School of Medicine, Department of Native Hawaiian Health, and its Native Hawaiian Center of Excellence (HRSA 2D34HP16044). The content is solely the responsibility of the presenters and does not necessarily represent the official views of the funders.

SURVEYING THE KOKODA TRACK

by Allen Allison

Bishop Museum was engaged to conduct a field survey of the historical Kokoda Track by the Papua New Guinea (PNG) Department of Environment and Conservation (DEC). The track and its surrounding area are under consideration by the PNG government for designation as a World Heritage Site for events that took place there during WWII.

The track is about 60 miles long, from the north coast to Port Moresby on the south of the eastern side of PNG. Thousands of trekkers annually, looking for adventure, walk the track in 9–10 days, hiking thousands of feet up and then down and up again in misty mountains and jungles and crossing raging streams on bridges made from logs and sometimes ornate looking vines and branches entwined together.

With all this traffic the DEC is concerned that the large number of trekkers could potentially introduce alien pest species. New alien species could produce agricultural losses, or create other environmental problems.

The Museum's expedition team spent the month of April 2014 conducting field surveys on the Kokoda Track. Four camps were established along the track and the team spent up to a week at each camp. Areas along the track are essentially uninhabited so large amounts of food, together with personal gear, tents, collecting equipment, etc. all had to be carried. This required up to 60 porters when moving camp, and some 15–20 local field assistants to help maintain the camps. The terrain was often steep and muddy, and although the team was in good physical shape, each lost about 15 pounds the expedition!

Led by me, the expedition team was made up of scientists and PNG locals — Dr. Thane Pratt, ornithologist and longtime Museum affiliate from the Big Island; Szaby Kokay, artist; Oliver Tallowin, Ph.D. student; Bulisa Iova and Peter Joseph, two colleagues from the PNG National Museum; and Alu Kaiye from the PNG DEC. Inasmuch as the Kokoda Track had never been surveyed for amphibians and reptiles (my specialty and Tallowin's Ph.D. study) or birds



(Pratt's specialty), we also conducted field surveys of these groups.

Expedition Findings

Pratt observed an impressive total of 216 species of birds along the track. Tallowin, Iova, and I collected specimens of 67 species of frogs, lizards, and snakes. Of these, 6–8 frogs and lizards are likely new to science. Some 200 species of alien plants, and a few alien animals, were documented and were already well-known alien species in Papua New Guinea. Fortunately, there was no significant evidence that trekkers are currently introducing alien species along the track.



Some noteworthy observations included 12 species of birds of paradise, Doria's tree kangaroo (*Dendrolagus dorianus*), the extremely rare chestnut-shouldered goshawk (*Erythrorhynchus buergeri*), and the new species of frogs and lizards. Once all of the material collected has been identified, the findings will be used to create a natural history guide to the Kokoda Track.

Grants from the U.S. National Science Foundation and by the Israeli-U.S. Bi-National Science Foundation supported part of the research on this expedition.

Senior Zoologist Allen Allison, Ph.D., has worked for the Bishop Museum for 35 years. He has conducted field work in Papua New Guinea since 1973, with support from the National Science Foundation and other sources, and has discovered more than 100 new species of amphibians and reptiles. In 2001 he established the Kamiali Biological Station on the north coast of New Guinea to advance research, conservation, and training in the Pacific region.



ABOVE | Dr. Allen Allison taking notes on the habitat of a new species of microfrog in the genus *Paedophryne*.

BELOW | Dr. Allen Allison, Oliver Tallowin, and Peter Gora, prepare specimens at one of the camp sites along the Kokoda Track.

HISTORY OF THE KOKODA TRACK

After attacking Pearl Harbor on December 7, 1941, the Japanese Empire quickly took possession of much of the SW Pacific. In early 1942, Japanese naval forces intended to take Port Moresby on the south coast of New Guinea. The defeat of the Japanese at the Battle of the Coral Sea took in May 1942 saved Port Moresby and also prevented two Japanese carriers and other ships from participating in the Battle of Midway. These events were a major allied victory and are regarded as the turning point in the Pacific War.

Still intent on taking Port Moresby, the Japanese assembled a large contingent of soldiers on the north coast of New Guinea. In July 1942 they pushed overland through the Owen Stanley Mountains, along obscure trails that became known as the Kokoda Track.

Australian forces quickly mobilized and eventually halted the Japanese advance some 30 miles from Port Moresby. By November 1942, Australia advanced to the north coast and had won the campaign. Most historians today agree that the Japanese were unlikely to invade Australia. Nevertheless, the Kokoda Campaign has become a legendary testament to Australia's will to defend itself.

In the early 1990s, the Kokoda Track became heavily overgrown and somewhat forgotten. Through the combined effort of war historians, trekking companies, and others, the track was cleared and publicized in a number of books. Walking the track has since become something of a rite of passage for Australians of all ages, with 3,000–5,000 trekkers annually during the past 15 years.



ABOVE | A new species of frog discovered along the Kokoda Track. Adult males are only 5/16" long and are among the world's smallest frogs.

RIGHT, ABOVE | Expedition porters using banana leaves as umbrellas.

RIGHT, BELOW | A new species of skink found at elevations above 6000' along the Kokoda Track.

CHANGE

125 YEARS THROUGH THE EYES OF BISHOP MUSEUM
DECEMBER 13, 2014 – MARCH 16, 2015 • J. M. LONG GALLERY

- 1 Sewing class at Kawaiaha'o Seminary, Honolulu, ca. 1909 (Bishop Museum)
- 2 Label for can of Dole Sliced Pineapple packed in Honolulu, 1934 (Private collection)
- 3 The first Pacific telegraph cable is brought ashore at Sans Souci beach, Waikiki, 1902 (Bishop Museum)
- 4 Trade Winds Tours employees and bus, Honolulu, 1975 (Private collection)
- 5 President John Kennedy (center), Governor John Burns (left) and Senator Daniel Inouye (right) in a motorcade through Honolulu, 1963 (Edward Johnstone)
- 6 Cane toad, or Bufo, near a stream below Tripler Army Medical Center, Honolulu, 2005 (David Preston)



1 ca. 1909



2 1934



3 1902



4 1975



5 1963



6 2005

Mahalo to our sponsors:



EPIC

East Pacific Investment Company, Inc.



Matson



MOANA SURFRIDER
A WESTIN RESORT & SPA
WAIKIKI BEACH



Online Multimedia Resources for Teachers

Geographic isolation has long been a challenge for those living outside of the island of O'ahu in accessing the many education focused resources offered by the Bishop Museum. The Bishop Museum Education Online Learning Center (OLC) hopes to serve as a 'digital' bridge for educators seeking these resources.

Since the fall of 2013, the Museum's Education Department have worked to create, design and implement a website and database search engine that would best meet the needs of educators.

Written curricula and other multimedia resources are available via the site such as interactive images, videos, lessons, and games. A great example is the 360-degree interactive image of the 'Wind Gourd of La'amaomao,' which is currently housed in the Bishop Museum Culture Collections. The 'Wind Gourd of La'amaomao' is featured in the middle school curriculum unit 'Mana Makani: The Power of the Wind.' The online interactive provides a visual for teachers to use with students while exploring concepts of meteorology drawing on how Polynesian navigators apply traditional and modern skills to sail the Pacific ocean.

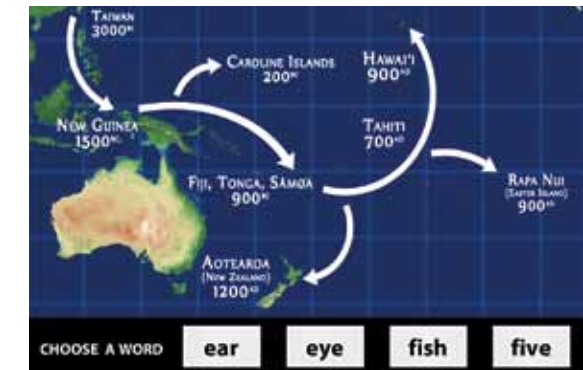
The key criteria being that the site is accessible, searchable, and easy to use for educators to incorporate in their lesson plans. Tests to determine if the site was able to accomplish these goals were conducted with teachers and informal educators throughout the state of Hawai'i.

All participants had varying abilities and comfort with technology to ensure that there would be no limitations with the web-based platform. A usability test with four teachers on the island of Moloka'i revealed significant limitations for the site, when a major storm system reached the island the night before the usability test.

The resulting challenges presented limitations with bandwidth and internet reliability in certain areas which led to a major shift in the design of the site. The site now allows for resources to be accessed 'offline.' This avoids any delays in using the curricula and other online content in classrooms or other venues where internet access may not be reliable.

The Online Learning Center has been launched as part of the Department of Education Native Hawaiian Program (DOE NHEP) 'All Together Now' and NASA Celestial Island project. Though in its infancy, the long term goal is to serve as an access point for other Bishop Museum related education resources.

To find digital resources on the Natural Science and Culture of Hawai'i and Pacific go to www.bishopmuseumeducation.org to start your search!



by
Amber Inwood

LEFT | *Follow the Word* – An online interactive lesson for students looking at the Polynesian migration routes and languages in the Pacific.

ARTWORK | Click Hawaiian® Art, © 1996–2001 Varez/Coconut Info

Meaning of Mālama Honua by Hadley Andersen

The first sphere cast event for the Polynesian Voyaging Society's World Wide Voyage was about the effects of climate change on Pacific islands and Hōkūle'a's mission of *Mālama Honua* (taking care of the Earth). The sphere cast was broadcast last September from Pago Pago, American Samoa to Bishop Museum in Honolulu and at 'Imiloa Observatory on Hawai'i Island.

The presentation was given to students from Hawai'i and American Samoa. Students from Ka Waihona o Ka Na'auao Public Charter School were able to talk with students from Matafao Elementary School in American Samoa and from Kea'au Middle School on Hawai'i Island about what *Mālama Honua* means to them.

PVS, NOAA and the Hawaii Department of Education are looking into the viability of doing more programs using the Science on a Sphere as a tool to teach students about the World Wide Voyage. The technology is quickly evolving and if this last sphere cast event is any indication of how impactful this tool can be, expect to see Bishop Museum involved in more of these events in the future.



A SEA OF Turtles

by Molly Hagemann
& Nicholas Griffith



ABOVE | Skull of a Hawksbill Sea Turtle (*Eretmochelys imbricata*), a critically endangered species found in tropical coral reefs, including those around Hawai'i. Skeletal specimens such as this allow researchers to examine changes in turtle populations and track those patterns in relation to natural or human-induced changes in the environment. Understanding how and why turtle populations change help to create effective conservation plans.

George Balazs, zoologist for the National Oceanic and Atmospheric Administration's (NOAA) Marine Turtle Research Program, knows a thing or two about sea turtles.

For over three decades, he's dedicated his life to studying those found in and around the Hawaiian Islands. Over that span of time, he's seen considerable fluctuations in population size, habitat, range, and behavior. He's been a steady champion for these majestic animals through the good times and the bad. Since the congressional passing of

the Endangered Species Act (ESA) in 1973, he has been a constant source of public engagement and activism. Having accumulated a fair number of biological samples along the way, Balazs has graced Bishop Museum with the lion's share of his specimens.

He has donated over one hundred new specimens to the vertebrate zoology collection. Freshly assembled archival boxes now teem with the smooth shells and skeletons of sea turtles. The bones of flippers jut out among the skulls of loggerheads, the sharp beaks of hawksbills threatening to bite at prying fingers.

Invaluable research material, their presence will serve scientists for decades to come in the areas of evolutionary biology and ecology.

Although Hawai'i is home to some five species of sea turtles, the Hawaiian green sea turtle (*Chelonia mydas*) is perhaps the most well known. Frequently seen just offshore, the *honu* has become an indelible symbol of Hawai'i. Through conservation initiatives such as Sea Life Park's turtle breeding colony, Balazs continues to work towards restoring healthy, sustainable populations of sea turtles from Hawai'i Island to Midway. Being a driving force for sea turtle conservation has also put him in the position of accepting the remains of those that have perished. A somber reminder of the many threats facing sea turtles worldwide, Balazs has used these to collect vital data for informed wildlife management.

In addition to providing over one hundred representative specimens for the olive ridley, loggerhead, hawksbill, leatherback, and Hawaiian green sea turtles, Balazs has contributed two freezers. The Vertebrate Zoology staff has been hard at work creating custom made, archival containers to house the various shapes and sizes of Balazs' specimens. Now that these are safely cataloged, we are happy to announce their availability to researchers worldwide!

Show your support for the Museum with a customized honu (turtle)-design license plate through the Division of Motor Vehicles (DMV). Apply at your Satellite City Hall location and \$20 is donated to Bishop Museum. For more information go on line to www1.honolulu.gov/csd/vehicle/mvdecal.htm.

BELOW | Honu, turtle, sleeping on a North Shore beach. Photo: James Caycedo



JACK RANDALL

An Enduring Legacy

In the history of exploration and discovery of coral-reef fishes, one name stands out above all others: John Ernst Randall. Known to his friends and colleagues simply as "Jack," he is literally a living legend in the field of ichthyology.

The list of awards and accolades he has received in recognition of his work is extensive (to list them all would more than fill this page). He has authored over 860 scientific books and articles (more than any other ichthyologist in history), and has discovered and named nearly 700 valid species of coral-reef fishes—more than *anyone* else in history!

Jack was successful as a scientist and as an explorer because he was the right person at the right time. He had a precious combination of intelligence and passion that makes for a great scientist and the start of his career coincided with the invention of SCUBA in the 1950s. He was among the first scientists to adopt this then-new technology for exploring coral reefs. Upon completion of his Ph.D. at the University of Hawai'i at Mānoa, he had access to Hawai'i's coral reefs and the gateway to the unexplored Indo-Pacific region, home to the richest marine biodiversity on Earth. He spent a few years working in Florida and the Caribbean before he returned to Hawai'i and began his career at Bishop Museum in the mid 1960s.

Half a century later, Jack continues to describe new species of fishes and publish important scientific works as ichthyologist Emeritus at Bishop Museum.

I first encountered Jack when I was a teenage "fish nerd" living in Palau. After a diving accident

forced me to return to Hawai'i, Jack offered me a job at Bishop Museum, and served as my academic mentor as I completed my Ph.D. at the University of Hawai'i at Mānoa. I have had the honor and privilege of joining Jack on many exciting expeditions throughout the Pacific, and I doubt I will ever meet his equal as an underwater explorer.

Once, on an expedition to the Solomon Islands, when I was in my early 20s and Jack was in his late 60s, I made the foolish mistake of trying to match Jack's standard practice of making 6–7 dives per day. After two days, I was exhausted and needed to take a day off just to recover. Jack kept that pace up for the entire two-week trip (I limited myself to three dives per day).

Jack continues to describe new species, and even went for a dive off Waikīkī to celebrate his 90th birthday earlier this year. I have been helping him complete his memoirs, *Fish 'n' Ships*, which will be published in early 2015.

As I read through the draft, I am continuously amazed by the incredible life he has led—a life of adventure, science, and exploration that few others will ever have the opportunity to emulate. Words cannot express how proud I am to have worked with him for so many years, or how proud all of us here at Bishop Museum are that he has dedicated his life to building our incredible fish collection. And I'm very-much looking forward to joining him for another dive on his 91st birthday!

by
Richard L. Pyle

ABOVE | Dr. Gordon Tribble (left), Jack Randall (center) and Richard Pyle (right) celebrate Jack's 90th birthday with a dive off Waikīkī. Photo: Sandra Richey. Inset: Randall with his double-hose regulator in the 1960s.

BELOW | Randall has taken thousands of underwater photographs of coral-reef fishes during his long and productive career.



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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, 2014 & November 30, 2014. Mahalo for your support of the Museum.

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Furthering Anthropological Research

Richard H. Cox, former vice president of Alexander & Baldwin, has made a \$40,000 gift to support current research in the Anthropology Department. The funds are being used for collections-based research undertaken as part of the Ho'omaka Hou Research Initiative.

"The Anthropology Department is immensely grateful for this generous gift, which has allowed us to purchase two essential pieces of equipment to assist us with our goals," said Dr. Mara Mulrooney, assistant anthropologist and director of the Ho'omaka Hou Research Initiative. The equipment includes a portable X-ray fluorescence instrument used to non-destructively source stone tools from the collections. This instrument is allowing researchers to track trade and interaction in Hawai'i and the Pacific. The second piece of equipment is a wide-format scanner, which is being used to scan maps as part of their ongoing digitization efforts. Some of these maps also form the basis of a new archaeological research program on Rapa Nui (Easter Island). Dr. Mulrooney noted that "we are excited about expanding our digital archives and also about our future research endeavors that are made possible by Mr. Cox's generous gift."

Mr. Cox, a Punahou graduate, was a longtime friend of Kenneth P. Emory, who served as the Chair of Anthropology at Bishop Museum for over 60 years. In addition to supporting Bishop Museum, he is a longtime supporter of the University of Hawai'i at Mānoa, and has served on the American Society of Civil Engineers Hawai'i Section's History and Heritage Committee.



ABOVE | Mr. Richard Cox and Dr. Mara Mulrooney standing next to the portable X-ray fluorescence instrument.

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ABOVE | (from left to right) Board member Heather Guigni; Hawaii’i Film Commissioner Donne Dawson; Crissy Gayagus; Charlotte Chow and BMAC member Phyllis Coochie Cayan enjoy the crack seed table at the exhibit preview for *Change: 125 Years Through the Eyes of Bishop 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
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Children (3 and 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.

Amy Greenwell Garden	(808) 323-3318
Facility Rentals	(808) 848-4106
Information	(808) 847-3511
Library and Archives	(808) 848-4148
Membership	(808) 847-8296
Development	(808) 847-8281
Shop Pacifica	(808) 848-4158
Planetarium	(808) 848-4136
Public Affairs	(808) 847-8271

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If you have questions about this issue of *Ka 'Elele*, please contact the Bishop Museum Institutional Advancement Division at 847-8271.

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**SAVE
THE
DATE**

SCIENCE ALIVE! WATER OF LIFE

**March 15, 2015
9:00 a.m.–3:00 p.m.**

**\$5.00 Admission
for kama'āina and military with ID**

A day of family-friendly science and environmental activities on Bishop Museum's Great Lawn. This year's theme will explore water's central role in Pacific biodiversity and culture. Kids of all ages will love learning through interactive displays, activities, crafts and more at this engaging event, featuring Bishop Museum's science researchers and staff as well as dozens of community partner organizations!

Food trucks, entertainment, *Dinosaurs Unleashed*, Bishop Museum's permanent exhibits, and the renovated digital J. Watumull Planetarium add to the fun on campus.



Ka ua Kukalahale o Honolulu.

The Kukalahale rain of Honolulu.

The rain that announces itself to the homes by the pattering it makes on the roofs as it falls.
Often mentioned in songs.

*Selection #1575 from Mary Kawena Pukui's 'Ōlelo No'eau:
Hawaiian Proverbs and Poetical Sayings, Bishop Museum Press, 1983.*