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About the Institute
The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

Zombies: Do They Exist?

Yes, says a Harvard scientist, who offers an explanation

On a brilliant day in the spring of 1980, a stranger arrived at L'Estère marketplace in Haiti's fertile Artibonite Valley. The man's gait was heavy, his eyes vacant. The peasants watched fearfully as he approached a local woman named Angelina Narcisse. She listened as he introduced himself, then screamed in horror—and recognition. The man had given the boyhood nickname of her deceased brother Clairvius Narcisse, a name that was known only to family members and had not been used since his funeral in 1962.

This incident and four others in recent years have sparked the most systematic inquiry ever made into the legendary voodoo phenomenon of zombiism. According to Haitian belief, a zombie is an individual who has been "killed" and then raised from the dead by malevolent voodoo priests known as "bocors." Though most educated Haitians deny the existence of zombies, Dr. Lamarque Douyon, Canadian-trained head of the Psychiatric Center in Port-au-Prince, has been trying for 25 years to establish the truth about the phenomenon, no easy matter in a land where the line between myth and reality is faintly drawn. More recently, Douyon has been joined in his search by Harvard Botanist E. Wade Davis. Next month Davis is publishing a paper on his findings in the *Journal of Ethnopharmacology*. His startling conclusion: "Zombiism exists and is a societal phenomenon that can be explained logically."

Douyon set the stage for Davis' study by foraying into rural Haiti, where he met with purported zombies and fearsome bocors. At least 15 individuals who had been branded zombies by terrified peasants turned out to be victims of epilepsy, mental retardation, insanity or alcoholism. The case of Clairvius Narcisse, however, gave Douyon good evidence. Medical records showed he was declared dead in 1962 at Albert Schweitzer Hospital, an American-run institution in Deschapelles. Yet more than 200 people recognized him after his reappearance.

The best explanation, Douyon believed, was that Narcisse had been poisoned in such a way that his vital signs could not be detected. The psychiatrist obtained a sample of a coma-inducing toxin from a bocor. The poison is apparently used to punish individuals who have transgressed the will of their community or family. Narcisse, for example, said that he had been "killed" by his brothers for refusing to go along with their plan to sell the family land. Ti-Femme, a female zombie also under study by Douyon, had been poisoned for refusing to marry the man her family had chosen for her and for bearing another man's child.

BERNARD DIEDERICH

Narcisse near his "grave"; inset, pointing to a scar made by a coffin nail

From puffer fish and a New World toad, a coma-inducing potion.

Douyon sent a quantity of the zombie potion to the U.S., where it came to Davis' attention. An expert on tribal uses of plants, Davis flew to Haiti and began collecting his own samples. "The principal ingredients are consistent in three of four localities," he reports in his paper. Several plants containing skin irritants are used, a charred human bone is thrown in just for show, but the active ingredients are a large New World toad (*Bufo marinus*) and one or more species of puffer fish. The toad, Davis reports, is a "veritable chemical factory," containing hallucinogens, powerful anesthetics and chemicals that affect the heart and nervous system. The fish is more potent still, containing a deadly nerve poison called tetrodotoxin.

To learn how these poisons might relate to zombiism, Davis turned to an unlikely source: Japanese medical literature. Every year a number of Japanese suffer tetrodotoxin poisoning as a result of eating incorrectly prepared puffer fish, the great delicacy *fugu*. Davis found that entire Japanese case histories "read like accounts of zombification." Indeed, nearly every symptom reported by Narcisse and his doctors is described, from the initial difficulty breathing to the final paralysis, glassy-eyed stare and yet the retention of mental faculties. In at least two cases, Japanese victims were declared dead but recovered before they could be buried. Japanese reports confirmed what Davis was told by the bocors: the effect of the poison depends on the dosage; too much will kill "too completely," and resuscitation will be impossible. Even with the correct dose, the bocors said, a zombie must be exhumed within about eight hours or will be lost, presumably to asphyxiation.

How zombies are revived from their deathlike comas remains a mystery. Both Davis and Douyon heard stories about a graveyard ritual in which the bocor pounds on the earth and awakens the victim, but neither was able to witness it. Davis did learn that upon reviving, the zombie is force-fed a paste made of sweet potato and datura, a plant known to Haitians as zombie cucumber. Datura, says Davis, is "one of the most potent hallucinogenic plants known." Thus the zombie is led away in a state of intoxication, usually to work as a slave. Narcisse, who spent several years as a slave on a sugar plantation, reports that zombies do not make very good workers. Says he: "The slightest chore required great effort." He reports that his senses were so distorted that the smallest stream seemed a wide and unfordable sea, as though "my eyes were turned in."

Davis has sent samples of the zombie potion to laboratories in Europe and the U.S., where in one experiment it induced a trancelike state in rats. Such research in the past led to the discovery of curare, an arrow poison from the Amazon now used to paralyze muscles during surgery. Tetrodotoxin may also one day find its place in the medical armamentarium. "People who have lived in the tropics for centuries have learned things about plants and animals that we have not fathomed," says Richard Evan Schultes, head of Harvard's renowned Botanical Museum. "We must not leave any stone unturned, or their secrets will be lost."

—By Claudia Wallis.
Reported by Bernard Diederich/Port-au-Prince

LISS—GAMMA/LIAISON

Botanist Davis

Hunt, N.Y., Honolulu, Arboretum, Ann Arbor, Berkeley, Berlin, Cambridge, Edinb., Göteborg

12/-'82 Pittsburgh

Dr. Otto Degener is a distinguished botanist cited by the Hawaii State Legislature in 1979 as one "who cares about the natural beauty and special qualities of these islands. Hawaii owes a bottom line debt of gratitude to Dr. Degener for his life time perseverance in relating humankind to the natural environment upon which we ultimately depend on for survival." In 1952 the University of Massachusetts at Amherst called him a botanical pioneer." Among our galaxy of great naturalists your place and fame are secure." Dr. Isa Degener, his wife, is credited with greatly influencing his leadership in the botanical world. Degener has denounced the introduction of certain plants and animals to Hawaii's natural environments.

"Man is wrecking within 200 years a flora that has taken 30 million years to perfect," says Degener. We are happy to share his concerns on the Hawaiian natural environment.

From tarweed to silversw

The Native Hawaiian
December 1982 Volume VII, No. 1
Editor Gard Kealoha
Art Editor Amy Kuualoha Hasegawa
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The Hawaiian Islands arose from the ocean in round numbers 100 million years ago from a "hot spot" belching magma or "lava" about where the Island of Hawaii is growing today. Some of the first to appear were Kure Island, Midway Island and Pearl and Hermes Reefs. They reached their present position about half way to Japan by sliding with a huge crust of rock on top of peanutbutter soft magma at the rate of about two inches per year. About thirty to fifty islands erupted later at intervals at the same spot. There is no reason to believe such islands did not emulate in size and elevation the five major islands man now populates in ever-increasing number. We must not be confused by the barreness and smallness of the more distant islands today. It is the result of no more increment of lava to make up for millions of years of erosion by rain, wind, and less effectively by earthquakes and tsunamis. All were bombarded with eggs and cysts of animals as well as spores and seeds of plants ever since their origin by their flying in the wind, floating on the water, and sticking to the soiled feathers and legs of birds or undigested in their intestines until voided with a useful contribution of manure. Almost all died, but a very few landed on ground satisfactory for living and forming a "dynasty" of their own. With millions of years available, this influx was enough to cover the barren lava wastes with plants which, in turn, supported "dynasties" of animals to the present.

The earliest animals, perhaps landsnails in an overgrown knot hole of a driftwood log, and sticky "seeds" of the California tarweed ancestor or the seeds of some primitive southwestern hibiscus made the round trip from an early "hot spot" island with frequent stopovers on islands of our archipelago toward its northwestern end. Those that tarried petered out as the result of their island's continuous erosion. But some few emigrated in erratic stages all the way back again to the more modern islands arising from the "hot spot" many millions of years after the early ancestors had started the jaunt.

The earliest successful immigrants to the Hawaiian Islands on for example Kure, Midway or Pearl and Hermes has the greatest number of millions of years to evolve into something different from their ancestors, influenced by genetic isolation and the stimulation of growing at different times on different islands perhaps in salt bogs, deserts, dry forests, rain-forests, cinder cones, in heat or cold, etc., etc. Most succumbed over the ages but about thirty to fifty kinds of Flowering Plants or Phanerogams, for instance, today are so different from their ancestors that they are recognized as distinct genera. In the case of the early tarweed mentioned above, it developed in the presently surviving genera *Railliardia, Dubautia, Wilkesia* and the truly magnificent *Argyroxiphium. Argyroxiphium*, if you have not guessed it, is the famous silversword genus to which about half a dozen species exist on Maui and Hawaii. About an equal number of less silvery taxa, some not yet properly described for naming scientifically, are endemic to Maui. Somewhat subdued in appearance, they are known as "greenswords" in the vernacular.

The other example that fascinates us so intellectually is more involved: The Lobelia Family is characterized almost always with bearing curved flowers. The one endemic genus *Brighamia* has straight flowers; but the endemic genera *Clermontia, Cyanea, Delissea, Galeatella, Neowimmeria, Rollandia* and *Trematolobelia* all have curved ones.

Whether early emigrant birds have a straight or more likely some-what curved beaks eons ago birds came and evolved into the endemic Family *Drepanididae* or Honeycreepers. This consisted of twenty-two endemic species with about fifty subordinate taxa until relatively recent times. For a bird with a straight beak to sip nectar from the inside bottom of a curved flower is far from efficient. Hence over millions of years, evolution perfected the curves of beak and flower to fit each other like a hand in a glove. Birds with the most efficient beak presumably gained more food to breed more successfully and to bequeath their beak type to their offspring. Moreover, the lobelia genera who catered best to such birds were most efficiently pollinated and hence tended to produce the most seeds to germinate into plants having the same good or even better flower shape.

The end of this story is truly amazing. Surrounded by birds with curved beaks, a typically star-shaped hibiscus flower evidently was not very popular and hence failed to be often pollinated to produce seed. Thanks to the working of evolution over millions of years the lucky offspring of the original hibiscus immigrant perfected a flower with petals rolled lengthwise together into a curve to fit the beak of the nectar feeders. Being so different, the five species known from Hawaii, Maui, Lanai and Kauai constitute the extremely rare genus *Hibiscadelphus*.

We are convinced after concentrating 90 years on the

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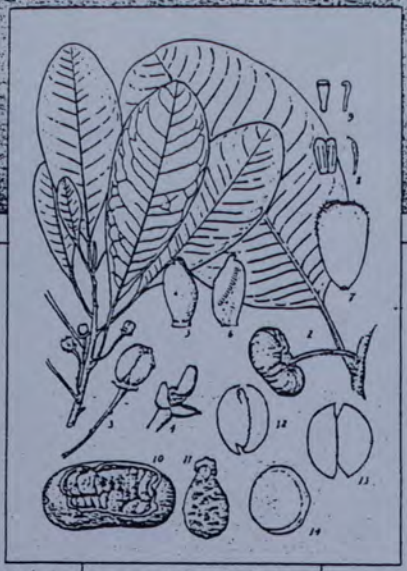

A drawing of the tree named after Botswist Otto Degener, the Degeneria vitiensis, the only known member of the primitive Degeneria Family. Drawing reprinted from "Degeneriaceae, A New Family of Flowering Plants from Fiji" by J.W. Bailey and A.C. Smith

flora of the Hawaiian Islands and publishing nine books and numerous articles about it - the *kawe* writer was first Naturalist of Hawaii National Park in 1929 and we are now residing in Volcano - the Hawaiian Islands even for conspicuous organisms like the Flowering Plants are crowded with still unrecognized endemic species, varieties and forms. Other except for perhaps mollusks, ferns, mosses) less highly evolved organisms are practically unknown to this day. How many fungi capable of furnishing new antibiotics, and how many *lowa* secreting anticancer chemicals are we blindly destroying forever?

Puna and Kau Districts are no exception in harboring organisms known nowhere else. Due to the direct and indirect action of Man, the lowlands of Puna have been badly mauled so far as the endemic animals and plants are concerned. The baneful influence, I feel, of action by the proposed Kahauale'a Geothermal Project, if properly confined to well below 1,000 feet elevation to where exotic weeds, sugarcane, papaya and cattle have already wiped out most of the delicate endemics; would not be such a disaster But the disaster would progress geometrically with increase in elevation. Near Hawaii Volcanoes National Park - What's the matter with apparently somnolent National Park Service executives in Washington? - the area would lose the wealth of its fascinating endemics. How many lucrative and foreign visitors would continue to swarm there except for occasional volcanic outbursts? We would sell our Volcano village property to the highest bidder.

To limit Man's geothermal activity to the lowlands, a compromise in favor of its advocates, has become outdated because of the increased human habitations in the vicinity. Hence to gain power thus, we are convinced, should be abandoned in favor of the less destructive and "cleaner" method briefly called "OTEC" (Ocean Thermal Energy Conversion). Look into the relatively harmless method of utilizing the differences in temperature of the Pacific at considerable depths and near the surface, please. To us it is convincing.

For present Man exterminating endemic animal and plant kinds that Almighty God or the Laws of Nature - there are many ways of reaching the summit of a mountain - has created over a period of many millions to many thousands of years, according to our Faith, is Sacrilegious and Blasphemy!

The sin of annihilating Sacred Creations is hardly valid because of our present ignorance of what is Right and Wrong. The majority in the Islands and elsewhere just never knew better. The present human race differs as much from the superior men and women following us eons hence as does the ancient tarweed from its present offspring the glorious silversword! For Doubting Thomasses concerning the above, avoid being self-concious for a moment. Note what normal heads look like untouched by clippers, scissors and razors-how ornamental they would be stuffed and hanging on the dining room wall? -remember your bare looks in a mirror; admire the slightly mangey appearance of furred sunbathers disporting along Hawaii's beaches; listen on the Radio and TV to adolescents howl and scream irate mating calls less interesting than those of coyotes on a moonlit prairie; read in the newspapers about wholesale atrocities committed by mature men imbued by the mob spirit on defenseless men, women and children; and the frequency of crime committed by individuals. Next saunter to a zoo and observe the good-natured chimpanzee, gorilla and orangutan, true blood brothers according to recent medical blood tests. Of these four groups, I consider myself and my kind of *Primate* truly the prime ape in viciousness. But why remain so? I am convinced the "silversword men" of the future will approve "tarweed man's" attempt to conserve the biotic distinctness and wealth of Hawaii Nei. Why not join us in this endeavor?

DRS. OTTO & ISA DEGENER
P. O. Box 154
Volcano, Hawaii 96785, U.S.A.

Copyright Office,
Library of Congress,
Washington, D.C., 20559.

Dear Sirs:

I am publishing a book in fascicles at irregular intervals. Thanks to your Office I have Circular R1. On p. 7 I am instructed to send you, among other matters, "i. A properly completed application form."

In former years I got copyright forms from the post office, but I failed this time. So please mail me a dozen or so forms for present & future use.

Enclosed is a sample of what my wife & I wish to register. We are so late in our application as the job was printed in Guam, USA., & was sent us to Hawaii by slow steamer mail. Practically all travel is by 'plane.

Aloha,

Dr. Otto Degener

PLAUDIT FOR DR. OTTO DEGENER

The following resolution (SR#294) was adopted by the Tenth Legislature of the State of Hawaii commending Dr. Otto Degener.

WHEREAS, the flora and fauna of Hawaii's unique island ecosystem are a most treasured resource; and

WHEREAS, the preservation of our wildlife resources, which have adapted and evolved in our isolated oceanic environment over many thousands of years, has become a paramount concern in the recent years of Hawaii's rapid urbanization; and

WHEREAS, Dr. Otto Degener, botanist, taxonomist, conservationist, author, and advocate, has devoted well over a half-century toward a better understanding of our invaluable yet highly sensitive natural environment; and

WHEREAS, Dr. Degener's many works, including Plants of Hawaii National Park and the seven-volume Flora Hawaiiensis, comprise an unparalleled collection of information on plant-life in Hawaii, and stand as a remarkable resource in itself to students, teachers, scientists, and laymen alike, both locally and worldwide; and

WHEREAS, Dr. Degener has been an inspiration to countless others in teaching the values of native ecosystems, in encouraging study of Hawaiian plants, and in recruiting new workers for protection of native wildlife and plants; and

WHEREAS, Dr. Degener stood alone for most of the past fifty years as a voice in the wilderness, steadily appealing year after year for recognition of Hawaii's botanical wonders and conservation of their habitats, having no peer in his unshakeable, deep commitment to Hawaii's natural environment; and

WHEREAS, Dr. Degener has been tireless in his forthright, fearless efforts to educate and influence government officials, developers, journalists, other conservationists, and the general public to seek protection of native habitats from the bulldozer, feral mammals, introduced game, and introduced weeds that naturalize in our native forests; and

WHEREAS, Dr. Degener has influenced and inspired many people in Hawaii and throughout the world with his deep love of fauna, flora, and the land which is Hawaii; and

WHEREAS, all of us who care about the natural beauty and special qualities of these islands that set Hawaii apart in the work of nature, owe a bottom-line debt of gratitude to Dr. Degener for his lifetime perseverance in relating humankind to the natural environment upon which we ultimately depend for survival as a species; and

WHEREAS, Dr. Degener, who will be eighty this year, continues to demonstrate his remarkable stamina, good humor, and zest to get on with research and writing projects—and initiate new ones; and

WHEREAS, this outstanding service of Dr. Otto Degener in fostering the preservation of our community's precious wildlife resources is worthy of our recognition and commendation; and

WHEREAS, it is particularly fitting that his five and one-half decades of generous service to Hawaii be extolled by the State Legislature; now, therefore,

BE IT RESOLVED by the Senate of the Tenth Legislature of the State of Hawaii, Regular Session of 1979, that it commend Dr. Otto Degener for his contribution to the preservation and enhancement of Hawaii's wildlife resources; and

BE IT FURTHER RESOLVED that a certified copy of this Resolution be transmitted to Dr. Degener.

Mary M. Finley, Hon. Tribune Herald, 10/10/82

I have received a long impassioned letter from Drs. Otto and Isa Degener, botanists, authors of many books on Hawaiian plants, and who are Volcano residents, appealing for reconsideration of Campbell Estate's proposed geothermal development. It [illegible] desirable, the

Degeners feel, if the Kahauale's project were confined to areas below 1,000 foot elevation, where sugar cane, papaya, cattle and exotic weeds have already replaced the delicate endemic plants; but to embark on such a project at Kahauale'a, next to the National Park would spell disaster to a "wealth of its fascinating endemic plants." Except for an occasional lava eruption, the Degeners feel, few visitors could be enticed to come and see the park minus its wealth of native flora.

Given the genetic isolation and the stimulation of growing in different environments, perhaps in salt bogs, deserts, dry forests, rain forests, cinder cones, in heat or cold, etc, over millions of years, Hawaii's native plant population has evolved so differently from the original parent stock that they form distinct genera found nowhere else in the owrld. The early, plain-looking tarweeds, for instance, that landed here by either floating on wind, waterborne logs, or as hitch-hikers on birds, have developed into several distinct genera including today's magnificent silverswords, which at one time blanketed Haleakala Crater.

"We are convinced after concentrating full time for a combined 90 years on the flora of the Hawaiian Islands that there are many endemic species, even among the conspicuous flowering plants, yet to be recognized," said the Degeners. "How many fungi capable of furnishing new antibiotics and how many limu secreting anticancer chemicals are we blindly destroying forever?"

The Degeners end their letter with an appeal to everyone as the "tarweed ancestors" of the future "silversword [illegible] to consider the importance of preserving the gifts of nature that Hawaii bequeaths to us as a trust built over millions of years of evolution.

r. Derral Herbst
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Mike Krauss cut our fallen Cypress into fire logs at Volcano. He admitted with some shock that he had to fell 500 endemic Acacia koa trees

In the present wood chip industry

Loggers in Hawaii?

"Mike and Davey, Loggers" 1980

Photograph by Boone Morrison

Mike and Davey worked hard all day for more than two weeks in Volcano Village and the surrounding area. Riding their screaming chain saws, they joined the dozens of less professional loggers in cleaning up after the "Great Storm of 1980".

Davey, originally from Main, and Mike, originally from Alaska, plied their unusual trade for many homeowners faced with the monumental task of dealing with one (or more) four-foot diameter, forty-foot long Cypress logs that seemed to fall like rain.

"Its a shame we can't get it out of here and make lumber from it," said Davey as he roared through a four-foot thick Cypress..."you could make some nice boards out'n this'n", he concluded. As it is, the Village has several winter's worth of firewood on hand and you can smell the Cypress smoke mids't the usual Ohi'a.

With a few unfortunate exceptions (Volcano House, the Cymbidium Farm, etc.) there was relatively little property damage aside from fallen trees and a seemingly hopeless tangle of utility wires.

Side by side with gratitude for our safety can go pride in the way the community came together during the storm and the cleanup. Individual parties cut trees fallen on the side roads, meeting to cut the thoroughfares so as to leave almost nobody trapped. Folks traveled the newly opened roads to inquire of their neighbors and friends and a sharing of tools, resources and knowledge helped everyone recover as quickly as possible.

of course were he not to do so, someone else would be hired. To avoid any possible trouble for him, I am keeping his information confidential for present at least. Please Mrs Kara do so likewise. O.D.

Puppetry & Dance Program Set

Puppetry...

Grants from the National Park Service and the State Foundation on Culture and the Arts have allowed the art center to begin

children will make puppets, learn dramatic skills and prepare to perform puppet shows. Tuition is $5 and all materials will be provided.

Schoolhouse studio in Volcano Village.

Beginning to intermediate level Modern Dance, such as dance exercise, locomotor movement

A plea to preserve Earth's genetic diversity

WASHINGTON (UPI) — Humans have become a major force in the evolutionary destiny of life on Earth and a major new international conservation project warns that preservation of the world's genetic diversity may help insure our own survival.

Some scientists believe as many as 90 percent of all species that once existed have been eradicated. Until the last few hundred years, natural forces were largely responsible for the disappearance of plants and animals.

But now, according to the U. N.-sponsored World Conservation Strategy, man is the primary eradicator of species. Strategy documents say humans have been responsible for the disappearance of at least 150 known species and perhaps several thousand others that were never discovered or cataloged.

Habitat destruction has been the primary problem, much more so than overhunting or other exploitation of specific plants and animals, the World Conservation Strategy said.

"Without its habitat, any given species has nowhere to run and nowhere to hide," the conservation plan said. "Its support system is gone.

"Thanks to men, forests have been leveled for agriculture and human settlements, valleys flooded by reservoirs, ecosystems disrupted by mining and timbering, wetlands drained for farming, commerce and industry, and toxic chemicals added to food chains.

"The explosion of the human population and the advancing technology that seeks to serve the needs of ever-increasing numbers of people have simply eliminated many life forms, usually without human awareness or any gains for man."

Not only are humans morally obliged to preserve species, the Strategy says, but "wisdom also dictates that we be prudent — we cannot predict what species may become useful to us."

Many drug ingredients, for example, come from plants and animals and yet only a small proportion have been evaluated for their value as medicines. And the Strategy said the genetic material in plants, trees, livestock, fish and microorganisms is important for breeding programs for improvements in yields, durability and pest and disease resistance.

"Preservation of genetic diversity is thus necessary both to secure supplies of food, fiber, and certain drugs and to advance scientific and technical innovation," the plan said.

"If we do not preserve the greatest possible number of the world's existing genetic resources — including some 80,000 plants believed to be edible — we, the human species, may ourselves become threatened or endangered."

The Strategy estimated that 25,000 plants species and more than 1,000 species and subspecies of vertebrates are threatened with extinction along with countless numbers of invertebrates such as insects, molluscs and corals whose habitats are being destroyed by development.

The plan called for the preservation of as many varities as possible of crop plants, forage plants, timber trees, livestock, animals for aquaculture, microbes and other domesticated organisms and their wild relatives.

WANT AD SERVICE—CALL 52977 - 55367

Otto Degener, Authority On Isle Flora, Honored

A signal honor was accorded Otto Degener, widely recognized authority on Hawaiian flora, when he received the honorary degree of doctor of science by his alma mater, the University of Massachusetts, formerly Massachusetts State college at Amherst Sunday.

Mr. Degener, botanical explorer and writer, is widely known in Hawaii. He was born in Orange, N. J., May 13, 1899, received his early education in Trinity and Collegiate schools in New York, earned the bachelor of science degree in 1922 at Massachusetts State college and his master of science degree at the University of Hawaii in 1923.

Post graduate work was done by Mr. Degener at Woods Hole, Mass., the New York Botanical Gardens and at Columbia university.

* * *

MR. DEGENER first came to Hawaii in 1922 as a tourist and student of tropical botany. From 1925-27, he served as botany instructor at the University of Hawaii later accepting the post of naturalist at Hawaii National Park.

Since 1935, Mr. Degener has been collaborator in Hawaiian botany for the New York Botanical Gardens.

He is the author of "Plants of Hawaii National Park with Descriptions of Ancient Hawaiian Customs and an Introduction to the Geologic History of the Islands," "Flora Hawaiiensis or the New Illustrated Flora of the Hawaiian Islands," now in four volumes; "Naturalist's South Pacific Expedition: Fiji," and numerous technical papers.

* * *

MR. DEGENER was botanist on the Archbold expedition to Melanesia in 1940, and in 1947 purchased the 99-foot teak and camphor wood junk yacht, "The Cheng Ho."

He organized the Cheng Ho Trading & Exploring Co., Inc., in Honolulu the year he purchased the yacht, and it will be recalled that much litigation followed when the Cheng Ho's captain, a former Vichy-French consul in Honolulu, registered the vessel in his name in Tahiti, when the craft actually belonged to the dozen stockholders of the company, most of them American citizens. Final ownership of the Cheng-Ho is still in dispute.

Since 1922, Mr. Degener has distributed for safe keeping and study more than 200,000 sheets of herbarium specimens to museums and educational institutions throughout the world.

DISCOVERER of hundreds of plants new to science, scores have been named in his honor. His outstanding discovery is a unique tree buttercup, native to the Fiji islands and so different from any previously known that it now constitutes a plant family of its own, equivalent in rank to the grass, magnolia or orchid family and now known as the Degeneria family.

At the 34th International Flower show held in Grand Central Palace in New York, Mr. Degener was selected as the "outstanding botanist or naturalist of the Pacific Islands."

Numbers are announced for conservation hotline

The Department has announced the beginning of its Conservation Hotline Program.

The Conservation Hotline extends the ability of the Enforcement Division to take calls for information or to report violations of the state's hunting, fishing, parks, forestry and other conservation laws on a 24-hour basis.

After hours and weekend neighbor island calls can be made dialing "O" and requesting Enterprise Operator 5469. The Department has installed new radio equipment that will allow the Oahu office to dispatch neighbor island conservation officers to respond to complaints.

Funding for the Conservation Hotline has been provided as part of a grant from the Coastal Zone Management Program.

When calling in complaints, callers are asked to leave the following information:

1. What is happening.
2. Where and when it is occurring.
3. A description of the individual(s) committing the violation.
4. Any boat or car license number or description.

While anonymous complaints are taken on the Hotline, the Division requests that callers leave their name and phone number so investigating officers can get in touch with them if necessary. Callers are reminded that their names will remain confidential.

During regular working hours complaints may be made by calling the Hawaii Division Office direct at 961-7291.

Degener, a Botanical 'Splitter,'

Friday, August 29, 1980 Honolulu Star-Bulletin A-3

Speaks from Mokuleia

By Harry Whitten
Star-Bulletin Writer

Long before environmentalism became a popular movement, a strong "voice in the wilderness" from Mokuleia, Oahu, was calling for protection of Hawaii's endangered plants.

The voice was that of botanist Otto Degener, now 81, whose popular book, "Plants of Hawaii National Parks Illustrative of Plants and Customs of the South Seas," is being revised for reprinting next year.

Degener and his wife, Isa, who has worked side by side with him since 1953, are jointly or singly authors of nine books and more than 400 articles in various journals.

They have been honored by a resolution from the state Senate and have received the Distinguished Service Award of the New York Botanical Garden and the Willdenow Medal of the Berlin Botanical Garden and Botanical Museum.

Degener, born in New York of Austrian-German descent, said the Degener family's coat of arms depicted a sheep because the family specialized in wool manufacture.

"HARDLY AS flattering an animal as a rampant lion," he commented. He has corrected any wrong impression by the vigor with which he has fought to protect Hawaii's native plants, as evidenced by many letters to editors and government officials during the years.

"Man is wrecking within less than 200 years a flora that has taken 20 million years to perfect," he wrote in a review denouncing introduction of passion flowers, goats, mouflon sheep and black-tailed deer.

The Senate resolution, adopted in 1979, said, "Dr. Degener's many works...comprise an unparalleled collection of information on plant life in Hawaii, and stand as a remarkable resource in itself to students, teachers, scientists, and laymen alike, both locally and worldwide."

Degener arrived in Hawaii in 1922, got his master's degree from the University of Hawaii, did doctoral work on the Mainland, taught at the UH, and then became a naturalist for what was then called Hawaii National Park.

"Knowing what interested the average tourist, I published 'Plants of Hawaii National Park,'" he said. He and Isa have revised the book several times.

Degener then started on his major work, "Flora Hawaiiensis," the first flora of Hawaiian plants since that of Wilhelm Hillebrand in the last century.

"FLORA" IS defined as a "systematic treatise of the plants of an area."

The Degeners have published six books so far in the "Flora Hawaiiensis" series; Book 7 is not quite complete, but when "fat enough" will be enclosed with hardback cover for a completed book. The book is being printed, with illustration and description, a page at a time.

The printing of material, in loose-leaf form, was done deliberately so that as new plants are discovered, leaves about them can be inserted in the proper place in the books.

Degener said present knowledge of complicated native flora is in such a state of flux that any bound book about Hawaiian plants would be out of date in a few years.

He said that, starting in 1922, "due to the business acumen and good fortune of his parents, he was able to pursue this work for over three decades practically full time without outside financial aid."

The time came, however, when other income was needed. The project, which Degener describes as a "cottage industry," has in recent years been supported by grants, sales of books and rentals from property.

SHORTLY AFTER the end of World War II Degener found a grass he could not identify and was referred to a grass specialist, I. Hansen, of the Berlin-Dahlem Botanical Garden.

When the bachelor botanist went to Europe with his sister in 1952, he hunted up Hansen and was somewhat taken back to discover a woman, "I" standing for Isa.

After he recovered from his surprise, he married her. The two honeymooned in Europe and then flew to Hawaii.

"The regular routine followed, delightfully vitalized by a helpmate," Otto wrote.

Degener is one of two living men to have a family of plants, the Degeneria, named for him. Peter Raven, director of the Missouri Botanical Garden, described Degeneria as "a living fossil, about 100 million years old."

The plant's discovery resulted from the eight months Degener spent botanizing in Fiji after leaving Anne Archbold's Cheng Ho expedition, on which he served as a naturalist.

The Fijian experience resulted in a book by Degener, "Naturalist's South Pacific Expedition: Fiji." Like the earlier book on Hawaii National Park, it contained much lore on customs and history as well as plants.

Isa Degener

Otto Degener

SEVERAL PLANT species have also been named for Degener.

Over the years the Degeners have sent a quarter of a million Hawaiian herbarium specimens to more than 50 educational institutions throughout the world. The New York Botanical Garden, where both Degeners are staff members, has received an especially rich collection of Hawaiian specimens.

Because of unsettled conditions in the world, "we no longer keep all our eggs in one basket," Otto said. "We scatter them." If specimens are destroyed by war or natural disaster in one place, they may survive in another place, he said.

He referred to the bombing of the Berlin Botanical Garden by British fliers, aided by Americans, which

NEW ILLUSTRATED HAWAIIAN FLORA

(Flora Hawaiiensis)

By OTTO DEGENER, B.S., M.S.
Botanist, University of Hawaii, 1925-'27
Collaborator in Hawaiian Botany, N. Y. Botanical Garden, 1935 —
Botanist, Archbold "Cheng Ho" Expedition, 1940-'41, and codiscoverer of the new Fijian plant family Degeneriaceae

100

sulted in destruction of Hillebrand's invaluable collection of Hawaiian plants. Some plants Degener did send there were also destroyed.

Degener has estimated that the Hawaiian archipelago may have had 20,000 endemic species of flowering plants before man arrived. Other botanists don't think there were that many.

Hillebrand listed 1,000 species in his flora. Degener checked Hillebrand's flora against modern monographs and extrapolated to get his estimate of 50,000.

ONE WAY HE arrives at his big total is by being a "splitter." There are botanists who are "splitters" and those who are "lumpers."

Splitters take a narrow concept of species and describe the differences, while lumpers take a broad view and emphasize what is important, according to Derral Herbst, endangered species botanist with the U.S. Fish and Wildlife Service.

Degener says that Mainlanders and Europeans tend to be splitters while many local botanists are lumpers.

Over the years Degener, acting more like the lion that is not on his family's coat of arms than like the sheep that is, has had his quarrels with some other members of the scientific and academic community.

Nevertheless, he has been very influential in Hawaiian botany, Herbst says.

Degener is known for a dry sense of humor that often shows up in his letters to the editor. There are also stories in the community of clever and witty ways in which he has gotten back at his foes.

Degener describes himself as a "plughorse" and Isa, who received her Ph.D. degree magna cum laude, as a "raceborse."

Despite his 81 years, he is still erect and vigorous in appearance, although he has had a pacemaker for his heart for several years.

THE DEGENERS divide their time between their home in Mokuleia and one at Volcano on the Big Island. They still get out in the field to botanize, but Degener complains that recently marijuana growers with guns chased him away from his scientific collecting.

A self-professed atheist, he is nevertheless fond of quoting a verse from Jeremiah 2:7 in the Old Testament:

"And I brought you into a plentiful country, to eat the fruit thereof and the goodness thereof; but when ye entered, ye defiled my land, and made mine heritage an abomination."

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By OTTO DEGENER
Naturalist, Hawaii National Park, 1929
Collaborator in Hawaiian Botany, New York Botanical Garden, 1935 —

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or
Drs. Degener, Volcano, Hawaii, 96785.

This striking photo of fern is a black and white reproduction of a brilliantly colored picture in the publication, Trailside Plants of Hawaii Volcanoes National Park. It is among many kinds of plants in photo and discription included in the book produced by the Hawaii National History Association and written by Charles Lamoureux, professor of botany at UH-Manoa. It was also done in cooperation with the National Park service.

Common Ape Related to Taro Family

The word "ape"-is applied to a large number of plants all of them with the elephant-ear type of leaf. The leaves are heart - shaped and the flowers are of the jack - in - the - pulpit or calla form.

The common ape, while not the largest of this group, has huge leaves. They grow on long stems which rise from a short, thick trunk and are dull green.

The flowers are usually hidden by the large leaves although each blossom is six to eight inches long. The inflorescence rises on a stalk from near the top of the trunk.

It consists of a pinkish, hoodlike bract enwrapping a thick spike. On the spike are the true flowers, very minute and almost invisible. The flower has an unpleasant odor.

The plant is closely related to the taros which resemble it in general form but are smaller.

Science Group Celebrating

By Harry Whitten
Star-Bulletin Writer

Fifty-six years of scientific activity and establishment of its new office at Foster Botanic Garden will be celebrated by the Hawaiian Academy of Science at an open house from 1 to 4 p.m. tomorrow at the garden.

The academy, which now has 450 active members, will also introduce its new executive secretary, Sister Edna DeManche, and honor its charter members.

Of the 79 charter members in 1925, three are still living, as far as it is known. They are Edwin H. Bryan Jr., William Moir and Otto Degener.

Walter R. Steiger, president, said special honors will be paid to Bryan, who headed an organization committee in 1925 for members of the American Association for the Advancement of Science then living in Hawaii. The result was founding of the academy, which he later served as president.

For tomorrow's meeting Bryan is gathering information about each of the 79 charter members.

In his busy career since coming to Hawaii in 1916, he has been an entomologist, astronomer, map maker, botanist, geographer and historian.

He joined the Bishop Museum staff in 1919, was curator of collections between 1927 and 1941, took time out for Army service in World War II and work in Pacific areas, and again became curator in 1950, serving until his retirement in 1968. Several times he was acting museum director.

SINCE HIS OFFICIAL retirement, Bryan, 83, has been on a daily schedule, 8 a.m. to 4 p.m., five days a week, in the Pacific Scientific Information Center, which he founded in 1930.

The center holds the most extensive collection of maps and scientific data on Pacific scientific affairs in the Pacific Basin, perhaps in the world. Nearly all of it is the fruit of Bryan's personal collecting efforts.

The center was organized under auspices of the museum, which makes available to it one room and a closet, but its financial support comes mainly out of Bryan's own pocket.

He publishes "Bryan's Sectional Maps of Oahu," first published in 1942 and revised every year since 1950. He is also author of "Stars Over Hawaii," of several other books and more than 2,500 articles.

Bryan, an authority on place names in the Pacific, has traveled widely in the Pacific, visiting about 75 islands, as well as museums on the Mainland and in Europe.

He helped convene the first Pan-Pacific Scientific Conference in 1920 and at times since has served as a delegate from Hawaii to the conferences, held every four years.

Besides his work at the information center, he is interested in projects that may result in more articles or books.

Edwin Bryan Jr.

Hunt

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"I TOLD YOU SO"

A recent article in the 'Elepaio by Byrd and Telfer ('*Elepaio* 41:35-36) has shown that the Barn Owl, introduced to control rats, can have an effect on native birds. Dr. Degener, in the letter below, reiterates his 1959 advice against the owl's introduction. Probably the most logical conclusion is that virtually all introductions, no matter how well intended, have the seeds of degredation of our native wildlife in them.

--CJR

THE FLYING MONGOOSE

Dr. Otto Degener

"Editor, The Advertiser:

"Years ago in our wisdom or lack of it we introduced the East Indian mongoose to help kill out the introduced rats that were becoming pests in our canefields and elsewhere. The mongoose proved so efficient that many rats took to our trees to escape this weasel-like mammal. As a result the hungry mongoose, a nonclimber, supplemented its diet with insects and ground-nesting birds. The rat, urged into the trees, supplemented its diet with eggs and fledglings of any tree-nesting birds it happened to come across. Today the consensus of biologist and layman alike is regret that the mongoose had ever been introduced to Hawaii Nei.

"In this morning's newspaper Bob Krauss' column mentions that 'A shipment of barn owls arrived in Honolulu yesterday from San Diego. They're being released in Waipio Valley on the Big Island for rodent control.'

"When tenderloin steak soars in price beyond the writer's means he does not gracefully lie down and starve to death. He simply hunts for a substitute, even if less palatable, such as chuck or stew meat. Similarly, after the barn owls have reduced the rats on the Island of Hawaii, they will search for a substitute rather than starve. They will follow in the footsteps of the mongoose and writer. As plants are indigestible to them and most insects too small, they can survive only by feeding on bullfrogs in Waipio; Nene goslings; pheasants, chuckar and quail chicks; young poultry; and other native and introduced birds. I know of no record of barn owls fishing.

"Senseless hullabaloo by legislators is registered in the newspaper against the introduction of freshwater piranha to the Honolulu Aquarium. Yet I fail to note any justifiable protest by a legislator against the introduction of the distinctly dangerous barn owl--practically a mongoose with wings--to the Island of Hawaii.

In the writer's opinion, the barn owls should be destroyed or donated to the Honolulu Zoo, anything but liberated!

Dr. Otto Degener
Naturalist, Haw. Nat. Park

In The Honolulu Star-Bulletin for Oct. 29, 1970, under the heading 'MONGOOSE WITH WINGS,' I repeated my 1958 warning. Moreover, I added that 'In 1927, toward dusk, I frequently saw one or two apeapea (endemic bats) not far from the church at Waiohinu, Kau. They seem not to be there now.' I added that I have seen the barn owl in Kau and my belief that 'The decline of the native bat (an endangered species) and the increase of the introduced barn owl are hardly coincidental.

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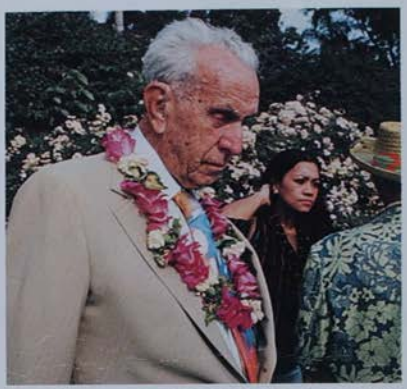
March 18, 1981



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SENIORS Greenfield (Mass) RECORDER p. B1 3/28/81

Ruby Hemenway

By IRMARIE JONES
Recorder Staff

TURNERS FALLS — For a woman who never had anything published for more than 90 years of her life, except a few articles in a button magazine, Ruby Hemenway at 97 years of age has become one of The Recorder's best known columnists.

A visit with this amazing and gracious lady at her 17 Sunrise Terrace apartment is like hearing dozens of her columns come to life.

"It's easier to remember things of long ago, easier than the modern things," said the perceptive nonagenarian. "It isn't hard to think up things to write about, just hard to know how to write it and get it right. Sometimes I almost feel as if I'm chatting with some of the people who write to me."

"I Remember When . . ." the popular column that graces each Saturday's senior page, probably unfolded when Miss Hemenway began writing about her memories and sending them to her old friend from North Leverett, Wayne Smith, former Recorder associate editor.

Smith used some of her writings in his column, shortly before he retired in April 1978. After he retired, she continued to send in her homey reminiscences, which found their place as a welcome addition to the elderly citzens' own page each week.

Readers of her column know Ruby Hemenway was born and brought up in North Leverett.

"The day after I was born, my father was down in the center and someone said, 'I hear you have a new baby,' and asked what they had named her. When my father said, 'Ruby,' the man was critical of my father because he didn't name me after his mother. My father said he thought more of me than that. Her name was Hepsibeth. People called her Heppy and she hated it. I don't know why they couldn't have called her Beth."

Miss Hemenway speaks happily when remembering the little mills along the Sawmill River coursing through town and into Montague Center.

"At the old pail shop they made wooden water and sap pails. Other people made little things. For instance, on Chestnut Hill Brook one man made wooden spoons and handles for tools during the spring, when there was a heavy flow to provide water power. He used wood he cut during the winter from his woodlot and sold his spoons and handles to pay his taxes," Miss Hemenway said. "These people were very ingenious Yankees. They knew how to supplment their farm income."

North Leverett 90 years ago was filled with small dairy farms. The farmers made butter by hand, which was picked up once a week by a creamery.

"Generally, they were one-man farms. The men swapped work. I'd say they had from four to seven cows," Miss Hemenway said; "Everyone had one or two pigs for meat and salt pork, but not a beef creature. Of course, we all had our family flocks and a pair of horses."

Recorder Photo by Chuck Blake

AT 97, RUBY HEMENWAY reminisces in her Turners Falls apartment, looking ahead to more years of writing her column and sharing the good old days with the young folks.

Her father, Charles Hemenway, was appointed a justice of the peace when he was 23 years old, the youngest in the state at that time. His "JP" chores included registering deeds and tranfers, as well as swearing in town officers.

"My father never did think to have us girls go out in the field to work. We helped my mother in the house. She did a lot of sewing. Grandfather (Elihu Hemenway, for whom Hemenway Road was named) fed the hens and the cows," Miss Hemenway said. "My parents always felt it paid well to have a large garden and lots of food. At first my mother kept what vegetables she could in a cold root cellar. Then the Extension Service taught women how to can and she put up vegetables, meat and fruit every year.

Miss Hemenway's eyes lit up as she remembered a favorite dish of her childhood. "We'd pick currants, dead ripe, and put in a lot of sugar and let the fruit sit until supper. It was delicious."

From the little schoolhouse in Leverett Center, Miss Hemenway went to Montague Center High School. Luther Torrey drove the North Leverett a two-horse "team" that predated the school bus. Miss Hemenway said students paid their own tuition to the out-of-town high schools. When er father and his brother attended New Salem Academy, they moved right over there and lived in one room heated by a stove, cooked their own meals while attending school. Some North Leverett students went as far away as Powers Institute in Bernardston.

"I joined the Montague Grange when I was 16 and have been a member for 81 years. After I graduated from high school I didn't know what I wanted to do ... not housework, but I wasn't fitted for anything. A cousin in Northampton thought I'd be a good teacher, so I went to North Adams Normal School. After two years, I taught one year in the primary grades in Orange. That was enough. It was a mistake for me to teach that age. I really didn't learn anything about teaching in normal school," Miss Hemenway said.

She became a companion for elderly persons for a few years, then charge attendant in a private sanitarium in the suburbs of Boston. For 20 years she was a dietician at Bridgewater Teachers College — head dietician when she left the job. She came back to Montague Center in 1944 to take care of her mother. She has lived in her Sunrise Terrace apartment for the past 13 years.

"I have the Meals on Wheels delivered at noon. That leaves me the energy to do the things I want to do," Miss Hemenway said.

When she was asked if she had ever written regularly for a newspaper before The Recorder, she answered, "Mercy, no, only a few little articles for the magazine, Just Buttons."

Will she continue writing "I Remember When . . . "?

"I suppose I will," she said with a hearty laugh. "I expect to continue, unless I get kicked out. I really enjoy doing it."

May 2h, 1981

Dear Isa and Otto,

One of the advantages of living in a small town with friendly people working in the postoffice is the fact that one can knock on the back door when the PO is closed --- and get action; hence, I picked up your certified-mail packet yesterday ---- and thank you for it.

And thank, Otto, for your sundry comments about letters and other matters returned to me, although I was disappointed to read that you are planning to postpone any "formal" review of Tippo's book.

The Koltz-Scanlan profile was airmailed to me by Kay S. several weeks ago. (The surface copy of THE ALUMNUS arrived two days ago). Shortly after -- I now note that the airmail copy has an April 23 postal cancellation --- I was getting my hair cut by your barber, Florence Miura, and when she indicated an interest in the article, I "promised" to bring it into the shop the next time I called. She may double the price of your haircut the next time you call ----

Doc T's thesis was on the American Mesozoic and Tertiary coniferous woods. Yes, it was under Jeffrey's supervison and was considered the third part of a sequence of Jeffrey's THE COMPARATIVE ANATOMY AND PHYLOGENY OF THE CONIFERALES which he, Jeffrey, started in 1903. Doc's nephew, the one now living in Bloomington, Indiana, writes that he remembers Doc staying with them in Glen Springs, Colorado, while he was collecting in the area ca. 1915(?).

Your mention of the bronze crab that was "willed" to you by RET opens up some questions that I'll have later upon your return. I now know four persons who were "willed" personal items of this kind, and I'm wondering if the directions for their distribution were not in the sealed instructions that Doc wrote in 19h4. Heretofore I thought that Chet Cross was ~~just~~ directed by the beneficiary, Prof. Mitchell, to just pass along some of the personal effects on a "shot-gun" basis. There was nothing in THE will about ~~such~~ such distribution.

I did not know either Ahles or Ball. Is the Bishop Museum monographer still on hand? If so, how about letting me know who he is ---- . (OK, have it -- Dr. Sohmer ---).

Thanks for giving me a better understanding of the Hunt vs NY relationship insofar as the D's are concerned.

Your recollection of that Torrey kin from Storrs serves you well. He (wife, nee Evelyn Beaman) is Prof. Lynn Glazier, and they are living at 357 Hunting Lodge, Storrs, CT. 06268. He is a cousin to Ruby Hemenway (over). ---- What a good example Miss R.H. sets for all of us! ----- . I hope that Prof. Lynn G. reads the Degener Profile in the last issue of the ALUMNUS. According to Lynn's bro., who lives in Beaumont, Texas, both Lynn and his wife went to MAC or MSC. A letter to them in March by me has not been acknowledged -----.

The 1935 Yearbook was dedicated to Marshall Lanphear. The essay in the book was written by RET. I have a copy of this essay, and I will have an interesting story for Isa and you when you return from Volcano, for I heard from Lanphear about a month ago. And recently Theo. W. Torrey, RET's nephew, sent me a 30-page "Apologia" with some information about Doc in the summary that I'm still sifting -- such comments as --- his uncle (Doc's father) was sexton of the N. Leverett Church in 1928, etc., etc.

Aloha from PO Box 5h8,

Don

How Fiji Islands Aid in Cancer Research

By David Perlman
Science Editor

A freighter from Fiji berthed in Oakland the other day, and in its mixed cargo were 300 pounds of twigs, bark and branches from one of the world's rarest plants, destined for American cancer researchers.

A San Francisco man who calls himself a specialist in "nutritional ethnomedicine" was forwarding the shipment to scientists at the U.S. Department of Agriculture and the National Cancer Institute near Washington, D.C.

Michael Weiner, who studied botany, nutrition and anthropology to get his graduate degree at Berkeley, spends part of every year collecting exotic plants that are used as folk medicines by primitive people in far-off places.

Under contract to the government, Weiner recently returned from the Fiji Islands after gathering and shipping home bulky samples of three different plants.

The most important was the 300-pound batch from a broad-leafed tropical tree the Fijians call Masi ratu, or "King's bark." The tree grows only in Fiji, and its entire family consists of a single species, whose scientific name is Degeneria vitiensis.

Five years ago Weiner collected his first three-pound batch of King's bark. He shipped it off to Washington for testing by scientists under contract to the institute, as part of the NCI's $5 million-a-year "natural products" screening program. The program hunts for possible anti-cancer properties in microbes, animals and plants.

Weiner is an enthusiastic and very patient plant collector. Under his federal contract he has shipped nearly 100 varieties of trees, shrubs and flowers from tropical islands. But only the rare Fijian species has yet shown enough promise to warrant detailed animal testing against

By Vincent Maggiora

MICHAEL WEINER AND KING'S BARK
He collects plants for use in cancer research

process," Weiner said as he inspected his huge sackful of branches from Fiji. "The islanders there don't seem to use any natural plants against cancer. They may have done it once upon a time, long ago, but now when Fijians get cancer they go to Western doctors for treatment.

"Their native herbal doctors treat many other diseases successfully with plants and plant extracts, however, and the islands that haven't been too badly stripped of their native culture still yield many useful folk remedies."

Weiner first visited Fiji 12 years ago when he was a graduate student living on the island of Tonga for three months and met the island's King Tupou IV.

"He was Oxford-educated and a great surfer," Weiner recalled. "He weighed 300 pounds, and we spent three hours drinking sherry and talking about folk healers. He led me to some of the best in the kingdom."

On Fiji, Weiner found, the villagers were equally helpful provided he was careful to observe the local greeting ritual. This meant presenting a gift of kava root to the headman to accept it. If he did, Weiner says, the kava was pounded into a powder, mixed with water, and ceremonially drunk.

Accepting the gift then obligated the villagers to obey their visitor's wishes — and in Weiner's case it meant helping him collect samples of medicinal plants.

Kava itself is known as an extremely effective sedative, and Weiner recalled that when the Fiji villagers mixed it with water from obviously polluted streams he feared an immediate attack of dysentery. But he never got it, no matter how bad the water, and after 12 years he has concluded that an infusion of kava may well be a most effective bar against the intestinal disease.

Another Fiji plant, whose medicinal use has long been known in India, is called Gotu kola in the islands. It is related to pennyworts and hydrangeas and is mixed with other plants for virtually every other Fiji folk remedy. It is used against headaches and infections and to speed healing of wounds. And as a sedative, Weiner said, its active chemicals are as good as the meprobamate tranquilizers of Western medicine.

The Fijians also use plant extracts for fertility control — both to prevent births after conception and to help childless mothers conceive, Weiner said.

The folk healers of Fiji place great faith in their herbal medicines, Weiner said, but they will not use them against what they call "white men's diseases." These include gonorrhea, diabetes and heart disease — all introduced with Western ways, Western foods and Western stresses, and all calling for Western medical treatment.

As for the unique Degeneria tree, the Fijians know of no medical use for it. But Weiner surmised that just because of its uniqueness it

program, for plants, animals and microorganisms.

Each year the institute screens about 5000 strains of antibiotic-producing microbes, and since 1957 it has tested nearly 170,000 of them. So far its scientists have found about 5000 of the microorganisms that can produce antibiotics with anti-cancer activity in animals. Fourteen are being tested more thoroughly because of their hopeful properties, and five are actually being used in chemotherapy for some human tumors.

The animal test program has examined material from 3000 different land and marine species, and scientists have found limited evidence of anti-tumor activity in about 650. But none has produced any substance with enough promise to warrant further study, according to Dr. Matthew Suffness of the NCI.

In the plant program, where Weiner operates through a contract with the Agriculture Department, the cancer scientists have looked at 35,000 different species since 1957. Five are being developed toward human trials, seven are being tested in humans, and two — drugs called vincristine and vinblastine which were isolated from varieties of the periwinkle plant — are in wide medical use today.

Weiner's first three-pound batch of Degenaria was screened in 1975 and an extract of the bark appeared to have shown some activity against leukemia in mice, according to Suffness.

The tumor-free mice were injected with millions of leukemia cells, and in the normal course of events they would have been expected to die within 10 days. But according to Suffness, the extract from Weiner's Fiji plant seemed to extend the lifespan of the leukemic mice by 30 percent or more — an indication of potentially "interesting" activity.

Two years ago Weiner collected 40 more pounds of the "King's bark" material and it was tested with even more promising results, Suffness said. Now the 300 pounds of Degeneria will be used to isolate the thousands of active chemicals contained in the tree's bark or wood, and the chemicals will be studied carefully to learn their structure and properties.

Hawaii May Get a New Island

Washington

A new Hawaiian island may be getting ready to emerge, according to the chief scientist at the National Ocean Survey.

Alex Malahoff reports that there is an active underwater volcano 18 miles southeast of the island of Hawaii, the youngest island in the chain of Hawaiian islands.

This volcano is 15 miles long

Building from an ocean floor 12,000 feet under water, the top of the volcano, called Loihi, is now only 2112 feet below the ocean surface.

Malahoff said that as Loihi continues to grow it could form a new island through the same process that formed the other Hawaiian islands.

The age of the volcano is not known, nor is its rate of buildup. One scientist said, however, that it may be thousands of years before

Written by Vincent Marteka '58

Guide to mushrooms for all seasons, tables

WHEN HE was a small boy, *Vincent Marteka '58* used to go mushroom-hunting with his father. After growing up, majoring in geology in college, and establishing a career as a science writer, his interest in many aspects of the natural sciences led him to re-discover his half-forgotten interest in mushrooms. The interest became a passion and the passion turned into a mission: He wanted to write a simple, easy-to-understand guide to finding, collecting, and, of course, preparing mushrooms to eat.

And he has. Published last year, Marteka's *Mushrooms Wild and Edible (A Seasonal Guide to the Most Easily Recognized Mushrooms)* is a delightful book full of information about mushrooms for the beginning collector as well as for the expert. It is also a well-organized, well-written book interesting to even those who have no taste for edible fungi (poor souls) and no desire to wander about the woods or meadows looking for the same. However, this reviewer can't imagine anyone reading the book and not wanting to hurry out to look for some of the mushrooms Marteka describes in order to try out some of the recipes the book contains.

The book is full of mushroom lore and interesting anecdotes. For example, when talking about the amazing strength of the growing mushroom, Marteka tells the following story: "In England an 83-pound stone slab two feet in diameter was freed of its cement shackles and lifted two inches off the ground. When British residents looked underneath the stone, they found what were probably two small meadow mushrooms balancing the stone in the center." When the cells of a growing mushroom stretch, he explains, they act like tiny hydraulic rams that create a slow but steady pressure against any object above them.

History Examined

In another section he traces the mushroom back to the days of the Roman Empire when mushrooms were cherished as the "food of the gods." Roman gentlemen were so possessive of their fungi, Marteka says, that they personally cooked their mushrooms themselves—the only cooking these men would condescend to do. Also, he says, in Egypt, mushrooms could only be eaten by the Pharoahs; such gastronomical gems were not to be wasted on the common people.

And what does this "food of the gods" taste like? Marteka describes one type, the king bolete, thusly: "Praise has been accorded this famous mushroom for centuries. In eastern Europe, special trains transport urbanites into the hinterlands each fall to search for this edible bolete. In southern France, the French and the Italians were on the verge of a minivar when the French discovered that many Italians had gone over the border to collect the bolete in France's woods. In the United States, gourmets, unaware that this famous mushroom grows in their own woodlands, flock to specialty food shops to buy dried boletes at $30 a pound. . . When you taste the king bolete, you quickly learn why the adulation . . . is warranted. . . . Few tastes are as elegant as a king bolete that has been briefly sauteed in butter only a few hours after it has been picked. The taste is a combination of sweetness and nuttiness that is truly distinctive; its texture is crunchy." In the recipe section, he gives three recipes for boletes, one French, one Polish, and one German.

In Marteka's book, the writing is simple yet elegant, almost poetic. For example, the best time to hunt the common morel is "when apple trees and lilacs are in blossom and the oak leaves are about the size of squirrel ears," i.e., in May in the northern United States, earlier farther south. Or, about the black morel, Marteka says: "Its dark brown to black spongy head appears in the woodlands when the bracken ferns are still furled in their fiddleheads, when the hepatica, trailing arbutus, and white violets bloom along the woodland trails, and when the first asparagus spears thrust up near the rhubarb in the garden."

Writing Background

Marteka has had a number of years to hone his skills as a science writer. While he was still a senior at UMass, he was doing some writing, and, by the time he had graduated, he knew he wanted to combine his interest in science with his interest in writing. So, he entered what was then "a pioneering program in science writing at RPI" where he obtained a master's degree. He then went to work for the U.S. Geological Survey in Washington, D.C., for two years. After that he spent two years as a science writer—then several more years as news editor—for Science Service, a national science wire service which counted *The Baltimore Sun* and *The New York Times* among its subscribers. He left that position to write a book on bionics that was published in the middle 1960s. After the book was published ("It sold moderately well, about 17,000 copies," he says), he did free-lance writing for a time. He then decided to move to New England where he went to work in Hartford, Conn., for Xerox Education Publications, which publishes magazines and newspapers for children from kindergarten through junior high school, including *The Weekly Reader*, for which Marteka was science editor for a time. For the past 15 years, still with Xerox, he has been the editor of *Current Science*, a biweekly newsmagazine for science students in junior high schools and middle schools.

In his job as editor of *Current Science*, Marteka was one of five science writers selected by the National Science Foundation to visit Antarctica, including the South Pole, in November 1970, to report on the scientific research going on there. Then, in 1972, he was part of the first (and thus far only, he says) group of U.S. science writers to participate in an exchange program with the Soviet Union. Under the exchange agreement, science writers from *Time* magazine, *The Christian Science Monitor*, *The Kansas City Star*, as well as a free-lancer and Marteka, all visited science research centers in Moscow, Leningrad, and Novosibirsk in Siberia to observe and write about research going on there. Marteka also reports that he "made *Who's Who in America* several years ago."

Back to Mushrooms

As part of his interest in nature in general, Marteka says, 10 to 12 years ago, his interest in mushrooms was rekindled. "Before I realized what was happening, I had joined about six different mycological societies and was reading and trying to lay my hands on as much information about mushrooms as possible." What he discovered was that most literature on mushrooms left a lot to be desired. Most books and guides for collectors, he found, were dull, incomplete, or directed only to experts and not the lay person.

"I sensed there was a void to fill," he said, "so I began collecting anecdotes and filling notebooks with nothing but bits and pieces of mushroom lore." Working on the project evenings and weekends, it took him nearly four years to bring the book to fruition. It was especially painstaking since he controlled every aspect of the book from writing and organizing, to finding a designer, to taking most of the photographs. (UMass botany professor Howard E. Bigelow, a former president of the Mycological Society of America, contributed several black and white photos and one of the color photos in the book.)

"Apparently it worked," Marteka says of his years of labor. "All the reviews have been very laudatory." More than that, even. The book has been excerpted in *Smithsonian* magazine and was a featured selection of the Outdoor Life Book Club.

Marteka, who lives in Portland, Conn., with his wife and three children, aged 11 to 16, is not considering writing any more books in the near future. His work with the Audubon Society and local mycological groups, plus his bee-keeping, canoeing, and other outdoor activities, keeps him pretty busy. At some point in the future, however, he hopes to combine his interest in mushrooms with yet another hobby—bookbinding. "My goal is to do a limited edition of my own book in leather with a mushroom motif," he says. A book that will undoubtedly become a collector's item.

—Kay Scanlan

Vincent Marteka '58 spent nearly four years writing, designing, and editing his guide to various common mushrooms.

Mini, Giant Glads Are Award Winners

By Fortunato Teho

The All-America Gladiolus Selections winners for this year have just been announced. They are Majorette, a small-flowered gaily colored orange and yellow pixie; and The Queen, a large flowered stunning pink beauty. The announcement marks the 25th year that the awards have been made.

Majorette is a contrast in style to beautifully compliment The Queen in any garden. It is a bright confusion of yellow and orange, just right for that odd planting space in the yard.

It carries at least 20 butterfly florets on a slender, whippy stem and the colors bring cheer to the garden. The graceful spikes are useful for arrangements.

The Queen is a large-flowered pink beauty that is healthy and vigorous in growth. It is unequaled for arrangements with its sturdy stem and uniform habits. Eight or more florets of good substance and form are open at once and the buds show color far up the stem.

Home gardeners are beginning to look at gladiolus more and more as a way to brighten up a vegetable garden and at the same time provide a cutting patch for indoor decorations.

Excellent for use in landscaping around the yard, gladiolus are easy to grow and become a satisfying part of gardening.

The nature of the gladiolus bulb makes it suitable for cultivation in the yard year after year. As long as your soil has reasonable fertility, gladiolus will do well without fertilization or extensive care. Plant large bulbs (corms) about four inches deep and six inches apart in flower beds. For landscaping use, the bulbs may be planted closer together for mass effect.

The gladiolus was originally a wetland flower and so regular watering will bring it to the peak of its graceful form. When cutting the blooms, always leave at least four leaves on the plant to mature the bulb for replanting next year.

Gladiolus range in size from tiny miniatures, just right for garden borders, to the taller, large-flowered beauties that stretch up to six feet.

All-America Gladiolus Selections runs more than 20 trial gardens from coast to coast and from Canada to Mexico in which to evaluate new gladiolus hybrids. The process is designed to insure that an All-America winner will suit the home gardener everywhere.

All-America Gladiolus Selections offers a cultural folder about gladiolus for home gardens. Send 25 cents to All-America Gladiolus Selections, P.O. Box 90334, Nashville, Tenn., 37209.

For additional gardening information consult Plants of Hawaii—How to Grow Them available from garden shops or write to Fortunato Teho, 1778 Ala Moana Boulevard, Honolulu, Hawaii, 96815. For a reply, include a self-addressed, stamped envelope.

The Queen, one of two award winning gladiolus this year, is a large flowered, pink beauty that is healthy and vigorous in growth.

FACTS ABOUT HAWAII'S WEATHER

Trade winds from the east or northeast prevail almost continuously in Hawaii in the warmer months; during the cooler part of the year the trades are occasionally interrupted by winds from a southerly direction.

Sometimes these interruptions may extend over a period of several days, giving what is known in the islands as "Kona weather"—probably the most unpleasant type of weather experienced in the area.

Increased humidity and sometimes heavy general rains, occur during these periods.

The fastest recorded mile of wind at the Honolulu Weather Bureau office during the period 1934-1958 was 62 mph; the average velocity over a period of 20 years about the same was 9.4 mph.

Periodic tides are small, the average rise and fall of diurnal tides being about two feet, two high and low tides occurring in 24 hours. The ocean currents produced by tides are not noticeable in island harbors.

(From Thrum's Hawaiian Annual of 1958)

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A. C. Smith
Flora Vitiensis Nova. II, 1981.

Flowers (in the only genus in our area) zygomorphic and without petals, the calyx enlarged and petaloid, the anthers united with the style into a gynostemium, the pollen grains anasulcate, inaperturate, globose or globose-oblate, tectate or semitectate, the ovary inferior, with numerous ovules in each locule, the fruit a septicidal capsule. .... ARISTOLOCHIALES (FAMILY 47)

Perianth none, the flowers crowded into a spadix; pollen grains anasulcate, inaperturate, subglobose, tectate; ovary 1-locular, the ovule solitary, erect (in families in our area); seeds with copious perisperm and scanty endosperm; stipules present or absent. .... PIPERALES (FAMILIES 48, 49)

Flowers perigynous to epigynous (in our area hypogynous only in Trimeniaceae of Laurales); pollen grains (in genera in our area) inaperturate or forate, subglobose, tectate or semitectate; ovules (in our families) solitary, pendulous; seeds sometimes lacking endosperm; nodes unilacunar.

Perianth lacking; plants (in *Ascarina*, the only genus in our area) usually appearing dioecious but probably basically monoecious, the ♂ flowers (in *Ascarina* in our area) with a single stamen; ovary inferior, unilocular, the ovule orthotropous; stipules present. ... CHLORANTHALES (FAMILY 50)

Perianth evident but often small and lacking petals, rarely lacking; plants with bisexual, polygamous, or unisexual flowers; stamens few to numerous; carpels 1-many, each carpel or ovary locule with an anatropous ovule; stipules (in our representatives) absent. ..... LAURALES (FAMILIES 51–56)

Aquatic herbs, lacking vessels and without cambium; spherical idioblasts lacking; leaves floating, emersed, or submersed; pollen grains (in our representatives) zonasulcate or inaperturate, tectate. NYMPHAEALES (FAMILIES 57, 58)

ORDER MAGNOLIALES

The order Magnoliales is sometimes interpreted in an extraordinarily extended sense (e. g. Cronquist, 1968: 135–144), but more logically it is construed as comprising two suborders (Magnoliineae and Annonineae) and seven families (cf. Smith (1972) and Walker (1976) cited above under the class). Since 1972, however, continuing study has convinced me that differences between the two suborders are of such a nature that the recognition of two orders is advisable. As thus defined, the Magnoliales form a very coherent order composed of four families: the widespread and predominantly Northern Hemisphere Magnoliaceae, the Eupomatiaceae and Himantandraceae of New Guinea and eastern Australia, and the Degeneriaceae, endemic to Fiji. With the possible exception of the order Winterales (composed of the sole family Winteraceae), the Magnoliales probably possess a greater accumulation of plesiomorphic ("primitive") characters than any other extant dicotyledons. Their secondary xylem, although not vesselless, retains features indicating early stages of advancement. The stamens are broad, dorsiventral, 3-veined microsporophylls with elongated, immersed sporangia. The pollen grains of the Magnoliaceae and Degeneriaceae are anasulcate and boat-shaped, and those of *Degeneria* and *Eupomatia* have atectate and primitively columellaless exine. The carpel of *Degeneria* is best described as an adaxially folded, 3-veined megasporophyll with laminar placentation and flaring stigmatic surfaces that are not coherent at the time of pollination. Such carpels are very similar to those of *Tasmannia* and *Bubbia* in the Winteraceae.

FAMILY 44. DEGENERIACEAE

DEGENERIACEAE I. W. Bailey & A. C. Sm. in J. Arnold Arb. 23: 357. 1942.

Trees; stipules none, the leaves alternate, petiolate, simple, pinnatinerved; flowers solitary (but bearing 2 or 3 bracts near middle of pedicel), supra-axillary, ♀, hypogynous, the receptacle subglobose or convex, depressed in center; perianth clearly differentiated into calyx and corolla; calyx deeply lobed, the sepals 3 (rarely 4), much smaller than petals; petals numerous, 2–4-seriate, imbricate, carnose; stamens numerous, spiralled in 2 or 3 series, carnose, laminar, rounded or subtruncate at apex, 3-veined, with 4 slender, parallel, elongated, extrorse, immersed sporangia dehiscing

Presumably still available from Pacific Tropical Botanical Garden, Lawai, Kauai, Hawaii, USA

by 2 longitudinal clefts; pollen grains anasulcate, bilateral, boat-shaped, psilate, atectate and primitively columellaless; staminodes within the stamens and fewer, similar in texture but conspicuously introrsely cucullate; carpel solitary (or carpels rarely 2 and attached at slightly different levels on the receptacle), inaequilaterally ellipsoid, conduplicate, open in early stages, the ventral margins externally flaring, with numerous, loosely interlocking, short, glandular hairs, the stigmatic areas extending inward along adaxial surfaces of carpel; ovules numerous, anatropous, biseriate but sometimes vascularized by branches of both ventral and median traces; fruit an asymmetrical, oblong-ellipsoid, tardily dehiscent follicle with a long-persistent vascular skeleton composed of branches of median, ventral, and supernumerary traces, the pericarp coriaceous and smooth, the endocarp intrusively lobed with spongy ingrowths; seeds large, with copious, irregularly grooved and cleft, subruminate endosperm, the outer integument of mature seeds with a thick cuticle, a succulent outer coat bearing oil cells, and an inner stony coat; cotyledons 3 or 4, very rarely 2.

DISTRIBUTION: Endemic to Fiji, with a single species.

USEFUL TREATMENTS OF FAMILY (in addition to many papers already listed in this *Flora*): Bailey, I. W., & A. C. Smith. Degeneriaceae, a new family of flowering plants from Fiji. J. Arnold Arb. **23**: 356–365. 1942. Smith, A. C. Additional notes on Degeneria vitiensis. Op. cit. **30**: 1–9. 1949. Swamy, B. G. L. Further contributions to the morphology of the Degeneriaceae. Op. cit. **30**: 10–38. 1949. Lemesle, R., & A. Duchaigne. Contribution à l'étude histologique et phylogénétique du *Degeneria vitiensis* I. W. Bailey et A. C. Sm. Rev. Gén. Bot. **62**: 699–719. 1955. Dahl, A. O., & J. R. Rowley. Pollen of Degeneria vitiensis. J. Arnold Arb. **46**: 308–323. 1965.

Although I. W. Bailey had long been concerned with the morphology and anatomy of members of the "ranalean complex," the discovery of a new species, genus, and family of this complex and their description in 1942 gave a pronounced impetus to research in this area by him and his associates and students. It is no overstatement to

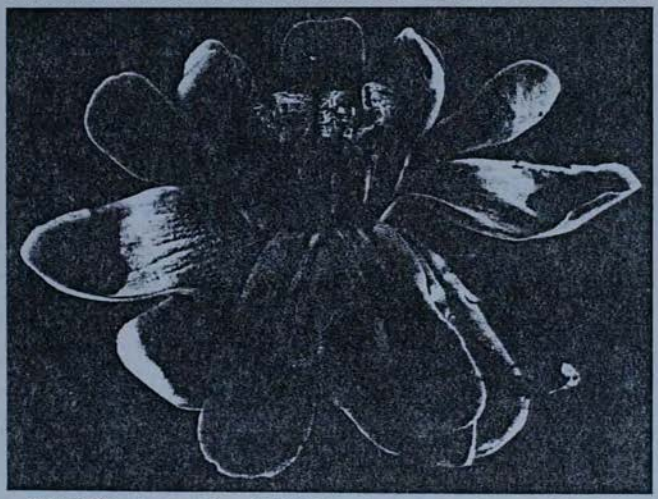


FIGURE 1. *Degeneria vitiensis*, from *DA 15292*; flower, showing petals and extrorse surfaces of stamens and staminodes, × 2.

suggest that the first paper on the Degeneriaceae led to a recrudescence of interest in the "Ranales," as the putatively most primitive dicotyledons were then known. Since 1942 several hundred studies of diverse aspects of "ranalean" plant taxa by botanists of many countries and disciplines have contributed to our present understanding of the evolutionary history of dicotyledons. This understanding is still inadequate, but the new knowledge so promulgated has led, in less than 40 years, to a vastly keener appreciation of some of the principles suggested by such perceptive pioneers as Jussieu, de Candolle, and Bessey.

1. DEGENERIA I. W. Bailey & A. C. Sm. in J. Arnold Arb. **23:** 357. 1942; A. C. Sm. in op. cit. **36:** 277. 1955.

Characters and distribution of the family.

TYPE SPECIES: *Degeneria vitiensis* I. W. Bailey & A. C. Sm., the only known species.

The original formal description of *Degeneria vitiensis* having been based on only two collections, substantial amplification is now possible. It has always surprised me that a plant so abundant in Fiji escaped the notice of such discerning collectors as Seemann, Horne, Gibbs, Greenwood, and Gillespie, among others. However, exhaustive search of herbaria where Fijian collections might be deposited has convinced me that the species remained uncollected until May 7, 1934, when specimens were obtained by me (no. *1754*) in the lower Wainunu River Valley, Mbua Province, Vanua Levu; these specimens, in young fruit and with ample wood material, remained unidentified to family. The second collection now known to me is *DA 287*, a sterile specimen collected in Naitasiri Province, Viti Levu, in 1936 but without further locality or collector's name. A third collection was made by B. E. V. Parham (as *DA 1488*) on May 11, 1939, in the vicinity of Nanduna, near Waindrandra Creek, Lomaivuna Tikina, Naitasiri Province, Viti Levu; this was also accompanied by immature fruits, but neither of the Department of Agriculture collections was available to Bailey and me in 1942. The fourth known collection, and the first in flower, was *Degener 14537*, collected February 24, 1941, near Nauwangga, south of Nandarivatu, Mba Province, Viti Levu; this collection we indicated as the type.

It is perhaps understandable that earlier collectors failed to obtain the species, which is a tree of the upper storey of the rain forest, mingling its branches and foliage with those of many other species. Even when the tree is in full flower or fruit those organs are not discernible from the ground; the flowers shatter soon after opening. Once the plant is detected from a fallen fruit or the decaying vascular skeleton of one, it can be located in the forest canopy. As a result I have now observed at least 100 individuals and have collected material from many of them in such quantity that specimens are available in most major world herbaria and many wood samples are at hand.

1. **Degeneria vitiensis** I. W. Bailey & A. C. Sm. in J. Arnold Arb. **23:** 357. *pl. 1–5.* 1942; A. C. Sm. in Bull. Torrey Bot. Club **70:** 537. 1943, in J. Arnold Arb. **30:** 1. *fig. 1; pl. 1.* 1949; Swamy in op. cit. **30:** 10. *fig. 1–106.* 1949; Lemesle & Duchaigne in Rev. Gén. Bot. **62:** 699. *fig. 1–8.* 1955; J. W. Parham, Pl. Fiji Isl. 46. *fig. 23.* 1964. ed. 2. 76. *fig. 23.* 1972.

FIGURES 1–3, 77.

A tall forest tree attaining a height of 30 m. at maturity, with a comparatively compact crown and a straight, slender trunk to 70 cm. in diameter, and with 3–7 obvious rounded buttresses in the lowest 1–2 m. The dark gray bark has regular fissures and presents no outstanding characteristics, although with experience it seems readily recognized by Fijians and other foresters. Juvenile plants have larger leaves

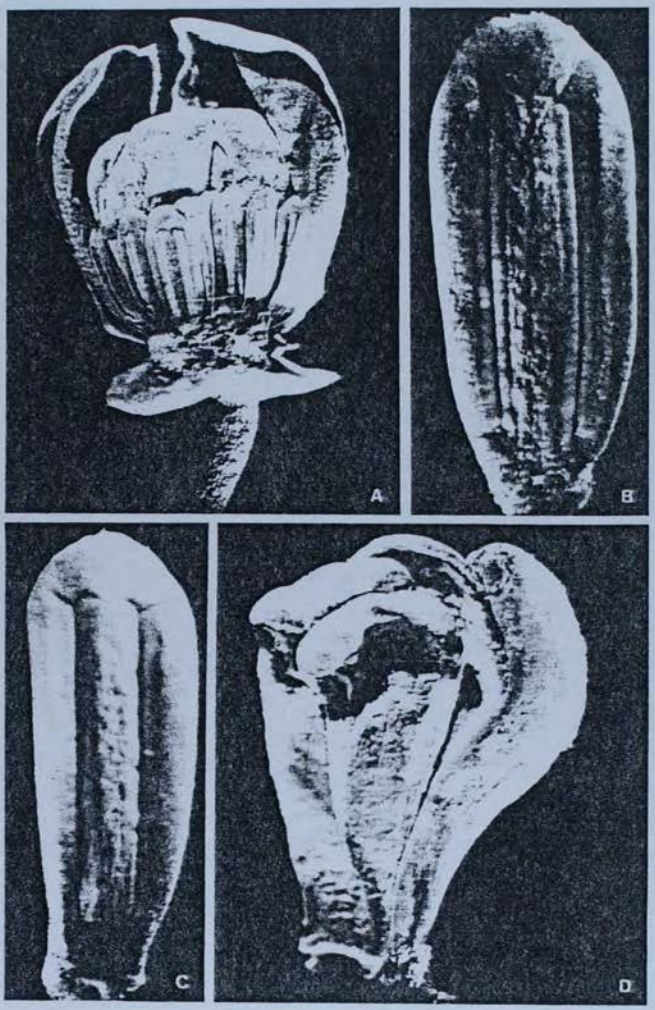
than mature trees, the blades being as much as 45 × 14 cm., long-decurrent on the petiole, and deltoid-cuspidate at apex, with as many as 30 pairs of secondary nerves. Mature leaf blades may measure only 5–27 × 2.5–14 cm. and are rounded or slightly emarginate at apex, with 8–18 pairs of secondary nerves. Specimens may be spectacularly loaded with flowers, even though these are seldom discernible from the ground. When fully open the flowers may attain a diameter of 6.2 cm., then emitting a delicious fragrance suggestive of the flowers of *Cananga odorata* and some other Annonaceae. The 3 (rarely 4) green sepals may be somewhat more than 5 mm. in length and breadth, obscurely yellow-glandular, entire and inconspicuously ciliate. The petals are 12–14, white or cream-white or the outer ones greenish without, spiralled in 2–4 series, carnose and broadly imbricate, the exterior ones elliptic, 18–25 mm. long and 10–13 mm. broad, obscurely yellow-glandular, the inner ones narrower and somewhat oblong. The stamens are 20–31, spiralled in 2 or 3 series, dull pink in bud, becoming yellowish to white or cream-colored at anthesis and obscurely yellow-glandular, rounded or truncate at apex and there inconspicuously ciliate. The outer stamens may measure as much as 7 × 3 mm., the inner ones being slightly smaller. The staminodes are 9–11 in number, 1- or 2-seriate, at first rich pink dorsally, nearly white ventrally but yellow distally, becoming cream-white at anthesis, with 3 parallel veins and conspicuously hooded, rarely bearing rudimentary sporangia; they are obovate, conspicuously narrowed at base and larger than stamens, sometimes attaining a size of 12 × 5 mm. The pure white carpel bears 22–30 ovules on 2 parallel placentas borne between the median trace and the 2 ventral traces, some sessile and some funicled but not (as originally described) limited in this respect to one or the other placenta. At anthesis the carpel may be as large as 7 × 3 mm. and with its wall copiously immersed-yellow-glandular. The fruits at first are green, then pink to purple, and at maturity black, up to 11 × 5 cm. The seeds (most ovules maturing) are embedded in pale green pulp; their succulent outer coat is salmon-pink to bright orange. Swamy has pointed out the extraordinary fact that he did not discern dicotyledony in *Degeneria* (actually, however, it does very rarely occur). Of the more than 300 seeds he examined, about 87% had 3 cotyledons and about 13% 4 cotyledons. In the related Magnoliaceae tricotyledonous embryos are only occasionally encountered. The distantly related Queensland family Idiospermaceae (Laurales) has 3 or 4 massive, peltately attached cotyledons of a very different type than those of *Degeneria*.

TYPIFICATION: The holotype, as mentioned above, is *Degener 14537* (A), collected February 24, 1941, near Nauwangga, valley of Nandala Creek south of Nandarivatu, Mba Province, Viti Levu. There are many isotypes.

DISTRIBUTION: Endemic to Fiji and thus far known only from Viti Levu, Vanua Levu, and Taveuni, occurring at elevations between 30 and 1,150 m. in dense or open forest or in second-growth forest. Because of the interest of the species I cite below all the collections I have examined. Certainly many other collections exist, since most botanists who visit Fiji wish to see the species and have prepared herbarium material. A few "show trees" in southern Naitasiri Province, readily accessible from Suva, are well known to members of the Departments of Agriculture and Forestry and are protected for the convenience of interested visitors.

LOCAL NAMES AND USES: *Masiratu* is the name best known in southern Viti Levu, while in the more northern uplands the name *vavaloa* (black shoe) is widely used. In first collecting the species on Vanua Levu I recorded the name *yaranggele*, but this name has not otherwise been noted. The timber of *Degeneria vitiensis* is occasionally milled (although the species is too scattered in occurrence to be deliberately sought);

FIGURE 2. *Degeneria vitiensis*, from *DA 15292*; A, flower with many petals removed, showing calyx, a few inner petals, and extrorse surfaces of stamens and staminodes, × 4; B, extrorse surface of an outer stamen, × 16; C, extrorse surface of an inner stamen, × 16; D, four staminodes, showing introrse and lateral surfaces, × 8.



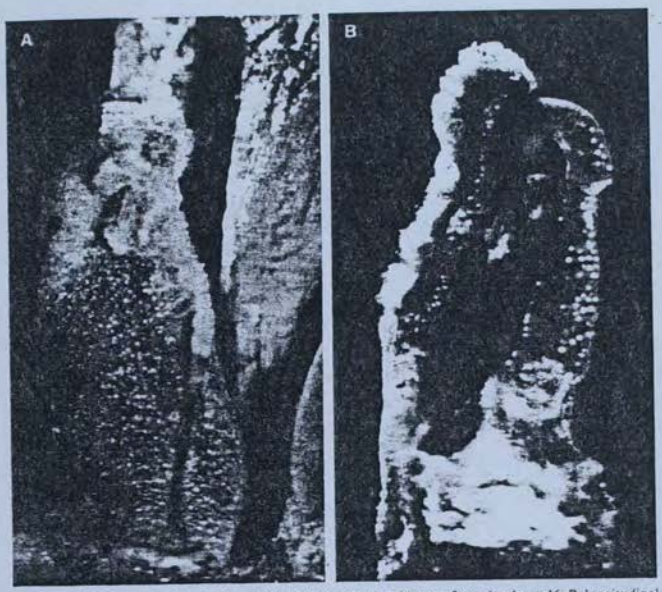


FIGURE 3. *Degeneria vitiensis*, from *DA 15292*; A, carpel and bases of staminodes, × 16; B, longitudinal section of carpel, showing the copiously glandular wall, one stigmatic crest, and one row of ovules, × 16.

the wood is considered potentially useful as a building timber, a case wood, for furniture, and for peeled and sliced veneer. Many attempts have been made to germinate seeds and to establish the plant outside of Fiji for its potential ornamental and scientific value; most such attempts have failed, but a few young plants may exist in U. S. or European greenhouses.

AVAILABLE COLLECTIONS: VITI LEVU: MBA: Hills between Nandala and Nukunuku Creeks, along trail from Nandarivatu toward Lewa, *Smith 6170, 6190;* western slopes of Mt. Nanggaranambuluta, east of Nandarivatu, *Smith 6301, 6318*; hills east of Nandala Creek, south of Nandarivatu, *Smith 5923*; Nauwangga, valley of Nandala Creek, *DA 3642*; hills between Nggaliwana and Tumbeindreketi Creeks, east of the sawmill at Navai, *Smith 5875, 5880, 6018*; western and southern slopes of Mt. Tomanivi, *Smith 5744, DA 12726 (Melville et al. 7115), 13041.* MBA or NAITASIRI: Waimongge Creek, south of Mt. Tomanivi, *DF 1079.* NANDRONGA & NAVOSA: Northern portion of Rairaimatuku Plateau, between Nandrau and Nanga, *Smith 5555*; Nausori Highlands, *Bola NH-12, DA 13892, DF 1144 (S1561/6), 1145 (S1561/5)*; Nandronga & Navosa without further locality, *DA 14297.* SERUA: Nambukelevu East, *Berry 95*; inland from Namboutini, *Damanu 105, 106, DF 456, 457, 1105, 1126 (S1561/2), 1129 (S1561/1)*; hills north of Ngaloa, in drainage of Waininggere Creek, *Smith 9189*; Tumbarua, inland from Ngaloa, *DF 878, 1135 (S1561/4), 1136 (S1561/3).* NAMOSI: Hills bordering Wainavindrau Creek, in vicinity of Wainimakutu, *Smith 8600*; northern slopes of Korombasambasanga Range, in drainage of Wainavindrau Creek, *Smith 8701*; hills east of Wainikoroiluva River, near Namuamua, *Smith 8939*; Lombau River, *Bola 79*; Nambukavesi Creek, *DF 230, Bola NI-17.* NAITASIRI: Vicinity of Nanduna, near Waindrandra Creek, *DA 1488* (coll. *B. E. V. Parham*, May 11, 1939).

3008, 3641, 3772, 5841, 10132, 10146, 15223, 15292; opposite Nawanggambena District School, *Stauffer & Kuruvoli 5852*; Nawanggambena, *DA 11854*; Naivuthini, *DA 1533*; Waimanu River, *DA L.13244 (Berry 54)*; Adi Cakobau School water supply road, Sawani, *Webster & Hildreth 14101*; Naitasiri without further locality, *DA 287* (coll. in 1936), *DA*, June 22 or 27, 1947. REWA: Mt. Korombamba, *DA 16538*. VANUA LEVU: MBUA: Lower Wainunu River Valley, *Smith 1754* (May 7, 1934); north of Thongea, Wainunu River, *DA 15773*. TAVEUNI: Slopes of Mt. Manuka, east of Wairiki, *Smith 8200*; Nggathavulo Estate, *DA 16937*.

ORDER ANNONALES

Many phylogenists have taken the order Annonales in a very broad sense, submerging it in their concept of Magnoliales or taking it as the appropriate ordinal name for an extended complex of magnoliidean families. At another extreme, Hutchinson (1973) limits the Annonales to the two families Annonaceae and Eupomatiaceae. It is more generally considered, however, that the latter family is more strictly related to the Magnoliaceae than to the Annonaceae. Most recent students of "ranalean" taxa agree that three families, Annonaceae, Myristicaceae, and Canellaceae (not in Fiji), are closely related and group them into a suborder (of either Magnoliales or Annonales). In the present treatment this coherent cluster of families is taken to compose the order Annonales.

KEY TO FAMILIES OCCURRING IN FIJI

Plants with hermaphrodite flowers (our species) or rarely monoecious; perianth basically 3-whorled, 1 whorl calycine and the other 2 petaloid; stamens free, hypogynous; carpels numerous or few, free or rarely united; fruit composed of free carpels or these connate into a syncarp, the seeds 1-many, sometimes (but not conspicuously) arillate. ..... 45. ANNONACEAE

Plants dioecious; flowers apetalous, the perianth composed of a 3(rarely 2-5)-lobed calyx; stamens usually with filaments (and sometimes anthers) united, the ♂ flowers without carpellary vestiges; ♀ flowers without staminodes, the ovary unilocular, the ovule solitary, essentially basal; fruit usually dehiscing and 2-valved, the seed conspicuously arillate. ..... 46. MYRISTICACEAE

FAMILY 45. ANNONACEAE

ANNONACEAE Juss. Gen. Pl. 283, as *Anonae*. 1789.

Trees or shrubs, rarely climbers (none of our species), with hermaphrodite flowers (our species) or rarely monoecious, often with aromatic wood and leaves; leaves exstipulate, alternate, distichous, simple, the blades entire, pinnately nerved; inflorescences 1-many-flowered, the flowers often fragrant, the receptacle broad, convex to flattened, sometimes with a cupuliform, staminiferous extension, the perianth basically 3-whorled and with each whorl 3-merous; sepals usually 3, free or partially connate, usually valvate, rarely imbricate; petals hypogynous, usually 6 (rarely 3 or 4 or 8) and in 2 whorls of 3 each, valvate or imbricate in each whorl, free or sometimes laterally coherent or connate; stamens hypogynous, with a single trace, usually numerous and spiralled on receptacle, rarely as few as 3 (but not in any of our species), the filament short or lacking, the anthers with 2 linear, extrorse or lateral, longitudinally dehiscing locules, these rarely transversely septate, the connective often produced beyond locules, often truncate and enlarged; pollen grains diverse, sometimes in tetrads or polyads, sometimes catasulcate or cataulcerate; gynoecium apocarpous or rarely syncarpous, the carpels usually free or subconnate and sessile or stipitate, less often united into a pluricarpellate or unilocular ovary, the ovules laminar or appearing parietal or basal, 1-many, anatropous, the styles usually short or none, the stigmas often capitate or clavate, sometimes coherent or agglutinated; fruits composed of free, sessile or stipitate, rarely dehiscent carpels, or these connate into a carnose syncarp; seeds 1-many, in 1 or 2 series, sometimes arillate, the embryo minute, the endosperm copious and ruminate.

DISTRIBUTION: A large, tropical (infrequently temperate), tricentric family of

Contact

A Publication of the University of Massachusetts at Amherst

Apr 1 1981

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about Otto Degener
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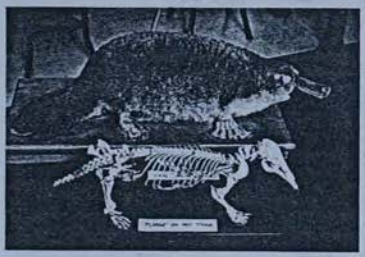


The biological collections at the University of Massachusetts

When famous geologist Edward Hitchcock was gathering his priceless fossil record of dinosaur footprints in the Connecticut Valley between 1835 and 1865, he didn't even know the tracks had been made by prehistoric reptiles. He thought they were bird prints. It was for later generations to unearth the fascinating fossil history of the region using much of the evidence Hitchcock had the foresight to gather and preserve.

The biological collections housed in Morrill and Fernald Halls harbor these same kind of secrets, like a Van Gogh in a cobwebbed attic or a wad of bills thick enough to choke a Rockefeller stuffed into an old mattress. Meanwhile, the collections themselves remain somewhat obscure; few people even know they exist. Where did these come from, the university's best kept secrets? Six individual museums for birds, mammals, invertebrates, insects, plants and (in one collection) fishes, reptiles, and amphibians. Where are they located, and, for heaven's sake, what do they do?

Continued on page two

Continued from page one

Even those who are vaguely aware of their existence can seldom answer the last question.

Some people on campus regard the collections as "a curiosity," says Douglas Smith, curator of the invertebrate museum and a collaborator in caring for several of the other collections, "as a sort of nineteenth century approach to biology. They look at them as the eccentricity of an individual faculty member who's bored with his existence elsewhere, so he hides in the basement and plays with dead animals."

As a matter of fact, each of the collections serves its own purposes in the broad scheme of education at UMass. But when all the skins are stuffed with cotton, all the plants dried and pressed, the fish pickled in alcohol, the bones cleaned, and the insect exoskeletons pinned and mounted, the collections boil down to one function: "A point of reference." This is how insect curator Michael Peters refers to his specialty, and the term holds true for all. The collections, which specialize (but not exclusively) in the fauna and flora of New England, provide a lasting record of the state of life and the environment in 1981 and during all the time since the collections were instituted.

What sorts of information does each specimen place into the permanent record?

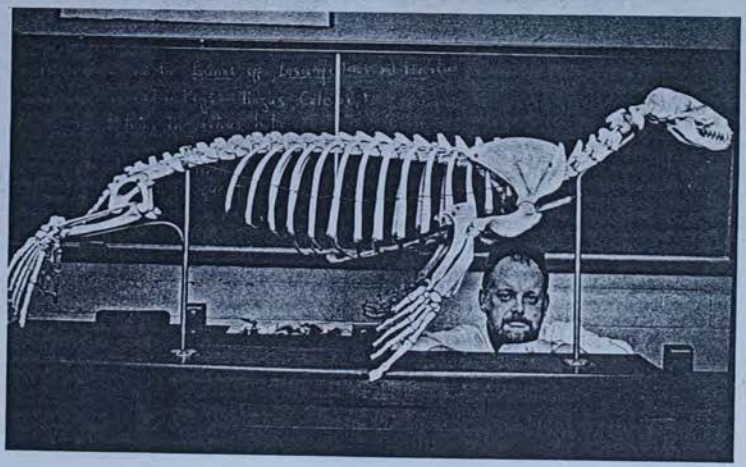
Time of collection. Surrounding habitat. Location in relation to towns and counties. Exact taxonomic identification. Collectively, such information for all specimens, like dots on a population map, adds up to a bird's eye view of the health of our environment.

Bird and mammal collections: a story for every specimen

As with virtually every biological museum collection, the bird and mammal collections housed together in 312 Morrill Hall have their own special pest that eyes the skins laid out in systematic order within the metal cabinets and wooden filing drawers with the appreciation of a gourmet.

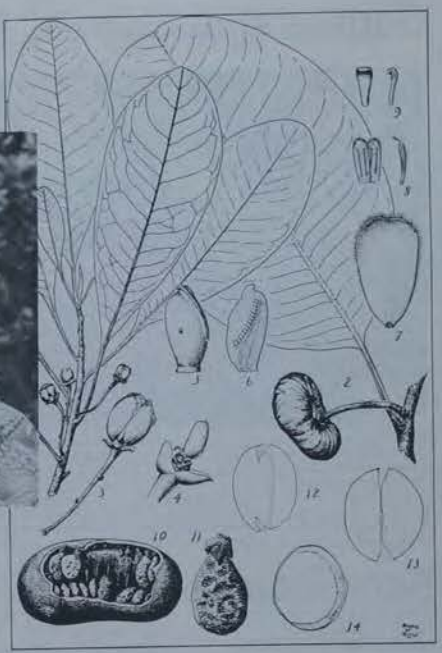
The dermestid beetle literally comes out of the walls when it finds an object to scavenge. It is an extremely useful creature in the wild, for it is one of nature's garbagemen that break down and clean up dead matter. Quite simply, dermestids will skin any animal that's dead. Naturally, such a hungry beast turned loose in an unprotected zoology collection does nothing to further the long life of the museum. Thus, all the museum specimens are kept in air-tight cabinets, and the collection is fumigated with a regularity worthy of the beetle's appetities.

Not only that, but museum curators have actually learned to use the hungry beetles as home-grown taxidermists. "We turn them to our advantage," comments Robert O'Hara, an undergraduate ornithologist who now runs the bird collection. The curators keep a colony of dermestids on the fourth floor of Morrill, well away from the collections. Whenever they need to preserve an animal's bones for the collection, they skin it and use the colony to clean the flesh away. Within two days the colony will have stripped the flesh, leaving the skeletons as white and clean as ivory.



'Botanical pioneer'

A Degener retrospective



Botanist Otto Degener '22 (inset) with a drawing (right) of the tree named after him, the Degeneria vitiensis, the only known member of the primitive Degeneria Family. —Drawing reprinted from "Degeneriaceae, A New Family of Flowering Plants from Fiji" by I.W. Bailey and A.C. Smith

BORN IN East Orange, N.J., at the turn of the century, MAC graduate ('22) *Otto Degener*'s adventurous life as a botanist is a throwback to the old school of field research usually associated with such people as Charles Darwin during his voyage on the "Beagle." Degener, one of only two living men to have a family of flowering plants named after him, likes to joke about his family coat of arms (a sheep, because his family specialized in wool manufacture) by saying that the symbol "is hardly as flattering an animal as a rampant lion." Nonetheless, considering Degener's lion's share of experiences since graduation from MAC nearly 60 years ago, he has no reason to feel crestfallen.

Degener has accumulated many honors in his 82 years. He has received the Distinguished Service Award of the New York Botanical Garden; the Wildenow Medal of the Berlin Botanical Garden and Botanical Museum; and the Linné medal from Stockholm, among others. A resident of Hawaii for most of the time since graduation, in 1979 he was honored by the Hawaii state senate which passed a resolution in his honor saying, in part, that everyone "who cares about the natural beauty and special qualities of these islands...owes a bottom-line debt of gratitude to Dr. Degener for his lifetime perseverance in relating humankind to the natural environment upon which we ultimately depend for survival..." And, in 1952, Degener received an honorary doctor of science degree from the University of Massachusetts. The citation read in his honor called him a "botanical pioneer" and said, in part, "Among our galaxy of great naturalists your place and fame are secure." Later in 1952 Degener was named as the outstanding botanist/naturalist of the Pacific Island at the International Flower Show in New York City.

Definitive and Comprehensive

Either alone or with his wife and helpmate Isa, Degener has published nine definitive books and more than 400 articles on the flora of Hawaii and the South Seas, including the multivolume (and still growing) *Flora Hawaiiensis* series, which represents the most comprehensive work ever published on the plant life of the islands. Other works include *Plants of Hawaii National Parks, Illustrative of Plants and Customs of the South Seas* and *Naturalist's South Pacific Expedition: Fiji*. Both of the latter books contain much lore on customs and history as well as plants. In one chapter of the last book, a chapter on cannibal feasts, Degener informs nervous readers that the Fijians seldom eat white meat as it often contains the disagreeable flavors of tobacco and alcohol. The preferred cut, he says, is the upper arm of a Melanesian belle.

The discovery that is perhaps Degener's most famous accomplishment came about in a very quiet way during what seemed like just another day in the routine of collecting botanical specimens in the field. The date was Feb. 24, 1942, and Degener and two assistants were combing the mountainous, tropical landscape of the Nauwanga forest in the Fiji Islands for specimens. Degener recalls that sometime during the day they happened across an unfamiliar tree "with rather ugly flowers. Being as usual greedy for the specimens to scatter far and wide among worthy institutions to stimulate study, I collected ample material." Degener, who numbers all of his specimens, numbered this one No. 14,537. Then he pressed and dried all the plant material and sent it off for study to Dr. A.C. Smith at the Arnold Arboretum of Harvard University. Shortly thereafter, Smith began sending Degener excited letters about No. 14,537. It appeared that it represented a species never before recorded. Even more astonishing, it failed to fit into any known plant family; it was a member of a previously unrecorded family of primitive flowering plants. Related to the magnolia, the tree was a member of a family that was perhaps 100 million years old. Director of the Missouri Botanical Garden Peter Raven later called the tree a "living fossil."

Plant Family Named For Him

Later the same year, 1942, the tree was named *Degeneria vitiensis* of the newly established plant family *Degeneriaceae*. About that honor, an honor bestowed on only one other living man, and the day he discovered the tree, Degener wrote: "February 24 is truly far more important to me than the anniversary of my birthday or the date of my death. February 24 is my very private, personal, memorable 'Memorial Day.'" Besides having a plant family named after him, many plant species have also been named for Degener and his wife.

Commenting on the tree that was Degener's most famous discovery, Raven says, it is "very, very primitive. The walls of the flower which contains the ovules are open and they don't fuse together until after pollination." The tree, which has brownish blossoms and seeds, is found only in its native Fiji Islands. (One plant is currently being cultivated at the Missouri Botanical Garden.) It grows to a height of about 30 to 40 feet and, all by itself, constitutes a family—in contrast to the orchid family, say, in which there are about 30,000 different species. Fellow alumnus and botanist Oswald Tippo '32, a UMass professor and former chancellor, calls the Degener discovery "extremely important" and says it is included in almost every botany book on the market today.

Background at MAC

Degener was a talented botanist even from the start, when he was just a green undergrad at MAC studying under famous MAC professor and botanist *Ray E. Torrey* '12. The summer after his freshman year, Degener eagerly collected specimens in the Colorado Rockies "even gathering forget-me-nots and silenes at the summit of Pike's Peak July 19." He submitted the resulting collection to the botany department and won himself the Hill Prize of $15 ("quite an honor and a nice sum at the time," he recalls) for the best student herbarium. As a sophomore, he was chosen to serve as permanent laboratory assistant to Torrey and later served as a graduate assistant.

That was just the start of something big. Since 1919, Degener says he has "swamped" the herbarium at Clark Hall with upward of 20,000 specimens, collected mostly in Hawaii, where he went following his stint as a graduate assistant at MAC. He has also sent specimens from his sojourns in Bermuda, Canada, Canton Atoll, Fiji, Guatemala, Ireland, Mexico, Nassau, New Zealand, Russia, Scandinavia, Taiwan, and Yugoslavia, plus a sampling of flowering plants gathered during a trip around the world.

After making his permanent headquarters in Hawaii, Degener received his master's degree from the University of Hawaii, where he later taught, and then became a naturalist for the Hawaii National Park. While working there, he published his first book, *Plants of the Hawaii National Park*. Shortly thereafter, Degener began his major work, *Flora Hawaiiensis*, which has become a lifelong project similar in scope to Sisyphus rolling his boulder forever up the mountain. At last count Degener had completed seven volumes of the work, all printed in looseleaf form, a page devoted to each plant with an illustration on the overleaf. The looseleaf format is ideal since it allows descriptions of newly discovered plants to be inserted into the proper places.

Massive Work

It was virtually essential for *Flora* to be printed in expandable form because of the complete state of flux of Hawaiian plant life. Some plants face rapid extinction from the inroads of domestic animals and the conversion of lands to agricultural purposes. On the other hand, new species appear daily. How can this be? Is it by evolution? "By airplane," Degener told one writer. "By ship. By yacht. ...Perhaps you have brought us a new entry. A seed stuck to your shoe in a bit of mud, or trapped in your clothing, or even blown into your hair by the wind....That's all it takes."

With all of the time he spent working on the constantly expanding *Flora*, Degener managed to pack a variety of other experiences into his life, too. While on the eight-month-long trip to Fiji during which he discovered "his" plant, he became friends with a native chief. Upon learning that Degener was unmarried and had no children, the chief arranged to have one of his own numerous children adopted by the botanist after the appropriate kava-drinking rites. So, Degener's trip to the Fijis resulted not only in his name being adopted by a family of plants, but also by a family of Fijians.

Surprising Visit

Degener was not to stay a bachelor forever, however, thanks to a happy coincidence dictated by an unlikely mating of chance and science. While working on the Canton Atoll shortly after World War II, Degener came across a species of grass that puzzled him. He shipped a specimen to a grass specialist he knew by name only—Dr. I. Hansen—at the Berlin Botanical Garden. Dr. Hansen responded at length via letter and described the grass as a new species. In appreciation, Degener mailed the good doctor "care" packages of food, in short supply in Berlin after the war.

Then, while visiting Berlin in 1952, Degener learned that Dr. Hansen was in a hospital recuperating from an illness. Speaking in the third person, Degener recalls his trip to the hospital to visit his colleague: "Directed to Hansen's room, he knocked and was aghast when a lady blushing suddenly stood before him in the doorway dressed in a nightgown ornamented with a design of four-leaf clovers and emblazoned in large letters (in German) 'Property of the City of Berlin.'" Bachelor Degener had never realized that Dr. I. Hansen was a woman! "In short," Degener finishes his story, sounding as though he is writing the screenplay for a Cary Grant comedy, "Dr. Isa Hansen became Mrs. Degener in 1953 and the couple has lived happily ever after in the Hawaiian Islands as a botanical team."

And team they have. Isa Degener has been a partner in the never-ending *Flora* and has helped to revise several other of Degener's works. Together they have had many species of plants named for them. In fact, Degener repeatedly insists that his wife is his partner and must be given equal credit for their many accomplishments since their marriage. "Remember," he said, "the husband's career is greatly influenced by his wife's backing and often leadership. We have been a team since our marriage in 1953." Both of the Degeners are members in absentia of the New York Botanical Garden, where they send as many plants as possible. UMass, Degener says, has "one of the best duplicate sets."

In the manner of a successful plant species, the Degeners have dispersed their flora far and wide, thus ensuring their survival in case of accident, war, or act of

(Continued on next page)

28—Hawaii Tribune-Herald, Wednesday, May 27, 1981

Olof Selling published on the subject yrs. ago. O.D.

Juvik will do study on peat bogs

James Juvik, associate professor of geography at UH-Hilo, has recently received a grant from the University of Hawaii Research Council to undertake a statewide study of mountain peat bogs.

In some wet, mid-elevation windward areas on the major Hawaiian islands, small bogs occur overlying impervious clay deposits.

Juvik will be looking at the pollen content of peat samples extracted from these bogs in order to determine if the native vegetation of the islands has changed substantially over the past five to ten thousand years. The organic peat material can be accurately dated using the natural radioactivity of decaying carbon compounds in the peat.

Changes in vegetation as recorded in the peat samples would indicate general climactic fluctuations in the Hawaii region of the Pacific. The study may also shed light on the impact of Hawaiian land use before European contact, since pollen from plants introduced by the Polynesians may also show up in the peat deposits.

Horst

Sonderdruck aus „zb" ZIERPFLANZENBAU/GARTENBAUTECHNIK Nr. 13/81 vom 24. Juni 1981

20 Jahre Firma Horst Claussen

Zwei Tage der offenen Tür in der Hydrogärtnerei in Wöllstadt

Die Firma Horst Claussen in der Nähe von Frankfurt in Wöllstadt beheimatet, hat in den letzten Jahren als Dekorationspflanzen-Lieferant der Frankfurter Messe und als Hydrokultur-Spezialist von sich reden gemacht. Anlaß zu den Tagen der offenen Tür waren zum einen die anstehenden Jubiläen: 20 Jahre Firma Horst Claussen sowie 15 Jahre Gärtnerei Horst Claussen, als auch der nunmehr stattfindende Endverkauf innerhalb der Gärtnerei. Hier kann der Kunde in gärtnerischer Atmosphäre Hydrokultur-Pflanzen und -Zubehör erwerben. Die dazu notwendigen Räumlichkeiten entstanden in einem Verbindungstrakt, der rustikal mit Holz gestaltet wurde.

Für die Gestaltung der Werbung zeichnete der Grafiker Reiner Haebler, Karlsruhe, von Bundesgartenschauen bestens her bekannt, verantwortlich. Die Einladung muß gut geplant gewesen sein, denn an 2 Tagen wurden über 3.000 Besucher gezählt. Zahlreiche Attraktionen hatten die Besucher in die Gärtnerei geführt: Filmvorführungen, Ratschläge vom Pflanzendoktor, Informationen der Junggärtner, und zusätzlich Attraktionen durch Brieftaubenstart, Kinderspiele, Luftballon-Wettbewerb, Bier vom Faß, Wurstbude, Gulasch-Kanone und alles musikalisch unterstützt durch den Musikverein Wöllstadt. Das sprichwörtlich gute Verhältnis zur Presse wird von Horst Claussen intensiv gepflegt. So hatte er die regionale Tagespresse ebenso wie die Fachpresse zu einer Vorpressekonferenz geladen. Unterstützt wurde seine Pressekonferenz durch den Geschäftsführer des hessischen Gartenbauverbandes Bayer und leitende Firmenmitglieder. Nach einem Rundgang durch die Gärtnerei, bei dem sich die Pressevertreter eine bepflanzte Hydrokulturschale aussuchen konnten, schloß sich eine zwanglose Pressekonferenz bei kaltem Buffet an. Der Tagespresse wurde somit der Einstieg in eine fremde Materie leicht gemacht und vorbereitete Presseunterlagen unterstützen bei der nachfolgenden Berichterstattung. Dieser Weg ist beispielhaft und sollte als Kollegen-Anregung für Tage der offenen Tür dienen. Ebenso ist der Kontakt mit dem jeweiligen Landesverband hervorzuheben. Horst Claussen ist kein bequemer Gärtner-Kollege; er sagt stets, was er denkt auf Tagungen und Veranstaltungen und engagiert sich auf regionaler Ebene in Fragen Garten- und Landschaftsplanung. Seine Leserbriefe in der Fachpresse sind ebenso bekannt wie seine hervorragende Pflanzen-Qualität.

Horst Claussen für Pflanzenqualität in Hydro - ein Begriff. *Foto: Lutz*

Beispielhafte Flugblatteinladung (DIN A 4)

Geschichte des Betriebes

Horst Claussen gründete im März 1961 in Frankfurt/M. mit 1.000,– DM und 1 alten VW-Bus (damals 23 Jahre „jung") einen Topfpflanzengroßhandel.

5 Jahre reiste er durch die Lande und belieferte namhafte Blumengeschäfte im Rhein-Main-Gebiet, ebenso wie in norddeutschen Großstädten (Hamburg, Bremen, Hannover, Osnabrück) mit seltenen Zimmerpflanzen aus aller Welt.

Mit Hilfe des Landes Hessen und des „Grünen Planes" ergab sich im Jahre 1966 die Gelegenheit, in der Gemarkung Ilbenstadt, Hinter der Au, zusammen mit 2 weiteren Kollegen, die Gärtnersiedlung „Hinter der Au" zu gründen. Horst Claussen konnte nun selbst kultivieren, was er vorher bei anderen Gärtnern in Deutschland, Holland, Belgien und Dänemark erstand.

Neben einer großen Auswahl Grünpflanzen bereicherten auch viele blühende Pflanzen, wie z.B. Alpenveilchen, Azaleen, Aphelandra, Gloxinien und Poinsettien neben einer interessanten Gehölztreiberei mit Flieder, Laburnum (Goldregen), Rhododendron und Prunus (Mandelbäumchen) das Sortiment.

1968 übernahm der gelernte Gärtner-Florist Horst Claussen ein Frankfurter Messe-Dekorations-Geschäft.

Inzwischen waren auch ein Teil der Grünpflanzen in dem fruchtbaren Boden der „Wetterau" regelrecht in den Himmel gewachsen, denn sie stießen nun an die 3-4 m hohen Glasdächer der Gewächshäuser. Horst Claussen, der bis dahin zusammen mit seiner jungen Frau Annemarie, unterstützt von treuen Helfern der Umgebung, noch alleine seine Pflanzen kultivierte, mußte nun einen erfahrenen Gärtnermeister zu Hilfe rufen. Dies war der Beginn der Dekorationspflanzen-Ära.

Heute werden aus einem Bestand von mehreren hundert Großpflanzen große Messehallen, ja sogar komplette Messen, wie z.B. Pelzmesse, Buchmesse, Interstoff und viele andere, begrünt.

Nun ging die Entwicklung des jungen Betriebes rasant weiter. Eine Verkaufsstelle auf dem Messegelände Frankfurt/M. wurde eingerichtet.

1973 drückte der Betriebsinhaber noch einmal selbst die Schulbank und besuchte ein Jahr lang die Meisterschule in Wiesbaden und legte mit Erfolg die Meisterprüfung ab. In dieser Zeit begannen auch die ersten zaghaften Versuche, in Hydrokultur zu kultivieren.

1975 wurde dann speziell für diese Kulturmethode ein neues 360 m^2 großes Gewächshaus, das mit allen modernen technischen Einrichtungen ausgestattet ist, gebaut. Die Heizkapazitäten mußten ebenfalls erweitert werden. Inzwischen ist der größte Teil der vorhandenen Kulturen auf Hydrokultur umgestellt.

Seit 1971 wurden die Kulturleistungen des Betriebes auf nationalen und internationalen Ausstellungen des Gartenbaues anerkannt und mit über 120 Medaillen entsprechend prämiert.

Das Qualitätszeichen der Sondergruppe Deutsche Hydrokultur wurde dem Betrieb inzwischen zum 2ten Mal verliehen.

Bis zum heutigen Tage wurden 5 männliche und weibliche Lehrlinge erfolgreich ausgebildet.

Bei Gründung der Hydro-Claussen GmbH 1978 wurde auf dem Metro-Gelände Frankfurt/M., Riederwald, ein Hydrokultur-Pflanzen-Markt eingerichtet.

Der Personalbestand ist inzwischen auf 13 festangestellte Mitarbeiter angewachsen (3 Gärtnermeister, 3 Gärtner, 2 Azubi's, 3 Hilfskräfte und 2 Büro-Angestellte).

Bei Großeinsätzen werden über 20 Fachkräfte beschäftigt.

Mit modernen Funkwagen ist der Einsatz bei Bedarf rund um die Uhr gewährleistet.

Eine eigene Lackiererei ermöglicht eine großzügige Lagerhaltung der Hydro-Gefäße und eine Auftragsabwicklung in kürzester Zeit.

Im Zuge der bezuschußten wärmedämmenden Maßnahmen werden z.Zt. die vorh. Glasflächen mit Polycarbonat-Stegdoppelplatten überzogen. Folienflächen zwischen den Gewächshäusern werden ebenfalls z.Zt. mit diesen Platten überdacht und dadurch die überbaute Hochglasfläche auf insgesamt m^2 2.500 erweitert.

Die vorh. Folienhäuser sollen ebenfalls mit dieser dauerhaften Bedachung ausgerüstet werden.

Vollautomatische Energieschirme werden von innen eingebaut und dienen gleichzeitig als Schattierung bei starker Sonneneinstrahlung.

1 Pilotprojekt mit der neuen 3-fach-Platte von Röhm soll noch in diesem Jahr begonnen werden. Ein Fernschreiber erleichtert und beschleunigt die Korrespondenz.

Lutz/Pr.

Hawaii Tribune-Herald, Sunday, June 14, 1981.

Volcano Views

Virginia Dicks

Many days were flag days then

VOLCANO—Today is Flag Day. Are you displaying the flag? In my growing-up-days in western Pennsylvania there seemed to be many days when our flag was placed in its holder on the front porch. It sort of came out of storage along with summer clothes. It was always up for Memorial Day, then followed Flag Day, then there was July 4, and finally Armistice Day. Everyone had their flags flying on those days. Don't know whether times have changed or is it the area, but we don't seem to see individual homes flying their flags. wonder if they still put up the flags today in Pennsylvania?

Much planning ahead seems to be going on in Volcano. The Lava Klinkers Square Dance Club must be the 'mostest' of the planners. For several months this club have had plans finalized for their big St. Patrick's dance for next year. A Mainland square dance tour group of some 70 people (maybe there will be two groups) will be here to add to the festivities.

Traveling with these groups will be some top Mainland callers who will be at the March affair to be held in the green room at KMC. It has promise of being every bigger and better than last year, at least there will be more people if all carries through as planned, says club president Fred Beecher.

Also planning ahead are the Art Center volunteers. At each of their meetings they have been working on crafts and tree ornaments for the annual "Christmas in the Country" December party. People who never thought they could loop or knot are finding themselves becoming quite adept at turning out the snowflakes that have become a tradition at each holiday season and are always the first of the handcrafted tree ornaments to sell out. Other clever items are being made such as patchquilt spheres from scraps of material. Lots of other little projects going on too. These gals do seem to be having fun working together on projects as well as helping out in the gallery for a few hours each week or month as time and scheduling permits. They aren't "too" exclusive a gang, anyone wanting to join in their fun is welcome, just inquire at the center.

The board members and officers of the Volcano Community Association arranged to meet yesterday at the site of the planned community center. It was to be sort of a "let's see what we have" affair to orientate the new members. Bill Mull was planning to acquaint them with all the noxious weeds in the area. These will hopefully get pulled out without destroying any of the natural underbrush as trails through the property are planned.

A column reader asked that I give a bit of information on the new board members of the VCA as was done last year, so the community will know what eminently qualified persons make up the governing body of the VCA.

Board member Bonnie Goodell came here from Oahu. She and her husband have built a home on their land back of Ohia Estates. She has been a consultant for proto types in community management projects. She worked as a master planner consultant for the city and county on several projects. Bonnie also served as the coordinator of the community recreational gardening project on Oahu. (They now have some 5,000 persons enjoying gardening there in 15 or more locatons.

Recording secretary Irene Kramer also hails from Oahu; has lived here two years. Irene was an executive secretary and account specialist for Amfac. She and husband Jerry are factory representatives for Linwood Homes and also have an architectural design service.

Virginia Macdonald, the board coordinator, has lived on Oahu. She is an architect, specializing in building homes that fit into their environment. she has worked for the State Planning Board and was that board's representative to the Natural Areas Commission.

Bill Mull is a naturalist and a photographer of nature. He and his wife, May, have lived in Volcano for over eight years. He has an honorary appointment with the Bishop Museum as a research associate in entomology. He works is this area with all major scientific groups where they have need of his help with specimens and / or photography in his field as a specialist in native ecosystems.

Ray Fahrmann is an elected board member now although he has worked closely with the VCA since its beginning. He has been serving (and will be continuing) on several comnittees. He has also served as liaison person from the board to the county. Ray is a mechanical engineer from Oahu, now semi-retired.

Russell Kokubun, newly elected to the board, is a farmer with land at the end of Iiwi Road, where he lives with his wife and two children. Russell is a graduate of Punahou and has a business degree with a major in finance from Southern Methodist University in Texas.

The rest of the board, Lorraine Wakida, John Cooper and Tony Gill with officers Tom Ikehara and Gus Yong make up the crew that meets regularly each month and oftener when it seems necessary and they work very hard for our community. Marjorie and Donald Carlson also attend all the meetings and serve on several committees plus helping wherever they can with VCA projects.

Lanson Kaleiwahea was feted at a big party for family and friends at his home last Satureday in honor of his graduation. Lots of good Hawaiian kau kau with turkey cooked in an imu was enjoyed by everyone.

Aloha until next week.

ce, the only award-winning

Four New All-American Rose Selections

By Fortunato Teho

Four roses—two hybrid tea, named Brandy and Mon Cheri; a floribunda called French Lace; and a grandiflora, named Shreveport have been chosen as All-America Rose Selections winners for 1982.

Brandy, apricot colored, an attractive and unusual coloring has an easily perceptible, mild tea fragrance. Its flowers measure four inches in diameter and the bloom cycles repeat regularly and rapidly. Blooms are borne one to a stem, yielding an abundance of roses for cutting. The foliage of Brandy is large, semi-glossy and plentiful with better than average disease resistance. It is a strong, vigorous, bushy grower, medium to moderately tall.

Mon Cheri flowers start off as a soft, sunrise pink bud with the color gradually changing to a deep, velvety red as the blooms unfurl in full sunlight. The buds are large, plump, painted and ovoid at first, becoming urn-shaped as the sepals fall and opening commences. This rose develops a medium height with a bushy, upright-spreading, well-branched and balanced plant. The deep green, semi-glossy foliage cover the strong, medium length stems, which usually bear one bloom per cane, excellent for cutting.

French Lace attains medium height as wide as it is tall. The new canes break well ensuring a bushy growth, well-clothed with dark green, holly-like foliage. Its disease resistance is good. This floribunda is generally ivory white in color with flowers more than 4 inches across. The blooms are borne in typical clusters with anywhere from one to eight flowers on a six inch stem. The buds spiral into large flowers having a light, spicy fragrance. blooms in clusters are borne continuously in large quantities throughout the growing season.

Shreveport produces foliage that is large, glossy and deep green, borne on a vigorous, bushy, upright plant that is disease-resistant. With medium-size four inch blooms in varying shades of orange, salmon and coral, Shreveport makes a robust, bushy plant, constantly loaded with blossoms. The flowers are borne some one to a stem and others in the typical grandiflora cluster in quantities permitting both ample cut flowers and an abundance for garden decoration. The blooms are very full, usually high centered and slightly tea scented.

With its relatively tall, but compact growth habit, Shreveport should fit well into the back rows of a border or foundation planting, as a center planting of a large rose bed, and should make a magnificent flowering hedge.

For additional gardening information consult Plants of Hawaii—How to Grow Them available from garden shops or write to Fortunato Teho, 1778 Ala Moana Boulevard, Honolulu, Hawaii, 96815. For a reply include a self-addressed, stamped envelope.

Have they been introduced to H., or not?

SUMIDA'S

Introductory Course in Bonsai Culture Set in Three Districts

Beginning in September, a 10-session 30-hour introductory bonsai course will be offered in Hilo, Kona and Waimea.

Three-hour weekly sessions are set to begin in Hilo at 7 p.m. on Sept. 18 in the cafeteria at Hawaii Community College. In Kona, classes are to begin at 7 p.m., Sept. 19 at Konawaena School cafeteria; and in Waimea the course will begin at 1 p.m., Sept. 19 in Waimea School cafeteria.

The course utilizes a number of training aids developed in Hawaii and includes fact sheets especially applicable to the islands.

The cost of $55 includes a $25 lab fee of one prepotted bonsai stock, one prepared bonsai stock and pot, soil, copper wire and wire mesh. Students must provide tools for sessions seven and eight.

The course is the culmination of a year-long project "Revitalization of Bonsai on the Big Island." It has included earlier regional mini-exhibits and lecture demonstrations and last week's All Big Island Bonsai Show and Educational Exhibit at Wailoa Center.

The bonsai course which utilizes team teaching is co-sponsored by the Big Island Bonsai Association and University of Hawaii at Hilo-Center for Continuing Education and Community Service.

The non-profit Big Island Bonsai Association was formed in January and is a group of individuals dedicated to the promotion, advancement and fellowship of bonsai. Officers are Yoshiyuki Ota, president; Bob Dendinger, vice president; and David Fukumoto, secretary-treasurer.

Registration for the course is now being accepted and enrollment is limited. Senior citizens 60 years or older may enroll in the course with a tuition grant. For application forms and more information, call UHH-CCECS at 961-9555.

Yoshiyuki Ota, right, completes potting a baby bonsai while Hiroshi Ikeda prepares a pot for a larger bonsai.

Like Family Reunion

(From Page 2)

of Honolulu.

The Like children and their spouses are Mr. and Mrs. Edward (Helen) Law of Puako; Mr. and Mrs. Zane (Aloha) Northam of Utah;

Mr. and Mrs. William (Emily) Like, Mrs. Hannah (Joseph Jr.) Like, Mr. and Mrs. Newton (Hattie) Lyman, Mrs. Elizabeth Lyman and Mr. and Mrs. Sam (Florence) Kumukahi of Hilo;

Mr. and Mrs. Gaylord (Hannah) Ellis, Mr. and Mrs. Edward Like, Mrs. Josephine (Henry) Kong, Mr. and Mrs. James Like, Mr. and Mrs. Charles (Kaui) Hopkins and Mrs. Thelma (Sweetie) Like of Honolulu.

The Laupahoehoe Hawaiian Civic Club catered the luau for the reunion. Dinner music was provided by Winona Kekela and entertaining was the Johnny Lum Ho Halau and LikeLike.

Plumeria — Island Favorite

The plumeria, melia for frangipani, a native of Tropical America, is one of the most popular of Hawaiian flowers.

Made into leis, it is thick and velvety with a long lasting fragrance. The flowers have five rounded petals spreading from a short lube and are seen in several colors.

Filipino Garden rites bridge the generations

Community representatives break ground for a Filipino Garden that is to be installed on a ¾-acre site in front of John A. Burns Hall at the East-West Center. For the ceremony, three couples representing the generations of the past, present and future planted trees. The are, from left, Fortunato Teho, Joy Labez, Bill Domingo, Eric Casino, Tracy Cadiz and Michael Felipe. The botanical complex will feature Philippine ornamental plants with the emphasis on bamboo, and there will be a small pavilion with displays of Filipino architecture and the traditional wood carving of ethnic groups. The groundbreaking coincided with Philippine-American Friendship Day and this year is also the 75th anniversary of Filipino immigration to Hawaii.

Advertiser Photo by Greg Yamamoto

Gene splicing may open new farming era

WASHINGTON (UPI) — In a pioneering effort that may lay the groundwork for agriculture in the next century, researchers have developed a genetic engineering technique for transferring genes from one plant species to another.

In announcing the development Monday, Agriculture Secretary John Block said it opened "a whole new era in plant genetics."

In the past, sterility barriers between kinds of plants prevented creation of variations that will be possible now with gene splicing.

No one is expecting overnight results. John Kemp, an Agriculture Department biochemist who worked on the project, said it was "laying the groundwork for 21st century agriculture."

Block, who is pushing for more federal spending on agricultural research, said he does not agree with people who say the United States has reached its crop production potential and that greater yields will be harder to achieve in the future.

Instead, Block said, the new breakthrough "is the first step toward the day when scientists will be able to increase the nutritive value of plants, to make plants resistant to disease and environmental stresses and to make them capable of fixing nitrogen from the air."

Researchers led by Kemp and Timothy Hall of the University of Wisconsin at Madison transferred a gene from a French bean seed to a sunflower cell and called the new tissue "sunbean."

The gene, which directs production of major protein, is stable in its new location and scientists are looking forward next to production of high levels of bean protein in the "sunbean."

In a complicated process, the gene was spliced into a bacterium, called agrobacterium tumefaciens, which transmits crown gall disease in some plant species. The normal infection mechanism was used to transfer the bean protein gene to the sunflower plant tissue.

The next step, for which technology is not yet available, will be to regenerate a sunflower plant from the "sunbean" cells.

Scientists said they did not know exactly what effect the bean gene will have on the regenerated sunflower plants.

The development was the second major agricultural research breakthrough announced to the public this month. Block announced earlier that genetic engineering had produced an improved vaccine effective against foot-and-mouth disease, which affects livestock.

That genetic engineering development has promise for fighting other diseases such as rabies and hepatitis.

BONSAI SPEAKER — Isami Ishihara will present the fourth in a series on bonsai art lectures at 9 a.m. Sunday at the Wailoa Center. Ishihara's topic will be "Wiring and Potting Bonsai."

'Revitalization of Bonsai' set for four-day run

The non-profit Big Island Bonsai Association will embark on the second phase of its year-long project "Revitalization of Bonsai on the Big Island" with a major show and exhibit to run from Thursday to Sunday at Wailoa Center.

Plants from all parts of the Big Island will be displayed on tables and stands constructed by BIBA members. Plants will be in all stages of bonsai training.

The show is hoped to be an annual event and that the public will see continuing improvements in both bonsai development and fellowship in the bonsai community.

The educational displays will provide a concise overview of the entire hobby-art. Plants to be exhibited will be integrated into the educational displays covering history, suitable plant selection, training methods, evolution, tools and materials, different types of bonsai and Big Island bonsai clubs and activities.

The display will be staffed by BIBA members to answer any questions.

Upon completion a traveling exhibit, supplemented with photographs will be assembled to tour the libraries and schools of the Big Island.

Wailoa Center will have special evening hours for this show. Seven major presentations are planned as follows:

Thursday — 2 p.m., lecture: "An Introduction to Bonsai" by Bob Dendinger with demonstrations; and 7 p.m., movie: "The Spirit of Bonsai".

Friday — 2 p.m., lecture-demonstration: "Training by Pruning" by David Fukumoto; and 7 p.m., slide-lecture: "The Art of Bonsai" by Jerry Larkins.

Saturday — 2 p.m., lecture-demonstration: "Bonsai in Evolution" by Yoshiyuki Ota; and 7 p.m., slide-lecture: "Chinese Bonsai" by David Fukumoto.

Sunday — 9 a.m., lecture-demonstration: "Wiring and Potting Bonsai" by Isami Ishihara; 1 p.m., show closes.

The Big Island Bonsai Association is supported by: Hawaii State Foundation on Culture and the Arts, Hawaii County Department of Parks and Recreation, Wailoa Center, UHH-Center for Continuing Education and Community Service, UH-Cooperative Extension Service, Hawaii Bonsai Association (Honolulu), and many private firms and individuals.

Cane Orchids Are Easy

By Kenneth W. Leonhardt, Star-Bulletin Garden Contributor

If you aren't growing orchids you are missing a lot of fun. All you need is a place to grow them, a little basic understanding and love of plants that are unusual.

The over 25,000 described species make orchids possibly the largest family of flowering plants. Crossings of both wild and cultivated forms by hobbyists and commercial growers have produced as many as 50,000 hybrids. The first hybrid was made in 1852. Orchids range in size from plants only a fraction of an inch tall to those with 10-foot stems and 15-foot inflorescences.

IN HAWAII, the climate is perfect for growing certain orchids on trees. Dendrobium, for example, is one of the more popular epiphytes (rock or tree dwellers) grown here. Although rocks and trees are their natural site, they will adapt to logs, pots, beds or other containers if you provide proper material for anchoring the root system and holding water and food.

Dendrobium, called "cane orchids" locally, are sympodial. This means they have a main stem which terminates growth generally at the end of each season. A new shoot then grows from the base forming its own bulbous and thickened stem which eventually flowers.

Cane orchids require plenty of sunshine. In a valley, plant them where they will get full sun all day. In regions such as Wahiawa, Kaneohe, Kailua and Makiki, they should have morning sun. In the hottest locations, such as Koko Head, Kalihi and Waikiki, partial shade during the heat of the day is ideal.

Once you have decided where in the garden you want to place your cane orchids, you can then select the most suitable culture. If you are going to grow them in a pot, use shredded hapuu, osmunda fiber, rough fir or redwood bark, volcanic cinder or crushed blue rock as a potting medium.

YOU CAN also mount them on hapuu logs — either a half log lying horizontally or a full log standing upright. Bore a hole in the log and place a seedling in it firmly. It will root quickly into the log and, in a short time, produce a solid mat of roots over the surface of the log. Log culture is ideal for valleys and plains. In hot regions, you must provide water every day, especially when the weather is at its hottest.

Cane orchids grow beautifully in beds, preferably hollow-tile beds raised above the surface of the ground to assure perfect drainage. The bed should be 12 to 14 inches deep. Fill the bottom 6 inches with rough rock or large pieces of coral for drainage. Fill the top 6 to 8 inches with gravel about the size of a lima bean or a small kukui nut. To place the plants, scoop out a hole, lift the plant out of the pot, leaving all the material on the roots, put the plant in the hole and place gravel firmly around the plant to anchor it. It will quickly root in the gravel bed. Such beds have perfect drainage and dry rapidly. Heavy watering is needed — the warmer the area, the heavier the watering schedule.

During the hot months, it is advisable to put a mulch of peat moss, shredded hapuu or similar organic material on top of the gravel. This holds moisture and cools the rock surface so the heat will not prevent new root growth.

Water by hand or with an automatic sprinkler; saturate the entire bed as often as it gets dry.

DENDROBIUMS are beautiful as potted plants. Either a clay or cement pot is suitable. The plants grow to a large size so you will need a big pot. Repot them frequently, always allowing enough room for growth. Materials suitable for pot culture are shredded hapuu fiber, cinder, rock or bark.

When using bark, place the plant in a pot with the back end at the rim and the growing portion toward the center. Hold the base of the plant so that it is one and one-half to 2 inches below the pot rim. Fill the pot with bark, pressing it in firmly so the plant is well anchored. Large plants may need staking until they root well in the new material.

Shredded hapuu is an excellent material although a little more difficult for the novice to use than bark because it must be packed tightly into the pot with a stick. Hapuu takes on a spring-like characteristic when compressed. If you try to force it into the pot, it will pop right out. Place the plant in the pot, then add the hapuu fiber. Work from the center out to the pot rim, pressing the fiber until it is firm and solid. Hold the plant in place during this operation or the force used in placing the fiber will move the plant from side to side.

IF INSECTS appear on your plants, carefully remove them by hand or wash them off with water. Insecticides applied when the plants are in flower might damage the petals.

Fertilizer can be used at least twice a month. Use liquid orchid fertilizer according to the manufacturer's directions.

Now you can examine dendrobiums at your garden shop, make your selection and enjoy their beauty in your own home and garden. For more information on orchid culture and other garden flowers, call your University of Hawaii Cooperative Extension Service. On Oahu the number is 235-4109; on Hawaii 959-9155; on Kauai, 245-4471; and on Maui, 244-3242.

(Kenneth W. Leonhardt is an extension specialist in horticulture at the University of Hawaii, College of Tropical Agriculture and Human Resources.)

Dupl. TSM

Jardin Botanique National de Belgique

Domaine de Bouchout
B.-1860 MEISE (Belgique)

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25 spécimens d'herbier de Hawai en échange.

Virginia Dicks

Degeneria story begins in Fiji

VOLCANO — Have a story to tell that started on Feb. 24, 1942 in the Nauwanga forest in the Fiji Islands when Dr. Otto Degener, of Volcano, and his two assistants came across an unfamiliar tree with a rather ugly flower. As was his habit, Degener collected specimens to send to worthy institutions for study. One of the pressed and dried specimens went to Dr. A. C. Smith of Arnold Arboretum of Harvard University. Shortly thereafter Smith began sending Degener excited letters. It appeared that the specimen represented a species never before recorded. Even more astonishing, it failed to fit into any known plant family. Later that same year, 1942, the tree was named Degeneria vitiensis of the newly established plant family Degeneriaceae. This honor of having a plant family carry his name is shared by only one other living man.

Once again specimens of this plant have been gathered and shipped from Fiji (the only place it grows) but this time the plants went to the U. S. Department of Agriculture and National Cancer Institute near Washington, D. C. Michael Weiner, under contract to the government, collects plants to use in cancer research, and was featured in a story written by David Perlman in the San Francisco Chronicle on May 21. Weiner first shipped just a three-pound batch of Degeneria in 1975, which when screened showed an extract of the bark had some activity against leukemia. Two years ago Weiner collected 40 more pounds of the "King's bark" (as it is called in Fiji) and it was tested with even more promising results, as reported by Dr. Matthew Suffness of the NCI.

Then in May 300 pounds of Degeneria arrived and will be used to isolate the thousands of active chemicals contained in the tree's bark or wood and the chemicals will be studied carefully to learn their structures and properties.

No place in the Perlman article does it mention Dr. Degener's discovery, but with the plant bearing his name, it must be most gratifying to know his discovery of almost 40 years ago is becoming famous, not just to botanists because it is the 'missing link' between the pine tree and the flowering plants, but may well be of practical interest in cancer research.

Degener, who is living in Volcano, is in his 80s but is still active and a big part of the botanical world, and with his wife and helpmate, Dr. Isa Degener, continues collecting specimens and is still shipping them all over the world to botanical organizations.

Due to the tragic loss of most of Hillebrand and many of Degener collections of Hawaiian plants in Berlin due to British and US., bombing of the Museum in World War II, we no longer "keep all our eggs in one basket." Instead, during the past few decades, we have been distributing our finds widely to almost 100 institutions scattered throughout the World. Which are involved may be ascertained in the main by studying the desires of each institution listed in Holmgren & Keuken, "Index Herbariorum", Edition 6 of 1974. In spite of information found in the above volume, the best collections of Degener plants have been deposited in institutions in New York, Amherst, Ann Arbor, Berlin, Cambridge, Edinburgh, Graz, Hiroshima, Ithaca, Kew, Leningrad, Montreal, Munich, St. Louis, Washington, Vienna & Zurich. Should monographers desire to produce works as complete as possible, we advise them to mail postals to 100 or so curators of institutions listed in the "Index" regarding information about any taxon available belonging to the group selected for study. Considering the early tendency for "lumping" Hawaiian endemics according to us Degener "Splitters", the desired taxa may be reposing in folders of related genera or even in those marked "insertae sedis".

We advise writing to AAU, AD, ISC, AK, TEX, BAS, UC, IND, COLO, BRI, BRNM, BR, BPU, CAL, CANB, SIU, CHR, TAES, COI, C, SMU, DBN, FI, FU, FLAS, G, GB, GOET, HAL, HBG, H, BISH, JE, KAG, KANA, KR, KW, KRA, KYO, MSC, LAU, L, BM, LWG, LD, WIS, MANCH, MEL,,MIL, MPU, MW, OSH, O, CAN, OULU, P, PE, PR, HB, SAP, WTU, DS, MIN, S, NSW, USF, TI, TUB, TUR, UPS, ILL U, NA, US, WELT W and Z.

Plan' blasted 'sland Dems

Aug. 25 in a yet-to-be announced location.

The county's Reapportionment 'visory Council, which has yet to a stand on reaportionment, will at 7 p.m. tomorrow at the 'chool Library.

ory panel chairman Joe Garno recommendation will be ıtil after the district-by-disetings.

islanders have not taken on to the overall proposal of ing the county's legislative tion because of population since 1970.

Kohala and Ka'u residents do want to be placed with an enged 4th District, which they feel ill be dominated by tourist-oriented Kona interests.

Kimball named to museum post

LIHUE — The Kauai Museum has named Peggy Kimball to be curator of collections, a new position involving cataloguing, checking conditions and conserving the museum's artifacts and textiles.

The initial work, "a combination of inventory control and library indexing with a little spring cleaning thrown in," she said, will take several months. She plans an exhibition of the museum's best pieces next summer.

Kimball, an Oahu native, studied American history and art history at Stanford University and worked at Danforth Museum in Massachusetts and at Sturbridge Village.

Marijuana burned; soldier threatened

Search for 2 hikers triggers pot war

By Walter Wright and Suzanne Tswei
Advertiser Staff Writers

The search for two hikers missing since Aug. 29 turned into a marijuana war yesterday as police uprooted and burned some of more than 1,500 marijuana plants discovered earlier by searchers in the Pupukea area.

Volunteer searchers who said they were threatened by armed marijuana growers said they would return to Pupukea today to continue the search.

There were no new clues to the whereabouts of Scott Hardie, 28, and Richard Blevins, 30, who told friends they were going hiking in Kipapa Gulch above Mililani a week ago Saturday.

Hardie

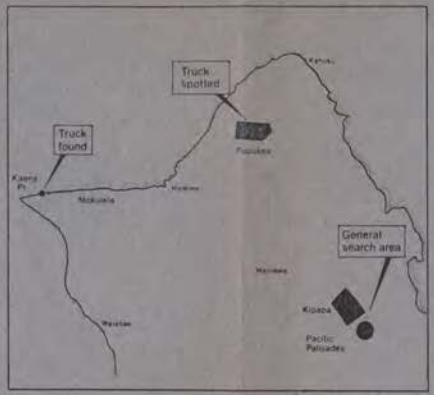
Firefighters had scoured the Pupukea area last week after a military helicopter crew reported spotting a pickup truck similar to the missing men's two Sundays ago. The same crew said the truck was gone Monday.

The hikers' truck, stripped and overturned, was found Wednesday at Kaena Point, far from where it was spotted by the helicopter and even farther from where the hikers were thought to have gone. Police believe someone stole the truck from where the hikers parked it.

Another major, and conflicting, clue in the search for the two men is Belvins' hat. It was found along upper Kipapa Stream on Thursday. Then on Sunday, an empty box for a walkie-talkie that may have belonged to the hikers was found two miles to the south in the Koolau Mountains above Pacific Palisades.

The search in that area, above Waimano Home, continued yesterday without success.

This week, confrontations between searchers and armed "hunters" and others in several areas have contributed to speculation that Hardie and Blevins met with foul play at the hands of marijuana growers protecting their crops.



Advertiser newsman

Chris Schurr, who lives with Hardie in Kaneohe, said yesterday that the entire Pupukea area is riddled with marijuana plantations.

"I saw $100,000 worth of pot in three minutes from a search helicopter the other day," said Schurr, 33, an ex-Marine and Vietnam veteran and coordinator of the volunteer search effort.

"We are going back there (Pupukea) because the people (marijuana growers) can tell us what we want to know" as to what happened to Hardy and Belvins, said Schurr.

Schurr, who had taken time off from work to search for his friends, said he's not optimistic about what may have happened to the two men. "I'm a realist. I don't think they are alive."

At the same time, Schurr discounts speculations that the pair had gone on a hike to steal marijuana. "That's impossible. My friends are not stupid enough to be doing that."

Sgt. Richard Noe, leader of the Army's Air Assault Division at Schofield Barracks, said Army volunteers who Saturday spotted as many as 1,500 marijuana plants in one location yesterday led police vice squads to the scene.

Army volunteers were among those who have been challenged during the search effort.

One soldier suddenly confronted by three or four persons on a back road in the search area radioed for help.

"These people had gotten out of their vehicle, and there were words exchanged, and we had to go in and get him out real quick," said Noe. "We all went running up there, and the people got back into their vehicle and took off."

Noe said in another incident three persons challenged a search party, "walked up and told us to keep our teams out, that some of this property was considered private, and that 'if you go in there we are going to stand our ground.'"

Searchers also reported running into primitive boobie traps such as wires stretched across pathways.

The marijuana destruction operation is believed to have concentrated yesterday on an area of about two acres of several patches of plants, some in the ground and some in camouflaged containers, complete with supplies of fertilizer and crude irrigation systems.

"There were hoses leading 200, 250 yards up to a road; we guessed that water could have been brought in by vehicle in 55 gallon drums, then hooked up to the hoses so the plants could be irrigated," one searcher said.

Other hikers have reported being accosted by persons armed with shotguns or rifles in the Pupukea area and warned away from "private property."

Friday, police received an anonymous telephone call suggesting they look for "the marijuana stealers" in the Waialua dump, but a search turned up nothing.

The missing men are experienced hikers and survived combat in Vietnam. Hardie, who spent eight years as a Marine, is a carpenter and cabinet maker. He owns and runs Hardie's Cabinet Shop in Kaneohe. Belvins, who had four years in the Marine Corps, is a construction worker. Hardie and his wife, Beatrice, have no children. Belvins has a boy and a girl, both in their teens.

The New Zealand Herald

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Westland Tree Lobby Wins Govt Switch

Wellington Bureau

Conservationists yesterday won an 11th-hour victory they rated as the most significant in eight years of fighting for native forest protection.

The Government announced it would include the South Okarito and Waikukupa state forests in the Westland National Park.

The Minister of Forests, Mr V. S. Young, conceded that the decision was largely attributable to pressure from the conservation lobby.

Tributes

The director of a joint campaign on native forests, Mr Guy Salmon, described it as "tremendous news for conservation ... something we have been working for years and years."

Mr Young had agreed that an expanded national park was not in Government plans earlier this week.

Mr Salmon said he believed the policy was changed during a Government caucus meeting yesterday, although other sources said the decision was taken on Tuesday.

Mr Salmon paid tribute to the efforts of the Minister of the Environment, Dr Shearer, in helping to modify the Government's intention.

But it was clear yesterday that the conservationists, who took a full-page advertisement in a Wellington newspaper yesterday — were instrumental in effecting the change.

Exotics

Mr Young said it was due to the widespread support for the campaign run by the Native Forests Action Council and the Royal Forest and Bird Protection Society, as well as the Government's desire for a balanced forestry policy.

Outlining plans described by conservationists as a "quid pro quo" compromise, Mr Young said it was intended to establish an exotic forest in South Westland of up to 10,000 hectares.

This would provide for long-term sawmilling and create jobs. The logging area contained no virgin native forest and all other forests around would be subject to a logging moratorium until 1990.

The new exotic forest would be planted in pine at first as a "bread and butter" crop, with other species introduced later.

Long Push

The exact boundaries of the two forests to be added to the Westland National Park would be decided in consultation with the Westland National Parks and Reserves Board, said Mr Young. If there were any infringements on native timber stands, they would be minimal.

Yesterday's decisions were agreed unanimously by the Government caucus, he said.

Dr Shearer said that f many years, conservationis had been advocating "mountains - to - the - se native forest concept for t region.

"The decision today mea that that concept has be achieved," he said.

Surprised

It was particularly plea ing that sawmilling con munities could be maintaine from areas of already qui badly damaged forests an that nine years of scientifi study could now begin in th moratorium area.

Mr Young and Dr Shearer would not be drawn o whether there had been an disagreement between them over the issue but both said the value of having the land and environment portfolio held by separate ministers had been demonstrated.

Mr Salmon said it had been a tough fight to achieve yesterday's result — "the toughest in the last eight years."

"My feeling was that we were going to lose, and I was pretty surprised by the way it turned out."

He said the decision was "a reaffirmation of democracy" which reflected great credit on the 3000 people who had supported the campaign with submissions to the Government.

'WE WILL KEEP

FIRE BOMB DAMAGES

Airli

report

Honolulu Advertiser

Monday, January 4, 1982 A-3

Advertiser photos by Charles Okamura

Dr. Roger Rose, left, with a pile of rare Pacific mats that should be stored on rollers and Carla Kishinami with the blackout curtain she sewed to shield specimens from the light.

No-budget science

Cash woes force Bishop Museum staff to rough it

bob krauss

Advertiser columnist

One tour most visitors to the Bishop Museum don't get is behind the scenes where some of Honolulu's leading scientists work amid termites and rats and rain coming through the roof.

Museum director Dr. Edward Creutz said last week there are no funds to provide better accommodations.

"The staff has done an amazing job of sharing space and using their ingenuity to keep the museum functioning at a professional level," he added. "But there is a limit to what we can do without money."

He led me on a tour of the museum visitors don't see. Here are some of the highlights:

The desk of senior scientist Dr. Alan Ziegler, head of the vertebrate zoology department, sits under a hole in the roof at Bishop Hall. When it rains, water comes through the ceiling like Waimea Falls.

The museum's only conference room has been stacked with specimens from the botany department for the past five months because there is no other space for them. As a result, museum trustees have been meeting around an old table in herpetology (snakes and frogs).

The museum's Hawaiian quilt collection is inaccessible because a new collection of artifacts from the Solomon Islands is piled on top of the quilt case.

The office of Dr. Pat McCoy in archaeology is [illegible] a toilet.

Two bathrooms are shared by both men and women scientists because of crowded conditions.

A pile of rare Pacific Island mats is growing on a table in the ethnology department. The mats should be stored on rollers but all the rollers are filled.

Baited rat traps line the floor along rows of metal storage shelves because rats gnaw on bones stored there. The turtle shell shelves had to be enclosed in wire mesh because the rats developed a taste for turtle shell.

The best collection of Hawaiian bird skins in the world is stored in entomology instead of zoology where it belongs because zoology is in Bishop Hall which is not fireproof.

In herpetology, Carla Kishinami, chairwoman of the museum's space utilization committee, said her location on the second floor of Bishop Hall is typical of crowded conditions there.

"This space was being used by archaeology," she said. "They stored their [illegible] and bones [illegible] began to give way. See that crack in the wall?

"So they moved the storage shelves down to the first floor. We've taken over half of the space while some of the archaeologists have offices in the other half."

Kishinami said the museum had no funds to provide a windowless room for storing its collection of snakes and frogs which should be kept out of light.

"I took home some blackout material and sewed curtains for the metal shelves," she said. "They keep out the light and they cost only $350."

Visitors to the museum's outstanding photographic collection have to pick their way through a hall piled with boxes, crates and artifacts because there's nowhere else to store them.

The staff of the entomology department has so little work space to sort new collections of bugs they often spread them out on the floor.

Unused cases from the botany department are piled in the parking lot for lack of space inside.

Creutz said the museum doesn't have the money to provide more space. He said the well-known institution has had rough financial sledding since he became director.

"When Dr. Roland Force (the previous director) left, we took a look at the payroll," said Creutz. "The new board [illegible] who [illegible] ing the museum.

"This was in 1976. A person with two masters degrees was making $6,000 per year. The average pay for a Ph.D. with longevity was $11,000 a year.

"Comparable people at the University of Hawaii were making much more. We felt we had to do something about salary levels so we gave a modest raise."

Wilmer C. Morris, president of the board of trustees, said the board had to use about $2 million of the museum's endowment fund over a period of three years to cover the expense. He said the board voted to convert much of its land holdings into cash, a process which covered the three-year period.

"During that time, we were paying operating expenses out of the endowment fund," said Morris. "It was touch and go. At one time, the endowment fund was down to $1 million."

Morris said the fund now stands at a little more than $5 million in a portfolio of stocks, bonds and commercial paper, and $3.5 million in mortgages on the land that was sold.

Creutz said this $8.7 million endowment fund is about twice the museum's operating budget. He said most museums try to keep their endowment fund at three or four times the operating budget.

He said the space needs at the museum are at a critical stage and that [illegible] ways [illegible] space.

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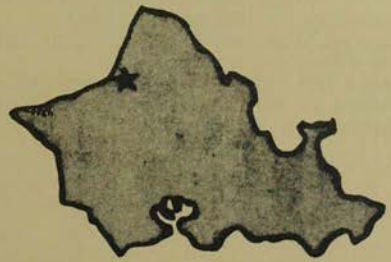

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Vol.7 No.2 December 1980

Endangered Species Act

HEARINGS HAVE started in Congress on the Endangered Species Act, legislative authority for which will expire Sept. 30.

The principal purpose of the act is to preserve all species and subspecies of animals and plants threatened with, or in danger of, extinction in the United States and the rest of the world. The ultimate goal is to restore each endangered species to a point at which it is no longer in danger of extinction.

When a species has been found to be threatened (likely to become endangered) or endangered (in danger of extinction), it is formally listed as such by notice in the Federal Register. When the plant or animal is listed, the secretary of the Interior must also identify and designate the critical habitat for the species, unless disclosure of the habitat's location could further endanger its occupant.

The listing process is extemely complex; in fact, it has ground to a virtual halt in the last year.

Conservationists have been worried that Interior Secretary James Watt and the Reagan administration want to weaken the act so that developers and

The Endangered Species Act will expire in September unless renewed and hearings are under way.

commercial interests can more easily do what they want to do. There are reports that a number of weakening amendments are being prepared.

TESTIMONY by Watt last month before a Senate subcommittee headed by Sen. John H. Chafee, R-R.I., indicated that the administration hasn't decided yet what to do.

Watt said he thought a change should be made in the Section 7 exemption process, designed to provide a procedure by which irresolvable conflicts between proposed federal projects and endangered species could be resolved. Otherwise, he favored reauthorization of the act for one year, after which he might be ready with recommendations for "major changes necessary to improve the act."

Spokesmen for the State and Commerce departments, however, told the subcommittee that they favored a two-year extension, with no major changes.

Watt gave lukewarm praise to work of his department's Fish and Wildlife Service in implementing the act but also said, "The FWS has done an especially good job of stressing recovery of listed species, which, in my opinion, is where the real payoff . . . comes. In 1981 recovery plans for 39 species were initiated and funding of $65,000 was retained for this effort. A total of 45 plans are now approved and being implemented, and $2,585,000 has been set aside in fiscal year 1982 for this important work."

THE MAGNITUDE of the task facing the Fish and Wildlife Service is enormous. So far 756 U.S. and foreign species have been listed as threatened or endangered, of which 61 plants and 227 animals occur in the U.S., according to an article in the Natural Conservancy

Houston Bull. 3/22/82

Harry Whitten

221 U.S. animals are considered prime candidates for listing but have not been proposed. About half of the prime candidate plants are native to Hawaii. Five Hawaiian plants have been listed as endangered.

G. Jon Roush, a member of the Conservancy's board of governors, says that normally existing species become extinct at approximately the same rate as new species evolve but that since the year 1600 the equation has grown increasingly lopsided.

"Informed estimates put the present extinction rate at 40 to 400 times normal," he says. "One estimate says 25,000 species are in danger right now. Another says that 1 million could disappear from South America alone in the next two decades. If current trends continue, some 20 percent of the species now on Earth will be extinct by the year 2000. Current trends will probably continue."

The reasons for protecting diversity of species are many. One of them hinges on the unpredictable benefits to be derived from a single species. For example, some species of a plant genus, found first in Ethiopia, then in Kenya, and then in South Africa, produce substances which show promise for the treatment of cancer.

CONCERNING the pharmaceutical values of rare plants, the veteran Island botanist Otto Degener writes in a recent letter: "To keep elderly people happy and healthy until they are really old, physicians have developed a medicine from the bush rauvolfia, native to India . . . Reserpine

"We had a different kind of rauvolfia, or hao, all trees, on each of our major islands! In fact, on Oahu the one in the Koolau Range differed from the one on the Waianae Range. Most of these different rauvolfia have become extinct or nearly so since I collected twig specimens for the Bishop and other museums before anyone ascertained if their medicinal bark was a still better cure than what physicians were getting from the bush in India.

"Out of about 10 different kinds of rauvolfia, it would be a wonder if the first one studied in India would happen to be the very best. Why not perhaps the one in the Waianaes of Oahu or the one on Kauai? By wanton extermination, we missed our chance forever for possible further improvement of this life-prolonging medicine!"

Hearst

"It's time we unplugged Watt!"

We were delighted to see your name in this article and know if you are over on the Big Island that you don't get the Bulletin. I have written the newspaper and Sen Matsunaga about the imperative need to reauthorize the Act without any weakening changes.

Best wishes

Meredith Carson

Pacific deputy new commander f Korea forces

Gen. Robert Sennewald, depu- ific commander in chief, has igned to command the U.S. orea.

gon announced that , would receive his d take over the 8th ces Korea, Combined nited Nations com- rtered in Seoul.

native of St. Louis, en. John Wickham been reassigned as aff of the Army.

id, who was promoted to nt general only last year, been deputy CINCPAC and acific Command chief of staff since last July. Before that, he was assistant chief of staff for operations at 8th Army and the U.S.-Republic of Korea Combined Forces Command.

Lt. Gen. Robert Sennewald
Fourth star on the way

hawaii briefs

Man dies in pool, another in house fire

A 60-year-old Maui man drowned in the swimming pool at the Hukilau Hotel in Kahului and a man died in a house fire in Kihei yesterday, according to police.

The identities of both were being withheld until relatives could be notified.

Police said a man with a local address was found floating in the pool at 7:35 p.m. Saturday. The medical examiner will be asked to determine if the victim suffered a heart attack.

A man said to be in his 30s died in the Halama Street blaze early yesterday.

Pakistan's ambassador talks here tomorrow

Ejaz Azim, ambassador of Pakistan to the United States, will speak at 4:30 p.m. tomorrow in the Asia Room of the East-West Center's Jefferson Hall. The lecture, open free to the public, will be about Pakistan's relations with the United States.

Outdoor Circle marking 70th year

The Outdoor Circle will celebrate

$10 gift book, "Majesty, Exceptional Trees of Hawaii," which includes color photographs of exceptional island trees.

The recipient of the annual beautification award will be Kawaiahao Plaza, and Stephen M. Nimz, an arborist, will get a special award for his work in preserving island trees.

The officers to be installed are Ann Stubenberg, president; Susan Spangler, first vice president; Celia Podorean, second vice president; Norma Doty, third vice president; Mary King, fourth vice president; and Midge Troxell, treasurer.

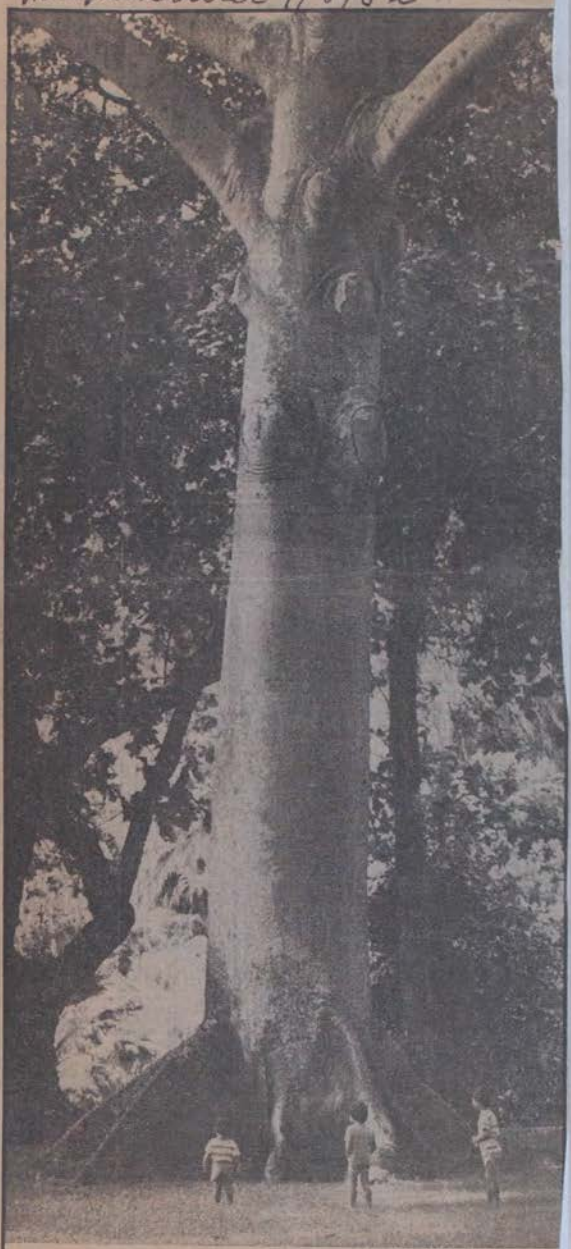
Others to be installed are Nejhie Underwood, assistant treasurer; Eleanor Anderson, recording secretary; Eva Layson, corresponding secretary; and Betty Carter, Cynthia Marnie, Suzie McKeever and Laura Thompson, advisers.

UH sets Friday as day for regen

Friday has been desig of Regents Day at the Hawaii, and former board have been i pate in the all- which is part 75th anniversa

The day's an 8:15 a.m. ceremonial first Bo May 1

Hon. Advertiser 9/8/82



Advertiser photo by David Yamada

The tree and me

Youngsters at Foster Botanic Gardens are dwarfed by one of the unusual trees growing there. The city's botanical showcase — 20 acres of beauty and peace just a few blocks from the bustling downtown area and between two busy thoroughfares — has trees that date back to the mid-1800s.

NOTABLE WOMEN OF HAWAII

Directions For Contributors

GENERAL

1. As a biographical reference work, Notable Women of Hawaii will be most often consulted by readers seeking accurate information about the subject's life, a summary of her career, and guides to sources. The articles, although succinct, must be thoroughly researched and comprehensive in scope. The typical reader will be neither a professional historian nor a specialist in an academic discipline; the article should therefore be clearly written and free of jargon. Technical terms should be explained. Points of controversy should be noted. The publication of the national Notable American Women provides an excellent model of the short biographical form. The directional format which appears below is adopted from the format of Notable American Women as it is foreseen that some of the Notable Women of Hawaii biographical sketches may reappear in the national publication.

Since this is a standard reference work, every article should include the following basic facts:

1. Date (day of month and year) and place of birth.
2. Full names of mother and father, including mother's maiden name.
3. Birth order of subject and order among those of same sex.
4. Father's and mother's occupations, education, and socio-economic status.
5. Father's and mother's nationality and geographical origins.
6. Subject's education: schools, colleges, universities attended, degrees received. Informal education should also be included.
7. Date(s) of marriage(s) and date(s) and cause(s) of termination (separation, divorce, death).
8. Full name(s) and occupation(s) of husband(s).
9. Children's full names and dates of birth.
10. Date (day of month and year) and place of death.
11. Cause of death. (We suggest caution in ascribing cause of death and in the use of sources containing this information.)

These basic facts, as well as other significant data, should be noted on the checklist attached to these directions. Beyond the basic facts, authors have leeway in deciding what supplementary information is most relevant for inclusion in the articles. Details about the family past will be relevant in some instances, but not all. For some subjects, religious affiliation will be extremely important, for others, political persuasion.

II. Besides establishing the basic facts about the subject, each entry should convey the importance of her life and career.

1. The article should include an overall estimate of the individual's career and its significance. The subject's importance in the general history of her times (and/or field) and the relevance of her career for the history of women should be assessed.

2. The article should take into account the circumstances and influences that affected the woman's career, such as upbringing, social environment, the encouragement or disapproval of mother and father, husband(s), children, and other significant individuals.

3. Although emphasis properly belongs on the subject's public career, attention should be given where relevant to the relationship between her career and her private life (for example, how she reconciled the dual claims of family and profession).

4. Some attempt should be made to convey the subject's character, temperament, and, where important, appearance.

References

Since there are no footnotes, references for substantial quotations and controversial facts should be given within the text, in parentheses. When citing a work by the subject, give the title and original date of publication. For secondary sources, give the last name(s) of the author(s) and the page numbers. Be sure that all secondary sources referred to in the text have full citations in the bibliography (full name of author, full title of book or article, title of periodical, and date of publication).

Bibliography

Each article should conclude with a selected, briefly annotated bibliography in paragraph form. It should include the principal sources of the information contained in the article, among them:

Residents, park oppose Volcano geothermal project

May 20, 1982 The Honolulu Advertiser

HILO — On the eve of a hearing on the Campbell Estate's vast plan for geothermal power plants, both the National Park Service and the Volcano Community Association said they are firmly against the project.

But during a debate on the matter yesterday, the Hawaii County Council couldn't agree on whether to oppose or support the project.

Councilwoman Helene Hale wanted the council to ask that the state Board of Land and Natural Resources defer action on the Campbell request to drill as many as 70 wells and produce three times the amount of power now generated on the island.

But after several lively exchanges among members, some involving shouting between Hale and Council Chairman Steve Yamashiro, the council decided to ask the land board to extend its hearing beyond a session scheduled tonight in Hilo to allow more response.

The Campbell Estate proposal involves more than 25,000 acres near Hawaii Volcanoes National Park. The plan envisions power plants that eventually would produce 250 megawatts of power.

Several Volcano area leaders appeared before the council yesterday in support of Hale's proposal, which Yamashiro refused to have placed on the agenda last week.

The Volcano group and Hale complained that the environmental impact statement prepared for the project was released too late for people to digest and develop informed opinions.

They also charged that the Campbell Estate deliberately distributed too few copies of the document in order to discourage public participation. No one from the Campbell Estate attended the meeting yesterday, but later a spokesman said every effort had been made to circulate copies of the inch-thick document.

David Ames, superintendent of Hawaii Volcanoes National Park, appeared to support Hale in her effort to ask the land board to delay action on the proposal. He said the National Park Service is not against geothermal development itself but opposes using the Campbell property because it is so close to the park.

Asked if the national park opposes all alternative energy development in its vicinity, Ames responded that the federal stance "is not a cut-and-dried position."

He suggested the county develop a policy to encourage development of resources in "remote areas," away from the park. He said the geothermal field is big enough that exploration and development can be limited to such areas.

John Cooper of the Volcano Community Association complained about the lack of copies of the enviromental impact statement — as did four other Volcano residents, all of whom spoke against the project and in favor of Hale's position.

Hale and Yamashiro debated at length on whether the county Planning Department will take a position at tonight's hearing.

Hale claimed it will not. Yamashiro said it will. Planning Director Sidney Fuke was not available to say who was right.

After Hale lost her move, Council Vice Chairman Spencer Kalani Schutte moved to direct Fuke to come up with an overall planning guideline for geothermal development within 30 days.

Yamashiro complained that the planning staff has been working on such a document for months and should be finished.

The letter of opposition signed by six leaders of the Volcano Community Association cited a host of reasons, including "health issues"; complaints they say are unresolved at Pohoiki in Puna, site of the demonstration geothermal generator; and alleged geological hazards from the Kilauea volcano.

No Geothermal Plant Near National Park

How. Star-Bull. 5/28/82

One of the finest natural treasures of Hawaii is Hawaii Volcanoes National Park.

Here is a place where new land is still being formed — where steps in the creation of the Earth as we know it can be seen close up and safely.

Hundreds of thousands of visitors come to the park each year — from Hawaii, from every state, from around the world.

The most popular part of these visits is the 11-mile Crater Rim Drive around the summit of Kilauea Volcano. There are stops at various scenic points and attractions en route.

One of these stops is at the Thurston Lava Tube, an ancient tunnel left after hot lava had rushed through it, and now beautified at its entrances by a fern forest, moss and other evidences of how nature regenerates itself.

It borders on the unthinkable that the remote, secluded beauty of this tube now is threatened by a proposal to put a geothermal energy facility nearby, just outside the national park boundary.

The pristine natural seclusion of the park would be intruded on by the noises and smells from the power complex plus the erection of a power plant and cooling towers visible from many points around the crater rim. Natural plant life in the park also might be threatened by the industrial intrusion.

The area where this work is proposed is in a state conservation zone. The state Board of Land and Natural Resources must grant a permit before the energy project can proceed.

There is only one choice for the board — reject the application. There are plenty of other sites not far away to develop geothermal energy without jeopardizing the natural magnificence of the park.

Since I just returned from an on-site inspection of the geothermal generator and a community meeting in Puna, let me offer the following evaluation.

First, most residents there are particularly disturbed by the "Open Flashing" technique of releasing steam at 600°F and tremendous pressure directly into the atmosphere without any abatement process to scrub the toxic pollutants out of this extremely hot geothermal steam.

These include hydrogen sulfide (H2S), sulfur dioxide (SO2), and mercury (Hg). At the HGP-A well, the hydrogen sulfide gasses are burned in an incinerator to sulfur dioxide.

Most of the SO2 is then absorbed in passing through a caustic soda (sodium hydroxide) solution, which must be continually replenished.

Because the "Open Flashing" technique releases huge clouds of polluted air thousands of feet high, I believe residents when they present their babies with deep nagging coughs as clear danger signals.

this unnecessary process should be banned and longer range solutions, such as installing a pipe to carry the biodegradable sulfurous wastes a

"Open Flashing" tests continue to this day in Puna on several new geothermal wells. I believe few miles offshore, should be adopted.

REV. WALLY BACHMAN

Aussie fires under control

How, Adv. 2/18/83

United Press International

MELBOURNE, Australia — More than 5,500 firefighters today brought under control fires that in two days incinerated hundreds of miles of parched southern Australian brush and killed 69 people, officials said.

Only one blaze was still burning uncontrollably in the Warburton area northeast of Melbourne in the state of Victoria. Officials said no houses or lives were believed threatened.

The Country Fire Authority in Melbourne warned some spot blazes could flare again.

Before leaving to inspect the devastated areas, Prime Minister Malcolm Fraser today called for a national weekend of mourning and called the loss of life and estimated $400 million in damages the "greatest disasters in our history."

Burned-out cars and the carcasses of animals littered the countryside. Hundreds of kangaroos, wallabies, cattle and sheep had to be shot after suffering serious burns. Ranchers reported staggering losses.

Officials said 26 people were killed in South Australia and 43 in Victoria, the two states where fires rushed across parched plains pushed by strong winds. Most of the victims were trapped in their homes by walls of fire or incinerated in their cars while trying to escape.

Hundreds more were injured and, in Victoria, seven small towns burned down.

Among the fatalities were 12 volunteer firefighters, including a woman, who were trapped in a ring of fire and burned to death in seconds near Beaconsfield in Victoria.

"South Australia and Victoria have been devastated by a holocaust and I extend my sincerest sympathy," a stunned Fraser said after surveying stricken areas from a helicopter.

Members of the Australian Insurance Assessors Association said 1,980 homes were destroyed. They estimated damage at $400 million.

More than 100 Adelaide Hills homes burned to the ground and residents said looters were moving into the area.

"People are coming up from nearby towns and they are taking clothes, baby clothes, axes, anything they can," one distraught woman reported.

Police said they were questioning three 14-year-old boys about a fire that destroyed 50 houses outside Melbourne. Another was being interrogated about blazes that destroyed Cockatoo and upper Beaconsfield, two of the seven burned-out townships.

In South Australia, unconfirmed reports cited arson as a factor in a blaze that virtually wiped out Mount Burr Pine forest, about 168 miles southeast of Adelaide.

"Volcano Views"

by Virginia Dicks

Contributions to this column can be made by calling Virginia at 967-7231 or by writing to P.O. Box 116, Volcano, Hi., 96785

Hawaii Tribune-Herald, Sunday, October 21, 1979–

VOLCANO—Exciting news. We are on the map! The Reader's Digest World Atlas has arrived and there it is, the only "Volcano" listed in the index. (Our last atlas listed only one—Volcano, Colo., but it seems to have disappeared). On page 49, which Hawaii shares with California, printed on the map is VOLCANO, just as big as all the other places on the Big Island with the exception of Hilo which rated larger print. That is a real step ahead in history, or is it geography?

Now that we are recognized in the big bad world, maybe we may rate being on some of the maps that are available locally, such as the ones given to visitors.

Just thought you would like to know we are on a map. It made my day.

Two individuals who are responsible for putting, not only Volcano, but all of Hawaii on the map as far as obtaining world wide recognition in the botanical world are the Drs. Isa and Otto Degener. They have just returned from Germany where the bestowal of the Willdenow Medal showed the high approval of the Degeners' study of Hawaii's plants, their classification and preservation in museums (of things botanical) throughout the world.

It was quite a nostalgic trip for the couple, their first visit to the renowned Berlin Botanical Garden and Museum since 1953; a real homecoming for Isa who was Isa Hansen when she worked for this venerable establishment.

Then as a young Ph.D. she was one of only two women on the staff, and she also taught in the university, of which the Botanical Garden and Museum was then a part. She had an enjoyable time as she conversed with former students who are now staff members and also visited with former co-workers.

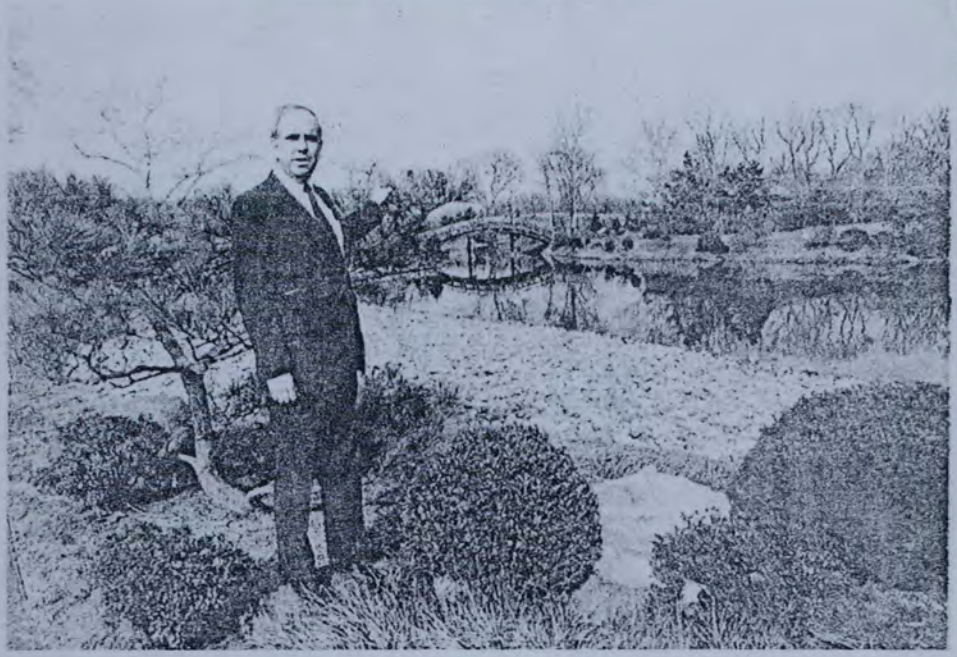
In 1962, Dr. Otto Degener was also there working on special projects in the herbarium where they have collections of dried plants, classified and mounted for botanical study. It was at this time, he says, that he found "his rare orchid" (Isa) and brought her back as his bride.

Many special events were part of the big jubilee celebration of the 300th anniversary of the founding of the Berlin Botanical Garden and Museum. One they were both impressed with was the reception hosted by the Berlin Senate which was held in a 200 year-old castle where the light was all "candlelight." Huge chandeliers hung from high ceilings with myriads of burning candles, also many candelabrum were along the sides of the rooms. Plenty of light, they said, but with no breezes and because of the candles it did get a bit "stuffy" by the end of the evening.

After all the "jubilee-ing" in Berlin the Degeners visited Isa's mother in the Black Forest area of Germany before returning home to Volcano.

Now at home and still ever mindful of Hawaii's great heritage of plants that are known only in the islands, some so rare they are found only in certain areas such as Volcano and other parts of Puna, they are gravely concerned as to what is now happening to our island as the big,horrible thorny bush with the yellow berries (bigger and more thorny than blackberries) slowly but surely covers over and crowds out all other vegetation in its pathway.

They are alerting a whole list of people who should be interested in eradicating it before it devastates very large areas. Specimens of the weed are being pressed and dried between layers of newspapers (as they prepare all their specimens) then they will be labeled and sent out with the pertinent information. This is the same procedure they follow when they collect and send samples to botanical gardens all over the world.



UPI Photo

LARGE JAPANESE GARDEN — Peter H. Raven, director of the Missouri Botanical Garden in St. Louis, the nation's oldest botanical garden, points to one of its major features. This 14-acre Japanese Garden is the largest of its kind in North America.

The endangered palila bird

EDITOR—Whether caused by some lolo flicking his burning cigaret into the bushes or by intense sunlight focussed through a discarded bottle into tinder-dry grass, the burning the latter part of November of the endemic mamani (Sophora chrysophylla forma maunakeaensis) forest upon which the endemic palila (Psittirostra bailleui) depends for food and shelter is a tragedy. This forest fire reduces the present few hundred birds of this famed endangered species to hunger and to reduction of space for breeding and nesting. But the palila has been subjected to such tragedy throughout its evolution in geologic time whenever the Goddess Pele enlarged Mauna Kea with volcanic eruptions and directed lava flows through its forests. After a resulting decline in population, the surviving palila always snapped back to its former abundance or even beyond as the area subjected to such a holocaust returned to its former forested state in a decade or two.

We botanized in Mauna Kea's decadent mamani forest as recently as July 30, 1977, hearing the bleating of sheep some little distance about us. We were then amazed at the great number of viable yellow mamani seeds peppering the ground, a condition that must have prevailed ever since tree and mountain existed together. Thus every time Madam Pele wiped out a mamani forest with her infrequent but regular eruptions, such mamani seeds sprouted to replace the old forest with a new one. This year's winter rains will cause the sprouting of the seeds as in the past. But unfortunately due to the interference of man and his introduced varmints unlike in early times, feral goats and especially feral sheep will greedily seek out the tender seedlings to nibble them down to their roots, killing them "make, die, dead," As a result, without man's timely intervention NOW, the area presently devastated by fire will remain a burned out desert subject to wind and rain erosion—a second Kahoolawe. Do we "Primapes." want to leave such a heritage for our children to contemplate, or do we want to reclaim the land and save a remarkable bird from extinction? If the latter, we must foster the return to ancient ecological conditions. What may that be?

Exterminate Mauna Kea's feral goats and sheep so that mamani seedlings can grow to maturity to renew the palila's feeding and nesting sites.

Incidentally, such a mamani forest will milk clouds sliding over the mountain of their moisture as fog drip, augmenting Hawaii's artesian and ground-water resources.

Drs. Otto & Isa Degener
Volcano

ARGYROXIPHIUM KAUENSE, THE KAU SILVERSWORD

*Degeners & Sunadas

The Hawaiian Islands are peculiar in having four endemic genera of Compositae belonging to the preponderately American Subtribe Madiinae. These are Hailliardia and Dubautia, two groups like Bidens and Cosmos kept separate for convenience even though they intergrade imperceptibly; Wilkesia; and Argyroxiphium, to which the famed silverswords belong. Of the latter genus, several species grow on the Islands of Maui and Hawaii. Here we wish to describe more fully one of the lesser known. It grows on the southern slope of Mauna Loa in the Forest Reserve at about 6,000 feet elevation in the fog belt in wet humus among aa lava. It was collected as early as 1911 by C.N. Forbes, and incorrectly identified. Forester L.W. Bryan's collection of July 1956 was studied by J.F. Rock and Marie C. Neal, and too briefly described as Argyroxiphium sandwicense var. kauense in Occas. Pap. B.P. Bish. Mus. 22(4):31-33. 1957. It was renamed A. kauense (Rock & Neal) Deg. & Deg., in Flora Haw. Dec. 27, 1957.

The colony of Argyroxiphium kauense in the fog belt

& Mrs.

"Volcano Views"

by Virginia Dicks

Contributions to this column can be made by calling Virginia at 967-7231 or by writing to P.O. Box 116, Volcano, HI., 96785

VOLCANO—Dr. Otto Degener has received very special recognition from our state Senate as set forth in Resolution number 294 of the Tenth Legislature 1979. This official document commends Dr. Degener for his contributions in the preservation of Hawaii's unique island ecosystem and our wildlife resources which have adapted and evolved in our isolated oceanic environment over many thousands of years. He and his wife Isa are well known and highly respected Volcano residents.

Dr. Degener will be 80 years old this year and for 50 of these years he has been a voice in the wilderness (so goes the resolution) steadily appealing year after year for the recognition of Hawaii's botanical wonders and conservation of their habitats, having no peer in his unshakeable, deep commitment to Hawaii's natural environment and has been tireless in his forthright, fearless efforts to educate and influence government officials, developers, journalists, other conservationists and the general public to seek protection of the native habitats from the bulldozer, feral mammals, introduced game and introduced weeds that naturalize in our native forests.

And so the resolution goes on for 12 "Whereases" as it tells of his love of the fauna and flora of our islands; tells of his books Plants of the Hawaii National Park and his world renowned seven volume Flora Hawaiiensis comprising an unparelled collection of information on plant life in Hawaii. These are two of his best known books among the many other publications he has authored, many with his wife, Isa, who is also a well known botonist.

This Senate Resolution was sponsored by John Carroll and signed by 22 other senators.

Otto Degener is still very active in his research and writing projects, his zest and good humor still a part of his remarkable stamina. We shall look forward to having the Degeners back in their Volcano home perhaps later this month.

Our thanks to Mae Mull for sending me a copy of the Senate Resolution.

Hunt

"Volcano Views"

by Virginia Dicks

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(including food supply, clean living space, *and* tropical forests) and populations is the biggest, most fundamental, and most nearly insoluble problem that has ever confronted the human race. Whether wild ecosystems of any sort will long survive (even in the United States) will depend upon its resolution. The outlook is not hopeful. Men and women of good will have no alternative but to work for the preservation of a nature-rich good earth. ■

ACKNOWLEDGMENTS

The experiences on which this article is based were partly supported by various National Science Foundation grants and the University of Wisconsin Herbarium's E.K. and O.N. Allen Herbarium Funds. I thank D.A. Kolterman, S.L. Solheim, and D.M. Waller for helpful criticisms of the manuscript. Thanks are due also to Cathie Beckwith for faithful typing under deadline pressure. I dedicate this paper to Paul and Anne Ehrlich, Norman Myers, Peter Raven, Ray Fosberg, Otto and Isa Degener, and Jack Sharp—all tireless advocates of a nature rich world.

NOTES

1. Anonymous, **The World's Tropical Forests: A Policy, Strategy and Program for the United States** (Washington, D.C.: U.S. Government Printing Office, 1980); G.O. Barney (study director), **The Global 2000 Report to the President: Entering the Twenty-first Century** (Washington, D.C.: U.S. GPO, 1980); D.W. Ehrenfeld, **Conserving Life on Earth** (New York: Oxford University Press, 1972); P. Ehrlich and A. Ehrlich, **Extinction: The Causes and Consequences of the Disappearance of Species** (New York: Random House, 1981); A. Gomez-Pompa, C. Vasquez-Yanes, and S. Guevara, "The Tropical Rain Forest: A Nonrenewable Resource," **Science** 177(1972): 762–765; H. H. Iltis, "Shepherds Leading Sheep to Slaughter—The Biology Teacher and Man's Mad and Final War on Nature," **The American Biology Teacher** 34(1972):127–130, 137, 201–205, 221; H.H. Iltis, "To the Taxonomist and Ecologist: Whose Fight is the Preservation of Nature?" **BioScience** 17(1967): 886–890; N. Myers, **The Sinking Ark** (Oxford: Pergamon Press, 1979); N. Myers, **Conversion of Tropical Moist Forests** (Washington, D.C.: National Academy of Sciences Press, 1980); National Research Council, Committee on Research Priorities in Tropical Biology, **Research Priorities in Tropical Biology** (Washington, D.C.: National Academy of Sciences Press, 1980); G.T. Prance and T.S. Elias eds., **Extinction Is Forever** (Bronx, N.Y.: The New York Botanical Garden, 1977); P.H. Raven, "Tropical Rain Forests: A Global Responsibility," **Natural History** 90(1981):28–32.

2. For pro-development appraisals of Amazonian colonization, see Tad Szulc, "Pioneers Carve a New Frontier—Will the Next Century Belong to Brazil?" **Parade Magazine**, September 4, 1983, pp. 4–6. This article contains an economic justification and humanistic glorification of biological destruction, and reached perhaps 30 million or more American households; see also P. H. Abelson's editorial, "Rain Forests of Amazonia," **Science** 221 (1983): 507. Equally uncritical is this tragic view of Amazonia by a prominent American businessman-diplomat: "The cause of this discouraging rate of development [of the Amazonian rain forest] is that the ground itself must first be cleared of jungle . . . and civilization itself introduced, before new farms can be laid out and made productive. . . . Whole new traditions and ways of life must be established . . . . Just to look at the geography is to see the formidable nature of the challenge. One huge belt of land . . . lies on the equator in the heart of the heat and fevers of the tropics. The Amazon River, unlike the Mississippi, flows through vast tracks of what are still sodden, malaria-ridden, impenetrable jungle wastelands, its waters patrolled by alligators and man-eating snakes. In contrast, the gentle, traffic-moving rivers of Europe have been channels of trade for a thousand years." S.L. Linowitz, "The Future of the Americas," **Science** 181(1973): 916–920.

3. The former pre-occupation with the preservation of local plant communities is shown by M.L. Fernald of Harvard University in his famous pioneering essay, "Must all Rare Plants Suffer the Fate of Franklinia?" **Journal of the Franklin Institute** 226(1938): 383–397.

4. E.O. Wilson, as quoted in P. Schabecoff, "A Million Species Are Endangered," **New York Times** November 22, 1981; cf. **Proceedings of the U.S. Strategy Conference on Biological Diversity** (Washington, D.C.: Department of State, 1982).

5. A.H. Gentry and J. Lopez-Parodi, "Deforestation and Increased Flooding of the Upper Amazon," **Science** 210 (1980): 1354–1356; I. Friedman, "The Amazon Basin, Another Sahel?" **Science** 197(1977): 7.

6. C.H. Dodson and A.H. Gentry, "Flora of the Rio Palenque Science Center," **Selbyana** 4(1978):1–628.

7. J.D. Nations and D.I. Komer, "Rainforests and the Hamburger Society," **Environment** 25(1983):12–20; see also note 1 above.

8. P.M. Fearnside, "Deforestation in the Brazilian Amazon: How Fast Is It Occurring?" **Interciencia** 7(1982): 82–88; the utilitarian, anti-preservation opposition creates the impression that there are no hard data on tropical deforestation, that environmentalists (such as N. Myers) exaggerate the extent of damage [e.g., the Lugo-Brown critique of Myers' book in **Interciencia** 7(1982): 89–93], and that, since there is nothing really to worry about, scientists and preservationists are misleading the public. But "it is irrelevant in the long range, whether the proportion of forests destroyed is 0.6% or 2% of the biome per year" [N. Myers, **Interciencia** (1982)7:358], whether 60,000 km^2 or 200,000 km^2 of primary virgin forest are converted to *permanent* cultivation *each year*, because even the lower figure is an incredibly large area—*1/3* as large as the state of Wisconsin. In either case, it represents ecological insanity. Sad to note, in the eyes of the world's power brokers, nature destruction is always justified, if by doing so people get fed and hunger is alleviated. The crucial, ultimate question, "what are we going to do then?" after three or four decades, once everything is gone and the world will be even fuller with people than now, is conveniently neglected.

9. D. Poore, "Deforestation and the Population Factor," **IUCN Bulletin**, January-February-March 1983; reprinted in **Parks** 8(1983):11–12.

10. H.H. Iltis et al., "*Zea diploperennis* (Gramineae): A New Teosinte from Mexico," **Science** 203(1979): 186–187; N.D. Vietmeyer, "A Wild Relative May Give Corn Perennial Genes," **Smithsonian** 10(1979): 68–75; L.R. Nault et al., "Response of Annual and Perennial Teosintes (*Zea*) to Six Maize Viruses," **Plant Disease** 66(1982): 61–62; and L.R Nault and W.R. Findley, "*Zea diploperennis*: A Primitive Relative Offers New Traits to Improve Corn," **Desert Plants** 3(1982): 203–205.

11. There are currently attempts being made by the Universidad de Guadalajara and the Instituto Nacional de Investigaciones Sobre Recursos Bioticos (INIREB), Xalapa, to set aside part of this magnificent mountain range as a scientific preserve.

12. See note 10 above.

13. B. Webster, "Songbirds Decline in America," **New York Times**, August 12, 1980; J.W. Fitzpatrick, "Northern Birds at Home in the Neotropics," **Natural History** 91(1982): 40–47.

14. J. Chang, "Potential Photosynthesis and Crop Productivity," **Annals of the Assn. of Amer. Geographers** 60(1970): 92–101; D.M. Gates, "The Flow of Energy in the Biosphere," **Scientific American** 224(1971): 88–100. At the same time, the quite effective agricultural methodologies evolved by primitive or indigenous peoples in the Amazon and elsewhere are also in need of deliberate protection. They can teach us a great deal about how forests can be utilized to some extent and with minimum impact on ecosystem function. But, just like the tropical forests themselves, the life, knowledge, and culture of these forest farmers are being destroyed.

15. See note 2 above.

16. W. M. Denevan, "Latin America," in G.A. Kless, ed., **World Systems of Traditional Resource Management** (N.Y.: Halstead Press, 1980), pp. 217–244; P.M. Fearnside, "Development Alternatives in the Brazilian Amazon: An Ecological Evaluation," **Interciencia** 8(1983): 65–78.

17. D.H. Janzen, ed., **Costa Rican Natural History** (Chicago: University of Chicago Press, 1983); M.A. Boza and R. Mendoza, **The National Parks of Costa Rica**, published under the auspices of the Costa Rican Institute of Tourism, the National University, the National Park Service, and the National Open University (Madrid: INCAFO, 1981); and personal communication with Alvaro Ugalde, director of the Costa Rica National Parks Service and executive director of the Costa Rica National Parks Foundation, November 1983.

18. G.B. Wetterberg, G.T. Prance, and T.E. Lovejoy, "Conservation Progress in Amazonia: A Structural Review," **Parks** 6(1981): 5–10; A. Gentry, "Extinction and Conservation of Plant Species in Tropical America, A Phytogeographical Perspective," in I. Hedberg ed., **Systematic Botany, Plant Utilization and Biosphere Conservation** (Stockholm: Almquist and Wiksell, 1979).

19. J.S. Denslow and T.C. Moermond, "Why We Must Save the Rain Forests," **Capital Times** (Madison, Wisconsin), August 28, 1982; I. Rubinoff, "A Strategy for Preserving Tropical Rainforests," **AMBIO** 12, no. 5(1983):255–258; and J. D. Nations and D. I. Komer, "Central America's Tropical Rainforests: Positive Steps for Survival," **AMBIO** 12, no. 5 (1983): 232–238.

20. N. Myers, **A Wealth of Wild Species** (Boulder, Colorado: Westview Press, 1983); G. Wilkes, "The World's Crop Plant Germplasm: An Endangered Resource," **Bulletin of the Atomic Scientists** 33 (1977): 8–16; J.V Neel, "Lessons from a Primitive People," **Science** 170(1970):815–822; and H. H. Iltis, "Discovery of No. 832: An Essay in Defense of the National Science Foundation," **Desert Plants** 3, no. 4 (June 1982): 175–192.

21. H.H. Iltis and D.A. Kolterman, "Botanical Translations: Needs and Responsibilities," **BioScience** 33(1983): 613.

22. M. Jacobs, "The Spirits of Bali," **IUCN Bulletin** 14(1983): 64–65.

23. Nations and Komer, note 7 above.

24. See note 1 above.

25. Anonymous, "World Growth-Rate Breaks Record," **Wisconsin State Journal**, August 31, 1983.

26. L.R. Brown, "World Population Growth, Soil Erosion, and Food Security," **Science** 214(1981): 995–1002. "We have now squarely to face this paradox . . . . We have increased human hunger by feeding the hungry. We have increased human suffering by healing the sick. We have increased human want by giving to the needy. It is almost impossible for us to face the fact that this is so. The truth comes as a shocking discovery, for we have all been brought up in the Christian tradition in which caring for the least of our brethren has been counted the highest virtue." Rev. Duncan Howlett, All Souls Church, Washington, D.C., December 6, 1969, [Quoted in The Other Side, The Environmental Fund Newsletter, Washington, D.C., September 1979].

27. "World Growth-Rate," note 25 above.

WAIMEA ARBORETUM FOUNDATION

(founded 1977)

'A non-profit organization to support the work of Waimea Arboretum, Hawaii.'

Objectives:

Plants

1) To carry out research on plants with special emphasis on rare and endangered taxa; their classification, propagation and possible re-introduction into the wild, where applicable.

History

2) To study ethnobotanical aspects of plants and wildlife, with special emphasis on Hawaii.

Wildlife

3) To study and preserve wildlife with special emphasis on rare and endangered birds.

Education

4) To stimulate support and understanding of the above through displays, demonstrations, public lectures.

Apprentices

5) To sponsor apprentices who can learn about the work of Waimea Arboretum through on-the-job training.

Publication

6) To publish a periodical publication: "Notes From Waimea Arboretum" which will summarize the activities and research work of the Arboretum and enable others to publish their opinions and articles on related topics.

What kind of help is needed? In order to carry out our objectives to the fullest, we need funding for such things as:

- Plant collecting expeditions, worldwide.
- Transportation for field work in remote areas of Hawaii.
- Fences to protect some of the more critically endangered plants of Hawaii.
- Laboratory and propagation equipment.
- Facilities for storage of seed, wood, insect & herbarium research collections.
- Public displays and lectures.
- Establishment of a comprehensive library.
- Publication and mailing of "Notes From Waimea Arboretum."
- An apprentice-training program.

These are only a few of the many items which we hope to be able to fund in the near future.

With your help we can make it possible.

If you would like to contribute, please send your donation to us, which will be promptly acknowledged. Your help will be very much appreciated.*

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PHONE: 638-8655

Vol.8 No.1 June 1981

Banana borer apparently confined to Waimanalo

By George Garties
Advertiser Staff Writer

A banana pest first confirmed to be in Hawaii last month has not been found outside Waimanalo and state officials are hopeful an emergency quarantine and other measures will reduce the danger to the local crop.

However, the pest, a beetle known as the banana root borer, is still considered a serious threat to the million-dollar-a-year industry.

The borer, whose scientific name is Cosmopolites sordidus, lays its eggs in the underground part of the banana plant's trunk, which is called the corm. The eggs hatch into larvae, or grubs, which tunnel through the corm, weakening it so much the tree can be blown over by light winds.

The banana borer looks like a black beetle about half an inch long with a long snout. It hides during the day, so can go unnoticed for a long time.

State bug experts identified the weevil in mid-August and on Aug. 24, Jack Suwa, state director of agriculture, slapped an emergency ban on shipping banana planting material from Oahu to the Neighbor Islands.

The quarantine can be maintained for 180 days. If the department wants to extend the ban beyond that it must go through a procedure that includes public hearings.

Meanwhile, state entomologists are making farm-by-farm surveys of Oahu and the Neighbor Islands looking for more weevils. So far, none has turned up outside Waimanalo, but several farms there appear to be heavily infested, according to Po-Yung Lai, head of the Agriculture Department's Plant Pest Control Branch.

Most of the state's banana acreage is on Windward Oahu. Of a total 730 acres in bananas, Oahu has 470, the Big Island 160, Kauai 70 and Maui and Molokai together have 30.

The quarantine is on planting materials, also called slips or "keikis." This could stop the beetles from spreading because they do not fly well.

The travel ban does not apply to fruit, leaves or meristone planting material, which is cut from the tree and grown in a special culture.

The quarantine does not prohibit taking material from the infested area of Oahu to other parts of the island, but officials are asking farmers not to do so.

They also suggest that farmers strip the outer leaves off slips and check for beetles or larvae before replanting. And they discourage using keikis that spring up near infested trees in others parts of a farm.

The scientists are experimenting with various other weapons, including two poisons.

Diazinon can legally be used by both home and commercial growers. Users can get a label from the Agriculture Department or the University's College of Tropical Agriculture that tells how to mix and apply the pesticide for best results.

Commercial growers have another option, furadan. This appears to be more effective but it is very toxic and cannot legally be bought or used by anyone without a license.

If they are applied properly, neither poison will leave more residue in the fruit than is allowed by federal regulations, Lai said.

There are some farming techniques that can make a dent in the beetle population.

Lai recommended cutting down banana plants right after harvest, cutting up the trunks and corms and leaving them in the sun to dry. Larvae cannot grow into adult weevils in the cut-up trees.

The dead trunks may attact some weevils from live plants, and those bugs can be either removed or poisoned.

Anyone who wants to report seeing banana borers or who has questions can call the Agriculture Department.

SUNDAY
Star-Bulletin & Advertiser

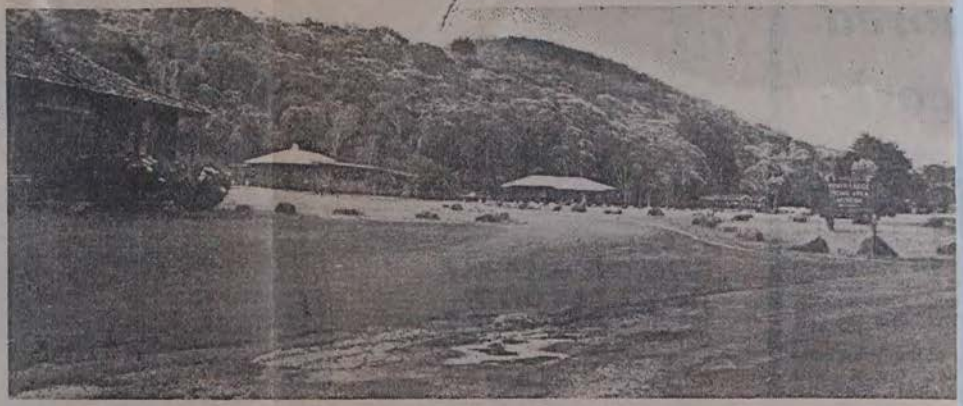
section D

Honolulu, September 6, 1981

This section prepared by the staff of The Honolulu Advertiser.

Kokee: Is it a forest of the future?

By Jan TenBruggencate
Advertiser Kauai Bureau



Kokee State Park lodge, museum area: a special place to be considered.

LIHUE — At what point does use of an island forest become abuse of that forest?

When do conservation, recreation and economic approaches to forestry management collide?

A four-month project sponsored by the Kokee Natural History Museum's Hui O Laka will study the questions, but won't necessarily find answers.

The project is called "Kokee: The impact of forestry management on our lives." It is partly funded by the Hawaii Committee for the Humanities.

The Kokee area now is largely state park and forestry land. It lies in the mountainous central part of Kauai, above the jagged, spectacular Na Pali Coast. It has been stripped of its sandalwood for commerce. Cattle gone wild ate up small plants, so eventually much of the forest was gone. Foreign trees were planted to restore the watershed, and water was diverted from streams into sugar irrigation ditches. And native trees, snails, birds and other species died back and sometimes died out in the face of the changing environment.

Today, many people, groups, firms and government agencies have their eyes on the forest. Many want different things.

Hunters seek the right to continue hunting wild pigs and goats in the forest, and many support that right, since the pigs and goats may be doing more damage than the people. Hikers want good walking trails. Birdlovers may seek to close areas off entirely from human use, to protect endangered species. Families collect maile for special events. Hula dancers collect flowers and leaves and fern fronds. Sugar companies want water for irrigation, and there is increasing interest in using the same water to run hydroelectric plants.

Some of the uses are compatible, but many others clash.

"Kauai's unique state park, Kokee, reveals the impact of conflicting demands upon our environment and our lives," reads the application to the Hawaii Committee for the Humanities.

Researchers expect to study the literature, history, cultural significance and other qualities of the Kokee area, and to compile them in a videotaped presentation.

The tape would be presented at a community dialogue session Aug. 21 at the Lihue Library, after an overview of public policy questions in the area by William Kikuchi, archaeology instructor at Kauai Community College. Participants in the session are to review reforestation efforts, water and land use, native Hawaiian rights and culture and recreational facilities.

A conference at the park Aug. 28 is to include a series of speakers and discussion groups.

Joan Aanavi, director of the project, expects to produce one of a series of summary reports out of the study, with others coming from Kikuchi and other scholars.

Kokee is a special place, a study document says.

DRS. OTTO & ISA DEGENER
P.O. Box 134
Volcano, Hawaii
96785 U.S.A.
May 5, 1983.

Dear Mr. Kikuchi:

Mrs. Degener & I away last year in the Canaries, Madeira and five Azore Islands finally caught up with our Honolulu Advertiser edtition of June 16, 1982. Therein appeared the TenBruggencate "Kokee, Is it a forest of the future?". The a few days ago wonderfully interesting articles again appeared about Kauai in the newspaper. I visited Kauai first Sept. 6, 1922, living with my sister in the sheriff's boarding house mauka of Nawiliwili. From there I went out to botanize for a few days. Such herbarium specimens - actually authentic voucher specimens of such trips finally of all the major islands - are on permanent deposit at the New York Botanical Garden of which Mrs. D., and I are staff members, at my alma mater University of Mass., to a limited extent - why ship coals to Newcastle? - at the Bishop Museum, and elswhere in the World.

I got permission from Mr. Robinson to botanize in Olokele, and did so via taxi. When I wished to go a later time, he was willing to have me go until I happened to mention I was a professional botanist and could do so only on Sunday, as my sister & I were returning to Oahu Monday. Realizing that I was to WORK on his land on a Sabbath, he refused permission after all!

I collected about Kokee June & July. 1926. I camped in my car. The Forestry people - I believe it was before excellent Mr. Cliff's time - were growing the "banana poka" about the privy. Seeing pig kukai scattered at Kokee alive with the sprouting seedlings, I warned against its introduction, but was ignored. Much later Mrs. Degener & I were the house guests of the Biological Benefactor Ruth Hanner at Kokee. We did much important collecting at this time before Kokee was spoiled by exotic weed herbs, weed bushes & weed trees. Most wonderful Waineke Swamp had even been desecrated by the planting of Mainland pine trees and other exotic junk!. Please, remember, such plant are stored drie in cabinets mounted on stiff paper for future people to admire and study. Many have been exterminated by us (Un)Civilized Modern Humans.

As mentioned before, I attended the University of Mass. An early graduate had been Niels Larsen, son of a Scandinavian tailor. He later became physician in Honolulu and, being a Graduate of the ame College, I went to him as a patient from time to time. His office was on Beretania Street not far from Washington Place, but on the opposite side of the street. Larsen's brother so I heard, was a sugar luna on Kauai, evidently a very practical, efficient man. He had a summer leasehold home at Kokee and unfortunately introduced the blackberry (identified for me by the Rubus specialist L.H. Bailey of Cornell as R. penetrans Bailey) into his Kokee garden for food. (Remeber this is hearsay.) Birds were such good disseminators that years later where magnificent lobeliads had been grow-

ing from which I had collected specimens for museums, all had been wiped out by this aggressive weed. That had happened to remarkable ferns and so many other true International Treasures.

We enjoyed hiking with the very pleasant late Hans Hansen when we were guests of Mrs Hanner in Kokee.

Can you use my "Plants Haw. Nat. Parks", a paperback profusely illustrated and slanted for tourist and other nonbotanist readers? I sell it wholesale for $5.00. These are ~~fxrx~~ so reasonable because they are paperbacks; what you sold years ago were expensive & in hard covers. Selling on consignment is such a nuisance that we don't bother doing it. If you wish, I can mail you three copies for a total of $15, I paying postage & tax. I have other books also. How about buying 1 copy of my Flora Haw., printed on poor World War II paper and in a single binding? It has 1192 pages and is loose leaf so teachers can take out individual pages to show the drawings to an audience (at the museum) on the screen. You can have a copy for $15 (sent in same package).

Of course it is up to you to decide at what retail price to sell the books. Hope you will try this out ~~###~~, and then become a permanent customer. My paperback gets shipped to me from the Michigan printer in boxes of 24 copies.

Aloha, Dr. Otto Degener.

Otto Degener

P.S. Did you perhaps remember the late Dr. Eichi Masunaga? He was my Botany student at the University of Hawaii in 1926. I trained him to make microscope slides for the class. He was so good and energetic that he became technician for the Leprosy Receiving Station in Kalihi before becoming a physician, I believe, on Kapaa. My wife and I wanted to visit him, and stopped off at his home. We could not understand why his wife seemed so rude to turn us away. A week or so later we read in the newspaper that he had died of a stroke. Poor Mrs. Masunaga must have been terribly upset at the time we called.

BOTANISCHE STAATSSAMMLUNG
MÜNCHEN
Direktor: Prof. Dr. H. Merxmüller

Menzinger Strasse 67
Telefon 089/1792-1

D-8000 München 19, 10. II. 1983

Tgb. Nr.: 1024/q

Herrn & Frau
Drs. Otto & Isa E.M.DEGENER
P. O. Box 154

VOLCANO, HAWAII 96785
U. S. A.

Liebe Degeners!

Vor kurzem erreichte uns Ihre freundliche Zusendung von 14 Herbardubletten und Sonderdrucken und Fotokopien.
Für alles dürfen wir Ihnen verbindlichst danken. Wir beglückwünschen Sie erneut zu all Ihren Aktivitäten zum Schutze der Flora und Bewohner von Hawaii, und es freut uns ganz besonders aus den beigefügten Fotokopien zu ersehen, daß Ihre Bemühungen mittlerweile auch honoriert wurden!

Ihr Artikel "THE LATE THEODOR PHILIP HAAS" trifft hierzulande in eine Zeit der großen Rückblendung auf den "30. Januar 1933 und die katastrophalen Folgen". - Wir hatten zwar schon früher etwas gehört vom schweren Schicksal, das Dr. Haas, einen Mitarbeiter dieses Hauses, damals getroffen hat. Aus Ihrem Bericht geht nun aber leider auch eindeutig hervor, daß er den verheerenden Schlag gegen seine gesamte Existenz nie mehr hat verwinden können. Das alles bedauern wir zutiefst! - Wir werden Ihren Artikel in unsere Nekrologsammlung aufnehmen und dem Verstorbenen ein ehrendes Andenken bewahren!

Mit nochmaligem Dank für Ihre so schätzenswerten Pflanzensammlungen, Sonderdrucke etc., die wir nun schon seit vielen Jahren empfangen durften, und mit den allerbesten Wünschen für Ihr persönliches Wohlergehen, wie auch für Ihre Bemühungen um den Erhalt der Ursprünglichkeit der Hawaii-Inseln,
stets Ihr

H. Merxmüller

Prof. Dr. H. Merxmüller

630 US ISSN 0271-9916 June 1983, Research Extension Series 035
Hitahr. College Trop. Agr. & Human Resources University of Hawaii
* Gordon T. Shigeura & Richard M. Bullock
Guava (Psidium guajava L.) in Hawaii - History & Production.

Psidium produces the most important fruit in the family, other genera in this family producing fruits are *Myrciaria* (jaboticaba), *Feijoa* (guavasteen), *Eugenia* (Surinam cherry), and *Syzygium* (rose apple). Neal (*44*) places *Myrciaria* and *Syzygium* in *Eugenia*.

The genus *Psidium* is composed of many species of which *P. guajava* is the most important (*49*). *Psidium cattleianum*, strawberry guava, and its botanical variety *lucidum* are of interest because the fruits are not only distinctly flavored and delicious but they are produced during a short period of time and make mechanical harvesting a possibility. The fruits can be made into jelly and juice that are very attractive. Other *Psidium* species are *P. polycarpum, P. guineense, P. aromaticum, P. friedrichsthalianum, P. molle,* and many others. A dwarf form, *P. guajava* forma *Cujavillus* (Burm f.) ** Degener and Degener (*16*) also needs to be listed, since this form, in preliminary rootstock trials, indicated its possibility of being used for rootstock, much akin to apple tree propagation to induce dwarfing of trees (*64*).

The guava fruit is a berry with a thick pericarp and fleshy seed cavity. The fruits are soft when ripe, making postharvest handling difficult and critical. Poor handling of the ripe fruits can result in great losses in the field and factory, where decaying and damaged fruits are discarded before processing. When these ripened fruits are further allowed to be exposed to the hot sun, the guava flesh becomes very soft and mushy. These fruits become difficult to puree in this condition, possibly due to actual chemical breakdown in the tissue. The flesh color of the fruit is becoming increasingly important as the use of coloring dyes in food products is being restricted. Fortunately, in Hawaii, the 'Beaumont', selected from the wild, has the desired pink flesh color. Flesh color of guavas from the wild range anywhere from white to yellow to salmon-orange and pink, all of which blend into an unattractive yellow-orange product. Wild guava fruits need to be blended with the pink to produce nectars with acceptable color.

CLIMATIC REQUIREMENT

The guava is a hardy shrub that has acclimated itself well to the various conditions at the lower elevations in Hawaii, where it is still considered a noxious weed (*45*). It is a serious pest in pastures, especially where no weed control is practiced.

Wind

The guava tolerates and is capable of withstanding strong prevailing winds or winds of hurricane velocities. Its root system is basically a fine mat supporting the tops and requires a tremendous horizontal wind force to uproot the tree. Also, the guava wood is strong and especially flexible and pliable, enabling the tree and its branches to bend in a whiplike fashion in a strong wind. The authors have yet to see a guava tree, except for defoliation by wind stripping, damaged by hurricane winds in Hawaii. However, growth and fruit production can be drastically reduced when the trees are grown in areas with constant prevailing winds of 10–15 miles an hour. In such situations, the trees will grow and develop away from the wind with short, stubby limbs facing the wind, these branches performing as a windbreak protecting and permitting the leeward branches to develop. When such growth is evident (*57, 58, 59*), a low windbreak that does not have much lateral growth can be used along the field edges. A larger orchard extending over 150 meters (500 feet) in length or width will benefit from the use of tall columnar or upright trees on the edges and possibly within the field.

Rainfall

In Hawaii, guava trees are found growing in the 500-centimeter (200-inch) annual rainfall belt, with continuous freestanding water, as well as in desertlike areas found at Kawaihae and Ka'u, where annual rainfall is less than 25 centimeters (10 inches). In these areas, the trees are not too productive, seemingly only surviving and demonstrating the ability to withstand extreme conditions in water supply. In areas that tend to be too dry for crops during the summer months, provisions for irrigation are advisable. Guava growing on pāhoehoe or 'a'ā lava, even in the wet Hilo area where rainfall can be 300 centimeters (125 inches) per year, will respond to additional water during brief dry periods. Since water supply throughout the production cycle from flowering to harvesting is very critical, irrigation should be included in any commercial planting of guavas.

Temperature (Radiant Energy)

Recorded air temperature at selected weather stations in most of the areas in Hawaii is often assumed and used, agronomically, as an indicator of the radiant energy received from the
used by crops in growth. The rel

** "16. Degener, O. 1930. Flora Hawaiiensis, Volumes 1–7."
* Shigeura, while student at U. of Haw., lived in my quarters in Honolulu in the late '20s or early 30s houseboy. He did not draw. OD.

Hon. Adv. 5/23/84

FORECLOSURE SALE

PROPERTY DESCRIPTION: Parcel of land (portion of Grant 3232, Apana 2 to Naahumakua and also portion of Remnant B of Grant 13,514 to Gordon T. and Yuki S. Shigeura) situated at Kaualeau, District of Puna, Island, County and State of Hawaii, being Lot No. 7, 7.34 acres, bearing TMK: (3) 1-3-02-70.

TERMS OF SALE: Property will be sold "as is" to highest bidder, at public auction or by private sale, free and clear of any and all claims, rights, title and interest of any person whatsoever. No upset price. Ten percent (10%) down in cash, or certified or cashier's check, with the balance due within thirty (30) days of Court confirmation. Buyer responsible for costs of conveyance, recording and conveyance taxes, title reports and insurance and other closing costs and for securing possession. SALE SUBJECT TO COURT APPROVAL.

DATE AND PLACE OF AUCTION: Wednesday, June 20, 1984, 12:00 noon, Hamakua entrance of the State Building, 75 Aupuni Street, Hilo, Hawaii.

For further information, contact GLENN N. KIMURA, Commissioner, 190 Keawe Street, Suite 32, Hilo, Hawaii 96720. Telephone: 935-5989

Volcano Views

Mary Miho Finley

6/5/83

A faya jungle

How, Tribune-Herald

VOLCANO — In the Canary Islands, Myrica faya is the only tree. And the people there love it. At Volcano, the cry is "kill faya" for the vigorously-growing, introduced tree is transforming thousands of acres of ohi'a forest into a faya jungle.

"It's happened before in other parts of the island," lamented Kate English, recalling faya growing in Paauilo when she was a child. "I remember looking up at these huge trees and wondering what they were. All the ohi'a and every plant underneath them had been killed by their shade. They were faya trees."

From seedlings to large flowering trees, the faya is so numerous in large parts of the National Park, the golf course subdivision, Mauna Loa Estates and along the Volcano highway that visitors and unacquainted kamaainas alike think that it must be a native. When I first moved here nine years ago I almost transplanted some to my yard to make a fast-growing hedge.

Faya has dark green, tapering leaves and is usually found growing at the base of ohi'a trees as a very healthy bush. From seeds dropped by birds or the wind, faya sprouts in the protection of ohi'a which it eventually outgrows, ultimately killing the native ohi'a tree and all vegetation beneath. When ohi'a is gone, it will mean the end for the few remaining species of native honeycreepers who feed on ohi'a lehua nectar.

Right now faya is flowering. In December there will have sprouted a whole new crop of seedling fayas. If we don't do something substantial soon to check faya, our grandchildren will have lost the Volcano experience of the tremendous majesty and variety of ohi'a forest.

"It's out of hand in all but a few small areas of the park," said Dan Taylor, head of resources management in the Kilauea Volcanoes National Park, "but we have learned a lot in the last year about how to go about controlling it. You delineate a small area to tackle at a time and get out the large flowering trees first. You do this by cutting off two large branches and inserting a section of surgical tubing into the cut ends. The tubings are filled with straight "Round-Up" herbicide which soaks into the tree and kills the faya. Once the source of more seedlings is gone, you can go to work on pulling up the seedlings and cutting off and killing smaller bushes that aren't flowering yet."

again. With unity we can be effective in one area at a time. The National Park is willing to help instruct in the best methods of removal they've found. And 4-Hers and the Volcano Community Association have pledged their support, as have the Volcano Golf Course and golf course subdivision residents.

If you, your ohana or club would like to add your efforts to this cause, call me at 967-7230. An organizational meeting to set up times and strategies will be happening soon.

Besides saving the native forest, removing faya from Volcano has the added benefits of being an activity everyone in Volcano can do. Faya overlaps all boundaries in Volcano and if we don't do something about it soon, all of Volcano will belong to faya in a fairly quickly, eventually killing the

Virginia MacDonald, Russ Sherman, Pete Goss and the folks at the golf course subdivision set to work last summer with the help of Ellen Kai and Laila Ulrich's Sunday School kids. A start was made fighting faya. "Kill the invaders!" the kids shouted as they pulled up faya seedlings. But faya doesn't rest.

"The way it's got a hold now, within 50 years faya will have supplanted ohi'a in the areas where it now grows," says Cliff Davies, Volcano resident and retired Department of Agriculture official.

Homeowners, community members and lovers of the native forest, this summer will organize to attack faya

6/19/83

VOLCANO—Dr. John Lockwood itinerant U.S. Geologic Survey volcanologist and Volcano resident, was recently in Sicily to study lava diversion techniques used by the Italians. Lockwood returned late Sunday evening June 12 just in time for the present eruption which began early Monday morning. Possibly he can put to use some of what he learned at the Mount Etna eruption to help the folks in Kalapana.

The Italians had tried to use explosives, but were unsuccessful, said Marti Lockwood, commenting that the Etna eruption apparently had covered some houses and was threatening some resorts in Sicily. Some of their barrier techniques were successful in diverting the flow, she added. "But you should really talk to Jack." Now, if we could just fly along with the helicopters to interview him "in the field."

Lockwood and National Park personnel were busy setting up a fire prevention plan in Kalapana to be put into action should the steadily moving lava flow once again threaten residencesin the area. On Wednesday evening a bright red glow could be seen from Wahaula but lava had not come over the pali.

Drs. Otto and Isa Degener on a recent tour of the Canaries, Azores and Madeira Island found the genus Myrica growing native in numerous places, "but we would hardly identify them as the same variety . . . that threatens to devastate our own countryside," they said. The Degeners, former Volcanoes National Park naturalists and long-time Volcano residents, are planning to send samples of Hawaii's particular Myrica (faya) species, an introduced tree that is taking over vast areas of the National Park, to botanists in Spain and Portugal in an effort to establish exactly where our faya comes from. Once that's known, a biologist would then be able to determine what the natural enemies of that faya are, and a biological control could be introduced to bring faya under control.

This sounds promising for the ultimate solution. In the meantime Volcano property owners could help alleviate the problem by removing faya from their land. Faya without seeds can be left to compost, but those with seeds need to be burned or hauled to the dump to prevent birds from eating the seeds and planting more faya trees far and wide. Unfortunately the faya-eating birds seem to favor sitting in ohi'a trees at the base of which faya sprouts up and aggressively outgrows our beautiful native ohi'a with its red, yellow or orange blossoms.

DRS. OTTO & ISA DEGENER
P.O. Box 154
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June 6, 1983

Miss Mary K. Finley
Hawaii Tribune-Herald
Hilo, Hawaii

Dear Miss Finley:

We were delighted with your timely June 5 article warning us about the danger of "A faya jungle".

One of us having been Naturalist of Hawaii National Park in 1929, and both of us being local, professional botanists; we consider the introduction of the faya tree a major ecological disaster. According to rumors we heard years ago, a sugar worker on his return to the Hawaiian Islands from a visit to his childhood home on an Atlatic Island off Africa introduced the seed. We, however, never did hear precisely from which island these seeds had come.

After a brief stay in Germany, we did not fly a bee-line practically nonstop to Hilo. Instead we flew over Spain and Portugal for a grand educational detour with numerous stopovers in the Canaries, on Madeira, and in the Azores. In fact, we botanized industriously for Flowering Plants chiefly to augment the collections of the New York Botanical Garden of which we are staff members. Duplicates desired go to the Bishop Museum and elsewhere. From May 22 to June 2 we sampled the vegetation of two Canary Islands (including Haleakala-like Tenerife), and then until June 10 that of Madeira. Thereupon we collected on five or six Azore Islands (one was small), until our final flight from Terceira to New York June 28.

The remarkable part of our collecting vegetation samples for a little more than a month is that we saw numerous trees in numerous places of the genus Myrica growing native, but we would hardly identify them as the same variety as the naturalized Myrica that threatens to devastate our own countryside!

Perplexed, we noted in our annual application for a collecting permit in Hawaii Volcanoes National Park that, time available, we should like to collect a large quantity of twigs of flowering staminate ("male") trees, of flowering pistillate ("female") trees and of fruiting trees. We would then swamp expecially Spanish and Portuguese botanical gardens and universities with these three kinds of specimens WITH THE REQUEST for their learned opinion as to where our exotic plant pest has its closest relative.

With its native home finally known, we recommend a man, preferably with a smattering of Portuguese andor Spanish at his command, be sent to the place of origin to go into the expert routine of studying the native plant and its native fungus and insect pests. We noticed them on some of the Myrica varieties we collected; but the proper kind on the proper kind of tree now on Hawaii might insure better success. Our Myrica tree weed should then be especially well adapted for a quick, happy death via biological control.

Incidentally we may add that the terrain in which Myrica thrives in Hawaii often seems rather nitrogen poor. This unusual ability to thrive anyway may be associated with a nitrogen-fixing bacterium, as in most legumes, or a mycorrhiza. Moreover, the hopeful human Myrica exterminator would live under ideal conditions thanks to the value of our Dollar in the Portuguese and ~~the~~ Spanish colonies. We lived in the very best hotels - waiters wearing white gloves while serving meals - for $15 to $25 per day, including Continental breakfast. No, don't misunderstand us. The price was per couple, not for a sibgle person!

Aloha,

Drs. Otto & Isa Degener

rancan explorers, once wandered in circles for several hours, yet the time having been within a short distance from the surface opening through which they had entered the cave.

Before entering, the noted explorers had decided on a definite proceedure in order to facilitate, so they thought, the work of exploration. The agreement was that once within the cave, they should take the first offshoot to the right, and thereafter to take every left hand turn.

The plan was put into operation, and the men had been tramping for a considerable length of time, always conscientiously entering each offshoot that appeared on their left, before it dawned upon one of them that at certain regular intervals he had been stumbling over a cracked calabash. It was deucedly queer that Hawaiians should have left a cracked calabash every so many yards.

The hero of this story picked up a calabash and noted its markings. After examining it, he carefully placed it back in its position on the floor of the tunnel. The tramp was continued, and when the next cracked calabash was found, the hero decided to compare it with the other calabash. Upon examination, it was found that the markings were identical. It was the same calabash.

The party had been ensnared by a parallel, always turning to the left had accordingly been making a circular route. They had been going down the parallel until they met the channel, and turning to the left had been going up the channel until they turned left into the parallel once more. And they had been keeping up this proceedure for hours, without realizing the situation.

They had no compass with them, and it was perhaps only the cracked calabash that saved the party from becoming hopelessly lost, and perhaps saved the explorers from a horrible death.

(To Be Continued September 1.)

Degener's New Hawaiian Flora Now Appears

FLORA HAWAIIENSIS: NEW ILLUSTRATED FLORA OF THE HAWAIIAN ISLANDS, by Otto Degener. Printed by The Star-Bulletin Press for Mr. Degener.

Reviewed by Clifford Gessler.

Otto Degener's contributions to botany in Hawaii have already attracted interest with his "Plants of the Hawaii National Park" a few years ago and studies of various plants printed in the journal of the Pan-Pacific Research Institution. The first pages have now appeared of his "New Illustrated Hawaiian Flora," a monumental work which is issued in loose leaf form to permit further additions as his investigations proceed.

Mr. Degener undertakes no less comprehensive a task than the description and illustration of all native and introduced ferns and flowering plants in the islands. He has pointed out that knowledge of the subject is still meager, because of the continual introduction of exotic plants and the rapid "turnover" in scientists in the islands, as well as to the occurrence of species in isolated spots. He believes only about one third to one half of the native vegetation is yet known, although if Hillebrand's Flora were revised in view of later discoveries and reclassifications, he estimates that it would contain about 3,000 plants.

Mr. Degener, who has been devoting his time to this task after a period of teaching botany at the University of Hawaii, has evolved a method of keeping his book elastic, by publishing it in groups of about 100 plant descriptions and illustrations, bound in a simple but substantial folder from which they may be removed if obsolete or to which others may be added in their proper order.

The plan of the work is to give a family description, a synoptic key to the genera of that family found in the islands or, in a second type of treatment, a generic description and a key to the island species, or, third, a specific description and an illustration.

The portion now available at book and curio stores in Honolulu or from the author himself, comprises 332 pages, including 106 full page plates, four of which are in color. We are informed that it sells for $3.50.

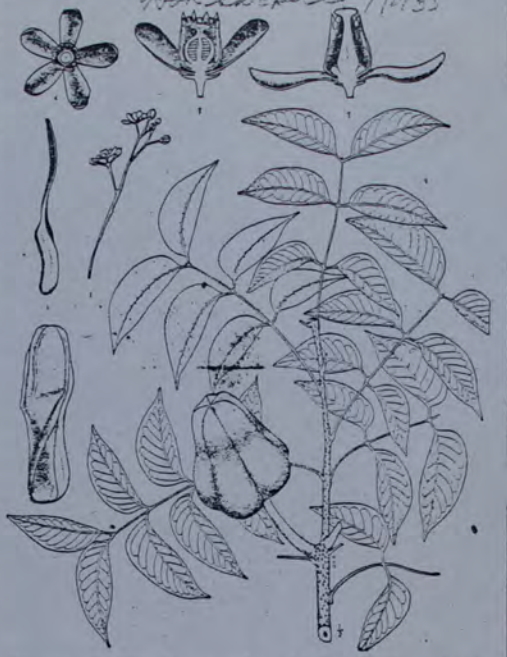
In addition to the descriptive portions, the author says the completed work will include keys for the determination of families; a general description of the islands, maps, accounts of the origin and relationship of the Hawaiian flora, a historical sketch of Hawaiian botany, a glossary of botanical terms, an index, etc.

Such a book surely will be of great value to students of the subject and useful as well to those who, without botanical training, are interested in the plants of the territory and desire a ready means of identifying them. Although the scientific descriptions are necessarily in technical language, considerable information is given which is intelligible to any reader, and one with no knowledge of botany at all can scarcely fail to recognize the plants from Mr. Degener's carefully executed drawings.

The common as well as botanical names are given, and also the Hawaiian name in many cases; one learns where the plant grows, whence it came, if introduced, its uses, if any, and whether it is edible, poisonous, or merely ornamental; the derivation of the name, and other information.

To commend Mr. Degener's "Flora Hawaiiensis" is not to detract from the value of other works that have appeared in this field. They all have their place, and are useful for various purposes, with their varying emphases of popular or scientific interest. The new work, when completed, may be expected to be more comprehensive, and its loose leaf arrangement offers certain advantages in keeping it abreast of developments as the author's researches continue.

WEST INDIAN MAHOGANY



Drawing by Otto Degener from his "Flora Hawaiiensis" or "New Illustrated Hawaiian Flora," which is reviewed today. The tree is planted along Kalakaua Ave.

Student attendance honored

Ka'u High and Pahala Elementary School recently honored its students who had perfect attendance in the first quarter of this school year. They are:

Stewart Agustin, Justin Andres, Roland Grace, Delvin Navarro, Kuuipo Kailiawa, Darylnn Ke, Pablo Alaoan, Leslie Gravela, Summerlyn Andrade, Marisa Hiraki, Sherry Malepe, Keona Paaluhi, Jandale Waltjan, Jeffery Aurelio, Morgan Dacalio, Gerald Dameg, Randall Gacayan, Keoni Kailiawa, Bradley Peralta, Agnes Barrios, Kelly Ann Gujioka, Eleine Pai, Gynard Camba, Peter Volpe, Kellan Akamu, Jamie Lee, Richard Quinajon, Clarence Rengulbai, Deanna Camba, Wendy Higashide, Robyn Grace, Palmer Alaoan, Dayton Andres, Michael Blanco, Anthony Domondon, Daryl Ke, Rodney Saragosa, Kellie Andrade, Shellen Hashimoto, Chantelle Kalani, Sylvania Louis, Novelyn Panglao, Bill Ke, Timothy Keliihoomalu, Klayford Lazo, Avery Lee, Alvin Pai, Marlon Saribay, Robert See, Tysican Dacalio, Bruce Lee, Brad Louis, Tobias Ostien, Eileen DePeralta, Mario Napoleon, Patricia Pai, Julie Pasion, Felista Rengulbai, Jame Saribay, Melanie Yokoyama, Angelica Oliveros, Nelson Demag, Alexander Dumo, Rodrick Evangelista, Bryce Hiraki, Leighton Pahukula, Anastacia Abellera, Beverly Blanco, Krisinda Ibarra, Kate Puakela, Shirley Saribay, Davelyn Villegas, Brent Alcosiba, Veedal Andrade, Ferdinand Babas, Eugene Castro, Albert Rosario, Lionel Saragosa, Shelby Andrade, Pamela Andres, Iva Bermoy, Davelyn Blanco, Trixy Fernandez, Marvine Mercado, Rose Peralta, Drake Abellera, Chris Adams, Jerod Andrade, Albert Asuncion, Edwin Breithaupt, Ronald Galigo, Jack Jara, Reynado Blanco, Bradley Jones, Ronnie Lodiveo, Jon Miyahara, Dane Shibuya, Kyle Torina, Rocky Gascon, Ryan Ishimaru, Naomi Ah Yee, Sharlene Apo, Evelyn Baclig, Nyla Cabudol, Deidre Galiza, Eleanor Ibarra, Joey Ray Kamei, Charles Lee, Iris Kawakani, Samuel Ah Yee, Ray Batalona, Tracey Andrade, Sharlene Derasin, Sefina J. Erece, Guy DeSa, Areselo Jara, Shane Lando, Teodulfo Pascubillo, Peggy Puakela, Stephin Sakata, Lance Teramoto, Tommy Waddoups, Shirley Saplan,

Poster winners told

...inners of the Book Week ...Contest from Keaau ... School have been an-

...oel Hawthorne, ...ahanie Muna, ...asaki, Julie Ashley Genie ...ndo ...s

Autumn Stimple, Kristi Eblacus, Clevis Mahi, Alapaki Gomes, Ellsworth Fontes, George Ribao, Jacob Variato, Robert Ferriera, Michael Botelho, Mary Ann Visaya, Joseph Gose, Douglas Yap, Rodney Acierto, Don Kaneshiro, Levy Dela Rosa, Ken King, Kehaulani Marzo, Maynard Narido, Amos Ayap, Yvonne Cacpal,

Kenny Nakasako, Alex Visaya, Michele Aina, April Keifer, Henry Dogo, Brian MacMillan, Jennifer De ...sta, Cary Ann Teer, Heather ...wa, Chad Stevens.

...udents

...Bulosan, Dena ..., Kelli Ann Kevin ...ntura, ...to,

Agriculture teacher receives $5,000 grant

Thomas E. Stasz, assistant professor of plant pathology, College of Agriculture, University of Hawaii-Hilo, recently received a $5,000 grant from the University of Hawaii Office of Research Administration.

Stasz's research proposal is entitled, "Induction of oospore conversion in Pythium ultimum by soil bacteria and effects of conversion on control of Pythium ultimum in soil."

Pythium ultimum is a fungus that is found in the soil and is a serious plant disease-causing agent of many crops in Hawaii and around the world. This fungus generally causes root rot of small seedlings, resulting in the death of the plants. Pythium can remain in the soil for long periods due to its spore stage, an "encapsulated fungus" that can withstand the environment and remain dormant.

Recently it was discovered that the spores rely on soil microorganisms to become active. One goal of Stasz's project is to determine which soil microoganisms cause the pathogen to become active, thus enabling the fungus to invade the roots of various agriculture crops.

present, because of the recent drought and earthquake, the DASCS is handling the technical part of the conservation program in the emergency situation. For further information, call Toki at 929-9211 or drop in at the office. 1/26/84

MARILYN TINA LOANDO, 1984 Mothers March (March Dimes) chairman for West Ha has announced Jamie Perry of View as area captain for Ha Ocean View Estates. The doo campaign will be held from Feb. 5. Due to the fac "doors" in Ocean View apart, Perry will set up Ocean View General a.m. to 2 p.m. every week. If you are not store during those donate, call Perry will be glad to pi

AL-ANON, a for Alcoholic cently organi are held fr nesdays in United Me a family who has receive meeti call

G Pa h

...e is all ...30 to ...y and ...ay call ...oy at the

...nterested in ... in a different ...ndsurfing. Last ... Ibiza, Spain, an ...ic group located in ...terranean, to take a ...urfing instruction and ...rtified instructor. The ...given by a German com- ...ly, which manufactures ...nt used in windsurfing. Jim ...at he isn't prepared to teach a ... at the present time, but if ... one shares his interest, they may ...ll him at 929-9215.

GOOD NEWS FOR FARMERS and ranchers in Ka'u. The U.S. Department of Agriculture and Soil Conservation Service opened a sub-office in Naalehu on Jan. 9. Harry Toki, soil conservationist, tells me that the office is located in the old Hutchinson (warehouse) field office—next to the Naalehu volunteer fire station. Toki said the sub office serves Ka'u from Manuka to Volcano in any agricultural operation and assists the Ka'u Soil and Water Conservation District. Their main function is to advise farmers and ranchers. At

Hawn. Trib-Herald

president of the American Public Health Association and Samuel Epstein, author of "The

has put off action further studies are completed.

Epstein has pursued

Pacific Garden slates 9-month botony course

Hawn. Trib-Herald, 1/25/84

The Pacific Tropical Botanical Garden in Lawai, Kauai, is accepting applications for its nine-month professional gardeners' training program in tropical horticulture and botany.

The program is designed as a post high school course in the basics of tropical horticulture and botany.

Graduates utilize the program in two ways.

Some, after the completion of the mine-month course, find employment in such careers as nursery work, grounds maintenance, landscaping, maintaining tropical collections in conservatories and retail nursery sales.

Others use the broad exposure of the course to find a direction in the fields of horticulture and botany and upon completion pursue further studies at other institutions.

Further information and applications may be requested by calling Marc Code, supervisor of education, at (808) 332-7255 or writing to the Pacific Tropical Botanical Garden Internship Program, P.O. Box 340, Lawai, Kauai, Hawaii 96765.

All applications must be received by April 1 for the 1984-85 class beginning late August.

Hunt

Museum planting some Isle evolution

Advertiser photo by T. Umeda

Businessman Clifford Melim (left) waits his turn as he and Dr. Edward Creutz, director of Bishop Museum, plant a kukui tree on the 192nd birthday of Charles Reed Bishop, who founded the museum. The tree and several others, contributed by Melim, are additions to a long-range landscaping project called Gardens in Time which will transform the museum grounds into a botanical display.

"If you got off an airplane in Hawaii before the Hawaiians arrived in their outrigger canoes, you would see none of the plants we recognize today as Hawaiian," said Rylan Yee.

While his sequence of technologies is a little fuzzy, his knowledge of plants isn't.

That's because Yee is curatorial technician and landscape coordinator in the department of botany at the Bishop Museum. He's the one who dreamed up Gardens in Time, which added four kukui trees this week on the museum campus.

The occasion was the 192nd birthday of Charles Reed Bishop, founder of the scientific institution.

Yee said his dream is to turn Bishop Museum grounds into an exhibit showing how plants evolved in Hawaii from bare lava to a Hawaii Visitors Bureau poster.

Eventually everything outside except the parking lots will be planted to five different periods of Hawaiian history. That is, if Yee can get the pili grass to grow.

"We have not been successful," he said. "We got it to grow once. But we moved it and the plants dried up."

When the gardens are completed, visitors will move back in time as they enter the grounds. They will begin in Modern Hawaii and proceed to Gardens of the Monarchy Period, Immigrant Gardens, Plants of the Hawaiians and Ancient Dry Forest.

Yee said the flatlands of Hawaii's islands were all covered with dry forest when the Hawaiians arrived.

"The first thing the natives did was destroy these forests," he said. "Today on Oahu there are only two small patches remaining. The plants are not those we think of as Hawaiian today."

These plants include one that is in the same family as panax hedge, also wiliwili, pili grass, a native yellow hibiscus and naio or bastard sandalwood.

The Dry Forest will be planted out in back by Likelike Highway.

"Plants of the Hawaiians will grow in the Garden Court and around Atherton Halau. They will be the ones imported by Hawaiians and include wauke for making tapa, noni for making dyes and medicine, kawa for making a narcotic drink.

bob krauss

The list continues with banana, coconut, ti, mountain apple, taro and many more.

But it does not include lauai fern which most people consider native to Hawaii. Yee said it didn't arrive until about 100 years ago.

"The early missionaries (1820s and 1830s) were collectors of Hawaiian fern," he said. "Their collections include all but two species then growing in Hawaii. There is no lauai fern among them."

A Garden of the Monarchy Period will greet visitors who have passed through the new admission hall.

"It will be a formal, Victorian garden," said Yee. "It will contain pandanus (hala), ti, breadfruit, pikaki (the fragrant blossom which got its name from the peacock), early gingers and royal palms."

The Immigrant Garden will display sugar cane, pineapple, commercial varieties of taro, hasu (Japanese water lily), kalamnugai (a Filipino legumas tree) and kukui which the immigrant Hawaiians brought.

Yee said he's now experimenting with a tiny rice paddy.

Before visitors get to any of these plants, they will pass through the Modern Gardens just inside the entrance to Bishop Museum grounds.

"This will be a lei and flower cutting garden," Yee explained. "The plants will include plumeria, exotic gingers, bougainvillea.

Yee said Gardens in Time is a long-range project that will take a number of years to develop. He said Clifford Melim donated the trees planted on Wednesday.

Hunt

A-14 Wednesday, February 22, 1984 The Honolulu Advertiser

obituaries

New him in Honolulu as a blond, then pleasing youth in the 20s & 30s

'Jack' Waterhouse, former A&B exec

John T. "Jack" Waterhouse, grandson of one of Alexander & Baldwin Inc.'s founders and an A&B director for 40 years until he retired in 1978, died in his sleep Monday night at his Tantalus home. He would have been 78 Sunday.

Waterhouse was the grandson of Samuel T. Alexander and son of John Waterhouse, A&B president from 1930 to 1945. He worked for the company from 1930 until 1964, rising to corporate secretary in 1936 and vice president and treasurer in 1958, while holding similar posts with several A&B subsidiaries.

Funeral services will be at 2 p.m. Feb. 29 at Kawaiahao Church. Private burial will follow at Oahu Cemetery.

Besides his A&B ties, Waterhouse was known for his love of his Kipukai Ranch, a 1,096-acre parcel on Kauai's isolated southeast coast. It was to devote more time to Kipukai that he took early retirement as an A&B employee while remaining on the board.

In 1977, Waterhouse agreed to deed the Kipukai Ranch to the state after the lifetimes of his nieces and nephews, with the land to be used "as a nature, animal and wildlife preserve."

Waterhouse, who spoke fluent Hawaiian, visualized Kipukai as a "meaningful educational experience," perhaps under the auspices of the University of Hawaii.

John T. Waterhouse
Served on many boards

Born in Honolulu, Waterhouse was graduated from Punahou School in 1924 and attended Lawrenceville School in New Jersey for a year. He was graduated from Princeton University in 1929, made an around-the-world trip, and joined A&B in its stock transfer department in 1930.

Outside A&B, Waterhouse served as president of Alexander Properties Co. and Waterhouse Investment Co., and vice president and treasurer of the Honolulu Star-Bulletin. He also served on boards of First National Bank of Hawaii (now First Hawaiian), Hawaiian Trust Co. and Honolulu Lithograph Co.

For more than 25 years, Waterhouse was a trustee and treasurer of Kawaiahao Church and a trustee or director of Leahi Hosptal, The Salvation Army, Punahou School, Hawaiian Mission Children's Society, the Hawaiian Historic Society, the Bishop Museum and the Pacific Tropical Botanical Garden on Kauai.

Waterhouse purchased the Kipukai Ranch in 1948 and spent the next 35 years building roads, planting grass and developing water, irrigation and electrical systems. He kept a prize herd of Hereford cattle and protected the numerous wild and semi-wild animals.

Waterhouse is survived by a brother, Alexander C. Waterhouse of Honolulu, an A&B director; a sister, Martha M. Hurd of Oakland, Calif.; and five nephews and nieces — Alexander C. Waterhouse Jr. and Sue Anna Wells of Honolulu, Cherry Anne Sutherland of Maui, Dicksie Lee Sandifer of Virginia and Barbara M. Toschi of California.

FDA seeking to spread food-irradiation word and use

By Ronald Kotulak
Chicago Tribune

science and health

Shunned by almost everyone for more than 30 years, food irradiation is suddenly being hailed as an alternate way to save consumers from the growing dangers of food contaminated with pesticides and chemical preservatives.

Many experts now believe it won't be long before the American diet will routinely include foods that have been preserved and sterilized by gamma radiation.

According to the government, foods treated by powerful gamma rays from Cobalt-60 or Cesium-137 sources do not become radioactive.

"One of the most frequent questions we are asked is 'Will the food glow in the dark?'" said James Greene, a federal Food and Drug Administration spokesman. "They just don't understand that irradiated food does not become radioactive. Of course it won't glow."

Such radiation has two effects: It destroys micro-organisms and insects that cause spoilage and it inhibits the sprouting and ripening of fruits and vegetables, significantly increasing their shelf life.

Already about 5 percent of the spices used by consumers and food processors in the U.S. have been irradiated to rid them of bacteria and insects.

The use of irradiation to sterilize products has become part of our everyday lives. Chances are that if you have had a medical problem in the past few years you probably came in contact with an irradiated product.

About 40 percent of all disposable medical items, such as surgical gloves, gowns, drapes, bandages, hypodermic needles, sutures and scalpels, are sterilized by irradiation.

So are some disposable baby bottles and milk cartons before being filled with milk.

At least 28 countries have approved irradiation for some foods. The United Nation's Food and Agriculture Organization (FAO) estimates that last year around the world between 50,000 and 100,000 tons of food intended for human consumption was processed with radiation.

Now that the door to food irradiation in this country has been opened a crack, the federal government, with the backing of the food processing industry, wants to push it open wider.

Earlier this month, Margaret Heckler, secretary of the Department of Health and Human Services, proposed that growers and food processors be allowed to irradiate fresh fruits and vegetables to rid them of insects. "We feel there are no dangers to consumers," she added.

Hawaii's papaya industry is studying irradiation as an alternative to the use of the pesticide EDB.

Her action was largely prompted by growing fears of food contaminated with the controversial pesticide ethylene dibromide (EDB), now widely sprayed on fruits and vegetables to control such pests as the Mediterranean and Mexican fruit flies.

The Environmental Protection Agency has banned EDB for use in grain because of tests linking the pesticide to cancer in animals. Further action limiting the use of EDB in other produce is expected.

Another commonly used fumigant, ethylene dioxide, also has come under suspicion as a potential cancer-causing agent and federal authorities are expected to curtail its use as well.

Irradiation, Heckler said, appears to be a suitable alternative to pesticide use.

The Food and Drug Administration published the proposed irradiation regulations Feb. 14. After a 60-day open-comment period, the administration will evaluate the responses from industry, public-interest groups and others and then draw up its final rule.

"We could possibly have a regulation on the books by the end of the year," said the FDA's Greene.

As part of its overall plan to expand the use of food irradiation, the FDA is also working on proposals to permit the use of irradiation for fresh meats, fish and poultry, Greene said.

While these regulations probably are still several years off, they are designed to reduce the risk of such food-borne diseases as botulism and salmonella as well as extending the shelf life of these products, he said.

"The FDA has reviewed all the studies done on food irradiation over the last 35 years and our conclusive answer is that food irradiated at the levels proposed is safe," Greene said. "It is equally as nutritious and tasty as nonirradiated food," he added.

Not everyone is as convinced as the FDA. Allen Greenberg, staff attorney for the Public Citizens Health Research Group, said his organization plans to file a formal comment with the FDA asking for more studies of possible harmful side effects of food irradiation before the process is approved for general use.

One of the group's major concerns is that irradiation may cause chemical changes in food that could possibly be harmful after years of exposure.

But FDA scientists have carefully analyzed irradiated foods and have found no byproducts in them that are not also found in nonirradiated foods. Furthermore, the U.S. Department of Agriculture recently completed a massive study in which it fed more than 300,000 pounds of irradiated chicken to a variety of animals over a two-year period without adverse effects.

Under the new FDA proposal, food processors would be allowed to use up to 100 kilorads to irradiate fruits and vegetables to control pests. A major side benefit would be increased preservation time. Potatoes, for instance, would last nine months instead of three.

In Japan, where EDB and ethylene dioxide already are banned, more than 30 percent of that nation's potato crop is irradiated.

(A rad is a unit of measurement used to determine the amount of energy absorbed from radiation. A kilorad is 1,000 rads and a megarad equals 1 million rads. A typical chest X-ray exposes a person to one rad.)

Gamma radiation is similar to X-rays, microwaves and light. None of the material exposed to this form of radiation becomes radioactive.

"It's just like visible light," said John Masefield, president of Isomedix of Whippany, N.J., the world's largest commercial irradiator. "No matter how long you leave a light on in a room, when you turn it off there is no light left around."

Rise in poisonings from mushrooms

United Press International

CHICAGO — Serious mushroom poisonings have increased nationwide, with no reliable way to determine whether mushrooms are safe or poisonous, researchers say.

The increase has been evident the past 15 years, Dr. John P. Hanrahan of the Centers for Disease Control and Morris A. Gordon of the New York State Department of Health in Albany said in the Journal of the American Medical Association.

"This increase may be attributable to more frequent gathering and consumption of wild mushrooms as a result of heightened interest in natural and organic foods."

In addition, they said, toxic mushrooms may be growing wild more frequently in the United States.

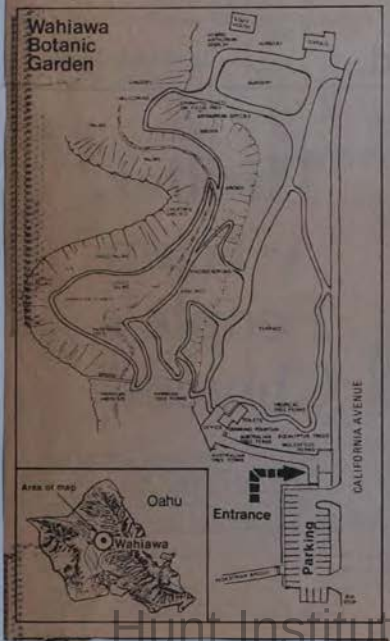
Toxic mushrooms account for 50 to 100 of the estimated 5,000 species growing wild in the United States, they said.

Toxins causing minor neurological or gastro-intestinal illness produce symptoms within 15 minutes to two hours after eating. More potent toxins capable of fatal poisonings do not produce symptoms for six to 18 hours.

Doctors should consider mushroom poisoning in a diagnosis, particularly in the spring and fall as moderate temperatures and wet conditions foster mushroom growth.

"Poisonings often occur in persons supposedly experienced in foraging for and identifying wild mushrooms," the researchers say. "The public should be advised that consumption of wild mushrooms carries an inherent danger that is sometimes life-threatening."

A quiet walk in a shady garden



Plopped atop the Central Oahu plateau, amid its red dirt and pineapple patches, is the scruffy old plantation town of Wahiawa. Once a welcome oasis for foot and horse travelers crossing the island, today, for many, it's simply a half-mile-long traffic snarl along a road that's a veritable Mecca for the island's fast food freaks.

But wait. Don't be fooled. Hidden in a wooded gully, a few blocks off Kamehameha Highway, is a marvelous shady garden, the ideal place for an afternoon stroll or a quiet picnic.

The Wahiawa Botanic Garden, 27 acres of imported trees, ferns, palms and flowers, was at one time a nursery and experimental station for the Hawaii Sugar Planters' Association. It was turned over to the City and County in 1950, and today it's part of the Honolulu Botanic Gardens, which also include Foster Garden and Koko Crater.

Start your walk at the California Avenue parking lot, where, after passing through the entrance gate, you arrive in a small fern forest. At the office, obtain a map for your self-guided tour, and sharpen your senses for a relaxed meander along the paths.

As seen from the map, there are two ambulation areas. The upper terrace is a brief loop containing trees imported from South America, China, the West Indies, Japan, Mexico, and the Philippines. Here, if you're fed up with your current prescription, you can try a cold cure with bark of earpod or purge your worms with Indian mahogany. Also are plants for making soap, chewing gum, dye, canoes and furniture.

Dare to be a bit more adventurous and strike out along the dirt trails of the gulch. The garden here isn't as well manicured, and there's a feeling of mystery in the moist dimness. Watch your step if it's wet. Now you'll discover Hawaiian flowers and shrubs, palms, vines and aroids. If you had to, you could literally set up crude housekeeping here with the assorted plants once used by the Hawaiians to make baskets, kapa for clothing, fish traps, and roof thatching. There's even a tree fern with a soft wool-like pulu used long ago for embalming the dead.

After you've sauntered to your heart's content in this secret garden, find your way back to the entrance. If you don't get there by 4 p.m. the caretaker warns that he's closing up by shouting across the gulch. But don't worry if by chance you're marooned in the garden for a while; there are unlimited ways you might survive with the practical and fascinating plants in this Eden.

Wahiawa Botanic Garden is open daily, 9 a.m. to 4 p.m., except Christmas and New Years Day. And it's free.

To get there by car take the H-2 Freeway to Wahiawa. Follow Kamehameha Highway across Wilson Bridge to California Avenue. Turn right and drive to the garden, at 1396 California Ave., on the left. Or take the No. 52 Wahiawa-Kaneohe bus from either Ala Moana Center or downtown Honlulu.

9,000-mile voyage — 50 years later

bob krauss

3/24/87

The inside story finally came out last night about the Bishop Museum's famous 1934 Marquesan Expedition, one of the most significant scientific events in the history of the Pacific.

Most of the scientists were seasick. The cook couldn't cook. And the first report to appear in public was written by a crew member in charge of the engine room.

In spite of these problems, all eight of the scientists who participated gained international recognition.

Five of them were on hand last night for the 50th anniversary of their adventure. It covered 9,000 miles of the Southeast Pacific and visited 56 islands in seven months.

The reminiscences they shared in the museum's Atherton Halau covered the collection of 200,000 land snails, 15,000 plant specimens, more than 40,000 insects and hundreds of Polynesian artifacts.

They worked 10 hours a day, seven days a week, added 1,339 new species of plants to the museum's collection and visited islands never before studied by scientists.

But their most colorful memories deal with things a little less scientific.

Botanist F. Raymond Fosberg, now retired from the Smithsonian Institution, told The Advertiser before the anniversary party that the cabin on the expedition's boat leaked.

"The boat was about 90 feet long, the largest fishing sampan in Hawaii," he said. "Bishop Museum chartered it. The museum remodeled the sampan for the expedition. As an economy measure, they hired a house carpenter instead of a ship carpenter.

"He forgot to caulk the seams of the deck house where we slept. My bunk was wet on the way to Tahiti. The deck also leaked, which caused the food to go moldy."

Mostly, Fosberg remembers the sampan for the way it pitched and rolled, he said.

"I had been sick a few times before, but this time I was really sick a good part of the trip," he confessed. "I have often said since that the best part was getting to an island and off the boat."

Botanist Harold St. John, retired from the University of Hawaii, said he was seasick the first four months of the expedition. Kenneth Emory, retired as head of anthropology at the Bishop Museum, said this is true.

"From my bunk, I could see the tip of St. John's nose, a shock of hair and his toes," said Emory. "That's about all I saw of him on the way to Tahiti."

There was a consensus that the most memorable member of the crew was the cook who couldn't cook.

"You see, the captain, Bill Anderson, was going to take his wife along as cook," said Emory. "But Dr. C. Montague Cooke, head of the expedition, said flatly, 'No women on the boat.'

"That made Anderson mad so he went out on the dock where a young man was fishing and said, 'Can you cook?' The young man said, 'No.' Anderson told him, 'You're hired.'

"Ye Gods, that man couldn't boil soup. A few days out, Anderson said to me, 'Kenneth, how could the good Lord have made anybody so stupid?' The cook was with us to Tahiti."

The biggest surprise of the expedition was young Yoshio Kondo, who is retired as head of the department in charge of snails at the Bishop Museum.

In 1934 he had graduated from high school and was working on fishing boats. Capt. Anderson hired him because he could keep a diesel engine going.

Kondo said the crew also included two newspapermen, one from The Advertiser and one from the Star-Bulletin.

To maintain control of publicity on so important an undertaking, the Bishop Museum trustees called in the editors of both newspapers and had them sign an agreement to publish stories about the expedition only if they were cleared by the museum.

However, the trustees forgot about the enterprising editor of the Nippu Jiji, Yatsutaro Soga.

"Soga sent a reporter to the waterfront to fetch me," said Kondo. "When I got to the Nippu Jiji, Soga handed me a camera and said he wanted me to write about things I saw during the trip. I had no idea what he was up to."

Kondo said he sent back reports which created great consternation among museum trustees and every Honolulu editor except Soga.

Kondo said the first inkling he had that he'd caused an earthquake in Honolulu journalistic circles was when expedition leader Cooke told the captain to instruct his crew members not to write for Japanese newspapers.

Hoever, Soga had not signed the agreement so the Nippu Jiji continued to publish Kondo's stories after clearance by the museum.

In spite of this palikia, Kondo and Cooke became friends.

"Every time we came to an island, Fosberg and Anderson and Zimmerman went tearing full speed up the mountains after plants or bugs," said Kondo. "Dr. Cooke was around 60. He couldn't climb mountains. He would ask me if I would go with him to collect shells. And he would give me lectures while we collected."

"By the time we returned to Honolulu, I knew as much as the professional collectors sometimes hired. So I got the job."

After several years of collecting shells around the Pacific for Cooke, Kondo was sent by Cooke to college. Eventually the student replaced his mentor as head of the department at Bishop Museum.

In addition to numerous scientific reports, the expedition produced two books by reporter Clifford Geisler.

Also on hand last night was expedition member Donald Anderson, retired as superintendent of Lyon Arboretum.

Not present was E.C. Zimmerman, who is now entomologist at the University of Australia. Two expedition members are no longer living: Peter Buck, who became director of Bishop Museum, and J. Frank Stimson, ethnologist for the museum.

Kenneth P. Emory

F. Raymond Fosberg

names omitted

Donald Anderson

Yoshio Kondo

Harold St. John

'Plant zoos' are attracting travelers

By Rosemary Armao
United Press International

Tourists in increasing number are discovering the country's arboretums — museums of living plants.

"There's been a great increase in interest in the past few years," said Sue Lathrop, spokeswoman for the American Association of Botanical Gardens and Arboreta, which is based in Swarthmore, Pa., and represents 150 U.S. and Canadian gardens.

"Everybody is reporting it," she said. "There's been an increase and it's substantial."

"I have noticed in the last 10 years a better awareness of the public of what an arboretum is," said Eliot Paine, director of the 2,800-acre Holden Arboretum in Mentor, Ohio, the nation's largest tree park.

"It is not an obscure scientific place but someplace to go and visit."

"They are plant zoos," said M. Joni Carter, a founder of the Kentucky Botanical Garden in Louisville, "places for the things we forgot to leave any place for in the natural world."

Some 700,000 people last year visited Longwood Gardens, the former country estate of industrialist Pierre S. du Pont near Kennett Square, Pa.

Longwood publicist Colvin Randall attributed the 11 percent increase in visitors over the previous year to a nationwide fascination with flower and vegetable gardening — and better self-promotion, including use for the first time of television ads.

Arboretums now are commonly listed along with museums, presidents' homes and amusement parks in travel guides. Paine noted that this year, also for the first time, the Ohio Bell Yellow Pages provide a separate listing for arboretums.

That is appropriate, since the state has 25. Kentucky has the Bernheim Forest Arboretum and Nature Center near Clermont, a privately endowed 10,000-acre forest.

It also will have the Louisville garden, which really isn't in plant yet. Garden organizers have spent three years collecting some 2,000 rare, unusual and endangered plants and hope to move later this year from rented greenhouses to a 79-acre site near downtown Louisville.

But historically, Lathrop said, botanical gardens such as Longwood began as private estates that were later converted for public use. Dawes Arboretum, encompassing 525 forested and planted acres near Newark, Ohio, was the summer home of Beman Dawes, a founder of the oil company now named Union 76.

The 47-acre estate of industrialist Charles Kelley in Mansfield, Ohio, has become Kingwood Center, a popular sanctuary for wild birds and a spring flower garden.

The plethora of springtime shrubs and flowers and the bright flowers of Christmas make those two seasons the busiest at arboretums, but greenhouses and conservatories also extend those seasons.

"Our most popular display is the orchids," Randall said. Longwood, with 3.5 acres of heated greenhouses, has orchids and roses in bloom year round.

Special programs also attract tourists to arboretums. They range from traditional Christmas poinsettia displays, to workshops at Dawes on papermaking, to ice-cream socials, to water-and-light fountain shows at Longwood.

While most arboretums offer educational programs in conjunction with nearby schools, they usually don't cater to children and they definitely do not allow picking or trampling of plants.

The Winterthur Museum and Gardens near Wilmington, Del., which displays furniture and decorative accessories dating back to 1640, specifically excludes children under 12.

"There are very few (arboretums) that would specifically say they restrict children," said Lathrop, who has two children.

"I think children can enjoy a garden far more than, say, an art museum," she added. "My children grew up in gardens. My son is 6 now. At 3 he was naming rhododendrons."

Haw. Trib.- Herald, 4/8/84.

Tourists discover many 'plant zoos'

By Rosemary Armao
United Press International

Tourists in increasing number are discovering the country's arboreta—museums of living plants.

"There's been a great increase in interest in the past few years," said Sue Lathrop, spokeswoman for the Swarthmore, Pa.-based American Association of Botanical Gardens and Arboreta, which represents 150 U.S. and Canadian gardens.

"Everybody is reporting it," she said. "There's been an increase and it's substantial."

"I have noticed in the last 10 years a better awareness of the public of what an arboretum is," said Eliot Paine, director of the 2,800-acre Holden Arboretum in Mentor, Ohio, the nation's largest tree park.

"It is not an obscure scientific place but some place to go and visit."

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Hon. Star-Bull. 4/11/84

Biologist S. Stillman Berry, Plant, Marine Expert, Dies

REDLANDS, Calif. (AP) — Biologist S. Stillman Berry, credited with hybridizing and naming more than 2,700 species of plants, died Monday after suffering a series of strokes in recent months, friends said. He was 97.

Berry, internationally known for his work with conch shells and mollusks, also was noted for his expertise in genealogy and horticulture.

Emperor Hirohito of Japan, a dedicated conchologist, corresponded with Berry and once mailed him a book the Japanese leader had written on seashells, said Paul F. Allen, a retired professor from San Bernardino Valley College and the executor of Berry's estate.

Lyman House exhibit shows off isle orchids

A lecture series on orchids and related subjects will be held during, "Orchids: An Historical Survey with Illustrations, Books and Plants," a special exhibit on view at the Lyman House Memorial Museum. On Monday, at 7 p.m. artist John Thomas will discuss "The Making of Orchid Serigraphs."

Visiting curator at Lyman House Memorial Museum, Thomas K. Kunichika will present a slide lecture on "The History of Botanical Illustration" on May 2, at 7 p.m. The Rev. Kunichika will include samples of works by Ehret, Redoute, W.H. Fitch and others showing the development of their illustrative styles that were decorative as well as scientifically important.

Two lectures by Hilo resident Earl Dunn who holds a Masters Degree in Orchidology will be held in May. On May 17, at 7 p.m. he will discuss, "Species Orchids for Hawaii," and on May 31 he will give a lecture on, "Pollination Mechanisms in the Orchids."

JOHN THOMAS
. . .making orchids

We never heard of it. C.D.

Board refuses to subdivide Molokai conservation land

By George Garties
Advertiser Government Bureau

A strip of arid beachfront land on West Molokai probably will remain unfenced and open because of a decision yesterday by the state Board of Land and Natural Resources.

The board also voted to:

● Conduct a public auction to sell a 35-year lease on a botanical garden near the mouth of the Wailua River on Kauai.

The overgrown gardens, formerly known as Paradise Pacifica, are being cleaned up by Walter "Freckles" Smith Jr., who runs a tour-boat business on the river.

● Grant a 15-year extension of the lease on another Wailua River lot used by the family of William E. "Billy" Fernandes as a Hawaiian cultural exhibit.

The board decided Fernandes' daughter, state Sen. Lehua Fernandes-Salling, and son, William Kimo Fernandes, needed the extra time to let the operation earn enough money to make up for losses caused by Hurricane Iwa.

● Bring in a non-profit church group to renovate and then manage the rental of about a dozen beach homes on state land at the Kahuku end of Malaekahana Bay on Oahu's North Shore.

The state owns 36 acres there as part of a park, but doesn't have the money to get the houses and land into shape for public use.

The Molokai ruling covers land in the Papohaku Subdivision, which runs up the hillside south of the golf course at the Kaluakoi resort. The subdivision consists of 126 lots between five and 40 acres that are supposed to be used for houses and agriculture.

While all the lots are sold, very few have been developed.

Along the shore side of the subdivision are 56 lots, all about five acres. They are separated from the shore by a strip of conservation-zoned land that is held in common by the owners of the 56 lots.

Each lot owner controls the conservation land between his lot and the beach, but cannot build or disturb the vegetation without approval of the land board. Kalua Koi asked the board to subdivide the conservation land to give each landowner clearer title to his strip of conservation land.

The landowners said this would make no difference in the way the lots are developed, since any use of the conservation land requires a permit from the board. But Molokai residents have complained the proposed change would have made it easier for owners to get permits for fences and other changes that would change the wild character of the area.

The board refused to subdivide the land.

Phillip Boydston, Kalua Koi vice president, said that means he'll have to hold off on a planned public park in the middle of the subdivision. Park users would have to cross the conservation land, he said, and he is afraid the lot owners could be sued if an accident occurs on the jointly owned strip.

On Kauai, the former Paradise Pacifica has been renamed Smith's Tropical Paradise by the holder of a month-to-month lease. Smith says he has spent thousands of dollars cleaning up the 22 acres of gardens and repairing the luau house and stage.

He said he hopes to win the long-term lease in the coming auction, and thinks he can make the gardens a financial success by making it a stop on his boat tours. The other Wailua river site, the 4.4-acre Kamokila Hawaiian Village, was leased in 1961 to Billy Fernandes, who planned to build a grass house exhibit there by 1963. In the mid-1970s, the board threatened to cancel his lease because no village had been built.

But the former state senator and former county councilman was allowed to keep the lease through 1986, with the provision that it would not be extended. He built the village, and apparently ran it as a tourist attraction.

Last year, Fernandes transferred the lease to his son and daughter.

The lessees have estimated hurricane damage to the village at $30,000 to $40,000, and a land board staff report confirmed that there was "severe damage."

Under a legal provision covering natural disasters, the board voted to extend the lease to give the lessees an opportunity to recoup their losses. The extension is for 15 years, and terms are to be renegotiated in 1986 and in 1996.

The Makaekahana Beach Park cabins on Oahu will be taken over by the Hawaii Christian Camps and Conference Association, a group sponsored by a number of Oahu Churches of Christ and Christian churches. The group has agreed to clean up the parks and renovate the beach houses in return for free use of one cabin year-round and free use of the park for a part of each summer for youth camps.

The board's approval doesn't take effect until the group gets official status as a non-profit organization from the Internal Revenue Service.

State says 13 hiking trails risky

Hon. Adv. 4/14/84

Sacred Falls bandits stir furor

By George Garties
Advertiser Staff Writer

Hikers on 13 of the 25 Oahu trails maintained by the state face "the possibility of encountering illegal activity," the state's top land manager said yesterday.

State Land Board Chairman Susumo Ono provided the list yesterday in response to questions about hiker safety raised in the wake of the trailside robbery of 25 people at Sacred Falls State Park Wednesday.

The victims, many of them tourists, were waylaid by three masked gunmen over a two-hour period as they walked up the 2-mile Windward Oahu trail. The hikers, who came in several separate groups, were ordered to turn over money and valuables and were bound and held captive at gunpoint as the robbers waited for more victims to happen by.

Police reported no new developments in their investigation yesterday.

Ono recommended those planning a hike on certain state trails go in a large group and not wander off the trail.

Ono didn't specify the source of the danger, but the unspoken assumption was that it comes from marijuana growers defending their illegal crop.

Among the trails on the caution list are some popular hikes within easy reach of downtown residents: Manoa Falls, the connecting Aihualama trail, and Waahila ridge at the top of St. Louis Heights. Others are in more remote areas of the Koolau and Waianae mountain ranges.

Two funds were begun yesterday to help reimburse the Sacred Falls robbery victims, and the tourist industry was offering free trips, excursions and dinners.

The Hawaii Visitors Bureau expressed outrage at the robberies and said it would work with government "to find ways to deter future occurrences."

The bureau said it had gotten only a couple of calls from Mainland newspapers about the incident. But as the industry knows well, such well-publicized incidents against tourists can mean large losses in future bookings.

The hikers reported being threatened and barraged with verbal abuse, much of it profane and "anti-haole." One man reported being punched, another being hit in the jaw with a rifle butt.

Both robbery detail detective Lt. Redge Roberts and detective Capt. William Ornellas said they had not been able to substantiate reports that the three men robbed only tourists and allowed local residents to pass without their valuables being taken.

"We don't have that as a fact but we're looking into it," said Ornellas.

Ono said two enforcement officers from his Department of Land and Natural Resources are assigned to cover all the state parks and trails from Sacred Falls to Malaekahana, and that those officers make periodic security checks of all the parks in addition to their duties enforcing fish and game rules, parking regulations and permits for camping and commercial movie-making.

The officers pay special attention to Sacred Falls, he said, including walking or driving the trail and occasional "surveillance," because of problems in the past. There have been problems with thefts from cars parked at the trailhead and four armed robberies have been reported on the trail since 1981, he said.

Police yesterday said their records show a total of 11 robberies with 13 victims at Sacred Falls park since 1981, most of them one-to-one encounters without any weapons involved.

"This is something new but we're looking at any suspects that we had in those earlier robberies to see if any match those in this case," said detective Roberts.

He said there was one case "four or five months ago" in which several men reportedly dressed in fatigue uniforms robbed a small group on the trail, but no newspaper accounts of the incident could be found.

Several Hauula residents who live nearby the trail said it has not been well maintained recently by the state and, said one, "it is spooky all the way up."

Edward Mendes said "the problem has been brewing for some time. There are a lot of young punks growing pot up there." Mendes said his son was threatened by a man with a gun last year along the trail.

"This has been going on as long as I've been out here," said Alice Soo, who moved to Punaluu a year ago but has visited the area over the past 33 years. "It just never has been played up."

When cars parked farther up the trail they were ransacked. Now that they are closer to the highway, hikers are affected, she said.

Soo said the trail was "true and natural" and that there are hiding places. But it "adds to the beauty" of the area, she said.

Sacred Falls is not one of the trails on Ono's caution list; those tend to be paths farther off the beaten track, or the remoter portions of well-traveled routes.

The trails considered remote, and therefore potentially dangerous, are: the Aihualama and Manoa Falls trails at the back of Manoa Valley, Waahila Ridge trail and the connecting Kolowalu trail above St. Louis Heights, Nuuanu trail, Kuaokala trail on the ridge above Kaena Point, Hauula Loop, Maakua Gulch and Maakua Ridge in Hauula, the deeper parts of the Manana and Waimano trails above Pearl City, Mokuleia trail, and Poamoho above the Wahiawa pineapple fields.

Hikers should also be careful on other trails, not maintained by the state, that lead to isolated areas, he said.

HVB spokesman Jerry Panzo said his bureau was attempting to call all the victims — both local and tourist — "to assist them in any way we can and to personally express our deep regrets and try to demonstrate another and better side of Hawaii."

Panzo said KKUA radio station raised $1,000 for the victims yesterday. And Linda Yamanoha, business manager of Aloha Magazine, started a fund for the victims and Aloha publisher Rick Davis put in the first $250.

Those who want to contribute to that fund can send donations to Aloha Magazine Tourist Fund, P.O. Box 3260, Honolulu 96801.

Several firms responded yesterday with offers to the victims. Polynesian Cultural Center has offered a free day at the center to each victim. Waimea Falls Park, Sea Life Park and the Rella Mae also have made offers. The Kahala Hilton has offered free dinner shows and Aloha Airlines has offered free roundtrip transportation.

— Contibuting to this report were staff writers Terry McMurray, Anne Harpham and Floyd K. Takeuchi.

Botanizing has been curtailed for Degeners, not because of advancing age; but of unsavory criminal conditions prevailing where most endemics still survive. Both were shot at a few years ago while botanizing in Puna, Island of Hawaii. O. & I. D.

September 16, 1984

Losing our trails

Disturbing indeed is the state Land Board's list showing that hikers face the risk of "encountering illegal activity" on 13 of 25 Oahu trails maintained by the state. On many Neighbor Islands trails, similar risks apparently exist.

The list surfaced in the wake of the outrageous robberies by three men of more than 25 hikers Wednesday on the Sacred Falls trail.

ON REMOTE Island trails, "illegal activity" is usually a euphemism for marijuana growing.

While there is currently no evidence linking the Sacred Falls robberies to this pursuit, it's a chilling thought that more than half of Oahu's trails, and some on other Islands, are considered potentially dangerous. Sacred Falls, incidentally, isn't on the caution list.

The Land Board's list raises a couple of questions. First, why wasn't the public told some trails may be hazardous? While the board contends it tells anyone who asks, it's unlikely more than a handful of hikers bother to call the board.

Second, are county and state enforcement efforts on the trails and to wipe out marijuana growers in remote areas belonging to the state having much effect?

The Department of Land and Natural Resources has only a limited number of officers and they are expected to keep an eye on parks and trails, as well as to enforce fish and game, parking and camping regulations. Periodic police and National Guard "Green Harvests" against marijuana growers, meanwhile, have largely concentrated on pot grown in areas with relatively easy access.

A number of incidents on trails in recent years, including the disappearance of two men in Kipapa Gulch on Oahu and the killing of a couple on Kauai, have been linked by police to marijuana farming.

NUMEROUS ATTEMPTS have been made to stem the growth of marijuana in Hawaii, long known as one of the leading producers in the United States. They include interception of the drug in the mail, experimental testing with diesel oil sprays, and the Green Harvest operations.

With innovative methods and tough sentences for those convicted, federal authorities on the Big Island have had notable success in ridding the volcano area of the national park of marijuana growing. But it is a success difficult to duplicate on a larger scale.

The answer is not, as some advocate, in legalizing marijuana — if that were possible for a state like Hawaii to do by itself — but in more effective closing down of growing areas and apprehending of those who threaten hikers, difficult as those are.

It is, after all, a matter of priority. There can be little doubt that if the state said half the Islands' beaches were potentially unsafe, there would be an immediate public outcry and demand for reforms.

The state's trails, enjoyed by thousands of hikers and wilderness lovers each year, deserve no less attention.

Herbarium Pacificum News

A publication of the Botany Dept., Bishop Museum Honolulu, Hawaii

volume 2, number 1 Spring, 1984

NEW BOTANY GRANT FROM NSF

The Botany Department was informed officially in March that it would be receiving a new grant from the Biological Research Resources Program (BRR) of the National Science Foundation. The three-year grant, effective on 1 June 1984, has an award of $187,914. The grant will allow the department to: (1) continue its present high levels of service to the national and international botanical communities, (2) curate and integrate the Doty Algal and Hoe Bryological Collections into the Herbarium Pacificum, and (3) computerize the data associated with the Type Collection.

Peter O'Connor, Collections Manager, will have direct responsibility for the curatorial and computerization activities. His continued presence in the Herbarium will allow us to maintain the high level of curatorial activity initiated by the previous grant. The bulk of the activities will involve the processing of the approximately 13,000 spirit-preserved collections of algae that were part of the Doty gift. Curatorial Assistant Kristen Schlech is the only member of the staff with phycological training and will supervise the project with Peter O'Connor.

The Type Collection of some 6,000 specimens will be carefully inventoried and the label data associated with the specimens will be entered into a data base that will ultimately allow sorting by a variety of criteria (e.g., basionym, collector and number, locality, kind of type).

GUIDE TO THE FLOWERING PLANTS Project Update

The project to produce a Guide to the Flowering Plants of the Hawaiian Islands has been making considerable progress. Treatments of about 250 plant species in about 125 genera and 21 families have been completed in house. This part of the manuscript consists of 300 pages of text. This does not include the material being prepared by collaborating specialists that presently accounts for over 40% of the entire manuscript. This project, now in its second of three years, was made possible by a grant from the Irwin Charity Foundation of San Francisco to S. H. Sohmer, who is in overall charge of the project. The bulk of the treatments are being prepared by Warren Wagner and Derral Herbst.

A number of projects related to the preparation of the GUIDE also have made substantial progress in recent months. One of these "side projects" nearing completion is a bibliography of Flora Hawaiiensis and Degeners' Flora Hawaiiana. This work, compiled by Susan Mill, the Flora Project's Research Assistant, with assistance from Warren Wagner and Derral Herbst, was not initially envisioned as a side project to the GUIDE but became an important aspect of the review of Hawaiian botanical literature. The bibliography should be submitted for publication in July.

This newsletter, as well as other botanical activities, has been made possible by the generosity of Mrs. Mary C. Dillingham of San Francisco, CA, and Mrs. Lucy Cranwell Smith of Tuscon, AZ. All Botany staff participated in producing the newsletter, but particular thanks are due to Warren Wagner and Anita Savacool. S. H. Sohmer served as editor.

Hawaii Adv. 8/21/84

Hawaii 25 Statehood

do it for Hawaii

Helping to count down the 25th anniversary celebration of statehood Aug. 21, The Advertiser is presenting 21 ways you, your neighborhood or community group can help keep Hawaii the state that's first in our hearts.

Here's the first way you can "do it for Hawaii."

It probably comes as a surprise to most people, but inside Koko Crater are the beginnings of a "dry land" botanical garden. The city hopes some day the 200-acre area will display plants from arid areas around the world, but for now, what cactus, aloes, century plants and the like there are have to struggle with haole koa and other weeds for spots in the sun. If you and some friends want to help get this educational project into shape, the folks at Foster Botanic Garden would love to help organize a work party. But be warned: This is a project for people who can stand to work in the blistering sun, with no shade, breeze, rest rooms or running water.

If you have a suggestion, please send it to "Do It For Hawaii," The Honolulu Advertiser, P.O. Box 3110, Honolulu 96802.

By Bart
Advertiser Scie

The decision
get the lead ou
cause prices to
drivers, but may als
to the long-stalled idea
land sugar to produce et
gasoline additive.

Those were a couple of the
reactions to this week's EPA
sion to de-lead motor fuel over t
next decade. (The phase-out is to start in two years, but elimination of lead isn't expected until the mid-1990s.) Even small amounts of lead are now believed to be toxic to children. Lead can cause mental retardation, liver and kidney damage.

Without lead, gas will more than likely cost more, according to a Chevron spokesman.

"It's going to cost more and the consumer has to realize that," said Dave Young. Making unleaded gas requires extra refining, addition of something to enhance the octane (like ethanol), or a higher quality raw material. Whichever is used, it

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Lead in gas boos
does ethanol, and etha
made from sugarcane n
Lead is cheaper, but as le
phased out, ethanol's future m
be brighter

Actually (with a few exceptions, we are opposed to the wholesale introduction of alien species. We have enough fascinating endemics to cater to the needs of tourists & scientists alike. Why crowd out endemics by still more exotics, & even risk the farmers' extinction in case of the exotics' naturalization? O. & J. Degener

Hawaii Tribune-Herald, Jan. 9, 1985. Note; We no longer can reach areas to collect the least endemic ferns and Angiosperms. It is to dangerous. Both of us were shot at a few years ago by criminal Cannabis growers!

Life of a pot grower on the Big Island

(Editor's note — Lawrence "Kanaka" Lindsey, 29, is one of three men who pleaded guilty to running a marijuana operation on Kahua Ranch in Kohala. Lindsey is scheduled to be sentenced today. His partner in the operation, Joe N. "Bully" Hui, 30, was sentenced yesterday to 12 years in prison — 2 years for growing, and 10 years for planting booby traps. Below are excerpts of a letter written by Lindsey that were entered into court record by the U.S. Attorney's office. The letter gives a look at his life as a marijuana grower.)

Aloha Ron,

I'm back in the hills again. Sure wish you could see our operation. We siphon water from the stream. Got plants from seedlings, to mid-stage, to almost harvest stage, to ready to harvest stage, and a couple pounds hanging to dry. Should be almost ready to smoke. I got some roach weed to last me til these I got hanging dry. Should be few days. Seems like I'm never out of smokes. I'll try send some next time I'm in town which should be when I send this letter. They got dogs at the post office and airports sometimes.

Today is kinda windy. I dug some holes and planted some, and watered today. The sun is out, so I might go take a dip and wash for a change. You know how it is when you're roughing it. I have a Coleman stove, couple gals of gas, enough food to last a month, kerosene lantern (the Coleman puts out too much light), a couple boxes of candles, a couple water jugs, and my guns. On yeah, and a cot to crash on. Luxery, eh?

'I'm kinda in a half malitia (sic) situation. Somebody comes in our patch, my job is to shoot first, prisoners, if can, no body gets away. Including the driver . . . Plenty places to dump a body. The pigs would grind (the body) away.'

I'm thinking of taking a vacation this winter, next summer for sure. Probably buy another bike while I'm over there and rent a house for a month or two or three or whatever. Play it by ear. Right now I should be digging more holes, cause there's about 500 or more seedlings to go in the ground. Should harvest big this summer. We have Lord knows how many plants, lots which looks like they'll be "1 lb" or more plants. Some about 10 feet or more. No exaggeration.

I gotta make more booby traps before my freind (sic) gets here, tomorrow, or he might get pissed! Got some 'creepy crawlers' coming to the patch. Last time they got away with about a lb. The time before, (I wasn't here yet) about 3-5 lbs! They'll be back, and I'll be waiting and ready. If they hide behind a tree, I'll knock it with a (expletive deleted) slug. Throw some .00 buckshot out there. It's like I'm in the military all over, only different uniform is camoflage woodland or tiger-stripe. I wear a bush hat. I want to get me an M340 mini-sniper. It's a bolt action .22 German-made . . . that cost about $750, . . . 200 yards, has a pattern of aprx 3". I could shoot game at a hundred yards easy. All headshots.

Another survival weapon I wouldn't mind getting is an M-1 carbine from Iver Johnson Arms. It's got a folding stock, accurate at 100-150 yards, and cost about $250. The reason for a deadly accurate .22 is because .22s are cheap, and can be stored by the 1000s easily.

Oh well, I'm kinda in a half malitia situation. Somebody comes in our patch, my job is to shoot first, prisoners if can, no body gets away. Including the driver. We don't (expletive deleted) around? Plenty places to dump a body. The pigs would grind that (expletive deleted) anyway.

Quote, Dreamer

I've learned that life is short. To live your life to the fullest and to always do good. To nature and/or to others. Karma is a role of all life, of all genetic forms all the way down to the smallest germ. Every morning the birds wake me up. If it isn't the skylark, it's the cardinal. And every morning I thank God I didn't have to shoot no rip-offs (creepy crawlers).

Hope they don't come back. I got my orders. Lotsa firepower. I'm in condition, too. Despite the beer, whiskey and smokes, I weigh about 150-155. Lean and mean. Acurate and deadly. Well, guess I'll close here. Take care of you and yours. I love you Bro.

Kanaka

The Plant Explorer

BROMELIACEAE ANDREANAE
By Edouard Francois Andre; edited by Michael Rothenberg
Two Windows Press; $175

REVIEWED BY MARGOT PATTERSON DOSS

Picture to yourself an image of the intrepid explorer on safari. Bearded. A knife in his belt. High boots. Rifle at the ready. A broad-brimmed hat to shield him from the sun, warm wool over his shoulders to hold out the rain. In the background, a pack train waits to take him over gorges, up cliffs, under waterfalls. Where was he going? Nine times out of ten, such expeditions were looking for flowers. Yes. For flowers! What else produces spices, tea, breadfruit, pineapples?

The great age of exploration that began with the discovery of the New World was also the great age of plant discovery. Magellan and Drake pressed their chaplains or surgeons as educated men into sketching the unusual plants they saw. By the time of Captain Cook, it was *de rigeur* for expeditions to have a botanist along as supercargo. Cook's was Sir Joseph Banks, the real creator of Kew Gardens. Some of the numerous plant explorers included Douglas, Fairchild, Fortune, Waterton, George Forster, Wallace, the Abbe David.

One of the least known of their number, largely because he wrote in French rather than English, was bromeliad enthusiast Edouard Andre, designer of the Bois de Boulogne in Paris, of Funchal Gardens in Madeira, of the great public gardens in Monte Carlo, the gardens at Villa Borghese in Italy, the terraces and promenades at the Grand Duchy of Luxembourg among them.

A "true Renaissance man — a visionary and a scholar of many talents ... both a botanist and a horticulturist, a writer and an editor, a plant collector and a landscape architect" is what Victoria Padilla calls him in her introduction to this beautiful new edition of his definitive monograph on bromeliads. In 1875 the French government commissioned him to travel in Colombia, Venezuela and Ecuador gathering these unusual plants. First published in English in 1889, his report is so rare that even major centers for botanical research often do not have a copy.

Michael Rothenberg of Shelldance, a Pacific bromeliad importer, and fine printer Don Gray of Two Windows Press have done the world of botany a major service in producing their full-sized limited edition of Andre's work. It has been printed with loving care on fine rag paper, half-calf bound and includes all 39 of the original lithographic illustrations.

Among collectors, all of whom will want a copy, the book has already created an international stir. Reviewing it for the journal of the Bromeliad Society, Professor Werner Rauh of Heidelberg calls it "one of the most important older publications of bromeliads."

A rage for bromeliads, a little like tulip mania, swept through the continent in Andre's time, as it is presently sweeping the world of plant lovers. The silver vase is a common name for one pink-flowered beauty. Even commoner is the one we all eat — the pineapple. Spanish moss is a tiny bromeliad. There are also bromeliads so big they contain a pool in their centers with a complete ecosystem of fish, snakes, frogs and smaller plants. ■

Chronicle columnist Margaret Patterson Doss' most recent book is "A Walker's Yearbook."

To Otto and Isa Degener with best wishes,
Susan W. Mill
Warren L. Wagner
Derral Herbst

TAXON 34(2): 229–259. MAY 1985

BIBLIOGRAPHY OF OTTO AND ISA DEGENERS' HAWAIIAN FLORAS

Compiled by Susan W. Mill,[1] Warren L. Wagner[1] and Derral R. Herbst[2]

Introduction

For over half a century Otto Degener, and for the past thirty years with coworker Isa Degener, has published on the flora of the Hawaiian Islands. The Degeners have often been acknowledged for their interest and dedication to the complex floristics of the islands and for their efforts in awakening the public to the need of conservation of native habitats of Hawai'i. Through their many books and publications, the Degeners have accomplished a great deal in terms of developing information about the plants of Hawai'i, and in this way they have made a tremendous contribution to the understanding of the unique Hawaiian flora. The Degeners initiated ongoing floristic works on Hawaiian plants under three titles: *Flora Hawaiiensis, Degeners' Flora Hawaiiensis,* and *Degeners' Flora Hawaiiana.* The greater part of their contributions to Hawaiian botany have been published as parts of the *Flora Hawaiiensis.*

The principal contributions of *Flora Hawaiiensis* to the understanding of the Hawaiian flora come from Degener's extensive field knowledge based on over 60 years of collecting in the islands. Degener has gathered ethnobotanical information and has noted the introduction and subsequent spread of exotic species in Hawai'i. This information along with other pertinent notes are included in the treatment of each species. The detailed descriptions that the Degeners provide are frequently more complete than those found in any other locally available source. These descriptions, together with the excellent line illustrations provided for almost every species, help to make accurate specimen identifications. In addition to the descriptive part of *Flora Hawaiiensis,* the work also includes introductory pages and indices and various miscellaneous publications, including a glossary of botanical terms, index to Hawaiian plant names, and historical sketches of several botanists.

Flora Hawaiiensis, also called "New illustrated flora of the Hawaiian Islands" or "New illustrated Hawaiian flora," is a compilation of loose-leaf sheets copyrighted and usually principally authored by Otto Degener, and after 1956, by Otto and Isa Degener, and published privately at irregular intervals from 1932 to 1980. To date, it contains 1144 articles treating 800 total species of native, naturalized, and cultivated ferns, fern allies, flowering plants, and one gymnosperm species in Hawai'i. The sheets are bound in fascicles termed "Books" or "Centuries," six of which are complete and Book 7 is only partly completed. The dates of publication for articles contained in each book are as follows:

Book 1—1932–1933, copyrighted as bound unit 1933
Book 2—1932–1935, copyrighted as bound unit 1935
Book 3—1934–1938, copyrighted as bound unit 1938
Book 4—1938–1940, completed as bound unit 1940
Books 1–4 reprinted and copyrighted as bound unit 1946
Book 5—1946–1957, copyrighted as bound unit 1957
Book 6—1957–1963, copyrighted as bound unit 1963
Book 7—1963–ongoing

Degeners' Flora Hawaiiensis at present consists of two articles: Leaflet No. 1, entitled "Prodromus of *Galeatella* and *Neowimmeria*," and Leaflet No. 2, "*Myrsine, Rapanea* and *Suttonia*." The former article does not state on it that it is part of *Degeners' Flora Hawaiiensis,* but it is noted as such in a statement in the latter publication; for this reason the flora title and "Leaflet No. 1" are put in brackets in the bibliographic entry.

Degeners' Flora Hawaiiana, principally authored by Otto and Isa Degener, was published from 1968–1973 and includes treatments of Hawaiian lichens and mosses. Like *Degeners' Flora Hawaiiensis,* it also is divided into "Leaflets," one dealing with lichens and the other with mosses. Thus far, Leaflet 1 consists of a key to Hawaiian lichens, a synopsis of the taxa present in Hawai'i, and a glossary of botanical terms. Leaflet 2 includes a general description of mosses, a listing of the families within each order, a key to Hawaiian species, the treatment of one species, and a tribute to Hans Hoermann.

The compilation of the present bibliography arose out of a larger project to create a computer database for a complete bibliography of Hawaiian botanical literature on flowering plants. This overall literature survey is being performed in conjunction with the project currently in progress at the Bernice P. Bishop Museum to produce a *Manual of the Flowering Plants of Hawai'i.* We decided to treat the Degeners' floras separately from the complete bibliography currently in preparation primarily because of the large number of individual articles published in them. Moreover, there was a need for a complete index to *Flora Hawaiiensis.* It has been difficult to know exactly what is included in this flora for two reasons. First, the sheets to be bound in each book were arranged in a loose-leaf manner, thus it is difficult to know if any book is complete. Secondly, the treatments of species in a family or even the sheets of a single genus or species are often distributed in more than one book. Within each book, the sheets are arranged alphabetically within a family and the families are arranged numerically by their assigned numbers, which correspond to a phylogenetic arrangement. Yet among the books thus far completed in the flora, the order is not continuous.

A number of sets of *Flora Hawaiiensis* were utilized in compiling this bibliography. The best sets available were those of: D. R. Herbst, W. J. Hoe, F. R. Fosberg, S. H. Sohmer, and the libraries of the Herbarium Pacificum and Bishop Museum.

The two primary purposes of this bibliography are: 1) to propose a standardized format for citing the Degeners' floras, and 2) to provide as complete a list as possible of all publications in them. In doing so we hope to enable individuals to more fully utilize the Degeners' work. Perusal of literature that includes citation of the Degeners' floras shows that there is no clearly established format for citing them. We would recommend for clarity and uniformity that whenever an article from one of the Degeners' floras is cited that it be done as shown in the following examples:

Degener, O., I. Degener and O. Klement. 1970. Degeners' Fl. Hawaiiana, Leaflet No. 1, Glossary of botanical terms, part 2. Publ. priv., 2 pp.

Degener, O. 1936. Fl. Hawaiiensis, contents of second century and important notes. Publ. priv., 4 pp. (K_1 and K_4). Rep., 1946.

Degener, O. and I. Degener. 1960. Fl. Hawaiiensis, fam. 5. Gleicheniaceae; *Dicranopteris; Dicranopteris emarginata,* part 1. Publ. priv., 2 pp. Replaces Gleicheniaceae; *Dicranopteris,* 1940.

Degener, O. and E. E. Sherff. 1932. Fl. Hawaiiensis, fam. 344. *Bidens wirtzii.* Publ. priv., 2 pp. Rep., 1946, with change.

[1] Department of Botany, Bernice P. Bishop Museum, P.O. Box 19000-A, Honolulu, HI 96817, U.S.A. [Support of publication cost gratefully acknowledged.—Ed.]

[2] U.S. Fish and Wildlife Service, Office of Environmental Services, P.O. Box 50167, Honolulu, HI 96850, U.S.A.

Egler, F. E. 1950. Leguminosae, Pea family, Key to local species, by leaves and fruits. *In*: O. Degener, Fl. Hawaiiensis, fam. 169. Publ. priv., 15 pp.

Note abbreviations for the words flora, family, published, and privately. In order to save space and reduce the amount of redundancy in each bibliographic entry in this paper, the title of the flora, the family number (only in *Flora Hawaiiensis*), and the notation of published privately are not included for each article cited, except in the particular cases described below. However, these should be included in any bibliographic citations of the Degeners' floras.

The bibliographies of *Degeners' Flora Hawaiiensis* and *Degeners' Flora Hawaiiana* are arranged chronologically by year. The *Flora Hawaiiensis* bibliography is separated into four sections: introductory and miscellaneous articles, ferns and fern allies, gymnosperms, and flowering plants. The taxonomic sections are arranged alphabetically by the family names used by Degener which appear as headings. All sheets with the corresponding family number (noted after the family heading) are arranged within a family by genus and species. The family Leguminosae is divided into three subgroups: Mimosaceae, family 169a; Caesalpiniaceae, fam. 169b; and Fabaceae, fam. 169c. Within the ferns and fern allies section, there are situations in which different species of one genus are placed under different family headings; this is because the Degeners in 1957 [Fl. Hawaiiensis, Contents of fifth century and important notes (K_{11} and K_{14})] divided family 17, Polypodiaceae, into four families, 17a (Polypodiaceae), 17b (Aspidiaceae), 17c (Blechnaceae), and 17d (Aspleniaceae). Sheets published under the heading of family 17 and family 17a appear together under Polypodiaceae and the family number is noted for each article. In this article the Degeners also indicated changes in family disposition for particular articles previously published in the family Polypodiaceae and for each of these the new family number and name appears in brackets at the end of the bibliographic entry.

The titles given in the bibliography for the taxonomic publications are based on the major headings which appear in the article. For example, it was common for Degener to give the family description and general information on the front side and treat a genus similarly on the back side of one sheet. The title thus includes both the family and genus name (e.g., "Batidaceae; *Batis*"). Titles do not include subspecific names, however, unless the article is concerned with only one subspecific entity.

The Degeners' intended arrangement of the introductory and miscellaneous articles of *Flora Hawaiiensis* is determined by a system in which a letter and number appears in the upper right hand corner of each sheet. Sheets labelled with an A come before those with a B, likewise, A_1 comes before A_2. The letter and number (or subject's name as in the historical sketches) for each sheet appears in parantheses at the end of the bibliographic citation. This system is especially useful in this bibliography when sheets of a particular article were published on different occasions. In these cases, separate entries have been made for each different publication date and the pages for each entry are designated by the numbering system in parentheses (e.g., "$D_{Degener}$" was published at a different time than "$D_{Degener\ 3}$" through "$D_{Degener\ 6}$" as was "$D_{Degener\ 2}$;" also, "D_{Sherff}" comes before "$D_{Sherff\ 2}$" even though the second page was published three years before the first).

In *Degeners' Flora Hawaiiana* and in the taxonomic section of *Flora Hawaiiensis* there are instances in which two or more sheets of a particular article were published at different times. In these cases, we have made different entries for each different publication date and state "part 1" or "part 2" after the title to designate the page order for that article. For example, the treatment for the genus *Chamaesyce* was published in six different parts or sheets. *Chamaesyce*, part 1, was published first in 1936 and reprinted, with minor changes, "to replace" the previous sheet in 1938, and again offset reprinted in 1946. Parts 2 and 3 were both published on the same date, 27 February 1937, and thus are included in a single bibliographic entry. The publication date originally printed on part 4, pages 7 and 8 of the overall *Chamaesyce* treatment, is 9 November 1936, but on some sheets this

Degener, O. 1934. *Hedychium flavum*. 2 pp. Rep., 1946.
Degener, O. 1934. *Languas*. 2 pp.
Degener, O. 1932. *Languas mutica*. 2 pp.
Degener, O. 1934. *Languas speciosa*. 2 pp.

Zygophyllaceae—fam. 177

Degener, O. 1932. Zygophyllaceae; *Tribulus*. 2 pp. Rep., 1946.
Degener, O. and I. Degener. 1960. *Guaiacum*; *Guaiacum officinale*. 2 pp.
Degener, O. 1932. *Tribulus cistoides*. 2 pp. Rep., 1946.

Acknowledgments

The contribution by S.W.M. and W.L.W. to this paper was supported by a research grant to S. H. Sohmer from the Irwin Charity Foundation, San Francisco. We would like to thank the following individuals for making their sets of *Flora Hawaiiensis* available to us: William Hoe, Ray Fosberg, and Sy Sohmer. For comments on the manuscript we are grateful to Peter H. Raven.

Perhaps it a fascinating surprise the authors + critics, produced this "Taxon" article of 30 pages, of which we here show but 4, did not contact the Degeners for possible corrections though less than 30 miles distant by auto + worth in easy talking distance by 'phone. As even the Degeners must eat they are licensed book dealers to sell their own shares with out loss of 40% commissions. The "Taxon" article was based evidently on random distributions by the Degeners of their "Flora Hawn.", articles. They did this to get their opinions into the public domain and to advertise the sale of complete sets for US dollars cash. Few libraries purchased complete sets, depending instead on gifts. Authors + critics apparently made no purchases either — we have no records of having done so.

As the Degeners advertised their "Books" at a reasonable price, they felt no guilt that many libraries failed to purchase any of the 1,400 copies originally available for sale. They could have had them for a pittance.

Please consult the complete article in "Taxon" of May 1985. We are proud of it.

O., V. I.

D.

Dupl. to SYL.

T. H., ... 19....

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WAIALUA, OAHU, T. H.
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T.H. ..... 19.....

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To: Otto Degener, Dr., Box 187, Waialua, Oahu, T. Hawaii, U.S.A.
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I (O.D.), a Mainland tourist, visited Kauai in 1922. I was thrilled by its endemic flora and the endemic fauna that depended on it for food and shelter. Years later I botanized for ferns & angiosperms in the Kokee highlands. Here I noticed no exotics except the South American Passiflora mollissima, the "banana poka", planted about outhouses of the Territory of Hawaii Forestry Department. While hunting for Kokee plants, I noticed usually several seedlings growing from each older dropping of feral pig faeces in the neighboring forest. I alerted a Territorial Forester stationed intermittently there about the danger posed to our endemics, but the privy remained hidden under these profusely flowering and fruiting lianes.

Still later (all dates recorded in Fl. Haw.) Mrs. Degener & I boarded at Kokee thanks to the kindness of one of the main founders of the Kokee Museum. We were distressed by the abundance of the pig distributed banana poka strangling some of the tallest endemic trees, and the spreading of "Larsen's Curse", Rubus penetrans from Florida according to L.H. Bailey, over slopes formerly crowded with lobeliads of various genera actually endemic, and other remarkable plants such as a shrubby violet. Kokee, however, was still a Heavenly haven for unique Creations, some of the oldest perhaps beginning their strange evolutionary tangent as early as 30,000,000 years ago when Midway and neighboring islands probably arose from where Kilauea erupts from the Pele Hotspot today. These islands drifted these thousands of miles at a roughly estimated 2 to 4 inches per year toward Japan.

After 25 years we revisited Kokee May 13, 1985 with aid of a U-Drive car. We were aghast to note the devastation along the road and as far as we could penetrate the thick jungle on either side in our hurry. Endemics had been replaced almost 100% by escaped ornamentals and weeds from almost all warm regions (except perhaps Africa) of the World! Even the rampant, Brazilian Tibouchina urvilleana and the aggressive, Azorean Myrica faha were becoming naturalized at exterminating speed, even to alien weeds. Curiously, the koa species peculiar to Kauai, continued to thrive. Perhaps for that reason more "practical" people money conscious today contemplate logging it!

Due to Man's present wholesale extermination of Kauai's animals and plants, we no longer yearn to visit that island again. It has lost its outstanding individuality. Its tourists' hotels, though more costly, are much like those we enjoyed in warm regions such as California, Azores, Canary Islands, Madeira, Tenerife, northern Australia, New Zealand and Tasmania. Even their grounds are often beautifully and monotonously landscaped mostly with the same reliable Chinese hibiscus, Brasilian bougainvillea, Greek oleander, etc. It is surprizing the Tourist Bureaus in such regions do not frown on everlasting sameness for their clients. They might instead stimulate each resort to become a lucrative oasis depicting with proper signs the area as it had been before Modern Man - viewing authentic, aboriginal artifacts is fascinating - eradicated the endemics. Today, were I brought blindfolded to many a hotel and its manicured grounds on Kauai, the Azores or elsewhere, I would hardly guess the precise island group with blindfold removed. O.D.1985

Biopower and Hawaii

Hon. Advertiser 6/25/85

Dr. Dieter Mueller-Dombois, the world's authority on Ohia forest ecology, has asked Biopower Corp. to halt the woodchipping of the last lowland tropical rainforest in the U.S. in Kalapana, Big Island. He presented a scholarly report to Biopower's president, Mr. Warren Ramsey, on the uniqueness, as well as the scientific, educational, and cultural values of the forest being chipped.

Biopower has ignored the promise they made to stop chipping if the forest was shown to be unique and kept chipping in Kalapana rainforest.

When sued by Friends of Hawaii's Forests, Biopower agreed "to unilaterally refrain from harvesting the areas designated by Dr. Lamoureux as the most critical areas of forest for two years." Undaunted, Biopower continued chipping the forest. . . .

What assurance do we have that Biopower's big pronouncements about planting trees and promoting bioenergy resources are not all lies and pipe-dreams? How can they possibly make $200 million a year from wood products in Hawaii? They must have plans for every Koa tree and Ohia forest on these islands!

Is Biopower indeed "committed to saving any unique or irreplaceable forest in Puna?" If so, why are they still clear-cutting and chipping unique and irreplaceable rainforests? Don't they know by now that one acre of our native Ohia forest is more biologically and culturally valuable and esthetically rich than 90,000 acres of alien tree plantations?

What is important to the people of this blessed state? The almighty "job" (which often goes to Mainlanders) or our sacred and beautiful land? Will there be a land or even jobs for our children when the forests have all gone to fatten the pockets of mainland profiteers and dishonest businessmen?

If indeed "The Life of the Land is Preserved in Righteousness", then we should put Biopower Corp. out of business in Hawaii.

ELIZABETH POWELL

By Gerald Kato
Advertiser Government Bureau

5/11/85

The Big Island's Bio Power Corp. was fined $1,000 yesterday for constructing a mile-long road on an old lava flow in the Wao Kele 'O Puna Natural Area Reserve.

But the state Board of Land and Natural Resources set aside its staff recommendation that the company pay an additional fine of $7,392 for damages.

A Bio Power spokesman said the bulldozing last year was the result of an honest mistake in the course of putting up a radio antenna.

According to a staff report, Bio Power used a bulldozer to cut a 14-foot-wide road on the 1977 lava flow. The report said the damage caused to the natural features of the lava flow is "irreparable and irreversible."

Staff planners for the board recommended a fine of $1,000 for violation of state conservation district rules and $7,392 for damages. Big Island board members Roland Higashi said that while he's not against collecting damages, he was concerned that the staff lacked a clear rationale for assessing damages at a rate of 10 cents a square foot.

At Higashi's recommendation, the board imposed the $1,000 fine only and set aside the suggested fine for damages. The $1,000 must be paid within 60 days.

misidentified species, and new native species will be published later this year in the Occasional Papers of Bishop Museum. The series is intended to make this information available prior to the publication of the Manual. Other articles resulting from research by contributors to the project are "Nomenclatural notes on Aster (Asteraceae)-III. The status of A. sandwicensis" by Almut Jones (Brittonia 36: 463-466. 1984) and "Alien species of Lepidium (Cruciferae) in Hawai'i" by Reed Rollins (J. Arnold Arbor., in press).

A number of auxiliary projects associated with the Flora Project have also made substantial progress, and several of them are completed or nearly completed. The "Bibliography of Otto and Isa Degeners' Hawaiian Floras," compiled by Susan Mill, Warren Wagner, and Derral Herbst, was published in the May 1985 issue of the journal Taxon (Vol. 34, No. 2). The bibliography is an alphabetically arranged index of the species published in their Hawaiian floras, which consist of 1,152 separate articles treating 823 species. This work was an offshoot of the larger project to produce a complete bibliography of the literature on native and naturalized flowering plants of Hawai'i. A computerized database, HIBIB, is being prepared which will ultimately form the basis of the publication of an annotated bibliography. Research on the bibliography project was begun by Susan Mill, Warren Wagner, and Derral Herbst. More recently, Dr. Donald Gowing, retired from a career in the physiology of tropical crops, joined the project as a full-time volunteer. He is now performing most of the bibliographic work that will allow this project and the publication of the bibliography hopefully to be completed by 1987. The computerized database, which presently contains 3,050 records, is available for bibliographic searches and is presently being utilized by the Nature Conservancy in conjunction with their Hawai'i Heritage Program.

Progress is also being made on the other related database, NOMEN, that will result ultimately in the publication of a Nomenclatural Index of Hawaiian Flowering Plants [see Herb. Pacificum News 1(1)]. Presently 2,400 names have been entered into the database. The total for Hawaiian flowering plants is probably about 5,000 basionyms and combinations.

Dan Austin (Florida Atlantic University) and Warren Wagner confer on Convolvulaceae which Dan is contributing to the Flora Project.

DOTY ALGAL COLLECTION PROJECT

The curation of the algal wet collection project has progressed steadily since its inception by Kristen Schlech, former Curatorial Assistant, in June 1984, and has continued smoothly under her successor, Mae Ikawa. The purpose of this project, funded by NSF, is to organize the algal wet collections, most of which were part of the Doty algal acquisition of 1981, and to make them accessible to researchers. In addition, this collection will be reduced in size by pressing and drying duplicates. The algal wet collection originally consisted of approximately 13,500 specimens stored in bottles and vials of various shapes and sizes in 10 storage cases. The duplicate specimens are being processed by pressing, drying and mounting the material on herbarium sheets, and are used for exchanges with other institutions. Specimens that remain wet are placed in standard-sized vials or bottles with inserts to limit evaporation, and rewetted in a freshly prepared solution of distilled water/alcohol/glycerin/formalin, a recipe originally formulated at Kew for their orchid collection. If only wet material exists, a dropslip is placed in the dried collection to indicate its presence in the wet

Bishop Museum Cuts Called 10 or 15 Years Overdue

Layoffs Needed to Avert $1.3 Million Deficit, Trustee Say

By Helen Altonn
Star-Bulletin Writer
6/29/85

The budget cuts being made at the Bishop Museum reflect a policy change and reorganization that is "overdue by 10 or 15 years," says museum trustee Dean T.W. Ho, president of Capital Investment of Hawaii Inc.

Ho said he has been involved with the museum since 1972, starting with the membership association and becoming a trustee several years ago. He is treasurer and chairman of the board's finance committee.

"This is the first time in my experience that we have had a strategy for attacking very serious shortfalls in income," he said.

A private, non-profit institution, the museum depends largely on endowments and contributions. It is not associated with the Bishop Estate and receives no support from the estate.

THE MUSEUM trustees, who are unpaid volunteers, last week approved reductions in the operation and staffing to avert a potential $1.3 million deficit.

Thirteen museum employees — including internationally renowned scientists — were terminated with severance pay. Frank Radovsky, chairman of the entomology department, resigned.

Museum scientists said the reductions threaten maintenance of the institution's unique collections and its worldwide reputation for research and scientific information.

Edwin Carter, Bishop Trust Co president and chairman of the museum trustees, couldn't be reached for comment because he is out of the state.

However, Ho said the trustees worked with Museum Director W. Donald Duckworth "on almost all aspects and certainly the general approach to the budget."

"We're very supportive of the director," Ho said. "We knew that none of these changes would come with ease. We knew they would come with great pain. So we wanted to make sure we were close to part of these plans and that we participated in this decision."

HE SAID THE trustees are responsible for the museum's endowments and "don't intend that they deteriorate beyond the point they have."

"It is a very difficult time," Ho said. "We have to show a turnaround somewhere, and I think one is in sight if these changes are implemented and we can gain, over the longer run, the support of the community."

Duckworth said the museum's endowment should be $50 million to $60 million "in order to survive and be well balanced and supported." But he said it is down to about $10 million to $15 million because the museum has been spending more than it has been taking in.

He said the feeling in the past was: "Let's see if we can't make it one more year and something better will happen."

But if nothing is done now, the museum will survive for only a few more years, Duckworth said.

"The people involved are valuable contributors, not only to Hawaii but to the national and international effort. But that kind of activity cannot exist without support," he said.

AND, HE SAID, "Being here (at the museum) in poor conditions, ill-equipped and ill-financed, brilliant researchers are choking off their own careers . . . when other places and other circumstances would provide opportunities for them to reach full creativity and talents.

"It's very, very unpleasant," he added. "Bear in mind that I am an entomologist. Two years ago I was president of the Entomological Society of America."

Five of the terminated museum employees are from the entomology department.

Patrick McCoy, museum anthropologist who is among those laid off, said Duckworth has been "upfront" about the situation but the staff was "hurt" by the way the terminations occurred, with a three-week notice from the personnel office.

Also, he said, "I just don't see any hope for the grand scheme of broadening the support base. . . . My fear is that this place will become a Waikiki side show. . ."

The museum ran an advertisement this week seeking applicants for two openings in the public relations and development office. Duckworth said they are not new positions and "every museum I know of has a large development operation. It is your organized fund-raising arm — the area that conceived of Family Sundays."

DUCKWORTH SAID he is emphasizing public programs and outreach to encourage more museum members, volunteers and contributors.

Most of the layoffs will take effect July 15 but Kazuko Sinoto, specialist in Japanese collections, will be retained until September.

She is in Japan with a traveling exhibit to promote the museum's book, "A Pictorial History of the Japanese in Hawaii, 1885-1924," which she co-authored. Her husband, Yosihiko, heads the museum's anthropology department.

Their son, Aki, is the museum's public archaeology contract manager.

Plea for museum

Hon. ed. 7/12/85

As a former staff member of the Bishop Museum, and, as a scientist who works on the cultural and natural history of Hawaii and the Pacific, I find the recent news of major cutbacks at the museum to be disturbing. Most disconcerting is that these cuts may result in major (and perhaps permanent) damage to the Bishop Museum's role as a center for scholarly knowledge of Hawaii and the Pacific region.

I cannot, however, take issue with the decision by Dr. Duckworth and the museum trustees to pull in the reins on museum spending, and to attempt to improve the museum's poor financial health. Dr. Duckworth is to be commended for having the courage to face fiscal reality, and to provide decisive leadership. Even before I left my position at the museum in 1984, it was obvious that some drastic financial decisions were urgently needed; no institution can survive long on a deficit budget. . . .

There is one solution — for the people of Hawaii to speak out and insist that this resource not be allowed to wither away. Modest funding of the museum by the state Legislature on an annual basis would assure that Hawaii's people would continue to enjoy all the benefits and services that the museum offers. Most states in this country take pride in their museums, recognizing that these institutions are real assets to the community. (In Washington, for example, the Burke Museum receives about 45 percent of its support from the state Legislature).

Shouldn't Hawaii invest a modest amount to maintain the quality of its world-famous Bishop Museum? Without the support of Hawaii's people, the museum which bears the legacy of Princess Bernice Pauahi could become little more than what its first director, William Brigham, once called "a mere dime museum."

PATRICK V. KIRCH, Ph.D.
Director, The Burke Museum
Seattle, Washington

Hunt

The Honolulu Advertiser

Saving Bishop Museum

Thursday, July 18, 1985

Some of the initial shock following the mass firings at the Bishop Museum has worn off, though concern for the museum's future has not.

There is clear agreement, even from those with past differences with the museum's management and direction, that the institution must be maintained. It is simply too unique and valuable a resource to be allowed to deteriorate or disappear.

Few were aware of the severity of the museum's deficit. The firings at least brought that home, as the previous dwindling of quality staffers to better-paying jobs in better-funded institutions had not.

At the root of the problem is the fact that endowment and operating income have not kept pace with the cost of running the museum. Grants and purchase of service contracts gave the appearance of activity, but not enduring growth.

ONE KEY now is increased public support. The museum is going after that aggressively. The exhibition of Maori art opening today is but an example of resources that could and should be more effectively displayed to attract people to the museum.

Then there is the Bishop Estate. While in the public mind it seems there must be a formal tie between the estate and museum, in fact there is none. Legally, the sole beneficiary in Princess Bernice Pauahi Bishop's will is the Kamehameha Schools for the education of Hawaiian children.

The estate's trustees are certainly aware of the museum's woes, however. Estate trustee William S. Richardson is a new trustee of the museum; estate trustee Richard Lyman is an honorary life-time trustee of the museum. (Until 1975 the trustees of the estate and museum were the same five men, acting in different capacities).

The estate does "purchase services" from the museum. And while the museum may never be a formal estate beneficiary, there should be room for collaborative ventures in education and outreach. For these to be successful, the museum's historical collections and research must be maintained.

The museum's mission has grown beyond simply preservation of things Hawaiian, starting with the princess' collection. But a way should be found so the part of the museum's work integral to the study and preservation of Hawaiian culture and heritage can be assisted more regularly by the Bishop Estate.

INEVITABLY, however, the museum must look to state government for systematic, regular support.

By law the museum is the state repository for certain kinds of anthropological and biological materials. The museum has received state funds in the past, but not on the fixed basis that would allow long-range budgeting.

Dependence on the state has dangers. But there are models for a successful relationship. The Smithsonian Institution began as a private facility and retains a good deal of autonomy today though it receives millions of federal dollars as the national museum. Many states have official museums as well.

HAD LAST month's firings taken place during the Legislature's session, the attendant uproar might have led to some rapid action. But a quick fix is probably not the answer.

In the long run the Bishop Museum must build up its endowment and increase operating income from dependable sources. It should expand its ability to exhibit to the public while safeguarding its collections and continuing research, especially of the kind that is done nowhere else.

This is not an insurmountable challenge, and the museum does not seem to be in mortal danger. But it is a challenge that will require concerted, cooperative effort in this community if the great potential of this institution is not to be lost.

State funding needed

As a former director and former trustee of Bishop Museum, I share with many others a deep concern for the future of this internationally-renowned institution, faced with a major financial crisis.

The fact remains that the museum has no future at all unless its operating deficit is brought under control. However painful it may be, reductions in operating expenses and hence in programs and personnel must be made if the museum is to survive. Director Duckworth and the museum trustees are to be commended for initiating decisive action to bring the budget under control.

At the same time, eliminating the deficit is only the first step in rebuilding the museum on a firm financial base. The museum is nearly a century old, and in that time it has given the

ever received in state financial support. Our Legislature, supported by the governor, should make an annual appropriation more commensurate with the Bishop Museum's demonstrated worth to the community, a practice which though long followed on the Mainland has not yet really reached Hawaii.

The private sector has been generous in its financial contributions to the museum, but a combination of private and state funding is required to assure the museum's future productive role for the benefit of Hawaii.

ALEXANDER SPOEHR

Museum Firings

Hon. Star-Bull. 7/17/85

I felt outraged and frustrated when I read about Donald Duckworth firing 13 Bishop Museum staff members.

Among them are three women who are near retirement age, but not yet eligible for full Social Security payments. Two of them are within two and three years of full eligibility after 21 and 26 years of service. One will not be eligible even for reduced Social Security payments for two more years. And she is a widow.

Is this the way Bishop Museum treats its loyal employees after more than 20 years of devoted service?

To me it sounds like the old plantation system. I thought we here in Hawaii had learned something about "aloha," "malama," and "pono" — love, caring, and goodness — in our relations with family and loyal friends.

Rachel Saiki

Museum needs support

The Bishop Museum is in trouble! Do you know why the Bishop Museum is in trouble? Because the people of Hawaii have abandoned their responsibility to the largest repository of the artifacts and culture of Hawaiiana in the world. Hon. Adv. 7/18/85

Contrary to public opinion, the Bishop Estate Fund supports only Kamehameha Schools, not the Bishop Museum. The museum is supported by endowment, donations and admission charges. . . .

The state has been very remiss in financial support of this great museum. Nothing, I repeat, nothing speaks so strongly of the Hawaiian culture and arts than does the Bishop Museum. . . .

During the last Legislature about $400,000 was set aside for the museum. Gov. Ariyoshi didn't release the money, and as of June 30, it is now lost. Why would the governor do that? Which is more important, keeping a baseball team that, had there been enough public support would not need the governor's intercession, or preserving the Bishop Museum that concerns everyone who lives here, and tells every tourist who comes here the story of our Island home?

Are we going to wait four years until the museum is bankrupt and the state has to step in and save all the collections from a bankruptcy sale? Think about it!

Join the Bishop Museum Association, write the governor, write your legislators! We must all help.

E. D. HOLLINSWORTH

Important resource

The Bishop Museum is one of Hawaii's most precious assets, indeed not only for the state but the entire Pacific Basin. Because of Hawaii's unique historical and cultural background it is one of our most important resources for educational and research purposes that we may better understand ourselves and from whence we came. Hon. Adv. 7/18/85

I am appalled to learn that the research funding at the Bishop Museum has been cut and that only the educational programs are to be given emphasis. Without the research programs' ongoing nourishment, the educational programs will soon stagnate.

Research is the life-blood of this museum; it is what nourishes and sustains it and keeps it alive. Without research programs the long-range consequence for the museum is that it will become nothing more than a tourist attraction, and will be a museum in name only.

I hope Mr. Duckworth and his board of trustees will take another look at what they are proposing, and also that they will take into account the public sentiments which thus far seem not in agreement with the proposed changes in funding.

The Bishop Museum has a moral responsibility to the citizens of Hawaii and the Pacific region. It is an outrage if the Bishop Museum does not honor its purpose and its responsibilities.

KARIN KOSOC

Saving the museum

June 30, 1985

The Bishop Museum is one of the Islands' finest and best-known institutions, offering an outstanding Pacific collection and conducting impressive research on a score of subjects involving Hawaii and the Pacific islands. Hon. Adv.

So it is particularly unfortunate that the museum has been forced to take drastic budget-cutting measures, including laying off 13 full-time researchers.

They include five from the Entomology Department, which has a highly regarded collection of 13 million insects. The department's head has also resigned, noting "philosophical differences" in museum procedures and management.

THE MUSEUM'S problem — one frequently faced by museums, galleries and other nonprofit institutions — is its rising operating deficit, which has already reached $750,000.

Until now the public perception may have been that the museum is well funded. In fact, it receives no money from the Bishop Estate and must apply for appropriations each year from the state Legislature.

Only 12 percent of annual revenue comes from admissions and 25 percent from endowments. Additional funding is from donations, dues, grants, contracts and other sources. Complicating the financial picture are two legal disputes with the state.

Reducing the Bishop Museum's deficit will take time but should be possible without unduly affecting public programs. In large part, the situation demands that the museum alert the public to its financial strains. With a well-planned marketing campaign, more visitors and residents can be attracted and more endowments sought.

Already, the museum's appeal and potential has been demonstrated by its successful first-of-the-month "Family Sunday" programs sponsored by Island businesses.

Community support, then, is the essence of the Bishop Museum's continued survival. Neither Hawaii nor the Pacific can afford to stand by while this respected institution allows its irreplaceable collections to suffer or its unique research function to deteriorate.

GOVERNMENT and private institutions should consider how they might help and utilize the museum. Membership support is one way individuals can help. Visiting the museum with family and friends is another. In so doing, everyone gains. For museum-goers, the exhibits offer an invaluable learning experience about our Island culture and way of life.

For the museum, the admission fee and other contributions help ensure that our children's children will also be able to enjoy and benefit from the museum's multitude of resources.

Hon. Adv. 7/18/85

The drastic slashing of the Bishop Museum staff illustrates two current problems. First, the museum has failed to identify its purpose with the larger community. To the public, the museum is largely a curio shop displaying a sanitized, glamorous Hawaiian, conveniently long gone from these shores.

We can dismantle an outstanding university, build Taj Mahal baseball stadiums with funds ripped out of the instructional and academic budgets of the university, but we cannot assume the self-proclaimed role of "Center of the Pacific."

Allowing the museum to fall into its present state is inexcusable. "Quietly and effectively," the infrastructure of our community is being dismantled. . . .

The ability of the museum to attract grants and research funds depends, not on the curios in the gift shop, but on the quality and presence of a research staff. This is precisely what has been dismissed, and to repair the damage already done will take considerable time. . . .

The only way out is to restore the state funding immediately, restore the staff, and begin a general mobilization of the community. Pressure must be brought to bear on the governor to move immediately to restore the budget intended by the Legislature.

EDWARD D. BEECHERT

obituaries Hon Adv. 3/22/84

Selwyn Aubrey Robinson

Selwyn Aubrey Robinson, patriarch of Kauai's kamaaina Robinson family, which owns Niihau and has vast landholdings on Kauai, died yesterday on Kauai. He was 91.

Robinson

He was born in Makaweli, Kauai, was a graduate of Harvard and was a former manager of Niihau Ranch, Makaweli Ranch and the Gay & Robinson Sugar Co., all of which are owned by his family.

He was the son of Aubrey Robinson and Alice Gay and the great-grandson of Elizabeth McHutcheson Sinclair, the Scottish widow of a ship captain who moved her family from New Zealand to Hawaii in 1863. She bought large tracts of Kauai and the entire island of Niihau from King Kamehameha IV.

A daughter, Helen, married George Robinson to start the Robinson branch of the family, which controls most of the original Sinclair holdings. The heirs of Selwyn Robinson's late brother, Lester, own Niihau today.

The family is very private about its affairs but was thrust into the public eye by the now-famous Hanapepe water rights case when in 1959 the McBryde Sugar Co. sued G&R over water the firm was diverting from the Koula and Manuahi streams to its sugar fields. Those streams feed the Hanapepe River, where McBryde gets some of its irrigation water.

The Hawaii Supreme Court ruled in 1973 that the water belonged to the state, not to either plantation. Selwyn Robinson in 1976 testified in federal court that the decision could put G&R out of the sugar business. Federal Judge Martin Pence in 1978 overturned the Hawaii court ruling and the state appealed the case to the 9th Circuit Court of Appeals.

No public services have been announced.

Selwyn Robinson is survived by his son, Warren Selwyn; daughter, Lois Ethelyn Somers of Honolulu; sister, Eleanor Robinson; seven grandchildren.

Research's Role at a Museum

Hon. Star-Bull - 8/3/85

I am very deeply concerned to learn of the decision by Bishop Museum to lay off 13 fulltime researchers. This step cuts right at the heart of the museum's whole research program.

Bishop Museum has been in its time a great museum. Any great or indeed merely good museum needs a research program, whose results will become fundamental to future education and public presentation. Without research, Bishop Museum will wither.

My own acquaintance with Bishop Museum and members of its research staff goes back over 20 years, and in my work as an archaeologist I am familiar with a great range of Bishop Museum publications in many branches of science which have been notable contributions to our knowledge about our Pacific world.

Bishop Museum has been regarded throughout the Pacific as a great museum because of its strong research arm.

It will be a tragedy if the present financial difficulties are allowed to cripple the museum's research activities, and the museum will be greatly diminished in international standing if this happens.

Janet Davidson
University of Otago
Dunedin, New Zealand

Museum's Abuse of Its Trust

Recent reports on the dismissals of researchers at the Bishop Museum have failed to bring out two of the most important points about this action. The first is that it has sent a shock wave which is spreading through the Hawaiian community.

The second point that has been missed concerns objections that are being voiced to the reasons given by the director, Donald Duckworth, for these dismissals. This action was taken in order to reduce the museum's long-standing deficits. In a meeting with members of Ho'o Hawaii, Duckworth emphasized that the dismissals were necessary in order to re-establish the confidence of the business community in the financial integrity of the museum. Otherwise, he argued, it would be impossible for the museum to obtain the financing necessary to continue.

We argued on the other hand that the museum would be better off to appeal to Hawaiians and the community at large for help in solving its problems. It is little realized that Hawaiians and Hawaiian organizations have successfully raised large sums of money for causes they believe in. And they are the first to volunteer services in any public cause.

By dismissing those researchers who have served the Hawaiian community well, the museum is turning its back on this vital source of spiritual and financial support. Imagine what could have been accomplished in the past decade if the Bishop Museum had been a partner in the Hawaiian renaissance.

I challenge Duckworth to clearly and publicly indicate what role he expects the Hawaiian people to play in solving the museum's financial problems, and just how he plans to bring about whatever contribution he has in mind.

Let me answer those who ask what business is it of ours, as citizens of Hawaii. The museum is a public trust, and especially so for the Hawaiian people. When its management has abused that trust, as it has by allowing the museum to reach a state of bankruptcy, then it is time for anyone who loves Hawaii to stand up and say so.

Stephen T. Boggs
Emeritus Professor of Anthropology
University of Hawaii

Museum pickets protest firing of 15 staff members

By Barbara Hastings and Gwenda L. Iyechad
Advertiser Staff Writers

Twice yesterday, pickets lined Likelike Highway in front of the Bishop Museum to protest the recent firing of 15 staffers.

Holding placards and waving to horn-honking motorists at noon, about 20 members of Ho'o Hawai'i protested what they said was a plan to change the museum from a world-famous Pacific research center to a tourist site.

The group disbanded an hour later so that it would not interfere with the opening ceremonies of a new exhibit, "Celebrating the Maori." They resumed picketing about 5:30 p.m. to coincide with the beginning of the Museum Association's meeting.

Haunani-Kay Trask, leader of Ho'o Hawai'i, a group concerned about the museum's future, said the protest was triggered by the "museum's new policy of cutting research on Hawaiian land use and on the Hawaiian environment."

Trask, an assistant professor of American Studies at the University of Hawaii, blamed the museum's board of trustees for failing to prevent the institution's financial problems.

"If they're going to fire anyone, then it should be the trustees because they had a legislative obligation" to keep the museum financially healthy, she said.

Museum director W. Donald Duckworth said last month that he fired 15 full-time staffers because of rising expenses and a budget deficit that could double by next year.

Trask criticized the trustees for not launching a full-scale fund-raising campaign a long time ago, and suggested they could do so now by donating $25,000 each to help solve the museum's problems.

Duckworth "has refused to reconsider his firings of research staff. In two meetings with members of Ho'o Hawai'i, Duckworth reiterated his refusal to suggest to trustees that they undertake a concerted fund-raising effort rather than cut valuable research people," Trask said.

She also complained that Duckworth has recently hired two public relations staff at the same time he has fired the other staffers.

In his remarks to the museum association last night, Duckworth reiterated what he said are the needs for the cuts.

The museum had faced an operating deficit of $1.3 million. With the cutbacks, the deficit is still expected to be about $750,000.

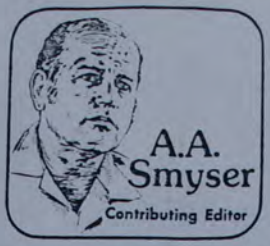
Laid off were six researchers, six scientific support staff, an accounting clerk, a photo lab technician and a switchboard operator.

The museum will be closed on three of four Sundays a month, beginning in September, Duckworth said.

At the same time, the museum is expanding its community programs in quality and quantity, he said.

There are two reasons for expansion, he said. First, the museum must fulfill its "fundamental mission for education in natural and cultural history." Second, more public exposure might bring in more funds from local and federal sources.

A Legacy That Needs a Push



IF I UNDERSTAND it correctly, Charles Reed Bishop and his wife, Princess Bernice Pauahi, wanted to do two main things for the people of Hawaii a century ago. Adv. Star, Bull 8/29/85

They wanted to leave her large royal landholdings in trust to be used to advance the schooling of Hawaiian children.

And they wanted to create a museum for Hawaii.

They did both, but the first rather better than the second.

The lands, mostly kept intact and mostly rented rather than sold, have appreciated to the point their value is counted in billions. The Kamehameha Schools have a bright financial future.

The museum was endowed with money rather than land, and its fortunes have not been anywhere near so outstanding — even though for many years the same trustees administered both.

IF YOU HAVE BEEN reading the newspapers at all in the past few months you must know there has been some commotion over the museum.

Let me venture that it is in a good cause.

The Bishop Museum is no pauper. It has quite a few acres of land in Kalihi plus some impressive old buildings, a couple of attractive new ones and a planetarium. It has an endowment fund of $11 million to produce operating revenues, another fund of over $6 million to be used for further capital improvements. Private gifts have provided most of these.

But its operating costs (currently over $5 million a year) have been far outrunning its income for some years now — and that is no way to get ahead.

So it is trying to do the two things most logical in such a circumstance — cut spending and boost income. And one other thing that may be even more important in the long run — generate more public involvement.

The board of directors overseeing this effort is no longer limited to the five trustees running Kamehameha Schools/Bishop Estate plus two outsiders. When it was, the estate trustees used to handle Bishop Museum affairs in a reconvened meeting after school-land matters were taken care of, and that meant they often did it late in the day or night when they were tired and wanted to get through in a hurry. And when the outsiders might be tired of waiting, too.

THE TRUSTEES themselves recognized this and joined in an

Helping the Bishop Museum help the community.

effort in the early 1970s to get court approval for a reconstituted museum board with a broader community base. The museum, after all, does not share with the schools in Bishop Estate's land revenues.

Now there is a 26-member museum board with only one Bishop Estate trustee on it, William S. Richardson. Another estate trustee, Richard Lyman, is, however, an honorary trustee.

These new, more active trustees last year recruited a new museum director, W. Donald Duckworth Jr., from the fantastically successful Smithsonian Institution in Washington. And they have adopted as their key concept the Smithsonian's key concept — that greater public involvement is the way to success.

Public visits and participation fulfill a No. 1 mission of any museum, that of reaching out to people. But it also brings with it the kind of interest that can be translated into more activity revenues, more endowment gifts, greater legislative support and a better financial picture generally.

The Smithsonian's research and other programs have grown in proportion to its growing public support. Bishop Museum trustees are starting down the same road.

They are goaded by the knowledge that the Smithsonian, while it is headquartered 5,000 miles away in Washington, D.C., has 7,000 members in Hawaii whereas Bishop Museum has only 4,000.

A MEMBERSHIP DRIVE is underway now to try to hit 7,000. Some quite meaty brochures explaining the fantastic variety of museum programs have been mailed out. Still more are available at branches of International Savings and Loan, which subsidizes the admission-free once-a-month family Sundays at the museum.

Those of us who believe the museum is important to Hawaii ought to be sure to sign up as members if we haven't already. We will be helping it tell even better about Hawaii's history, about the roles of our diverse immigrant populations, and about the amazing Polynesians who peopled much of the Pacific through brilliant and daring canoe voyages.

We will be helping Hawaii better fulfill its East-West role as a Pacific meeting place.

We will be helping ourselves through the free admissions and discounts that come with membership. And we also will be helping the Bishops strengthen the second thrust of their farsighted 19th century philanthrophy to the future people of Hawaii.

o/r.

Fortunato Teho

Hon. Advertiser 7/17/86

Fortunato Teho, who died Friday at age 78, was best known to several generations in Hawaii as a gardening specialist. He was that and much more.

Among other things, the Philippine-born Teho was a notable "first" in the evolution of Hawaii's Filipino community, a status recognized during the 80th anniversary of Filipino immigration to Hawaii earlier this year.

Raised on Kauai but a graduate of Mid-Pacific Institute in Honolulu, he was the first Filipino graduate of the University of Hawaii (at age 19 in 1927) and the first graduate in sugar technology. In 1947, he became the first Filipino in Hawaii to be naturalized as an American citizen.

Beyond that, however, Teho was an excellent communicator and information specialist for the U.H. Extension Service. For more than a quarter-century his radio and TV broadcasts and articles in newspapers and magazines provided Hawaii residents with the best available information by experts on plants and gardening. He was author of a popular book on growing plants in the Islands.

A stylish dresser who often wore an ascot, Teho was a notable figure. Friends say he was also a strong sports fan and keen badminton player.

All in all, then, Fortunato Teho was a memorable man in a Hawaii that is changing but seeks to preserve its natural beauty.

...rts center will get permit ...locate at Spalding House

...ilization Director ...id yesterday be ...ional use per... ...porary Arts ...operate a ...Spalding ...Heights

...sociation concerning hours of operation, noise and parking restrictions and the like.

No major exterior changes are described in the application for the historic 3.4-acre landscaped site.

...the ...rts ...

Whalen said the center will have to get building permits for some of the interior changes and other modifications planned before the former residence of ...lice Cooke Spalding opens as museum.

...e conditional use permit is ...ed because the musuem ...erate in a residential dis...

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obituaries

Fortunato Teho, 78, well-known gardening expert

Longtime gardening columnist Fortunato Teho, 78, died July 11, 1986.

He was born in the Philippines and moved to Kauai as a child. He became the first Filipino to graduate from the University of Hawaii at age 19 in 1927, the university's first graduate in sugar technology and the first Filipino in Hawaii to be naturalized as an American citizen, in 1947.

For 25 years he conducted radio and television programs and wrote newspaper columns and magazine articles on the uses of environmental plants and landscape beautification.

He was recognized as one of the 12 most outstanding Filipino immigrants, during Mayor Frank Fasi's 80th anniversary celebration of Filipino immigrants in April.

He was also the retired information specialist emeritus for the UH Agricultural Extension Service.

His book, "Plants of Hawaii — How to Grow Them," has sold more than 50,000 copies.

Services will be held 11 a.m. Saturday at Central Union Church, Atherton Memorial Chapel. Entombment at Diamond Head Memorial Park. He is survived by wife, Susannah V.; son, Fortunato; daughters, Mrs. Bernardo (Susannah) Villa, Barbara Pabrua and Mrs. Kenneth (Patricia Anne) Kumura; 13 grandchildren; four great-grandchildren; nieces and nephews.

CHOI — Chow Tai Kam Choi, 86, of Honolulu, died July 8, 1986. She was born in Canton, China. Services held. Burial at Hawaiian Memorial Par... Arrangements by Borthw... Mortuary. Survived by ... Kam Luong Choi of Mr... China; daughters, Mrs. F... (Iok Lin) Wong, Mrs ... Zhong (Xi Lin Hun) ... Chan Kam and Mrs. K... (Chi Kong) Wong; 23 ...dren and 17 grea... ...dren. A recent obituary was pa... ...rect.

CORBETT

Corbett, 85, ... July 5, 198... Spokane, ... tired fror... road Ce... vate s... Bort... by ... Jo... T...

This striking photo of fern is a black and white reproduction of a brilliantly colored picture in the publication, Trailside Plants of Hawaii Volcanoes National Park. It is among many kinds of plants in photo and discription included in the book produced by the Hawaii National History Association and written by Charles Lamoureux, professor of botany at UH-Manoa. It was also done in cooperation with the National Park service.

Common Ape Related to Taro Family

The word "ape" is applied to a large number of plants all of them with the elephant-ear type of leaf. The leaves are heart-shaped and the flowers are of the jack-in-the-pulpit or calla form.

The common ape, while not the largest of this group, has huge leaves. They grow on long stems which rise from a short, thick trunk and are dull green.

The flowers are usually hidden by the large leaves although each blossom is [illegible] interesting. The [illegible] near the top of the trunk.

It consists of a pinkish, noodlike bract enwrapping a thick spike. On the spike are the true flowers, very minute and almost invisible. The flower has an unpleasant odor.

The plant is closely related to the taros which resemble it in general form but are smaller.

by the way

Collected notes and comment / By John Griffin

Honolulu Adv. 7/27/86

A wrong Filipino first

Fortunato Teho, who died this month at age 78, was notable both as a gardening specialist and outstanding member of Hawaii's evolving Filipino community.

But he was not the first Filipino in Hawaii to be naturalized an American citizen in 1947, as stated in various stories and editorials, including one in yesterday's papers.

Many Filipinos became U.S. citizens with ease before 1946 when the Philippines was a U.S. territory and its people considered American nationals, the status of residents of American Samoa today.

But with independence that year, Filipinos not born here became aliens and subject to the same rules as other foreigners.

The U.S. Immigration and Naturalization Service says the first Filipino here to become naturalized in that period was one of its interpreters, Arturo Barba, who still lives in retirement in Moanalua Valley at age 80. That was in November of 1946.

Fortunato Teho worked for naturalization of Filipinos, but he didn't become a citizen himself until May of 1948.

Our thanks to those who called in. Often it is the best way to correct a wrong "fact" that gets imbedded in our newsclips and repeated.

Hawaii's Filipino-Americans Record '12 Firsts'

On the evening of April 23, 1986 the Mayor's Committee on the 80th year of Filipinos in Hawaii honored twelve Filipino-Americans who were pioneers in their chosen fields. These people are a living testimony to the ideals of good citizenship and unselfish commitment to the communities in which they live.

Peter Aduja and **Benjamin Menor**, two graduates of Boston University's Law School, have distinguished themselves as the first elected officials of Filipino ancestry to serve in the Hawaii State Legislature. Aduja was the first Filipino representative and he later served as State Attorney General. Menor holds the distinction of being the first senator and later the first Filipino member of the State Supreme Court.

Four Filipino women were honored as being "firsts".

Ines V. Cayaban, first graduate of the University of Hawaii School of Public Health, Nursing, and Social Work is still active in community affairs. Ms. Cayaban was a recipient of the prestigious Thomas Jefferson Award in 1986.

A name well known to Hawaii's gardening enthusiasts is that of **Fortunato Teho**. A University of Hawaii graduate in sugar technology, Teho went on to become an award winning horticultural journalist. He was the first Filipino to become a naturalized American citizen (1947).

Educated in Manila and completing her internship and residency at St. Francis and Kaukeolani hospitals, in 1952 Carolina Dizon Wong became the first Filipino woman to obtain an M.D. degree and practice medicine in Honolulu. Dr. Wong has been active in family planning programs in addition to her regular practice.

Hawaii's first Filipino school principal, **Domingo Los Banos**, held that position at Anahola Elementary School. Los Banos has a history of involvement in youth work and community organizations. He had served in positions of coach and athletic director in Hawaii schools prior to entering education administration.

James J. M. Misajon is well known in Hawaii's ecumenical community as the first Filipino to represent his church in local and inter-denominational activities. He has served as a volunteer chaplain at Oahu prison and as director of the University of Hawaii's Continuing Education Program.

Assuring that an appreciation of Philippine music and dance be continued with new generations of Filipino young people, **Aurelia Viernes** established a dance studio in 1956 offering classes in dance, piano, and rondalla. Founder of the Filipiniana Dance Academy, she still conducts classes and promotes and presents Philippine Heritage Programs in Hawaii and on the Mainland.

Honorees for "Filipino Firsts," include (left to right) Peter Aduja, state representative; Domingo Los Banos, education; Orlando Valentin (representing his mother Rafaela), community leadership; Faustino Respicio, media; Patty Menor (representing Banjamin Menor), state Supreme Court; Jose Corpus, labor; Ines Cayaban, health and welfare; James Misajon, religion; Carolina Dizon Wong, medicine; Fortunato Teho, scholarship; Aurelia Viernes, culture and arts; and Modesto Salve, business and banking.

Initially Filipino immigrants came to Hawaii to work in the cane fields. **Jose Corpuz** did this too but he also holds the distinction of being the first of the 1946 Sakadas to join the ILWU. Corpuz started as a camp steward and rose through the ranks to become Oahu Division Director.

He was the first Filipino representative to the Department of Social Services Board of Directors.

Businessman and Banker Modesto C. Salve got his start as a teller, the first of Philippine

Continued on page 11

Local Filipino Pioneers

From page 10

ancestry at Bishop National Bank, (now First Hawaiian Bank). Although retired, Salve is still active in his import-export company, which wholesales and retails Philippine woods.

Today a number of radio and TV stations across the state have Filipino-Americans on their staff. In 1954, however, when **Faustino Respicio** appeared on Hawaii's TV screens with the program "Filipino Fiesta", he was the first Filipino to produce and direct his own show, an institution that is still going strong.

All of these pioneers have done a substantial amount of community volunteer service, but **Rafaela P. Valentin** is unique in her dedication. Since her 1926 arrival in Hawaii Mrs. Valentin has worked with the PTA, Community Chest, YWCA, and Red Cross. She has helped organize Adult education and citizenship classes for non-speaking English seniors and has established an endowment for aspiring Filipino Students at Punahou School of Music.

A number of Filipino-Americans have been outstanding in their contributions to Hawaii. Selecting only twelve was a difficult task, but these people have indeed contributed not only to their ethnic community but to Hawaii and nation as well.

State Supreme Court judge Benjamin Menor and horticultural journalist Fortunato Teho passed away during July.

THIS IS AN INVITATION:

The staff of Herbarium Pacificum cordially invites you to join us on Friday, the 17th of June at 4: P.M. to celebrate the contribution Dr. William J. Hoe has made to the Museum, as well as to celebrate the conclusion of the renovation of the Herbarium Pacificum.

Dr. Hoe is giving Herbarium Pacificum his private collection of Mosses and Liverworts (mainly Hawaiian and Pacific). This outstanding collection of some 26,000 specimens is probably the single most significant private collection of its kind in the world. Dr. Hoe has, since becoming a Research Associate resident in the Department of Botany , given generously of his time and finances to further the cause of Botany at the Bishop Museum.

Our renovation project, initiated in 1980, was officially concluded recently with the replacement of the louvered windows with solid, thermopane glass. The renovation had two principal goals: (1) better and more efficient storage facilities for the collections and (2) reduction of the possibility of future insect infestations. These two objectives were made possible principally through National Science Foundation support that provided funds for new cases a compactor system, new work tables, a Collections Manager, and part-time help to cope with our backlog. The Irwin Foundation of San Francisco also figured prominently in the renovation by providing the funds to initiate the entire process. Donations from other private Foundations such as the Packard Foundation, and a substantial gift from one anonymous individual provided the means to obtain our air-conditioning units and windows.

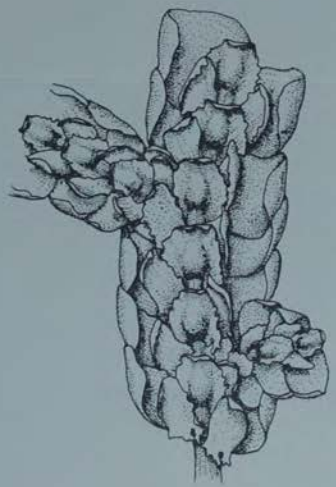
Please mark your calendar and join us for this event.

WHAT: RECEPTION FOR DR. WILLIAM HOE'S CONTRIBUTION TO HERBARIUM PACIFICUM AND CONCLUSION OF RENOVATION PROJECT.

WHERE: HERBARIUM OF BERNICE P. BISHOP MUSEUM, 4TH FLOOR, PAUAHI HALL

WHEN: 17TH JUNE, 4 P. M. , FRIDAY

PLEASE R.S.V.P. AS SOON AS POSSIBLE BY CALLING 847-3511 ext. 173 and ask for Susan; or simply ask for Botany and speak to any one of us (S. Sohmer, P. O'connor, W. Wagner, K. Schlech, R. Yee, C. Russell, or J. Medler).



Porella hoeana Hattori

Species of hepatic moss named after William J. Hoe. It is found in Haleakala National Park on Maui.

(About 18x natural size.)

Volcano Views

Mary Miho Finley

6/5/83

A faya jungle

How, Tribune-Herald

VOLCANO — In the Canary Islands, Myrica faya is the only tree. And the people there love it. At Volcano, the cry is "kill faya" for the vigorously-growing, introduced tree is transforming thousands of acres of ohi'a forest into a faya jungle.

"It's happened before in other parts of the island," lamented Kate English, recalling faya growing in Paauilo when she was a child. "I remember looking up at these huge trees and wondering what they were. All the ohi'a and every plant underneath them had been killed by their shade. They were faya trees."

From seedlings to large flowering trees, the faya is so numerous in large parts of the National Park, the golf course subdivision, Mauna Loa Estates and along the Volcano highway that visitors and unacquainted kamaainas alike think that it must be a native. When I first moved here nine years ago I almost transplanted some to my yard to make a fast-growing hedge.

Faya has dark green, tapering leaves and is usually found growing at the base of ohi'a trees as a very healthy bush. From seeds dropped by birds or the wind, faya sprouts in the protection of ohi'a which it eventually outgrows, ultimately killing the native ohi'a tree and all vegetation beneath. When ohi'a is gone, it will mean the end for the few remaining species of native honeycreepers who feed on ohi'a lehua nectar.

Right now faya is flowering. In December there will have sprouted a whole new crop of seedling fayas. If we don't do something substantial soon to check faya, our grandchildren will have lost the Volcano experience of the tremendous majesty and variety of ohi'a forest.

"It's out of hand in all but a few small areas of the park," said Dan Taylor, head of resources management in the Kilauea Volcanoes National Park, "but we have learned a lot in the last year about how to go about controlling it. You delineate a small area to tackle at a time and get out the large flowering trees first. You do this by cutting off two large branches and inserting a section of surgical tubing into the cut ends. The tubings are filled with straight "Round-Up" herbicide which soaks into the tree again. With unity we can be effective in one area at a time. The National Park is willing to help instruct in the best methods of removal they've found. And 4-Hers and the Volcano Community Association have pledged their support, as have the Volcano Golf Course and golf course subdivision residents.

If you, your ohana or club would like to add your efforts to this cause, call me at 967-7230. An organizational meeting to set up times and strategies will be happening soon.

Besides saving the native forest, removing faya from Volcano has the added benefits of being an activity everyone in Volcano can do. Faya overlaps all boundaries in Volcano and if we don't do something about it soon, all of Volcano will belong to faya in a fairly quickly, eventually killing the faya. Once the source of more seedlings is gone, you can go to work on pulling up the seedlings and cutting off and killing smaller bushes that aren't flowering yet."

Virginia MacDonald, Russ Sherman, Pete Goss and the folks at the golf course subdivision set to work last summer with the help of Ellen Kai and Laila Ulrich's Sunday School kids. A start was made fighting faya. "Kill the invaders!" the kids shouted as they pulled up faya seedlings. But faya doesn't rest.

"The way it's got a hold now, within 50 years faya will have supplanted ohi'a in the areas where it now grows," says Cliff Davies, Volcano resident and retired Department of Agriculture official.

Homeowners, community members and lovers of the native forest, this summer will organize to attack faya

6/19/83

VOLCANO—Dr. John Lockwood, itinerant U.S. Geologic Survey volcanologist and Volcano resident, was recently in Sicily to study lava diversion techniques used by the Italians. Lockwood returned late Sunday evening June 12 just in time for the present eruption which began early Monday morning. Possibly he can put to use some of what he learned at the Mount Etna eruption to help the folks in Kalapana.

The Italians had tried to use explosives, but were unsuccessful, said Marti Lockwood, commenting that the Etna eruption apparently had covered some houses and was threatening some resorts in Sicily. Some of their barrier techniques were successful in diverting the flow, she added. "But you should really talk to Jack." Now, if we could just fly along with the helicopters to interview him "in the field."

Lockwood and National Park personnel were busy setting up a fire prevention plan in Kalapana to be put into action should the steadily moving lava flow once again threaten residencesin the area. On Wednesday evening a bright red glow could be seen from Wahaula but lava had not come over the pali.

Drs. Otto and Isa Degener on a recent tour of the Canaries, Azores and Madeira Island found the genus Myrica growing native in numerous places, "but we would hardly identify them as the same variety . . . that threatens to devastate our own countryside," they said. The Degeners, former Volcanoes National Park naturalists and long-time Volcano residents, are planning to send samples of Hawaii's particular Myrica (faya) species, an introduced tree that is taking over vast areas of the National Park, to botanists in Spain and Portugal in an effort to establish exactly where our faya comes from. Once that's known, a biologist would then be able to determine what the natural enemies of that faya are, and a biological control could be introduced to bring faya under control.

This sounds promising for the ultimate solution. In the meantime Volcano property owners could help alleviate the problem by removing faya from their land. Faya without seeds can be left to compost, but those with seeds need to be burned or hauled to the dump to prevent birds from eating the seeds and planting more faya trees far and wide. Unfortunately the faya-eating birds seem to favor sitting in ohi'a trees at the base of which faya sprouts up and aggressively outgrows our beautiful native ohi'a with its red, yellow or orange blossoms.

DRS. OTTO & ISA DEGENER
P.O. Box 154
Volcano, Hawaii
96785 U.S.A.

June 6, 1983

Miss Mary K. Finley
Hawaii Tribune-Herald
Hilo, Hawaii

Dear Miss Finley:

We were delighted with your timely June 5 article warning us about the danger of "A faya jungle".

One of us having been Naturalist of Hawaii National Park in 1929, and both of us being local, professional botanists; we consider the introduction of the faya tree a major ecological disaster. According to rumors we heard years ago, a sugar worker on his return to the Hawaiian Islands from a visit to his childhood home on an Atlatic Island off Africa introduced the seed. We, however, never did hear precisely from which island these seeds had come.

After a brief stay in Germany, we did not fly a bee-line practically nonstop to Hilo. Instead we flew over Spain and Portugal for a grand educational detour with numerous stopovers in the Canaries, on Madeira, and in the Azores. In fact, we botanized industriously for Flowering Plants chiefly to augment the collections of the New York Botanical Garden of which we are staff members. Duplicates desired go to the Bishop Museum and elsewhere. From May 22 to June 2 we sampled the vegetation of two Canary Islands (including Haleakala-like Tenerife), and then until June 10 that of Madeira. Thereupon we collected on five or six Azore Islands (one was small), until our final flight from Terceira to New York June 28.

The remarkable part of our collecting vegetation samples for a little more than a month is that we saw numerous trees in numerous places of the genus Myrica growing native, but we would hardly identify them as the same variety as the naturalized Myrica that threatens to devastate our own countryside!

Perplexed, we noted in our annual application for a collecting permit in Hawaii Volcanoes National Park that, time available, we should like to collect a large quantity of twigs of flowering staminate ("male") trees, of flowering pistillate ("female") trees and of fruiting trees. We would then swamo expecially Spanish and Portuguese botanical gardens and universities with these three kinds of specimens WITH THE REQUEST for their learned opinion as to where our exotic plant pest has its closest relative.

With its native home finally known, we recommend a man, preferably with a smattering of Portuguese andor Spanish at his command, be sent to the place of origin to go into the expert routine of studying the native plant and its native fungus and insect pests. We noticed them on some of the Myrica varieties we collected; but the proper kind on the proper kind of tree now on Hawaii might insure better success. Our Myrica tree weed should then be especially well adapted for a quick, happy death via biological control.

Incidentally we may add that the terrain in which Myrica thrives in Hawaii often seems rather nitrogen poor. This unusual ability to thrive anyway may be associated with a nitrogen-fixing bacterium, as in most legumes, or a mycorrhiza. Moreover, the hopeful human Myrica exterminator would live under ideal conditions thanks to the value of our Dollar in the Portuguese and and Spanish colonies. We lived in the very best hotels - waiters wearing white goves while serving meals - for $15 to $25 per day, including Continental breakfast. No, don't misunderstand us. The price was per couple, not for a sihgle person!

Aloha,

Drs. Otto & Isa Degener

The Native Hawaiian
December 1982
Volume VII, No. 1

From tarweed silversw

Dr. Otto Degener is a distinguished botanist cited by the Hawaii State Legislature in 1979 as one "who cares about the natural beauty and special qualities of these islands; Hawaii owes a bottom line debt of gratitude to Dr. Degener for his life time perseverance in relating humankind to the natural environment upon which we ultimately depend our for survival." In 1932 the University of Massachusetts at Amherst called him a botanical pioneer." Among our galaxy of great naturalists your place and fame are secure." Dr. Ina Degener, his wife, is credited with greatly influencing his leadership in the botanical world. Degener has denounced the introduction of certain plants and animals to Hawaii's natural environments.

"Man is wrecking within 200 years a flora that has taken 20 million years to perfect," says Degener. He was happy to share his concerns on the Hawaiian

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The Hawaiian Islands arose from the ocean in round numbers 100 million years ago from a "hot spot" belching magma or "lava" about where the Island of Hawaii is growing today. Some of the first to appear were Kure Island, Midway Island and Pearl and Hermes Reefs. They reached their present position about half way to Japan by sliding with a huge crust of rock on top of peanutbutter soft magma at the rate of about two inches per year. About thirty to fifty islands erupted later at intervals at the same spot. There is no reason to believe such islands did not emulate in size and elevation the five major islands man now populates in ever-increasing number. We must not be confused by the barreness and smallness of the more distant islands today. It is the result of no more increment of lava to make up for millions of years of erosion by rain, wind, and less effectively by earthquakes and tsunamis. All were bombarded with eggs and cysts of animals as well as spores and seeds of plants ever since their origin by their flying in the wind, floating on the water, and sticking to the soiled feathers and legs of birds or undigested in their intestines until voided with a useful contribution of manure. Almost all died, but a very few landed on ground satisfactory for living and forming a "dynasty" of their own. With millions of years available, this influx was enough to cover the barren lava wastes with plants which, in turn, supported "dynasties" of animals to the present.

The earliest animals, perhaps landsnails in an overgrown knot hole of a driftwood log, and sticky "seeds" of the California tarweed ancestor or the seeds of some primitive southwestern hibiscus made the round trip from an early "hot spot" island with frequent stopovers on islands of our archipelago toward its northwestern end. Those that tarried petered out as the result of their island's continuous erosion. But some few emigrated in erratic stages all the way back again to the more modern islands arising from the "hot spot" many millions of years after the early ancestors had started the jaunt.

The earliest successful immigrants to the Hawaiian Islands on for example Kure, Midway or Pearl and Hermes has the greatest number of millions of years to evolve into something different from their ancestors, influenced by genetic isolation and the stimulation of growing at different times on different islands perhaps in salt bogs, deserts, dry forests, rain-forests, cinder cones, in heat or cold, etc., etc. Most succumbed over the ages but about thirty to fifty kinds of Flowering Plants or Phanerogams, for instance, today are so different from their ancestors that they are recognized as distinct genera. In the case of the early tarweed mentioned above, it developed in the presently surviving genera *Railliardia, Dubautia, Wilkesia* and the truly magnificent *Argyroxiphium. Argyroxiphium*, if you have not guessed it, is the famous silversword genus to which about half a dozen species exist on Maui and Hawaii. About an equal number of less silvery taxa, some not yet properly described for naming scientifically, are endemic to Maui. Somewhat subdued in appearance, they are known as "greenswords" in the vernacular.

The other example that fascinates us so intellectually is more involved: The Lobelia Family is characterized almost always with bearing curved flowers. The one endemic genus *Brigbamia* has straight flowers; but the endemic genera *Clermontia, Cyanea, Delissea, Galeatella, Neowimmeria, Rollandia* and *Trematolobelia* all have curved ones.

Whether early emigrant birds have a straight or more likely somewhat curved beaks eons ago birds came and evolved into the endemic Family *Drepanididae* or Honeycreepers. This consisted of twenty-two endemic species with about fifty subordinate taxa until relatively recent times. For a bird with a straight beak to sip nectar from the inside bottom of a curved flower is far from efficient. Hence over millions of years, evolution perfected the curves of beak and flower to fit each other like a hand in a glove. Birds with the most efficient beak presumably gained more food to breed more successfully and to bequeath their beak type to their offspring. Moreover, the lobelia genera who catered best to such birds were most efficiently pollinated and hence tended to produce the most seeds to germinate into plants having the same good or even better flower shape.

The end of this story is truly amazing. Surrounded by birds with curved beaks, a typically star-shaped hibiscus flower evidently was not very popular and hence failed to be often pollinated to produce seed. Thanks to the working of evolution over millions of years the lucky offspring of the original hibiscus immigrant perfected a flower with petals rolled lengthwise together into a curve to fit the beak of the nectar feeders. Being so different, the five species known from Hawaii, Maui, Lanai and Kauai constitute the extremely rare genus *Hibiscadelphus*.

We are convinced after concentrating 90 years on the

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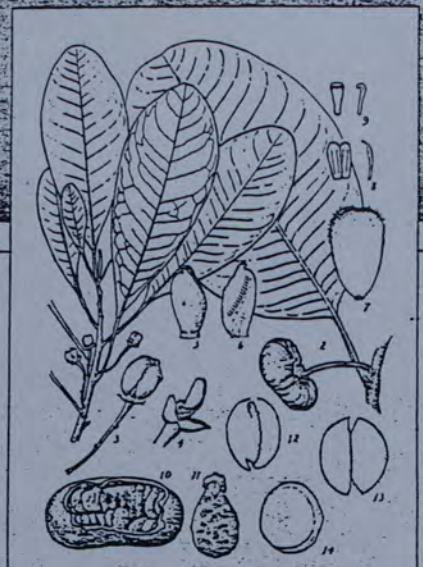

A drawing of the tree named after Botanist Otto Degener, the Degeneria viriensis, the only known member of the primitive Degeneria Family. Drawing reprinted from "Degeneriaceae, A New Family of Flowering Plants from Fiji" by I.W. Bailey and A.C. Smith

flora of the Hawaiian Islands and publishing nine books and numerous articles about it - the *kane* writer was first Naturalist of Hawaii National Park in 1929 and we are now residing in Volcano - the Hawaiian Islands even for conspicuous organisms like the Flowering Plants are crowded with still unrecognized endemic species, varieties and forms. Other except for perhaps mollusks, ferns, mosses) less highly evolved organisms are practically unknown to this day. How many fungi capable of furnishing new antibiotics, and how many *limu* secreting anticancer chemicals are we blindly destroying forever?

Puna and Kau Districts are no exception in harboring organisms known nowhere else. Due to the direct and indirect action of Man, the lowlands of Puna have been badly mauled so far as the endemic animals and plants are concerned. The baneful influence, I feel, of action by the proposed Kahauale'a Geothermal Project, if properly confined to well below 1,000 feet elevation to where exotic weeds, sugarcane, papaya and cattle have already wiped out most of the delicate endemics; would not be such a disaster But the disaster would progress geometrically with increase in elevation. Near Hawaii Volcanoes National Park - What's the matter with apparently somnolent National Park Service executives in Washington? - the area would lose the wealth of its fascinating endemics. How many lucrative and foreign visitors would continue to swarm there except for occasional volcanic outbursts? We would sell our Volcano village property to the highest bidder.

To limit Man's geothermal activity to the lowlands, a compromise in favor of its advocates, has become outdated because of the increased human habitations in the vicinity. Hence to gain power thus, we are convinced, should be abandoned in favor of the less destructive and "cleaner" method briefly called "OTEC" (Ocean Thermal Energy Conversion). Look into the relatively harmless method of utilizing the differences in temperature of the Pacific at considerable depths and near the surface, please. To us it is convincing.

For present Man exterminating endemic animal and plant kinds that Almighty God or the Laws of Nature - there are many ways of reaching the summit of a mountain - has created over a period of many millions to many thousands of years, according to our Faith, is Sacrilegious and Blasphemy!

The sin of annihilating Sacred Creations is hardly valid because of our present ignorance of what is Right and Wrong. The majority in the Islands and elsewhere just never knew better. The present human race differs as much from the superior men and women following us eons hence as does the ancient tarweed from its present offspring the glorious silversword! For Doubting Thomasses concerning the above, avoid being self-concious for a moment. Note what normal heads look like untouched by clippers, scissors and razors-how ornamental they would be stuffed and hanging on the dining room wall? remember your bare looks in a mirror; admire the slightly mangey appearance of furred sunbathers disporting along Hawaii's beaches; listen on the Radio and TV to adolescents howl and scream in¡te mating calls less interesting than those of coyotes on a moonlit prairie; read in the newspapers about wholesale atrocities committed by mature men imbued by the mob spirit on defenseless men, women and children; and the frequency of crime committed by individuals. Next saunter to a zoo and observe the good-natured chimpanzee, gorilla and orangutan, true blood brothers according to recent medical blood tests. Of these four groups, I consider myself and my kind of *Primate* truly the prime ape in viciousness. But why remain so? I am convinced the "silversword men" of the future will approve "tarweed man's" attempt to conserve the biotic distinctness and wealth of Hawaii Nei. Why not join us in this endeavor?