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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.

Oct 1951

SEE Outline of Convention Programs - pages x, xi

Do You Remember?

Hon. Adv. By JARED G. SMITH 4/23/50

The only active city planning and city beautification organization in Honolulu in the 1900s was the Outdoor Circle, its membership comprising the heads of resident families, a forceful group of ladies wise in the ways of making their menfolk think proposed plans were their own. County government had not arrived, nor were there laws on the statute books giving anybody any authority. The militant Outdoor Circle simply said: "You dumb males do things **our way, or else!**"

SMITH

They won the anti-billboard campaign by telling outdoor advertisers: "We, the Women of all Hawaii will boycott your products and will not allow any member of our own and our neighbor families to buy them." Later, the legislature enacted a law banning billboards, this Territory thus becoming the only American Commonwealth where those who delight in viewing scenery have an unobstructed view.

I remember and a great oil company has not forgotten what the Outdoor Circle said would happen to its products when said motor fuel purveyors loosed a sausage-shape captive balloon out Diamond Head-way, to get its name before the public. The balloon came down, pronto. If, today, I were a stockholder in an airplane concern I would think more than twice before inaugurating sky advertising. The Outdoor Circle is still with us.

* * *

Nor will a national drug firm forget the thousands that it cost to erase a patent medicine sign painted across the slopes of Punchbowl in hundred-foot letters. Stores handling the firm's products cancelled orders and shipped unsold stocks back whence they came.

This was the first and only time in my recollection that any hill, mountain or pali has been desecrated with such abominations as, "Chew Jackson's Plug—It Satisfies." We are so bucolic that we haven't even carved likenesses of George Washington and Kamehameha the Great on the mountains either side of the Pali—once suggested in the good old days—thoroughly unprogressive bumpkins that we were.

Honolulu's progressive housewives surveyed our bare residential streets and agreed on block planting with flowering trees—poincianas on certain streets, pink or golden shower trees along others. Then they did the planting themselves, they and their yardboys and servants watering the transplants and protecting each with stakes. The Honolulu of 1950 owes its June riot of brilliant coloring along residential streets and some country drives to the Outdoor Circle ladies of the 1900 decade.

"Some country drives"? I remember the purple bougainvilleas bordering the Tantalus roadway; many-colored hibiscus plantings along the main highway toward Waialua, then narrow and unpaved; and oleander-bordered lanes—very few if any, of these still extant.

* * * *

However, Kauai still cherishes flowering ornamentals along its country roads, and I hope that Mrs. J. M. Ross' beautification of the roadside borders at Hakalau on the Big Island's Scotch Coast has been well cared for. Remember, she introduced the elderberry to feed the berry-eating cardinals, the catch being that here it does not fruit. The insects which fertilize the flowers were left behind.

My little part in all this was to grow seedlings of wanted flowering trees in the experiment station's greenhouse, and give advice, my compendium of agricultural knowledge, forty-nine years ago, being stupendous. The Army may not know it but I also grew the seedlings which have become the great trees ornamenting Fort Shafter. Quartermaster Williamson and I done it.

Clear his credentials

Editor, the Star-Bulletin: Attention Hawaii people lovers. The Star-Bulletin article which proposed the importation of purple bug-eaters (Purple Martin) to Hawaii did not mention whether or not the State Department of Health had been consulted. This is most important because many species of resident and migratory birds on the Mainland are commonly infected with the virus of St. Louis, Eastern and Western Encephalitis. Laboratory studies show that the virus recurs in the blood of birds periodically and that there may be persistant organ infection for 1 to 10 months. A fourth type, previously known only in South America, has recently been found in Florida.

Hon. Star-Bull. —

None of these diseases occurs in Hawaii as yet but the common night-biting mosquito here is the same species which transmits St. Louis encephalitis in many parts of the Mainland. Let us hope that the State Health Department does not approve the proposed importation without conclusive proof that encephalitis viruses cannot survive in the purple martin.

R T HOLWAY

5/24/65

Editor, the Star-Bulletin: The Purple Bug-Eater may or may not be the answer to Hawaii's prayer for the reduction of insect pests. This is the purple martin, a very attractive swallow, which flies about in large, open spaces to catch insects on the wing. It does not hop about to search for them in the lawn or underbrush.

I have been annoyed in the Islands for over 40 years during days in and about my home by a few, sneaky, very aggressive mosquitoes (Aedes aegypti); during days while hiking in the forest by numerous, less sneaky, less aggressive mosquitoes (Aedes albopictus); and during nights by swarms of lumbering, sluggish mosquitoes (Culex quinquefasciatus). In other words, the sluggish low- and high-flying night shift replaced the low-flying, secretive day shift to bother me a full 24 hours.

Living in a two-story house, I constantly note beneficial, parasitic wasps frantically trying to escape toward light and freedom by fluttering back and forth against the upstairs window-panes. All seem to be diurnal, low- and high-flyers, and many have been introduced purposely to control insects harmful to the sugar and other agricultural interests. I remember the late Dr. Muir, H.S.P.A. entomologist, about 1926 warning us against the introduction of certain insectivorous birds for fear they may concentrate on the eating of such beneficial insects.

According to my opinion, the high-flying purple martin will hardly go in search of the two kinds of low-flying day mosquitoes in and about homes, gardens and jungly forests; and as the purple martin is a bird active during the day and peacefully sleeping at night, it will hardly catch the night mosquitoes lazily sleeping during the day and busily hunting for human and other prey at night.

What will the introduction of the purple martin accomplish for the Hawaiian Isalnds? Would perhaps a nocturnal, cave-nesting, swallow relative from northern South America be better? Would both be desirable or harmful introductions? Let's not open one more Pandora's box hastily in the Hawaiian Islands; we have opened so many wantonly in the past.

O, D.
NATURALIST
Haw. Nat. Park, 1929

BEAUTY AND THE BEAST—When the lovely lace-like blossom of the green ti was photographed, the large black and gold spider, Argiope Appensa, got into the act. These huge spiders have been reported in great numbers recently. According to UH entomologists, they are harmless, merely frightening because of their size. The annual white blossoms of the ti lend themselves to graceful flower arrangements. (Advertiser photo.)

bulldozers begin excavating on a beach. It happens at Waikiki. It happened at the new Sheraton-Maui near Lahaina.

HOW, THEN, DID the legend of the great battle at Mahaulepu get started? Stokes guesses it happened like this.

"Need had arisen for Hawaiian skulls for scientific research. Being sought at Mana (across the island on Kauai), the local natives objected strongly because the dune burials were 'of their ancestors, people of their own villages, and they looked upon it as a great sacrilege.'

"But the collector was an influential man and the matter required finesse.

"'WHY DO YOU NOT go to Mahaulepu and take the bones of the Hawaii men there?' says one, a village head man. 'The beach is strewn with thousands upon thousands of skulls and bones, but as the warriors are slain in battle, we have no care for them. They have lain there since the defeat of Kamehameha's army.'

"Possibly the natives of Mana, at the west angle of Kauai, had no interest in the burials of the natives of Koloa, at the southeast angle. Hence, it may be, the skillful focussing of the collector's attention on the Koloa dunes and the evolution of a very remarkable story which helped to preserve the Mana skeletons."

WHETHER THAT'S THE explanation, or whether somebody just invented the story for fun, I don't know. It's a fine legend. I wish it were true.

MORE WARNINGS OF DANGER OF DEER TURNED LOOSE ON HAWAII

Editor The Star-Bulletin: The Hawaii Audubon society wishes to add its note of protest to the plan to introduce deer to the island of Hawaii.

That the propagation and activities of the goat population on the same island could not be controlled was affirmed in an address to the society by a wildlife management expert employed by the territorial board of agriculture and forestry. And there is no reason to believe that any attempts to control the deer population will meet with any more success.

If such an introduction is carried out, the territory is risking not only the loss of many unique and valuable plants, but of upsetting the ecological balance of the island, which is usually precarious at best.

Otto Degener has written of the denudation of forests on Molokai by deer.

The introduction of rabbits to Laysan island is another classic example.

The island of Hawaii may profit by their example, before experiments are made which may result in irreparable damage.

Very truly yours,
H. PAUL PORTER,
President

Coconuts may never be of much economic value to Hawaii but they may soon form the base of a thriving industry in Samoa and Tonga.

Raymond C. Turnbull, Los Angeles builder and industrial developer who is building an automated coconut processing plant in Pago Pago, is convinced the coconut will be the savior of the economy of that area.

Passing through Honolulu over the weekend to Pago Pago, he said that his company knows of hundreds of marketable items that can be produced from the coconut.

"But we have only scratched the surface," he says.

When he first decided to go into the business several years ago, coconut oil and animal feed from the residue would have been the main products.

But that's out now because returns would be too low.

8,000 TONS

Right now, dessicated coconut for the food industry will be the main product with 8,000 tons to be shipped annually in the beginning.

Turnbull's firm, the Pacific Coconut Processing Corporation with headquarters in Beverly Hills, had planned to turn out briquets using the shells and husks.

That's out, too, now because more profitable items can be manufactured.

Shells will be made into activated charcoal, which once was used mainly for gas masks. Now demand is increasing for use in cleansing air in atomic submarines and for other industrial uses.

The shells will be put through an initial burning process in Pago Pago which will reduce them to one-fourth of their weight, thus saving shipping costs.

This will bring $85 a ton. They have to be refined further on the Mainland.

IN CARPETS

The husks were to be used at one time for fuel to generate steam but Turnbull now finds that they make a nice backing for carpets.

Jute is the traditional material but Turnbull said the supply is getting uncertain and some manufacturers now prefer backing cloth made from coconut husks. One manufacturer will bring his looms to Pago Pago.

So he will use fuel oil for his boilers because it is cheaper.

Turnbull said he is going to turn out a concentrate to make Coco Rico, a carbonated pop made of coconut water that he says is really good.

He has contracts to open bottling plants in Tonga and Fiji.

Coconut water will also play a part in cancer research.

LABORATORY

The U.S. National Health Institute and the National Cancer Institute will support a laboratory in Pago Pago to extract two rare types of inositol from coconut water.

Inositol, part of the B-vitamin family, can make certain cells multiply and enlarge rapidly and is useful in cancer research, he said.

There are numerous other properties in coconut water that his food chemists will develop into marketable items, he said.

Dr. F. S. Stewart of Cornell University, who is experimenting with coconut water, was able to make a bit of dessicated carrot grow into a full carrot in coconut water.

"I wouldn't have believed it if I hadn't seen it done," says Turnbull.

The highly nutritious water can be processed for people with food allergies, he said, and babies allergic to milk can be put on a formula made from coconut water.

PROCESSING PLANT

Construction of an automated processing plant started a couple of weeks ago in Pago Pago and is scheduled to be in operation by December.

It will be able to process up to 300,000 coconuts a day or 90 million a year, but the plant will start with 100,000 a day, using 25 workers.

A planting program has started in Tonga, American Samoa and Western Samoa, using a variety found in New Guinea that produces fruit that is two and a half times bigger than the Hawaiian coconut.

This variety was found in the Markham Valley and the meat is an inch thick.

The firm's 185-foot vessel will haul coconuts from Western Samoa, and the Kingdom of Tonga is now taking delivery of a 2,400-ton ship in Norway which will bring a weekly load to Pago Pago.

Plant Breeding Abstracts 28(3): 623. 195-

3568 DEGENER, O.

Flora Hawaiiensis. Book 5.

Published privately : undated : unpaginated : figs.

The fifth part of this work maintains the excellent standard already set, particularly with respect to the illustrations [cf. XIX, p. 925]. As before, however, its appearance has been somewhat marred by variation in the size and style of type used, presumably related to the need to fit all the information concerning a species on to one or two pages for ease of filing. Keys to a further nine families are included and a temporary index, for this volume only, lists common Hawaiian and English names and scientific names and synonyms. The index is not easy to use since the numbers refer to the family and not to a specific page and the capitalizing of specific and varietal names in the index is likely to cause some unnecessary confusion and annoyance.

[illegible] assigned by his teacher to look up the history of the present building.

'18—Otto Degener has further honors. The renowned botanist received the honorary degree of Doctor of Science from his Alma Mater, the University of Massachusetts, last June. At the 34th International Flower Show held in Grand Central Palace Dr. Degener was selected as the "outstanding botanist or naturalist of the Pacific Islands." Otto makes his home in Hawaii. Last fall he did considerable botanizing in Lappland.

GAME ASSOCIATION VIEW ON DEER

Editor The Advertiser:

We have read many letters concerning the release of deer on the Island of Hawaii and would like to add the feelings of the largest group of hunters in the Islands.

We feel that the Board of Agriculture should be commended for its thorough investigation and its sensible proposal. It is regrettable that so many people have written on this matter that have absolutely no idea of what the Board's proposal was. Furthermore, many self claimed experts have given their ideas and we hereby challenge any person who has written either to your paper or the Board to state his qualifications as an expert in game management which is the subject involved. Many botanists have given their opinion, the writer is a qualified and registered Engineer in the territory but does not claim to be an expert on Game Management, but does know more than most Botanists.

Further some local "Botanists" have taken it upon themselves to send misleading information to mainland groups who in turn have sent out literature with the same misleading information consequently many persons have written in from the mainland who have no idea of what the boards proposal was. They have gone so far as to try to introduce this matter to the United Nations without one item of direct factual information. Our group was approaching all objectors and talking it over without publicity but this is going too far and we feel the people of Hawaii should know of it. We certainly do not advise the various States on their problems and have not solicited their aid in this matter.

The Board of Agriculture has proposed after careful investigation to release deer in an isolated area where water will have to be supplied. Their investigations have shown and also have been proven in the case of AXIS deer in New Zealand, that these animals can be quickly wiped out by hunter pressure if they show any objectionable habits. We have successfully controlled goats and sheep and deer on these islands where hunting is allowed. This program has been published in your paper; however, it is doubtful if the 'objectors' have bothered to read it.

The Territory of Hawaii depends a great deal on tourist produced revenues and will depend more on them all the time. We have a deficit of over 74 million dollars in our trade balance. Our group wishes to point out that the development of Fish and Wild Life resources will add greatly to this income which is sorely needed. This can be done with an intelligent program administered by the capable men we now have working for the Board without harm to our existing plant life.

Our group would be the last to want any harm to come to our forests, however, we want to develop our Fish and Wild Life resources to a maximum of their potentiality. We certainly do not advise the mainland states on matters effecting their economy as they have us in this case and we feel that we have been badly put upon by an ill-informed mainland group. This program is sound and justifies at least a fair trial.

In closing may we ask all the objecting people if they have any better plan for the development of these resources and if they do not, what would they like in the way of investigation to accept the present proposals. Perhaps as we suspect they are just against anything except their own pet interests.

Honolulu, Aug. 2 — HAWAIIAN FISH AND GAME ASSN.
By: George W. Premo, Jr., President

HUNTERS SOLVED GOAT PROBLEM

Editor The Advertiser:

I wish to add my note of protest to the plan of introducing deer to the island of Hawaii.

Could the goat propagation be controlled?

And how about the rabbits on Laysan?

The balance of nature seems to get upset when man interferes.

Mason, Ohio, July 23 — RUTH GRAY

AXIS DEER CAN BE CONTROLLED

Editor The Advertiser:

A fair, thorough and independent research was made on the Axis deer situation in the Territory, recently, by the conservationist, J. Donald Smith, an unbiased representative of the U. S. Wildlife Service. There is nothing in his report to substantiate arguments to the contrary, wherein it could be proved that this species of deer cannot be controlled under the board of agriculture's game management program.

The majority of ranches, farms and plantations on Hawaii, are not opposed to deer under proper supervision and control. If deer for these many years on Molokai have been detrimental there—you can be assured that means would have been employed to wipe them out long ago.

Hilo, Aug 7 — EDWARD K. WAGNER

E. CHESTERTON SPAULDING

RARE PLANTS ENDANGERED BY DEER

Editor The Star-Bulletin: This supplements my earlier letter pointing to the danger of loosing the Axis deer of Molokai on the saddleback of the island of Hawaii.

It has taken millions of years for plants to adjust themselves to the peculiar conditions found in the Hawaiian islands. As a result, about 98 per cent of the native plants have become different from plants elsewhere in the world.

In other words they are said to be endemic or known only to the Hawaiian islands.

Not only that. Many of these plants are endemic from only a certain lava oasis or kipuka along the Saddle road, only from Huehue, only from Puuwaawaa, only from South point, and so on.

Many of these plants are remarkable to scientists throughout the entire world. They write about our primitive sedge Oreobolus, of the kokio a "missing link" between the cotton and the hibiscus, or the simple-leaved mamani, or the pretty pink and white flowered akulikuli. I could increase this list a hundredfold.

Axis deer, unlike goats and sheep, are nimble on their feet and can jump over a 10 foot fence.

If we citizens of the territory choose to be so foolhardy as to allow deer on our lands on Hawaii —have we not enough trouble now with the mango fly?—will the board of agriculture and forestry or the national park service finance the building upkeep and patrolling of a deer-proof fence along the park boundary?

Such a fence must be built before, not after, the liberation of deer.

In conclusion, I wish to stress that the proposed introduction of the Axis deer to Hawaii is ill-advised and smacks of criminal negligence.

To do so will be on a par with the introduction of the mosquito, Japanese beetle and fruitfly.

It is my emphatic suggestion that if any deer have now reached the island of Hawaii they be summarily destroyed lest they escape.

OTTO DEGENER, Naturalist.

Miss Margaret Titcomb, president, Hawaii Audubon Society, has issued a widespread appeal in Hawaii and the other States to preserve Paiko Lagoon as a strategic sanctuary for migratory and shore birds.

Many ponds and estuaries in Hawaii, especially on Oahu, are being drained for housing and commercial developments, paralleling the explosive urban and industrial developments in other States.

Paiko Lagoon is within the city limits of Honolulu, at the mouth of Kuliouou Valley, just before Koko Head, and is in direct line of fire from commercial developers.

On December 3, 1960, the Executive Committee directed a letter to the Governor of Hawaii and other officials supporting the Hawaii Audubon Society's campaign to preserve Paiko Lagoon.

Editor's note: As this issue goes to press we have just learned that Paiko Lagoon is safe for the moment. After another meeting of representatives of local authorities, clubs and business interests (Hawaii Kai Corporation) the Conservation Council met and passed a resolution that Paiko Lagoon be turned over to the Hawaii State Department of Agriculture and Conservation and declared a sanctuary.

WAILUKU, Maui—The peanut plant, although not common to Hawaii, is fast becoming a popular plant on the Valley Isle.

But not for the peanut that it might provide.

The versatile plant is showing promise for roadside stabilization and beautification along Maui highways. It is one of several plants suggested for erosion control and beautification by the Department of Agriculture's Soil Conservation Service.

In response to a request from the Hawaii Division of Highways, the SCS Plant Materials Center on Maui offered peanut plants to help control erosion on a trial site.

THE CENTER had been testing various types of peanuts for about six years and had settled on five kinds of peanuts to combine with two types of grasses on a trial site, which had been suffering extensive erosion damage.

The site selected is a cut along Kaahumanu Avenue near the Wailuku side of the Papa Avenue intersection.

The Soil Conservation Service provided plants and technical help and the highways division furnished the other materials and the maintenance.

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THE HONOLULU ADVERTISER

Hunters' Opportunity 5-29-50

Big Island Will Receive Axis Deer From Molokai

Steps to introduce deer to the Big Island to add to hunting opportunities there are being taken following decision of the board of agriculture to move some Molokai deer to Hawaii.

They will be released in the saddle area between Mauna Kea, Mauna Loa and Hualalai.

The board decided to plant deer on Hawaii only after a study of the Molokai deer herd by J. Donald Smith, wildlife biologist of the board, and Joseph Medeiros, biologist aide in Maui county.

* * *

THEY FOUND that very little information is available about the life history of the Axis deer, either on Molokai or elsewhere. Smith has urged that a research project be set up to study the deer and their habits.

However, he believes deer would never increase on Hawaii to a point where they would damage forests or agricultural enterprises because hunting would keep them in check.

If, over a long period, the deer were uncontrolled by hunting, it is probable that they would slowly increase to a population level above the carrying capacity of their range, in which case they might seek lower levels and cause damage.

* * *

INTERVIEWS of Molokai ranchers indicate that the deer do not cause any appreciable damage on that island because their numbers are kept down by hunting. The wild growth is sufficient for the surviving deer, and neither grass, forest or agriculture is damaged.

"Apparently the Molokai deer do not prefer the forest as their major habitat nor do they cause extensive damage to forest trees," the game conservationists reported. "The deer are found in the forest margins going out to the kiawe and grass range in the evenings, and returning to the forest cover during the heat of the day."

* * *

"THE DAMAGE they do to trees seems largely limited to bruising the bark with the antlers during and just prior to the rutting season. Several persons interviewed were emphatic in stating that deer are much less destructive to forests than are goats.

"Mr. Medeiros found that deer damage sugar cane to only a slight degree. The conclusion is tentatively drawn that deer will not compete seriously with sugar production because it is not likely that the deer will invade the sugar producing regions.

"Evidence gathered on Molokai indicates that deer will not damage truck crops to an appreciable extent. A county agent and Hawaiian homes commission supervisor stated that complaints of truck garden damage by deers were unknown and that a penned deer under observation for a long period preferred weeds to vegetables while fed under captive conditions."

Botanists Protest Axis Deer on Hawaii

6-2-50.

By CHARLES E. HOGUE

Island botanists went into action yesterday to protest a project of the board of agriculture and forestry to transplant a herd of axis deer from the Island of Molokai to Maunaloa game reserve on the Island of Hawaii. They said the introduction of deer onto the Big Island would imperil native seed plants, 1,633 of which grow nowhere else in the world.

Colin G. Lennox, president of the board, said this danger had been taken into consideration and that the herd of deer would be kept under close observation for a period of four or five years and would be destroyed if it was shown to be a menace to native flora of the Islands.

* * *

PROTESTS AGAINST the introduction of deer to the Island of Hawaii were made by William H. Hathaway, graduate assistant, department of botany, University of Hawaii, and Otto Degener, botanist and former Hawaii National Park botanist. Aid of the National Parks Service in opposing the project would be sought, Degener said.

"One of the chief glories of the Hawaiian Islands is the magnificent flora here," Botanist Hathaway said. "Of the known 1,729 native seed plants, 1,633—94.4 per cent—are found here only. They are irreplaceable. Unfortunately, hunters probably outnumber the naturalists. I do not believe this always will be the case. There is increasing public interest in state and national parks. I believe that future generations of Hawaiians will be grateful for any efforts that are made today to preserve from destruction the native flora and fauna."

* * *

"IT HAS taken millions of years for plants to adjust themselves to the peculiar conditions found in the Hawaiian Islands," Naturalist Degener said. "As a result 98 per cent of the native plants have become different from plants elsewhere in the world. And many of them are known only on a lava oasis along the Saddle Road on the Island of Hawaii. Among these is the primitive sedge oreobolbus, the "missing link" called kokio and the simple leaved "mamani."

Both botanists stressed the value of the seed plants as earth cover that attracts rain and augments Hawaii's water supply. Mr. Degener said he had made personal observations on Lanai and Molokai that gave evidence that deer destroyed native plants. He said he was told by old Hawaiians that the grassland areas of Western Molokai were formerly forests, and that nesoluma and native gardenia trees he had seen there in 1928 were gone when he re-visited the area last year. Deer and cattle had destroyed them.

* * *

BOARD PRESIDENT Lennox said his department's experience with goat control on the Big Island and the fact that two professional hunters, with dogs, were able to control deer on Molokai when they became too numerous, convinced him that the Hawaii experiment can be undertaken safely. "The herd will be placed on a kipuka—an area of lava on which vegetation has reappeared—kona from the Saddle road and separated by miles of barren lava from the Hawaii National park area," he said. "We will have to install water tanks there before the undertaking can start, and we are going to ask the legislature for authority to make hunting regulations, such as those which now apply to birds. Thus we can prevent an over-abundance of deer through the creation of hunting seasons as they are required.

"This plan has worked successfully in relation to wild goats and sheep on the Big Island, where we started our program of [illegible] for hunters the goat population has been reduced so materially that we were compelled recently to declare a six months closed season.

"The axis deer is a tropical animal which does not feed in the [illegible] forests and does not multiply as rapidly as [illegible] species of the deer family. It has only one fawn a year. There is a sufficient hunting interest to [illegible] I am sure, however, the [illegible] barren, waterless lava [illegible] before they are planted elsewhere on the Big Island."

* * *

"BECAUSE THE axis deer feeds below the forests, in what is known as the "B" zone, we took into consideration the possibility of crop damage. A field party made a study on Molokai and received assurances from the residents there that the deer were not a pest."

Vernon K. Peck, chief of the division of fish and game of the board of agriculture and forestry, said one element of the problem was the fact that [illegible] hunting seasons might be declared, [illegible] property owners would not permit hunting. This could result in an over-abundance of deer in certain localities, [illegible] as there are too many wild pigs and [illegible] in such places. There is also the National Parks policy of prohibiting hunting on park lands.

Honolulu Star-Bulletin

A MOVE THAT THREATENS OUR FORESTS

Editor The Star-Bulletin: I have just read a newspaper article announcing that Axis deer from Molokai will soon be released on the island of Hawaii. It is stated that they will be let loose in the "saddle area" between Mauna Kea, Mauna Loa and Hualalai.

I believe that this decision should be reconsidered.

I have never been to Molokai, and thus I have not been in a position to judge the effects of deer there on the native vegetation.

I do know that deer unchecked by natural enemies such as large predatory mammals have done serious damage to the vegetation of such places as the Kaibab plateau on the mainland and the beech forests of New Zealand.

Furthermore, introduced grazing and rooting animals have done extensive damage to the forests of the Hawaiian islands in the past.

* * *

I have seen the destructive effects of feral cattle and goats on the native forests of Hawaii and Kauai.

The damage done by large herds of cattle in the Waianae mountains of Oahu is perhaps incalculable. Whole forests have been converted into grassland; the formerly thick soil mantle has eroded away.

This wasteland was formerly a potential source of irrigation water for sugar cane and other agricultural crops.

* * *

Feral pigs still do untold damage in the higher rainforests of Oahu, uprooting trees and initiating landslides. Rabbits introduced at the turn of the century to Laysan island have completely denuded that island of its once-flourishing vegetation.

* * *

One of the chief glories of the Hawaiian islands is the magnificent flora. Of the 1729 known native seed plants, 1633 (94.4%) are found only in the Hawaiian islands. These plants are, of course, irreplaceable. Every effort should be made to save them for the enjoyment and study of future generations. They are a unique and precious resource.

It is, of course, unfortunately true that only a very limited proportion of the population of the territory is interested in its native flora and fauna.

The hunters probably outnumber the naturalists. I do not believe that this will always be the case.

There seems to be evidence that people on the mainland are becoming increasingly interested in their natural surroundings, judging from the mounting attendance at the state and national parks.

I believe that future generations of Hawaiians will be grateful for any efforts that are made today to preserve from destruction their native flora and fauna. Yours very truly,

6-2-50 WILLIAM H. HATHEWAY, Graduate Assistant, 1949-1950, Department of Botany, University of Hawaii.

SAYS DEER WILL DO GREAT DAMAGE

Editor The Star-Bulletin: This refers to the proposal to turn loose, on the Big Island, deer from Molokai.

It is strange that man has the ability to wreck his environment so easily.

The introduction of deer to Hawaii will cause immeasurable damage to the island.

They can never be controlled by hunting as the island is too vast for hunters to traverse.

The deer will breed and multiply until checked by starvation, and that means the extermination of thousands of kinds of Hawaiian plants that can never be replaced.

It will reduce our water supply and cause our climate to deteriorate.

If our board of agriculture and forestry is so wise as to try to keep the one native goose from becoming extinct like the dodo, why is it so inconsistent as to permit the extermination of plants that are equally unique?

The island of Lanai is one of our smallest islands. Last August at Waiakeakua at an elevation of 2,500 feet, I studied the destruction of a rare patch of native forest by the Axis deer. Every six to 10 feet were deer trails criss-crossing one another and the forest being browsed or eaten to death.

This vandalism by deer was permitted to go on in spite of the frantic search for water by man. The job of killing them off was just too great.

If hunters fail to keep deer in check on this diminutive island, how can they ever succeed on Hawaii?

Axis deer were formerly such a nuisance on Molokai that hunters were paid to kill them.

West Molokai, according to an old Hawaiian, was covered with such a dense forest when he was a boy that he had to cut his way with a cane knife to traverse it.

In 1928 I saw approximately 200 deer on west Molokai, dead tree snail shells where there was not a tree in sight, and a few patches of Nesoluma and native Gardenia trees, of which I collected specimens for the Museum. Last summer, deer and cattle were still on west Molokai but the patches of Nesoluma and Gardenia were gone!

Deer and cattle have changed west Molokai and its climate from a region of verdure moist enough for tree snails to live, to a region largely desert.

Information regarding the proposed introduction of deer by our board of agriculture and forestry to the island of Hawaii is now going to the national park service, to the USDA, and to similar interested agencies in Washington, D. C., and elsewhere for their expert comments and advice.

Let us not be hasty, and forever regret our action.

6-3-50 OTTO DEGENER, Naturalist, Hawaii National Park in 1929

MORE ARGUMENTS AGAINST DEER-LOOSING

Editor The Star-Bulletin: This is a third letter pointing to the danger of loosing Axis deer from Molokai in the "saddleback" district and forests of the island of Hawaii.

These deer will invade the lush forests and certainly destroy many plants and shrubs.

These native Hawaiian plants are now in tune with their environment. Each kind, according to its special creation by adaptation, covers lava flows, valleys, or ridges.

Thus they very efficiently accomplish three very practical functions.

First by their wealth of fibrous roots and fallen leaves they entrap rainfall, so that it will seep into our artesian basin to be stored there for man's need rather than tumble makai in wild torrents to be wasted in the sea.

Second, they actually entrap and condense fog into raindrops, thus augmenting our artesian water supply in a second way.

Anyone can see this happen off the Saddle road west of the Humuula sheep station. There most of the native mamani trees have killed—as expected—by grazing, but wherever a survivor stands in solitary splendor, the grass beneath is lush and green from the drops of water falling upon it whereas beyond the spread of the branches all is dead and sere.

* * *

The third and most surprising means by which plants increase our water supply and incidentally improve our climate is to "invite" rain and other clouds to pass over them.

Where the ground is bare of plants, a column of hot air rises to mushroom out and push the clouds away. Many a thirst-crazed mariner on a barren waterless island has seen a cloud actually shedding rain come toward him only to split in half, bypass his island, and beyond it coalesce again.

* * *

Most of these Hawaiian plants, beyond their value as traps for water, have little practical value.

We can not eat them. But is an inspirational hymn like "Onward Christian Soldiers" of no value because it gives no food to the body? Plants, like hymns, feed the soul. Surely there is more to life than eating sugar, pineapples, beef and venison.

These inedible plants have an inestimable scientific and esthetic value.

They make these islands just one enormous botanical garden so uniquely famous as to draw to them scientists from as far away as Sweden.

Deprive us of our unique plants, a volcano or two and our kindly Hawaiian people and the mainland tourist may just as well travel no farther than California or Florida.

6-50 OTTO DEGENER, Naturalist, Waialua, Oahu.

MORE WARNINGS OF DANGER OF DEER TURNED LOOSE ON HAWAII

Editor The Star-Bulletin: The Hawaii Audubon society wishes to add its note of protest to the plan to introduce deer to the island of Hawaii.

That the propagation and activities of the goat population on the same island could not be controlled was affirmed in an address to the society by a wildlife management expert employed by the territorial board of agriculture and forestry. And there is no reason to believe that any attempts to control the deer population will meet with any more success.

If such an introduction is carried out, the territory is risking not only the loss of many unique and valuable plants, but of upsetting the ecological balance of the island, which is usually precarious at best.

Otto Degener has written of the denudation of forests on Molokai by deer.

The introduction of rabbits to Laysan island is another classic example.

The island of Hawaii may profit by their example, before experiments are made which may result in irreparable damage.

6-50 Very truly yours, H. PAUL PORTER, President

"Prior to the coming of the Polynesians in about 500-1100 A.D., the Hawaiian Islands had only two native land mammals, a seal and an endemic bat. The Polynesians introduced pigs, rats, the dog, and chickens. The Hawaiian flora thus evolved under conditions of no grazing pressure.

"Cattle and sheep were introduced to the Islands in 1792, as a gift from Captain Vancouver to the Hawaiian people. They were placed under a strict taboo, and found conditions to their liking. Dr. St. John has informed me that 50,000 cattle were rounded up in the Waianae Range of Oahu, an area of perhaps 200 square miles.

"Deer were introduced to the islands of Molokai and Lanai in this century.

"Egler (Ecol. Monog. 17: 383-435, 1947) has described the effects of disturbance of the natural vegetation of southeast Oahu by grazing animals."

-- letter from Wm. H. Hatheway, 6-6-50

James Castle.

A Japanese Minister

The situation was of grave enough importance to influence the Japanese government to raise the rank of its representative to that of a minister. Under a glass case in the archives is the original message from emperor of Japan to President Dole announcing the appointment which reads as follows, in translation:

"MUTSOHITO

"By the grace of Heaven, Emperor of Japan and seated on the Throne occupied by the same Dynasty from time immemorial.

"To Mr. Sanford B. Dole, President of the Republic of Hawaii, and Our Great and good Friend, Greeting:

"Being animated by the desire to maintain and promote the relations of friendship and good understanding so happily existing between Our respective countries, we do hereby appoint Shimamura Hisashi, Jugoi, Fourth Class of the Imperial Order of the Rising Sun, who is at present residing in your Country, in the capacity of our Consul-General and Diplomatic Agent to be our Minister Resident, to reside in the Republic of Hawaii.

Given at Our Palace in Tokio, this 6th day of the 4th month of the 30th year of Meiji, corresponding to the two thousand five hundred and fifty-seventh year from the Coronation of the Emperor Jimmu.

"Sign Manual.

"Seal of the Empire.

"(Countersigned)

"COUNT OKUMA SHIGENOBU,

"Minister for Foreign Affairs."

[All of the above last paragraph means April 6, 1897.]

I found some highly confidential correspondence on this subject among Mr. Hatch's papers in letters exchanged between Mr. Hatch as Hawaiian minister in Washington and Henry E. Cooper as minister of foreign affairs: May 4, 1897—Dear Mr. Hatch, We are informed that the Naniwa, Japanese warship, left Yokohama on the 23rd of April and we expect her at any time. She has on board the special commissioner for the foreign office. To show that our judgment in regard to the immigrants' bona fide possession of the $50 was quite correct, the item of news in the paper from Japan states that the immigrants arrived entirely destitute, but accounts for this by saying that the immigrants were in such a desperate frame of mind that they had gamboled away all their possessions.

Arguing Furiously

The Naniwa duly arrived in port and the special commissioner for the foreign office and his legal adviser appeared before the executive council. I can remember the legal adviser especially walking up and down the office arguing his case furiously, through an interpreter.

On May 19, 1897, it was decided by the executive council in regard to the Japanese at the quarantine station, rejected passengers by the Kinai Maru, detained on account of smallpox, to allow a woman and child to land, the balance to be returned to Japan. Minister Cooper stated that he would reexamine these immigrants before departure.

On May 31 Minister Cooper reported to the executive council that the day before Mr. Shimamura called on him and stated that the instructions from his government would not allow him to give this government any further time to answer the letter from the Japanese minister of foreign affairs, to which he (Minister Cooper) stated that the letter was being prepared and would be inscribed and sent as soon as it could possibly be gotten ready.

On July 10, 1897, Mr. Hatch sent from Washington the following personal letter to Henry E. Cooper, minister of foreign affairs:

Personal

July 10, 1897.

Dear Mr. Cooper

Your dispatch with information of Shimamura's threats to Smith had a good effect at the state Dept. May result in the Oregon being sent down. Senator Davis was very emphatic on the subject. He specially wished me to say nothing to the papers, remarking that when they desire to take strong action it was often defeated by newspaper discussion. I suppose he referred to protests, etc., which the banking and timid classes send privately to the president on such occasions."

FOR SERVICE IN NATIONAL GUARD OF HAWAII

The certificate which shows that Mr. Marx served in Co. B of the National Guard of Hawaii in suppressing the rebellion against the republic of Hawaii during the month of January, 1895.

The 4-H clubs, sponsored in the islands by the University of Hawaii agricultural extension service, include

BIBLICAL HISTORY REPEATS ITSELF ON OAHU!

Editor The Advertiser: 1/5/50

Shortly before Christmas time nineteen-hundred-fifty years ago an edict by ruthless Roman tax gatherers forced Joseph and Mary to wander to Bethlehem to pay their assessment. We know from the Bible story the unnecessary hardship this edict caused.

Today I — a resident of Waialua, Oahu — received a notice from the Real Property Division of the Territorial Tax Office in Honolulu that if I wish to get my home exemption for the year 1950 I must "call at this office **in person** and **present this card**" on or before January 31, 1950.

Because of this silly ass edict—I lack a car and am too old to walk the 30 miles from Waialua to Honolulu—I request that the Tax Assessor either furnish me with a Kona Nightingale to transport me to his office so I can claim my home exemption **in person** or accept my claim for exemption in writing by mail.

May I and the thousands of other rural dwellers throughout Oahu learn through your valued paper whether it is compulsory for us carless pedestrians to wander footsore and weary as in ruthless biblical times to the palace of the tax gatherers, this time not in Bethlehem but at 425 South Queen Street, Honolulu, to get us the exemption that is rightfully ours? Is it illegal to write them the information?

Jan. 2nd (S.D.) MOKULEIA BEACH COMBER

There's a rare tree flowering on Nuuanu Avenue that's apt to flag Pali-bound vacationers, according to the Hawaii Visitors Bureau.

A number of tour drivers have already stopped this week to allow their charges to admire and photograph one of Hawaii's most spectacular blossoming trees, colvillea racemosa. It is blooming now, in red-bronze glory, in front of the home of Mr. and Mrs. Herbert Chock, 2475 Nuuanu Avenue.

The location is on the right-hand side of the street, just past the Philippines Consulate, heading toward the Pali from town.

The tree, with its grape-like clusters of red-bronze and orange, has a feathery green leaf somewhat resembling poinciana foliage. The budded clusters are especially striking before they open into predominantly yellow flowers, unfolding down toward the tip of the stem.

First seeds of this rare beauty were imported from Ceylon in 1918 by Dr. Joseph Rock. The tree was named for Sir Charles Colville, governor of Mauritius.

At the Hawaiian Sugar Planters' Association nursery where Dr. Rock planted them, six seedlings grew. One of these, set out long ago at what was then the Waldron home, is the tree now catching all eyes on Nuuanu Avenue.

Mrs. Chock herself likes to think of the tree as "the Moon Festival tree." This is because it always flowers in September, in time for the Chinese Moon Festival.

UNIVERSITY OF MASSACHUSETTS
AMHERST

OFFICE OF THE PRESIDENT

March 25, 1952

Dear Mr. Degener:

We are delighted to know that you can be with us at Commencement time to receive an honorary degree.

As we draw near to Commencement, I shall keep you posted as to detailed plans for the exercises, which will be Sunday, June 1st.

With best wishes,

Sincerely yours,

R. A. Van Meter

R. A. Van Meter
President

Mr. Otto Degener
General Delivery
Makawao, Maui
Hawaii

Academy of Natural Sciences, 1900 Parkway, Phila. 3, Pa.
21 Nov. 1962

Dear Dr. Degener:

I finally found time to look at your last five specimens of algae:

RAV-A

27900. Diatoms --I'm giving these to Dr. Ruth Patrick here.
27916. Schizothrix calcicola (Ag.) Gom., Microcoleus chthonoplastes (Mert.) Zanard., etc.
27982. Parasitized basal parts of a Chaetophoracean (green alg
27988. Microcoleus chthonoplastes (Mert.) Zanard.
27992. Diatoms --to Ruth Patrick.

Parts of all that are named in this and the previous lot are being returned to you in a small parcel post package.

This has been a busy year here; the revision is well along now. We now have a new young curator here, A. E. Schuyler whose interest is Scirpus. I think he'll do well. The herbarium is at last being renovated and new cases are being added.

While taking the trail

With best wishes to you and Mrs. Degener,

Sincerely, Francis Drouet

Receive Honorary Degrees at UM

Springfield Union (Mass.) 6/2/52

Five alumni, distinguished in various endeavors, and the ill Dean William L. Machmer were awarded honorary degrees at the 82d commencement at the University of Massachusetts yesterday. They are, left to right, Frank P. Washburn, Perry, Me., agriculture; Howard Lawton Knight, Westminster, Md., agriculture; Otto Degener, Hawaii, science; Emerson Greenaway, Philadelphia, humane letters; Rev. Albert F. McGuinn, Boston, science. Dean Machmer received his award by telephone to his bedside.

President Ralph A. Van Meter conferred six honorary and 643 advanced and baccalaureate degrees.

Dean Honored

Honorary degree recipients included five distinguished alumni and William L. Machmer, for 27 years dean of the university.

The alumni were Frank P. Washburn, '96, Perry, Me., former commissioner of agriculture and state university trustee in Maine, master of agriculture; Emerson Greenaway, '27, librarian, Free Library of Philadelphia, doctor of humane letters; the Rev. Albert F. McGuinn, S. J., '22, chairman of the chemistry department, Boston College, doctor of science; Howard Lawton Knight, '02, Westminster, Md., agricultural editor of Webster's dictionary, doctor of agriculture; and Otto Degener, '22, botanical pioneer and Hawaiian naturalist, doctor of science.

URGES U. S. HEAD BIG ATTACK ON HUMAN MISERY

Commencement Speaker Suggests New Attack In Cold War

Amherst, June 1—A "Human point four" program to forge an attack on world problems of hunger, homelessness, disease and indignity was called for today by Norman Cousins, editor of The Saturday Review of Literature. He spoke at the 82d commencement exercises of the University of Massachusetts.

Mr. Cousins, international relations adviser to the American Broadcasting Co., said "the goal of the American people is a planet congenial to human existence." He called for turning the cold war into a more crusade that would "reveal and dramatize the conscience of America."

Cousins said [illegible] real wealth—human resources. We would recruit on a voluntary basis thousands of doctors, nurses, scientists, technicians, farmers and social workers—an army in the uniform of peace—who would live and work with the people, study local problems and share skills to combat barren soil, outworn methods, famine, malnutrition and disease.

"Whatever the expense of the program," Cousins added, "it is far less expensive than sending Americans in the war uniforms."

99 YEARS AGO—DEC. 28, 1856 From The Advertiser Files 12/28/55

Apples: About two years ago, the Messrs. Feor imported a variety of fruit trees from Oregon, which were purchased by residents and scattered over the different islands.

Mr. H. McIntyre has a number of the apple trees growing finely at his residence in Nuuanu Valley, all of which have borne a few apples this season. He showed us the other day some of the fruit which had been broken off by birds. The apples were not fully grown, but about two inches in diameter, and of the greening variety, which promises to be a choice fruit.

We should like to hear what success has attended the fruit trees sent to East Maui and Kona.

Hon. Adv. 10/30/55

Attractive, brightly striped dichorasanda. The leaves are green and white in striking contrast. This rare plant, which produces blue flowers, is on exhibit in the greenhouse of Foster Park Botanical Garden. (Advertiser photo.)

ut 100 feet long, wi
sepower Diesel engin
nd sandalwood orname
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al Yei bird peered f
stood for Unity and Harmony. These qualities had blessed
captain and Chinese crew in an earlier voyage but refrain-

Tidal Wave Is No Barrier
Hon. Adv. 8/3/52
Degener's Work Goes On

ELEPHANT EAR—This drawing of the important botanical parts—leaves, flowers, fruit and seed—of the elephant ear, an ornamental tree introduced from tropical America, is representative of illustrations in "New Illustrated Flora of the Hawaiian Islands," by Dr. Otto Degener.

By E. H. BRYAN JR.

Since 1932, Dr. Otto Degener has been producing a series of loose-leaf publications entitled "Flora Hawaiiensis, the new illustrated flora of the Hawaiian Islands."

The plan he followed was to give a description of a species of plant on one side of a page and an illustration of it on the other. When he had filled about 200 pages, describing 100 species of plants, he would gather these into a loose-leaf binder. In this way four loose-leaf volumes were produced, dated 1933, 1935, 1938 and 1940.

* * *

UNFORTUNATELY the entire stock of these publications was destroyed on April 1, 1946, when a tsunami or "tidal wave" washed through Dr. Degener's home at Mokuleia, Oahu. Undaunted by this disaster, Dr. Degener had the entire series reprinted and issued them in one thick loose-leaf volume.

He has not stopped producing new material. Last year various pages appeared, which will help to form Volume 5. Just now 29 more leaves have become available.

Included among these are descriptions of the Douglas mulesfoot fern or pala, the Siris tree, the elephant ear, a key to Hawaiian geraniums, a summary of native Hawaiian violets, the common and sweet-scented oleanders, the tree to

to one little environmental niche,

Editor's note: This is the 48th of a series of articles on diversified agriculture in Hawaii by Dr. Frederick G. Krauss, formerly director of the University of Hawaii Agricultural extension service. Today's article deals with the litchi and its relatives.

How. Adv. 12/9/37

By F. G. KRAUSS

THE Sapindaceae or soapberry family, of which the litchi and longan are the best known members in Hawaii, comprises such other, but less valuable, fruits as the rambutan, pulasan, akee and mamoncillo, although some botanist - horticulturists, notably Ochse of the East Indies, include these in the family Nephelium.

The Litchi or Leechee. (Litchi chinensis). The popularity of this so-called nut in the Orient, especially in China, is well illustrated in their ancient literature. It is said that the famed poet, Su Tung-po, while living in exile at Canton declared that the litchi would well reconcile one to eternal banishment. While he limited himself to a modest three hundred fruits daily, other men (so he stated) did not stop short of a thousand! Chang Chow-ling, an illustrious Chinese statesman of the eighth century, composed a poem on the litchi in which he praised it as the most luscious he all fruits and modern Chinese critics fully concur in this opinion.

In southern Asia where the cultivation of the litchi dates back several thousand years, it is grown so extensively that millions of people make it their favorite delicacy in both the fresh and dried state. Because the fresh product is much the most sought after, the fruit is now canned extensively at Hongkong. Such canned product retails at 30 to 35 cents per 12 ounce tin. The best description of the thus preserved litchi is that it resembles both in flavor and appearance seeded Muscat grapes.

NUTRITIVE VALUE

Of their nutritive value and use, Professor Carey Miller states: "Of two varieties of fresh litchi analyzed the Kwai Mi was found to contain nearly twice the sugar content (20.6) of the Hei Yeh variety which had 11.8 per cent sugar. The former variety though a smaller fruit with a larger percentage of refuse is considered to be of superior flavor and quality. Both varieties are very poor sources of calcium, good sources of phosphorous and fair sources of iron. No data on vitamins is available.

The fresh or canned fruit makes a pleasing addition to fruit cocktails or fruit salads, or the fruit may be served as a dessert, alone or added to fruit combinations. The Chinese serve it as a sauce with fish or shell fish. The fruit may be canned at home in a medium syrup with the addition of lemon or lime juice to improve the flavor."

The litchi is well known in Hawaii, where it is highly prized especially by the Chinese, who are accredited with having brought the first trees to the Islands from the Canton River region in the early 1870's. Doubtless the most noted tree in Hawaii is the splendid specimen on the old Afong property, corner School Street and Nuuanu Avenue, now occupied by Chun Hoon, Ltd. Young Chun Hoon told the writer recently that this tree has constantly borne 500 to 1000 pounds of fruit annually during the months of May-July, as long as he has known the tree.

From another source the writer is evidently reliably informed that before the advent of the Mediterranean fruit fly fresh fruit from this tree brought up to 80 cents per pound sold to wealthy Chinese in San Francisco.

EARNINGS

An income of $50 to $100 per annum is said to have been common earnings of this tree in the past. This parent tree, believed to have been planted in 1873 by Ching Check or C. Afong, is the progenitor of at least a thousand offsprings produced by the laborious method of air-layering, these worthy progeny being scattered far and wide over the entire Territory. Such are the benefactions of some of our little sung horticultural heroes in Hawaii, as elsewhere.

Higgins, in his bulletin No. 44 "The Litchi in Hawaii," Hawaii Agricultural Experiment Station, 1917, states that numerous subsequent introductions of litchi trees were made by the United States Department of Agriculture and by Sing Chong, Wong Kwai, Wong Leong, Lake Chan, E. W. Jordan and others.

Unfortunately the mortality among these imported trees was extremely high. These heavy losses were mainly due to the plants being shipped with insufficiently established root systems, together with the treatment on arrival to prevent the introduction of serious insect pests and disesases.

It is probably due to these difficulties and the former cumbersome methods of propagation that the litchi has been slow in becoming an established industry in a land where the tree thrives and the fruit is so greatly appreciated.

Now, thanks to the work being carried on by the Hawaii Agricultural Experiment Station and other progressive proticulturists, it seems likely that the difficulties of grafting and budding seedling stocks are about to be overcome, as has fortunately been the case with the difficult propagated Macadamia nut trees. There is also considerable probability that superior litchis may be propagated directly from cuttings through their treatment with the recently introduced plant hormones which markedly stimulate growth of roots in hardwood cut-

SVENSKA DAGBLADET

Tisdagen den 2 september 1952

Hawaiibotaniker på Lapplandsresa

Mannen som samlat ¼ miljon söderhavsväxter, skrivit och skriver Flora Hawaiiensis — fem band är färdiga — som i 30 år bott på Hawaii och är en av de två nu levande botaniker som fått en ny växtfamilj uppkallad efter sig, befinner sig f. n. i Stockholm på resa från New York till Tahiti. Det är doktor Otto Degener, som f. n. delar sin tid mellan sightseeing i Stockholm och växtpressning på Riksmuseet — han kommer närmast från Lappland, där han funnit växter närbesläktade med dem han som skolpojke samlade under sin uppväxttid i Massachusetts.

Dr Degener är identisk med den botanist, som Kon-Tiki-mannen Bengt Danielsson berättar om i sin bok "Den lyckliga ön". Men han är föga lycklig över den publicitet. Innan han berättar någonting om fynd på Hawaii och i Lappland är han angelägen om att tillrättalägga vad som står skrivet om honom i den boken. Danielsson talar om en amerikansk miljonärska som så gripits av en häftig passion för botanik och en botaniker, att hon skänkt den senare en kinesisk djonk. Sanningen är, att miljonärskan är en dam på sjuttio vårar, som i Kina

Dr Otto Degener

låt bygga en exakt kopia av en djonk från 1400-talet och inreda den med ädla träslag. Hon betalade 100 000 dollar för nöjet, samlade en rad vetenskapsmän och gav sig ut på expeditioner med fartyget. Dr Degener var en av dem. När kriget kom sålde damen djonken för 1 dollar till amerikanska marinen, och när kriget var slut återköpte hon den för samma facila pris. Dr Degener köpte den senare av henne till ett pris som var betydligt normalare än både byggnadskostnaderna och försäljningsdollarn och överlät den till ett bolag som använde den för fraktfart i Söderhavet. Själv kvarstod han som en av delägarna bland vilka det tyvärr också fanns en vichyfransman, som senare helt enkelt försökte stjäla fartyget. Det är denne bedragare som levererat den fantasifulla versionen till Bengt Danielsson. Efter en process är djonken nu åter i rättmätiga händer, och dr Degener är just nu på väg till Tahiti för att ta hand om fartyget, som han tillsammans med en tahitisvensk, Oscar Nordman, kommer att använda för att frakta copra mellan öarna samtidigt som dr Degener fraktar sig själv och de söderhavsväxter han samlar.

Svensk professor lockade till Lappland

Mitt besök i Sverige är min första kontakt med Europa på 40 år — sista gången jag var här var 1910 — säger dr Degener, och anledningen att jag tog den här vägen är främst att jag ville besöka en gammal vän. År 1938 träffade jag på Hawaii professor Olof Selling. Det är han som lockat mig hit och är min ciceron både i den lappländska växtvärlden och bland de stockholmska sevärdheterna.

Växtfamiljen Degeneriaceae? Ah, det är en med mangolian besläktad ny familj, som jag hittade under en expedition till Fijiöarna — den har njurliknande frukter, fyllda med tegelfärgade frön. Från den expeditionen har jag också skrivit en reseskildring från Fijiöarna.

Hawaii och Honolulu — ja, inte är det, särskilt inte Honolulu, vad det var för trettio år sedan. Rykten om att huvudstaden är turiststöderhav är nog sanna, men å andra sidan finns det ganska ursprungliga och oförstörda öar i närheten. Tack vare flygtrafiken når man dem lätt — flyget är väl utbyggt här nere och så billigt, att båtarna nästan helt måst övergå till fraktfart. Jag bor 40 miles utanför Honolulu, upplevde Pearl Harbor och kan intyga, att det bland den stora procenten av japanättlingar på öarna under kriget över huvud taget inte fanns några quislingar.

Plants of Hawaii National Park

Illustrative of Plants and Customs of the South Seas

By Otto Degener

(Author of Flora Hawaiiensis)

Devoted primarily to Hawaii, this book draws attention to the South Sea Islands as a whole, their origin and flora, and the customs of their kindly natives. Profusely illustrated. $2.50, from author, New York Botanical Garden, Bronx Park, N. Y. City 58.

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for home. I reminded h

PLANTS OF HAWAII NATIONAL PARK. Illustrative of Plants and Customs of the South Seas

- - - - - - - - - by O. Degener

New York Botanical Garden, Fordham P.O., New York, New York 312 pp., 45 illust.

THIS is a photo-lithoprint reproduction of Degener's earlier "Illustrated Guide to the More Common or Noteworthy Ferns and Flowering Plants of Hawaii National Park, with Descriptions of Ancient Hawaiian Customs and an Introduction to the Geological History of the Islands" (1930). Reasons for the reproduction are that many of the plants illustrated and discussed are widely distributed in the Pacific region, and that many of the ancient Hawaiian customs mentioned or discussed are identical with those of the present inhabitants of other Pacific Islands. Following a brief discussion of Hawaiian geology, the origin of the Hawaiian flora is reviewed, immediately succeeded by the consideration of individual plant species.

The work is not a dry, descriptive botanical manual, but rather a popular discussion of selected plants and plant problems. The data are arranged under the common names of plants, the technical names appearing in the text. Technical descriptions are lacking, for the excellent illustrations obviate the need of these. On the other hand, extensive essays are often included, covering the economic uses of individual species, native beliefs regarding them, methods of preparing plant parts for food or for other uses, when and how certain species were introduced (if an introduced species), the significance of certain native plant names, and other human interest data.

The author has brought together a great deal of information regarding plants, plant problems, and human relationships with plants. He has, moreover, succeeded in presenting these data in an eminently entertaining and readable manner. This reviewer does not hesitate to recommend Degener's volume to anyone who may be interested in Pacific plants and plant problems; after all, as the author claims, a high percentage of the species he discusses are of wide Pacific distribution, and thus the work applies to a vastly greater area than Hawaii.

E. D. MERRILL.

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ll crouching and with his eyes

for you." At length I told him

I shall call him — would release

for the employer to have the

leave without giving at least a

"We think it's going to be pretty good," said William M. Hale, president of Royal Hawaiian.

• • •

ALTHOUGH THE profi- possibilities this year seem scant, he added, the operations should get into the black next year.

The firm's goal, he said, is the business world's average of 10 per cent on investment. That would mean an eventual profit of $400,000 a year. However, Hale pointed out, much depends on the company's efforts to seek mass distribution for its nuts.

So far, the bulk of the industry's marketing program has been in "gourmet" shops, but now a serious attempt is being made to market the nuts through supermarkets, especially on the Mainland with its vast potential sales volume.

• • •

PRICING IS the key to the supermarket trade, and this is why the industry is focusing its efforts on greater efficiencies in order to cut costs and thus be able to lower prices.

Hale said that Royal Hawaiian, which markets its nuts under the same name, recently cut the price by 20 per cent for West Coast super markets in a test marketing program.

As evidence of the importance of pricing, Scott said that in his market tests, six-ounce cans of macadamia nuts priced at 79 cents had a sales volume one-third higher than when priced at 89 cents—only 10 cents higher.

• • •

HALE SEES a big potential market in the confectionary trade—candymaking, particularly on the Mainland.

Honokaa, which sells its nuts under three brand names—Hawaiian Holiday, Triangle H and "A"—has been chocolate-coating some of its nuts for sale here.

But, said Richard M. Frazier, Honokaa's manager, the big problem in supplying a Mainland candymaker with nuts, or any other bulk buyer, is quantity. Frazier and Hale agreed that there isn't sufficient production available yet to meet such a market.

• • •

ALSO, FRAZIER noted, selling to a bulk user "reduces our profits" from marketing under the company's own label.

He noted that Honokaa made a profit on macadamia nuts for the first time last year "but not a very exciting one." However, he added, as volume of production increases, fixed overhead costs will become a smaller factor in total costs, and thus could lead to reduced prices, increased sales—and larger profits.

Meanwhile Brewer has not yet decided whether to process and market its future nut production or sell its harvest to another processor, a company spokesman said.

"We're exploring all possibilities," he added.

Editor's Note: This is the second of a three-part series of articles giving background detail of Hamakua native forest areas, plans for their preservation, and the drive by Hamakua District Development Council to achieve this goal. The council's Civic Improvement Committee proposes to save native forest areas sought for sugar cane production to be utilized instead for recreational and cultural park purposes, as well as for forest experimental work and economic commercial timber reserve. Emery Walker is council president, with Dr. P. Quentin Tomich as secretary and William Mendes as chairman of the Civic Improvement Committee.

Hilo Tribune-Herald

By HOWARD PIERCE

HONOKAA — Hamakua District Development Council's Green Plan for creation of a native "Big Tree State Park" in Kalopa area has accepted objective criteria for choosing land for recreation purposes in a forest environment as follows:

1) The selected area should be large, at least 100 acres, to provide for present and future needs;

2) It should be accessible by public road, have convenient water supply, have significant natural attributes, and be easy to develop;

3) In order to completely fulfill projected purposes, the area should be largely in native forest.

Only the Kalopa area meets the test on all counts.

Moreover, the 600-acre section comprises virtually one-half of only about 1,250 acres of State Forest Reserves that remain in Hamakua district, with less than 300 acres of these being native forest.

Reasons advanced for selection and preservation of the Kalopa acreage include the following:

1) The 100 acres of native forest would serve recreation and cultural needs and purposes; the remaining 500, as example of managed timber and for an extensive trail system to include sides and floor of Kalopa Gulch;

2) Accessiblity via improved road;

3) Water available from adjacent Ahualoa-Pohakea water line;

4) Isolated, yet only five miles from Honokaa and short distances from numerous communities along Hamakua and Hilo Coasts;

5) Contains largest ohia trees in district, opiko, and other native plants worthy to be saved from destruction;

6) Natural wild area has great potential as outdoor laboratory for school biology classes and for Boy and Girl Scout or 4-H conservation programs in study of birds and other wildlife, insects, plants, forestry and soils;

7) A general recreation attraction to draw island and tourist visitors to the local region, as well as serving Hamakua families and those of neighboring districts;

8) Ease of replanting parts of area to groves of koa, sandalwood and other native trees and shrubs now absent from or rare in the district after removal of undesireable brush growth.

Withdrawal from Kalopa Forest Reserve for planting to sugar cane now threatens the Green Plan area, the committee emphasizes.

While the sugar company was denied access to 30-year-old planted forest acreage now nearly ready for first lumber production, processing was set in motion a year ago to subzone for agriculture a remaining 220 acres, 100 of native Kalopa forest and 120 of native Kaao-Ahualoa forest.

This action was taken by the State Board of Land and Natural Resources, the committee notes, before the board knew of Hamakua District Development Council's interest, the council's plans then being in the formative stage.

Thus, next step in the process before any lease can be drawn or any disposition made, is a public hearing which must be held to determine views of the public concerning the propositions.

At the moment, such action is stymied, awating the naming of a chairman to the State Board of Land and Natural Resources.

The council is opposed to obliteration of this nearly last Hamakua native forest for agricultural use. It holds that the acreage has a higher economic value to the district as the basis for other widely varier purposes.

Such recreational forest area with its large native ohia trees and companion planted forest, it is pointed out, can be basic to forestry research.

This could be highly beneficial to Hamakua where research also has discovered that lands here produce commercial timber trees at faster rate than most any place in the world, including the native habitats of certain species.

In view of this, the council stresses encouraging local timber industry as a strong pillar of the economy instead of crippling or killing it.

A "Big Tree State Park" with its recreational opportunities for outdoor pursuits is seen as a distinct drawing card to "briskup" local visitor trade which could add some wealth to the district's economy.

Also pointed out is Hamakua District's potential as a retirement haven for persons desiring to live in an established

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DEGENER, Otto & DEGENER, Isa: Flora Hawaiiensis. (The New-Illustrated Flora of the Hawaiian Islands). Book 6: 1957—1963. — 8°, 276 Einzelblätter mit 174 Abbildungen, Leinen-Sammelband mit Durchsteckschrauben — Book Store, Bishop Museum, Honolulu, Hawaii, USA. — 1963 ≙ $ 10,00.

Die ersten 5 Bände dieses interessanten Werkes wurden in Phyton 8: 184—185 bereits besprochen, wobei auf die eigenartige, zunächst wohl schwierig zu bewältigende Konstruktion der Bände schon hingewiesen wurde. Auch dieser Band schließt an die früheren an, besitzt ein besonderes Titelblatt, auf dem auch die 1962 an Otto Degener verliehene Linnaeus-Medaille abgebildet ist, und eine Einleitung, auf die Nachrufe für H. B. Guppy (1854—1926) und F. E. Wimmer (1881—1961) folgen. Die Einzelblätter, auf denen stets auch das Erscheinungsdatum angegeben ist, sind im allgemeinen in der Reihenfolge geordnet, die ein lückenhafter Index verzeichnet. Es ist in der Anlage des Werkes begründet, daß sich manche Schwierigkeiten, z. B. bei alternativen Familiennamen wie *Guttiferae = Clusiaceae* kaum vermeiden lassen. Die nunmehr auf viel besserem Papier vorzüglich wirkenden Abbildungen sind ein besonderer Vorzug des Werkes. Es ist allerdings kaum abzusehen, wann es das Ziel erreichen wird, die ungeheure Vielfalt der jetzt schon auf etwa 20.000 bis 30.000 Farn- und Samenpflanzen geschätzten Flora von Hawaii zu bewältigen.

Phyton 10 (3-4): 287.

Widder

Botanical Facts and Fables

More Information From an Expert on Hawaiian Sandalwood, Guava and Mountain Berries

By DR. OTTO DEGENER
Collaborator in Hawaiian Botany,
New York Botanical Garden

During the last few days we have read in The Advertiser both botanical facts and fables. These, like the ghost that now haunts the Saddle Road, may deserve a little more light or elucidation.

Judge Matthewman mentions the **"akala,** a large and uncommon wild blackberry, the origin of which seems lost in obscurity."

Two distinct kinds of **akala** are native to the Hawaiian Islands. Macrae's **akala (Rubus Macraei)** was first described by Asa Gray in 1854 as being found in the "Sandwich Islands: Hawaii, on Mouna (sic) Kea (where it was first collected by Mr. Macrae); East Maui, on the banks of the crater Haleakala." This **akala** trails along the ground, has pink flowers and slightly bitter, dark red to almost black, edible fruit. It may still be found at higher elevations on Hawaii and East Maui, but rare.

The other native **akala** is known as **Rubus hawaiiensis.** It is native to middle and higher elevations on Kauai, Molokai, Maui and Hawaii. It is not on Oahu. It is erect, and occurs in many confusing varieties and forms. It bears likewise pink flowers and its large, bitter, edible fruit is usually dark red to almost black. In some parts of Kona Dr. Willis Pope discoverd a yellow-fruited variety, and some that are small trees. These plants, without success, have been used for hybridization in an attempt to produce an improved blackberry for the Islands.

* * * *

These two pink-flowered **akala** have existed for hundreds of thousands of years in the Hawaiian Islands and have no close relatives anywhere. They are true **kamaainas.**

The thimble or Hitchcock berry **(Rubus rosaefolius)** with its white flowers and bright red, edible fruit is, as Judge Matthewman stated, almost a pest. It is partial to lower forests and glades as, for instance, about Tantalus, Oahu. David Howard Hitchcock introduced it to Hawaii in the early '80s from its native home in Jamaica.

The other **malihini** is the Prickly Florida Blackberry **(Rubus penetrans).** Since its introduction to Hawaii about the turn of the century it has steadily increased its range. It bears pure white flowers followed by luscious, juicy, black fruit. It now makes hiking on Mt. Kaala, Oahu; about Kokee, Kauai; about Olinda, Maui; and about parts of the Kilauea region of Hawaii very scratchy business indeed.

* * * *

That "hundreds of acres of sandalwood trees have been discovered in the Kona district of Hawaii" as stated in today's Advertiser, may be news to the layman. To botanists and foresters the presence of these trees there and elsewhere in the Islands is nothing new at all. Nor is it true that "Sandalwood trees have been regarded as extinct, except for plantings by Hawaii National Park officials who have hoped to revive scattered forests."

Study of botanical literature at our University, our Library of Hawaii and our Museum, as well as perusal of specimens in the magnificent herbarium of the latter institution, show that eight special kinds of sandalwood, or **iliahi,** occur in the Hawaiian Islands and no other place on earth.

Freycinet's sandalwood is peculiar to Oahu, growing even a short distance from residences of **mauka** Honolulu. The tree is not rare at all. The Kauai sandalwood **(Santalum pyrularium)** flourishes about Kokee, Kauai; the Lanai one on the island for which it is named; and the Haleakala one on East Maui. All these trees are closely related and bear beautiful clusters of bright red flowers. **Santalum ellipticum,** a small, creeping shrub with small leaves and greenish flowers, grows typically along the shore (as near the Lighthouse at Diamond Head) of all our islands. On Hawaii, since time immemorial, it has crept inland, giving rise to the large shrub or small tree, **Santalum paniculatum,** of the Kilauea region; and the stately tree known as Pilger's sandalwood of Kona and neighboring districts. These three kinds all possess greenish flowers, are confusingly variable, and perhaps hybridize among themselves.

* * * *

No, the sandalwood is not on the verge of extinction. It is **trying** to come back into its own, and **can** if we protect it from feral goats, sheep, cattle, fires and competition with introduced herbaceous and arborescent weeds. The fact that sandalwood roots along road cuts on Oahu sprout lusty branches with leaves may be a clue as to how to propagate these valuable and interesting trees on a commercial scale.

F. H. Macintyre has queries in today's Advertiser (Feb. 18), regarding "The Unpredictable Guava." The guava that is described "as identical with the ordinary strawberry guava in growth and flavor" except that the fruit is yellow, is evidently the yellow strawberry guava, **Psidium cattleianum** forma **lucidum.** The **waiawi,** or **vi-yee** as Mrs. Macintyre gives it, is probably **Psidium littorale,** an entirely different plant.

* * * *

The common lemon guava **(Psidium guajava)** is native to tropical America and was first introduced to Oahu probably by Don Marin about 150 years ago. On almost every island I have found an occasional plant that "is slow growing and compact." John Burmann Jr. noticed the same in India and described his specimen as early as 1768 as a new kind of guava, giving it the cumbersome name **Psidium cujavillus.** This is not truly a distinct kind of guava but merely a freak. In pulling up one of these plants on Oahu I found it sprouting from a typical lemon guava plant. That Mrs. Macintyre's plant bears variegated foliage strengthens the belief that her plant is a sport or mutant. This rare sport arose independently of soil conditions. Something "went wrong" with a gene or two during cell-division. It is interesting that time and again, wherever the lemon guava grows, this same kind of gene should go wrong, producing the identical kind of slow growing and compact freak.

Sports like this, observed in Nature by a Macintyre or a Burbank and carefully propagated, have given rise to our choicest ornamentals and most valuable garden and crop plants.

LOTS OF SANDALWOOD

2/24/55

Editor The Advertiser:

I note with great interest your article on sandalwood discovery on the big island in your Feb. 18 issue.

In this article you mentioned that sandalwood trees have been regarded as extinct except for plantings by the Hawaii National Park officials. Much misinformation has been published regarding the amount of sandalwood present in the Hawaiian islands. Actually sandalwood is by no means rare especially on Oahu. In fact in certain areas on Oahu sandalwood is a common tree. Even during the sandalwood boom, sandalwood never occurred in more or less solid forests. They occurred as scattered individual trees throughout the drier sections of the forests. More detailed information can be secured from the Forester of the Board of Agriculture and Forestry.

Feb. 21 KARL H. KORTE
Forester

Five Year Plan

Puu Alii, Kau, Scene of Beginning of Intensive Island Archaeological Examination

Hon. Adv. 3/1/55

By GEORGE VANDERBILT

As the Bishop Museum's flying team, searching for possible new archaeological lore, Dr. Ken Emory and I were once more ensconced in the abandoned Coast Guard Headquarters in Kau on the Big Island. This was presently being used by Bill Bonk, leader of a field team which was assisted in its labors by the eager members of the local Boy Scout troops, invariably helpful and infectiously enthusiastic with their aid.

VANDERBILT

Here is South Point, the tag end of the Hawaiian group, and very possibly the original landing point of the first weary Polynesians who were to become Hawaiians in the newfound homeland. From here we can look down the forbidding precipice of Kahuku Pali, 500 feet high, known geologically as a fault scarp. This cliff forms a barrier ridge, making travel between the two sides of the point impossible. At its base lies a branch of the lava flow of 1868, one of those which swept down the slopes of Mauna Loa with frequent explosions, throwing masses of steam and ash high into the air and destroying the fishing villages which hug the coast. Here, to the westward of South Point, between the lava flows, may be seen the remains of Papakolea, where once stood a sizeable fishing village. Circular stone enclosures, within which the houses were built, are visible even from this height.

* * * *

In excavating an archaeological site, common sense is, of course, the prime necessity, but observation and study play their part. The site to be examined is a large mound, known locally as "puu alii," or chief's hill. It looks like an Indian mound. Owing to the perspicacity of Miss Amy Greenwell, member of a kamaaina family, who learned much through accompanying other Bishop Museum field trips and whose intelligence leads her to quickly realize that there should be relics in the mound, we are now about to see what actually lies beneath this earth. Lying close to the water hole of Palahemo, and to the mooring rocks on the point, this location is a natural, yet for many years it has remained unexplored.

Lack of regular archaeological facilities in the islands, plus lack of money to send teams into the field, have been responsible for this unhappy situation. Now the museum, under its new and brilliantly driving director, Dr. Alexander Spoehr, has laid

Very valuable
O.D.

From G. C. Munro

OVER THE TOP OF LANAIHALE SEPT. 15, 1955

Below Lanai City was found two plants of the white flowered form of the native bean (Canavalia galeata) awikiwiki now found only in the Kanepuu dry forest and Na Laau Hawaii on Diamond Head. Ascending the hill from Palawai Basin to Kaohai we look over the Miki lands now growing pineapples and the southern slopes of Maluea . Three trees of akoko(Euphorbia lorifolia) grew in the cactus, Two species of native daisy (Tetramalopium remyi and T, chamissione) grew on Miki and several species of nehe (Lipochaeta)roughleaved generally yellow flowered plants or small shrubs. Plants of all of these may still remain on the sloping ridges running south. Na Laau Hawaii needs seeds of them. There may also be other dryland plants on these slopes such as iliahi dryland sandlewood. At the outside end of Paliakoae gulch were two species of dryland fern. They were generally found under the shelter of rocks. Mamane and sandlewood on the hillside. One of the ferns had the fronds in a bunch on the end of a stem the other had a long stem with flattish fronds arranged along each side. The first was also on the face of the hill going up from Palawai Basin. The other at Kanepuu by stones on slope from trees. Across from the patch of koa trees when nearly at the top of the trail there were a few koaia trees (Acacia koaia) another was in the end of the gulch on the righthand side where the Keomuku road starts down. Other small ones were scattered over the Kaena lands.. We look outto where the Waiakeakua tunnel was and there was much planting of foreign trees below the old shack there was a tree of Pittosporum hosmeri from Hawaii. It was named for our first forester in Hawaii. A small tree of uhiuhi (Mezoneuronkauaiense)from Hawaii also flowered there. Also I spread seed of the small native bean (Vigna sandwicensis) the treelike form of Hibiscus brackenridgii) and Abutilon eremitopetalum. A note about that bean dated Nov .11 19[illegible] on Kaohai "a small native bean in grass or weeds. Broader leaf and larger pods than the other Vigna heterophylla narrow leafed variety at same place both flowering and seeding. I am not sure about that locality but think it was well down on the rocky country. A few years ago I got seed of the larger variety below Waiakeakua. Coming back to Maluea (what we called Maluea was on the top of the rise from Manele before going down into the Palawai Basin.) mauka of the road and where the house stood about a quarter of a mile or more some trees of Abutilon menziesii and Kului (Nototrichium)grew among the cactus and I took seed of them to Kanepuu forest where the first grew well. A number of dead sandlewood trees were there also. The slopes below there might show some rare things now. Let us go back to the west side. About half way down the Kaumalapau road on the left hand side grew a plant of Sesbania tomentosa the native ohai with pretty red flowers. Farther along opposite the Kanepuu forest was a patch of kului trees in a little valley. Seeds of these might grow at Na Laau Hawaii Opposit Koele well down on the western slopes was a shrubby form of Hibiscus brackenridgii ~~and later~~ was found by the late Mr. Thalman. I knew of several bushes where pineapples are now growing. Also to below Kaohai to which we return there was a bush of it. On the eastern Kaohai coming down the puhielelu ridge I first found the treelike form of Hibiscus brackenridg and later by Awehi right at the bottom of the Kahinahina ridge. Also in the middle of Kaluu after crossing two gulches probably at the level of old fence which is marked by groves of eucalyptus trees. Saw it there in a grove of wiliwilis with Abutilon eremitopetalum which was which was in a thick patch. Filled my saddle bags with seed for Kanepuu. The latter was first found in Maunalei Valley below the corner. To get back to the Munro trail going up the hill the New Zealand manuka becomes conspicious along the trail. The white flowered species is Leptospermum scoparium native name manuka the reddish is a sport or perhaps different species and was a garden plant when the seed was procured in New Zealand. The larger tree is L. ericoides. A little down from the top of the ridge coming up from Waiakeakua is a patch of trees there was growing fine specimens of Cyanea baldwinii and C. gibsonii two lobelias peculiar to Lanai but the last time I saw them I noted the leaves were small and they looked as if their days are numbered. Coming over the trail at the bottom of the steep drop from Lanaihale Hector Munro found C. gibsonii where the original plant of baldwinii used to be. Perhaps a more complete search may reveal C. baldwinii or maybe plants of it may remain at Lanaihale where some were growing.It will be a pity if it is lost as it grew beautifully at Tantalus Oahu. The stoutstemmed rose climber now at Lanaihale was brought from Olinda, Maui. Other Maui plants, some lobelias were grown. I have photos of Lobelia gloriamontis, Wilkesia, and other bog plants which grew well as long as they were not crowded by denser growth. The bog plants of the higher elevations on other islands will grow at a much lower elevation if given the conditions of light they get on the open bogs. Before we come to Lanaihale we pass Kaiholenalei where much planting of foreign trees was done. A patch of New Zealand flax (Phormium tenax)and Cordyline australis are noticable along the trail. The Norfolk Island [illegible]

Over the Top of Lanaihale Sept. 18, 1955

The Norfolk Island pines on the south end of the mountain were planted from 1927 to 1932. The ones on the north end from 1919 to 22.
The three gulches that run into Maunalei end at Puu Aalii. They are Waialala, Kumoa, and Hoolio. It is at the top end of Hoolio that Cyanea baldwinii grew and on September 18 1955 that Hector Munro found C. gibsoni. At the top of that steep rise I planted trees of Hamakua Lentospermum ericoides and other plants including some of the Hawaiian palm Prichardia native lolo or hawane a small plant of which was there Sept. 18 1955. It must be a descendant of the ones I planted. It surely cannot be one of them. I collected specimens of a new species described by Dr. Rock from seeds of Prichardia someone had collected. He named it elliptica.
In a short valley between the Maunalei and ~~Hoolio Valleys & number~~ of/ Auola Valleys a number of very interesting trees were planted including New Zealand flax, karaka, Queensland Australian kauri and others. In one of the valleys from Pualii to Maunalei I found the only plant of olana, the fiber plant of the Hawaiians. In the Hoolio Valley were planted in 1919 two groves of Japanese sugi, a timber tree. On emerging from the forest we look to the westward to Haiholena Valley and see the end of a belt of Eucalypts coming up out of that valley. A little mauka of that belt on the east side of the ridge in the head of a little valley there used to be a small tree of Hesperomannia arborescens the only specimen of the species known to exist at that time. Looking the other way to the east side over the Kalulu lands towards the Auola Valley is the only habitat known of Abutilon eremitopetalum, the first specimen of which I found below the bend of the Maunalei Valley but well out on the middle section I found quite a patch of it with Hibiscus brackenridgii in the middle of it, the tree like form. At the end of Maunalei Valley (east end) on the north side of the cliff there was the only bunch of Portulaca lutea, a perennial form like the common pigweed/. Half way to the Awalua landing along the coast was the only plant I saw on Lanai of Scaevola coriacea closely allied to the naupaka kahakai but with much thicker leaves.
In coming over I missed mentioning Scaevola gaudichaudii. This is a small tree on Kahinahina ridge below the forest. It has the split flower of the Scaevolas . On the north side of the Keomuku road about half way up there used to be plants of the of the prostrate form of Hibiscus brackenridgii of which N. L. H. needs seeds. The three forms are I think quite distinct on Lanai: the singlestemmed, the shrubby and the flat ground hugging variety.
What plants does Na Laau Hawaii need most from Lanai? The three forms of Hibiscus brackenridgii. Seed of almost any of the trees of the Kanepuu forest including Hanlostachys munroii, Abutilon eremitopetalum , A. menziesii , the Lanai variety of Euphorbia lorifolia if any of them would appear there again. H. Munroii was never found anywhere else. Cuttings of the old Hawaiian sugar cane that grew among the rocks north of Kahua Valley on the way to Awalua. There are a number of dryland plants in the rocky country between Awalua and Kaena Point but it is hard country to travel over.
This is a rough sketch but may be of some use.

Nicholson, H.W., From Sword to Share 140.1881. ((T.H.)) Several unsuccessful experiments in rice culture had been made by independent foreigners from time to time; but it is to the efforts of the Royal Hawaiian Agricultural Society that the introduction of rice, as a staple article of produce, is due. During the first declination of the whaling interests, this society purchased a tract of land near the town of Honolulu, suitable for the experimental introduction of various foreign trees and plants. A quantity of paddy having been procured from the East Indies, an old taro patch was therewith planted, and in less than four months the crop was harvested (September 14th, 1858) with a yield of three-quarters of a pound to the square yard. This was hulled between the millstones of a flour-mill at Honolulu, but was found to be small in grain, dark in colour, and unprofitable in appearance generally. Notwithstanding this result, and the absorbing prosperoty of the whaling times of 1859, the society's manager was hopeful, and replanted, but with no better results. Again in 1860 Mr. Holstein procured four pounds of South Carolina rice, direct from Charlestown, and, in a prepared taro patch, planted 1 1/2 lbs. under the shade of two bread-fruit trees that still mark the spot. The season proved inclement, and the yield therefrom of good seed rice was but 44 lbs. With R lbs. of this seed the late Dr. Ford planted 1,260 square yards of a taro patch at his residence in the suburbs of Honolulu, during March 1861; from which was gathered no less than 1,163 lbs. of large and full-grained paddy, and Mr. Holstein's report for the same year gives the yield per acre at 1 1/2 lbs to the square yard, or 7,260 lbs. of paddy per acre. This unanticipated success was electrical in its influences. The Hawaiian world "went for rice," and so contagious was this "rice on the brain" disease, that all the taro patches were transmuted to paddy-fields, even to the dethronement of growing plants in favour of the newly-constituted idol.

THE UNPREDICTABLE GUAVA

Editor The Advertiser:

The letter about the strawberry guava appearing in this column inspired me to add a further bit of information about this decorative and delicious guava.

In clearing the undergrowth on my lot in the little gulch known as Kokokahi, off Kaneohe Bay Drive, I have found a number of these small trees among the other wild guavas — sweet, sour, pink, red or white fleshed—which overrun the place. When one small plant, obviously identifiable as a strawberry guava, first fruited, the green fruit began as usual to turn slightly reddish. But I was amazed when, instead of ripening with a rich red color, it turned the usual cream of ordinary guava fruit. I am certain it is not a young vi-vee tree as the fruit is completely round and, except for color, identical with the ordinary strawberry guava in growth and flavor.

On this same lot I have found another freak or sport guava bush. This one bears ordinary guavas, not particularly good ones. But the foliage is variegated. Each leaf has an irregular creamy center area, like some crotons. The branches are not the soft creamy, pinkish green of regular guavas, but a brilliant orange in color, and shiny as though laquered. It is slow growing and compact. I have marvelled at it and wondered if this sport were the result of peculiar soil or other conditions. Perhaps Dr. Degener can comment for our information.

Feb. 16 F. H. MACINTYRE

IT'S A STRAWBERRY GUAVA

Editor The Advertiser:

The letter by L. Kreis about the "Hawaiian Strawberry" in today's Advertiser is somewhat confusing.

A native Hawaiian strawberry grows at higher elevations on Maui and Hawaii. It is **Fragaria chiloensis** of the botanist, and is one parent of many commercial strawberries cultivated throughout the World.

The "Hawaiian Strawberry" of Mr. Kreis, a tree, is obviously no strawberry at all. It is merely the strawberry guava, **Psidium cattleianum** of most botanists. This plant is native to Brazil. It has escaped from cultivation, and may be found here and there in the lower forests of Oahu and elsewhere.

Descriptions and illustrations of the strawberry guava may be found in many local botanical works. Recipes for making its delicious fruit into jellies and jams, and analyses of vitamin content are given in pamphlets published by the University of Hawaii.

N. Y. BOT. GARDEN

MORE ON 'HAWAIIAN STRAWBERRY'

Editor The Advertiser: 2/16/55

Saturday, February 12, you published a letter from L. Kreis on what he called the "Hawaiian Strawberry."

It is commendable that a malihini should show such an interest in what we grow here, but a snap judgment by a newcomer is often quite erroneous.

The "small tree bearing a lovely red fruit" mentioned in that letter is probably a Surinam or French cherry (**Eugenia uniflora**). The bush, rather than tree, grows readily and the "cherries" make a delicious preserve.

On Mount Hualalai I have picked the small and sweet wild strawberry which there abounds. Also elsewhere is found the wild strawberry which, as Webster shows, is properly called an "escape" from domestic culture. Somewhat similarly we have in Hawaii "wild" cattle and "wild" sheep. They are the descendants of domestic animals that ran wild.

Far more common than the wild strawberry is the wild red rasperry. That indeed is almost a pest around the Volcano House, where, from the name of the man who introduced it into Hawaii, it is called the Hitchcock berry. Another name is thimble berry. It grows freely up in back of Tantalus. Like the mountain apple (Ohia ai) it lacks a distinctive taste and is somewhat insipid.

Mention also should be made of akala, a large and uncommon wild blackberry, the origin of which seems lost in obscurity.

The growing of large and delicious strawberries in Hawaii has in general been a failure because of a lack of low enough temperature. Years ago I did grow some in North Kona, but at an elevation of nearly 2,000 feet. Today, way up in the very cool section of Palolo Valley, luscious big strawberries are being produced and marketed by an enterprising horticulturist, Masao Shintani.

However, as the English like to quote from the French, **revenons a nos moutons** (let us go back to our chops, as if interrupted):

What are Hawaiian strawberries? There are none.

Feb. 14 JOHN ALBERT MATTHEWMAN

EDITOR'S NOTE—Yesterday's letter on the Hawaiian strawberry signed N.Y. Bot. Garden, should have borne the signature of Dr. Otto Degener, the noted botanist, speaking on behalf of the New York Botanical Garden.

Botanical Facts and Fables

More Information From an Expert on Hawaiian Sandalwood, Guava and Mountain Berries

By DR. OTTO DEGENER
Collaborator in Hawaiian Botany,
New York Botanical Garden

Star-Adv. 2/24/55

During the last few days we have read in The Advertiser both botanical facts and fables. These, like the ghost that now haunts the Saddle Road, may deserve a little more light or elucidation.

Judge Matthewman mentions the "**akala**, a large and uncommon wild blackberry, the origin of which seems lost in obscurity."

Two distinct kinds of **akala** are native to the Hawaiian Islands. Macrae's **akala** (**Rubus Macraei**) was first described by Asa Gray in 1854 as being found in the "Sandwich Islands: Hawaii, on Mouna (sic) Kea (where it was first collected by Mr. Macrae); East Maui, on the banks of the crater Haleakala." This **akala** trails along the ground, has pink flowers and slightly bitter, dark red to almost black, edible fruit. It may still be found at higher elevations on Hawaii and East Maui, but rare.

The other native **akala** is known as **Rubus hawaiiensis.** It is native to middle and higher elevations on Kauai, Molokai, Maui and Hawaii. It is not on Oahu. It is erect, and occurs in many confusing varieties and forms. It bears likewise pink flowers and its large, bitter, edible fruit is usually dark red to almost black. In some parts of Kona Dr. Willis Pope discoverd a yellow-fruited variety, and some that are small trees. These plants, without success, have been used for hybridization in an attempt to produce an improved blackberry for the Islands.

* * * *

These two pink-flowered **akala** have existed for hundreds of thousands of years in the Hawaiian Islands and have no close relatives anywhere. They are true **kamaainas.**

The thimble or Hitchcock berry (**Rubus rosaefolius**) with its white flowers and bright red, edible fruit is, as Judge Matthewman stated, almost a pest. It is partial to lower forests and glades as, for instance, about Tantalus, Oahu. David Howard Hitchcock introduced it to Hawaii in the early '80s from its native home in Jamaica.

The other **malihini** is the Prickly Florida Blackberry (**Rubus penetrans**). Since its introduction to Hawaii about the turn of the century it has steadily increased its range. It bears pure white flowers followed by luscious, juicy, black fruit. It now makes hiking on Mt. Kaala, Oahu; about Kokee, Kauai; about Olinda, Maui; and about parts of the Kilauea region of Hawaii very scratchy business indeed.

* * * *

That "hundreds of acres of sandalwood trees have been discovered in the Kona district of Hawaii" as stated in today's Advertiser, may be news to the layman. To botanists and foresters the presence of these trees there and elsewhere in the Islands is nothing new at all. Nor is it true that "Sandalwood trees have been regarded as extinct, except for plantings by Hawaii National Park officials who have hoped to revive scattered forests."

Study of botanical literature at our University, our Library of Hawaii and our Museum, as well as perusal of specimens in the magnificent herbarium of the latter institution, show that eight special kinds of sandalwood, or **iliahi,** occur in the Hawaiian Islands and no other place on earth.

Freycinet's sandalwood is peculiar to Oahu, growing even a short distance from residences of **mauka** Honolulu. The tree is not rare at all. The Kauai sandalwood (**Santalum pyrularium**) flourishes about Kokee, Kauai; the Lanai one on the island for which it is named; and the Haleakala one on East Maui. All these trees are closely related and bear beautiful clusters of bright red flowers. **Santalum ellipticum,** a small, creeping shrub with small leaves and greenish flowers, grows typically along the shore (as near the Lighthouse at Diamond Head) of all our islands. On Hawaii, since time immemorial, it has crept inland, giving rise to the large shrub or small tree, **Santalum paniculatum,** of the Kilauea region; and the stately tree known as Pilger's sandalwood of Kona and neighboring districts. These three kinds all possess greenish flowers, are confusingly variable, and perhaps hybridize among themselves.

* * * *

No, the sandalwood is not on the verge of extinction. It is trying to come back into its own, and can if we protect it from feral goats, sheep, cattle, fires and competition with introduced herbaceous and arborescent weeds. The fact that sandalwood roots along road cuts on Oahu sprout lusty branches with leaves may be a clue as to how to propagate these valuable and interesting trees on a commercial scale.

F. H. Macintyre has queries in today's Advertiser (Feb. 18), regarding "The Unpredictable Guava." The guava that is described "as identical with the ordinary strawberry guava in growth and flavor" except that the fruit is yellow, is evidently the yellow strawberry guava, **Psidium cattleianum** forma **lucidum.** The **waiawi,** or **vi-vee** as Mrs. Macintyre gives it, is probably **Psidium littorale,** an entirely different plant.

* * * *

The common lemon guava (**Psidium guajava**) is native to tropical America and was first introduced to Oahu probably by Don Marin about 150 years ago. On almost every island I have found an occasional plant that "is slow growing and compact." John Burmann Jr. noticed the same in India and described his specimen as early as 1768 as a new kind of guava, giving it the cumbersome name **Psidium cujavillus.** This is not truly a distinct kind of guava but merely a freak. In pulling up one of these plants on Oahu I found it sprouting from a typical lemon guava plant. That Mrs. Macintyre's plant bears variegated foliage strengthens the belief that her plant is a sport or mutant. This rare sport arose independently of soil conditions. Something "went wrong" with a gene or two during cell-division. It is interesting that time and again, wherever the lemon guava grows, this same kind of gene should go wrong, producing the identical kind of slow growing and compact freak.

Sports like this, observed in Nature by a Macintyre or a Burbank and carefully propagated, have given rise to our choicest ornamentals and most valuable garden and crop plants.

LOTS OF SANDALWOOD

Editor The Advertiser:

I note with great interest your article on sandalwood discovery on the big island in your Feb. 18 issue.

In this article you mentioned that sandalwood trees have been regarded as extinct except for plantings by the Hawaii National Park officials. Much misinformation has been published regarding the amount of sandalwood present in the Hawaiian islands. Actually sandalwood is by no means rare especially on Oahu. In fact in certain areas on Oahu sandalwood is a common tree. Even during the sandalwood boom, sandalwood never occurred in more or less solid forests. They occurred as scattered individual trees throughout the drier sections of the forests. More detailed information can be secured from the Forester of the Board of Agriculture and Forestry.

Feb. 21 KARL H. KORTE
Forester

OTTO DEGENER, FAMOUS SCIENTIST, GUEST OF MR. AND MRS. W. W. NELSON HERE

One of the few scientists in the world competent to pass on the results of the famous Kon-Tiki Pacific expedition from Peru to the South Sea Islands by raft, and the ethnic theory behind that daring adventure, was a visitor in Winter Park this week with his German bride of less than a year, as guests of the W. W. Nelson family on Georgia Avenue.

He is Otto Degener, eminent Hawaiian botanist and plant explorer, who came to international note as a staff member of the Fairchilds-Archbold expedition to the East Indies in 1939 just before World War II. Dr. David Fairchilds makes many extended mention of Mr. Degener in his celebrated work, "Garden Islands of the Far East," an account of that voyage.

Mr. Degener is also well known for his works on the flora of Hawaii, both native and exotic or introduced, and is an authority on the ethno-geography of plant cultures as found over the Pacific area, by which the migrations and settlement of the islands of Polynesia and Micronesia are largely determined in studies of the area. His flora of Hawaii is the standard text on the subject.

Originally from New York, where his father came many years ago from Germany, Degener is an intensely serious and conscientious scientist, and is having the utmost of cooperation in his plant studies from his wife, whom he married last spring in Berlin. She is a graduate in Botany of the University of Berlin, with a Doctor of Philosophy in the systematics of the Ericaceae, or heath family of plants.

Monday night the Degeners were guests of honor at a dinner party given by the Nelson family, attended by Mayor and Mrs. Ray Greene, Mr. and Mrs. William H. Jayne of Orlando, and R. W. Wheeler and Wyndham Hayward, local horticulturist.

Of the Kon-Tiki expedition, Mr. Degener said, "It was a brave and daring expedition, but scientifically it proved nothing, except that it could be accomplished. I had already in 1945, even before the expedition started, suggested in print the introduction of a certain element of American origin in Western Polynesia, as evidenced by the presence of the sweet potato there."

By ROBERTA HORING
Star-Bulletin Staff Writer

Mrs. Anne Archbold's estate, "Hillendale," has jumped into first place among the District's 10 most expensive private residences.

Assessed at $948,328, up from $411,346 last year, the estate at 3965 Reservoir road N.W. surpassed Mrs. Marjorie Merriweather Post May's "Hillwood," which had been in the number one spot. Mrs. Archbold's 38.3 acres of land alone doubled in value from $11,000 an acre last year to $22,000 this year, according to the city assment office.

The figures on the top 10 residences were included in a report from the District's Finance Office to the House Subcommittee on District Appropriations.

"Hillendale" edied "Hillwood," Charles Perry Miller, supervisor of the city's real estate assessment office said, because of a reassessment of land values this year.

DEGENER, O. 582(96.9)

Plants of Hawaii National Park. Illustrative of plants and customs of the South Seas.

New York Botanical Garden, New York: 1945: Pp. xv + 314: 45 figs: 95 illus.

It is natural that the folk lore of any race should be closely bound up with the flora of the country concerned. The ethnologist must therefore make some botanical study, while the interests of the botanist will be stimulated by some knowledge of the associations of the flora with the inhabitants of the region. Of no place will this be more true than the South Sea Islands, whose origin, geographical position and history give them a peculiar interest. To meet the demand created during the war years for some general guide for the visitor to these parts, this volume has been produced as an expansion of an earlier account by the same author of the vegetation of Hawaii.

A brief outline of the geological history of the Hawaiian Archipelago, and of the origin of its flora, which at present consists of about 85% of endemic species, provides an introduction to the book, which consists for the rest of a systematically arranged series of descriptions of pteridophytes and angiosperms found in the Hawaiian National Park. The habitat and habits of each species are given, with a concise morphological description, followed by any points of general, historical, ethnological, or economic interest concerning its presence in the Islands. The systematic position with frequent reference to related plants is noted, together with English, Latin and native names. If these equivalents were in addition given in tabular form the usefulness of the book would be much enhanced. The non-botanical reader is well catered for in these descriptions, where the technical terms employed are also defined, but a glossary of those occurring more frequently or even a brief introduction to the general anatomical features of the plants described would have simplified the book considerably. The abundant photographs are so poorly reproduced as to contribute little to the charm of the book but copious excellent drawings illustrate it throughout, though it is doubtful if these efficiently replace a key to the species as is claimed.

The accounts of native customs are full of interest, but a more complete glossary of native terms than that included in the index would facilitate the perusal of the book by the unfamiliar reader. Despite these faults, however, and a rather naive style throughout, the volume constitutes a valuable aid to the traveller in this part of the world anxious to gain a general knowledge of the local folk lore, and wishing to identify the plants he meets.

R. H. R.

the very holy Temple of Kane and as the temple had been closed and sealed, they could not be reached. They then hit on another scheme to halt the King.

Hon. Adv. 10/17/55

THEY VISITED the sacred Princess Kalola of Maui, paramount Queen of Kalaniopuu and mother of his eldest son and heir, the sacred Prince Kiwalao. This queen usually resided in Maui at the court of her father, Kekaulike, King of that island kingdom, but she had returned to Hawaii with Kalaniopuu to witness the wonders of Lono's visit. Now she was in the seclusion of her own apartments as customary with royal women of sacred birth.

The King's advisers came to Kalola and explained their premonitions of evils in the event that the King did visit the English Cook. She agreed to stop him and to do so she performed a very simple act. She waited until the King and his retinue were leaving his royal apartments, and she laid herself on the ground directly in his path. The King thus had two choices if he wished to continue on his way. Kalola was of sacred birth being a Niau-Pi'o; her father, King Kekaulike of Maui, and her mother, the Princess Kekuiapoiwa I, were brother and sister of half-blood. In addition her mother was a daughter of that sacred Princess of the House of Keawe, Kalani-Kauleleaiwi.

For the King to step over Kalola, his Queen, would have been a sacrilege unthinkable. On the other hand, Kalaniopuu was King and as such he could not, without considerable loss of personal dignity, be swerved in his path. He could not walk around his wife. Nor would any dare touch his or his sacred wife, dare to touch her, remove her from his path. ... touch her, and Ke... ligious retreat.

marks of respect, the king himself was forced at last to appoint an official who could remedy the oversights of both people and gods alike. And so the king appointed an official . . .an official executioner. . .and his was soon found to be one of the busiest of all the king's posts.

During this early period of small feudal states ruled by kings, government followed much the same pattern in them all. There was, first, the Alii-Kapu, or king, who held his land and his people as long as his mana did not let him down. Next there were two very powerful men, whose joint function it was to control the state as they deemed best. In the possible event of these two governing powerhouses having a fundamental and important difference of opinion with their ruler, the odds were on them. Death arranged by convenient accident, or death by sorcery, were easily apt to happen suddenly to a non-compliant ruler; in this unfortunate case there would be a new king, probably son of the demised ruler, and the two government officials would carry on as before.

* * * *

The first big government man was the Prime Minister, known as the "Kalaimoku," who advised on affairs of state and on matters of warfare. He was an able councillor, cared little for luxury or wealth, and aside from planning out large scale operations contented himself with making sure that his king did not eat too much soft poi; this latter because, with warfare always in mind, it is known that hard poi is better and taro best of all to make one swift of foot.

The second high official was the "kahuna nui," who was keeper of the king's conscience, medicine man, and spiritual adviser. He acted as astrologist before a battle, or, when no battle was in immediate view, he most strenuously urged the king to direct his thoughts to the gods and not to be led astray by women. . .especially women of low birth. Furthermore, he kept things moving by trying to persuade the king to have the executioner work on all the women who were ungodly . . . and to tell that woman who had said nasty things about what a gay dog he was that she was going to be executed (only have her informed that the gift of a suckling pig would buy a pardon). Thus did the kahuna nui constantly attempt to influence and guide his king, nor did he hestitate at auspicious moments to beg one or two small pieces of land for himself.

* * * *

Thus, as history has ever taught us, graft, sprang up hand in hand with greed. Where, we might ask, did the 5 per centers begin? And in what land were people not human?

By JARED G. SMITH

It was in June, 1888 that I acquired the collegiate degree of B.Sc. Because of specializing in the grass tribe in botany the regents conferred, with the diploma, appointment to the very new Nebraska experiment station as "assistant" to an imaginary chief botanist.

SMITH

Then, all of 21 years old, I began the long years of telling or showing others what to do, often trying to follow my own advice in the next 67 years, 54 of 'em in Hawaii.

I've said that so many times you must be tired of the repetition. New ideas glance off from an elderly think-box. It was planting a "grass garden" in Nebraska that took me to Washington's "Agrostology" away back when. From the systematic angle of describing new species it was a natural step to the grazing and hay potential of the grass tribe and other forage plants and problems.

Hon. Adv. 3/13/55

I learned years later that Island ranchers asked the Secretary of Agriculture for my services. My fellow-workers in the Old Department had agreed that in 1901 Honolulu was the farthest away that any civil service guy could be sent.

At least I knew where Honolulu was, having touched here three times in Pacific crossings—in the days when the world was wide. The Curse of the Wandering Foot had taken me through most of the States, Canada, Mexico, Europe and Australia. Auwe, life has been long and interesting!

The King Kalaniopuu was invited by Captain Cook to visit him aboard the Resolution, and the King was willing, even anxious, to do so. His chiefly advisers however attempted to dissuade him from doing so, but the King was adamant. Even Kanekapolei, his favorite wife, begged him not to go, but the King was truly enticed by the wonders he had seen aboard the English vessel.

The chiefs, his advisers, then sent a messenger to the Prince-Priest Kaleimamahu or his father, the sacred Prince Keoua, the King's brother, to come and plead with the King. These sacred princes were, however, in

29

Mokuleia Beach, Waialua, Oahu.
Jan. 2, 1956.

My dear Miss Clark:

I have clipped many of your "Did You Know" articles for permanent reference because of their original observations.

I am here taking the liberty of drawing your attention to the January 2 article. You state that there are three varieties of mistletoe in the Islands. That is true enough. I believe it were better to write that up to date sven kinds of mistletoe are known to the islands or, more technically, five species and two varieties. They belong to the genus or group Korthalsella, which was monographed by B.H. Danser way back in 1937. The article appeared in the Bull. Jard. Bot. Buitenzorg. This bulletin is available to you at the Bishop Museum.

Much of Danser's obscure bulletin is reprinted in my "Flora Hawaiiensis or New Illustrated Flora of the Hawaiian Islands" available for study at our larger libraries and of course on sale at Hon. Book Shops on Alakea Street.

The mistletoe on the Mainland belongs to the genus Viscum

Aloha,

Collaborator in Hawaiian Botany,
New York Botanical Garden,
Bronx Park, New York City.

VOLUME IV
NUMBER 1

UNIVERSITY OF HAWAII
ALUMNI OFFICE

AUGUST 25, 1950
FRIDAY

Did You Know?

By MYRLE CLARK

Did you know that there are three varieties of native mistletoe growing in these islands? Sure enough. But it doesn't look like the wilted sprigs which the folks back home tuck into our Christmas packages. The island mistletoe appears to be leafless and is made up of flat stems with numerous joints and branches. There are tiny flowers and inconspicuous berries. Hawaiian legend does not tell us that the beautiful wahine (woman) blushed under the mistletoe while she was being kissed. There is no romance connected with the island mistletoe, as on the United States mainland and in England. Neither is there any record of a Hawaiian Christmas or New Year.

Mistletoe may be seen growing in the Hawaiian forests on a number of shrubs and trees. This parasite attaches its roots to the branches and lives most comfortably on the ohia and koa trees, partaking of the food supply flowing under their barks. It may be seen frequently in our volcano areas where it seems to thrive in the cool air.

1925

ALVIN K. SILVA of Wailuku, Maui is the Superintendent of Industrial Relations with the Wailuku Sugar Company. He is married to the former Pauline Oliveira.

MRS. C. DUDLEY PRATT, the former Dora Broadbent now resides at 1860 Vancouver Drive.

OTTO DEGENER of Mokuleia Beach, Waialua, was honored as the "outstanding botanist" of the Pacific Islands by a niche exhibiting his writings at the 34th International Flower Show held in Grand Central Palace, New York City.

Botany

Natural Magazine 51:451.1958. *Flora Hawaiiensis. By Otto Degner. Book 5. Mokuleia Beach, Waialua, Oahu, Hawaii. 1958. Published by the author.* Fifth book in this excellent botanical assembly of information on Hawaiian flora.

Seventy Years Ago—1884

The Grand Ball given under the auspices of the British Benevolent society is considered a great success. The guests indulge in many waltzes to the soul-stirring music of Berger's renowned string band. Among those present are His Majesty the King, HRH Princes Liliuokalani, HRH Princes Likelike, His Excellency Governor Dominis and many others.

Hon. A. S. Cleghorn makes mention of the many valuable trees, etc., which Dr. Hildebrand has introduced here as he is called upon to speak at the meeting during which medals are awarded to successful exhibitors at the Royal Hawaiian Agricultural society show.

Hon. Adv. AXIS DEER 2/3/56

To the Board of Agriculture and Forestry
Honolulu, Hawaii

This morning my attention was drawn to an article in The Honolulu Advertiser of Wednesday, Dec. 21, 1955, in which a young ignoramus by the name of J. R. Woodworth was quoted as favoring the introduction of Axis deer on Big Island and Kauai, the last remaining deerless islands in Hawaii. Since a controversy as to the advisability of this introduction is raging, I would like to express my opinion on this subject.

Hawaii is world renowned for many things, not the least of which is its plant life. Due to historical and biological circumstances, the flora is one of the most remarkable in the world, of extreme biological interest. Dr. Ronald Good, in the "Geography of Flowering Plants" p. 176 (1947) writes: "Geographically Hawaii is the most isolated of all the floristic regions, a fact which undoubtedly accounts for **its most remarkable botanical feature**, the extreme endemism of its flora... there is reason to believe that of the native plants 85 per cent may be endemic to the islands." In short, over 85 per cent of all species of Hawaiian plants occur nowhere else in the world except in your islands. Unfortunately many are extinct already, others on the verge of extinction, and if deer are introduced on the two remaining islands, many will never be seen by man again.

In short, Hawaii is in a way a natural botanical garden, with plants of immense biological and scientific interest. The preservation of some areas, such as the two islands in question, is not just a sentimental duty, but a responsibility of every intelligent biologist, who has had training in ecology and progressive game management.

It is a well known fact that introductions of goats and deer on islands invariably destroy the vegetation to such an extent that eventually the whole region resembles a desert. One has only to read what happened on some of the Hawaiian Islands and on the Azores, the latter once a beautiful region of great scientific interest and recreational possibilities, but now a barren, forbidding place.

It is in the interest of the scientific world as a whole, that I plead with you to ignore the requests of such irresponsible individuals like Mr. Woodworth. **Keep the two remaining islands free of deer and goats!**

To introduce these animals for the pleasure of a few is nothing short of vandalism.

Jan. 30

HUGH H. ILTIS
Curator of the Herbarium and
Ass't. Professor of Botany
University of Wisconsin

50 Antelope Due For Lanai Area

Fifty antelope which will be used to colonize Lanai's plateau country will arrive here next month—if Montana trappers don't run into more weather troubles.

The trappers planned to ship the animals two weeks ago, but a heavy snow storm frustrated their attempts to snare the antelope.

• • •

ANOTHER attempt will be made just prior to the Hawaiian Planter's Dec. 3 departure from Seattle. If the trappers are successful, the antelope will share space with a big Christmas tree shipment.

They will be acompanied by James McLucas of the Montana Fish and Game Department. He will spend a month here, instructing Hawaii's game men in his trapping technique.

The method involves using planes to herd the antelope toward a string of fences funneled toward a truck. They are loaded aboard the truck and driven to their destination.

• • •

RICHARD WOODWORTH, chief of the Bureau of Game here, said the antelope will be released on Lanai's plateau between the pineapple and kiawe zones.

The animals will be introduced to halekoa and lantana. Game officials hope the Hawaiian plants will prove a good substitute for the sagebrush which is the usual diet of the Montana antelope.

Woodworth said that there would be no open season on antelope here for at least five years.

Animal Expert Beards Botanists on Deer Issue

Hon. Adv. 12/21/55

By SPENCE BRADY

Hawaii's problem of whether to put axis deer on the two remaining deerless islands—Kauai and the Big Island—today seemed to have boiled down to this:

Has the deer threat been magnified to ridiculous proportions, as was charged only Monday?

Does the man in the street care about native plants?

• • •

WITH WHAT he said he hoped was an objective attitude, a wild life manager Monday went before the leaders of a recurrent battle against a board of agriculture and forestry proposal to put herds of deer on Hawaii and Kauai for hunting.

Opponents mainly are botanists, worried about rare native plants and what the deer might do to them.

"You're callous," they told the animal expert, J. R. Woodworth, after a heated 60 minutes in which he had said, among other touchy things, that perhaps disappearance of native plants in favor of healthy exotics might help the water reserve program.

• • •

HIS OPINION of the botanists, members of the flora conservation committee, Conservation Council for Hawaii: "You're purists, living in the past—you're thinking in terms of years ago, before game management had been proved successful."

He spoke only for himself, Mr. Woodworth said, but drew from his experiences as biologist of the agriculture board.

"You have watched mismanagement, a sorry sight. But now you're not facing up to the fact that methods of game control have improved."

• • •

TOO, MR. WOODWORTH charged, the "threat" of the deer has been magnified in editorials inspired by a fervid few dedicated to plantlife.

"To read some of the things that have been printed in the newspapers you'd think the place was going to be eaten up in five years and disappear into the ocean."

Nor were deer protagonists thinking in terms of [illegible] herds, added Mr. Woodworth.

"Deer herds don't mushroom overnight. Actually they have a very low reproductive potential. Start with one pair and it takes six years to multiply to 15 deer.

"A herd of several hundred, which would be the amount wanted for a desirable balance between fauna and flora, could be eliminated in a few days' hunting.

"We've proved that on Lanai."

• • •

POINT BY point, Mr. Woodworth went through the botanists' 10 main objections to deer. None, he contended, was valid from a practical point of view.

Some might have virtue from an aesthetic point, he said, but deer have their aesthetic value, too.

"Take 100 people in the street, see how many would like to see a deer in the forest. Then see how many of those 100 get excited about a native plant."

• • •

LIKE MOST of Mr. Woodworth's remarks, that drew spontaneous indignation from the botanists.

Throughout the biologist's talk, which followed a depressing report of the state of native plants on Hawaii as observed by Dr. Joseph F. Rock ("It was like going to a funeral"), his audience harrumphed in disagreement and occasionally burst out with cries of "Never!" and "Not so!"

Committee chairman Dr. Donald P. Gowing was moderator, but it was hard to restrain Dr. Otto Degener, who came to the meeting fortified with a thick folder of anti-deer letters and literature and a botanist wife who flatly told Mr. Woodworth, "You don't care about native plants!"

• • •

ONE OF THE letters read by Dr. Degener sorrowed Mr. Woodworth. It was written by a man long admired by Mr. Woodworth, the biologist explained, and who was author of textbooks he'd studied in college.

He was disillusioned and his faith in scientists shaken, Mr. Woodworth said, when such men arbitrarily rule "on situations with which they're not familiar."

Edward T. Hosaka, who died July 23 in Hilo after suffering a stroke, was one of Hawaii's top pasture specialists.

Mr. Hosaka joined the Agricultural Extension Service at the University of Hawaii in 1949, devoting his efforts until his death to helping dairies and ranches improve their pastures.

Prior to joining the extension service, he was adviser on pasture improvement at Parker Ranch on the Big Island.

In 1958 he was invited to act as a pasture consultant for the largest ranch in the nation, King Ranch in Texas. He also visited the ranch's holdings in Jamaica and Cuba.

The 55-year-old pasture specialist earned both his bachelor's and master's degrees at the University of Hawaii.

He was the author of a series of publications on grasses and legumes.

And he was the first person from Hawaii to attend, in 1952, the International Grassland Congress, sponsored annually by the U.S. Government and the Food and Agriculture Organization of the United Nations.

TO AUSTRALIA

In 1953 he was invited to spend eight months in Australia's range lands surveying natural resources and assisting in that country's pasture development program.

Upon his return he presented to the public lectures and travelogue films on his travels.

His death at Hilo Hospital followed a stroke which he suffered during a business trip to Hilo.

Funeral services were held July 26 at Honolulu Crematory.

Survivors include his wife, Mrs. Beatrice Midori Hosaka of the family home at 1403 Kahi Place; two sons, Donald Kiyoshi at Fort Benning, Georgia, and Melvin Isamu Hosaka at Fort Monmouth, New Jersey; his mother, Mrs. Shimano Hosaka of Japan; two brothers, Frank Yaichiro and Tamotsu Hosaka; and two sisters, Mrs. Torino Taka of Japan and Mrs. Keno Yoshiharu of Brazil.

NUTTALL'S TRAVELS INTO THE OLD NORTHWEST

Edited by Jeannette E. Graustein. 88 pages, plates 68-79; ½ of volume 14 of Chronica Botanica. Chronica Botanica Co., Waltham, Mass.; Stechert-Hafner, Inc., New York City, 1951. $3.

To those who are familiar with Thomas Nuttall's name as authority for many native plant species, but whose knowledge of the botanist has largely been colored by traditional tales of his eccentricities, the publication of this diary brings a refreshing introduction to the man himself. Dr. Graustein has performed a valuable service in locating and deciphering the long-lost note-book, and in interpreting it by means of authentic identification of its plants and animals, together with clarification of geographical and historical data.

The "old" Northwest brought Nuttall from Philadelphia to the center of present-day North Dakota; and his diary, covering the first half of this journey, with scattered references to other areas visited, contains descriptions of the terrain covered, of newly-encountered plants and animals, of various tribes of Indians with their customs and diseases, and of remains of ancient civilizations. We become acquainted with the man who, though tormented by recurring malaria, continues his self-forgetful way through hardships and dangers, faithfully carrying out his commitments to Dr. Benjamin S. Barton, at whose instance the scientific expedition was undertaken.

Complete documentation, pertinent illustrations and notes, and a biographical sketch, evince the thoroughness of Dr. Graustein's editorial treatment.

HELEN M. GILKEY
Professor of Botany and Curator of Herbarium
Oregon State College

NOTICE

The undersigned owns option to purchase his former junk-yacht CHENG HO in good condition in 1932 besides other rights, and invites correspondence with reliable interested parties.

—OTTO DEGENER.

BOOKS

NATURALIST'S SOUTH PACIFIC EXPEDITION: FIJI. 312 pages, with 166 photos $5.00

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Order from Author: OTTO DEGENER, Waialua, Oahu, Hawaii, U.S.A.

GINGER CANDY

Yield: 16 cups ginger or 1 gallon makes about ¾ gallon sugared ginger.

Peel fresh ginger root. Cut slanting or crosswise in thin strips ½ inch long.

Measure 1 cup of ginger to 1½ cups water or enough to cover ginger.

Boil 4 to 6 times for about 15 minutes each time. Drain and use fresh water each time. Length of time depends upon age of ginger or how strong it is desired. The more it is boiled, the less pungent it becomes.

After the last boiling, measure cooked ginger and water. For each cup of ginger and water, add 1½ cups of sugar (half raw and half white) and ½ teaspoon salt. Boil until ginger is clear about two hours.

Drain a small amount at a time and coat with light raw sugar while hot. Work ginger with fingers or spoon to coat pieces well.

Lay out on dish or paper to cool. Store in covered container. Save syrup for other uses.

Function of the Rectal Gland in the Spiny Dogfish

Abstract. The rectal gland of the spiny dogfish, *Squalus acanthias*, secretes a fluid which is essentially a sodium chloride solution with a concentration about twice that of the plasma and greater than that of sea water. Observed volumes of flow are sufficiently large to make it clear that the rectal gland can remove from the blood relatively large amounts of sodium chloride, and presumably this is its function.

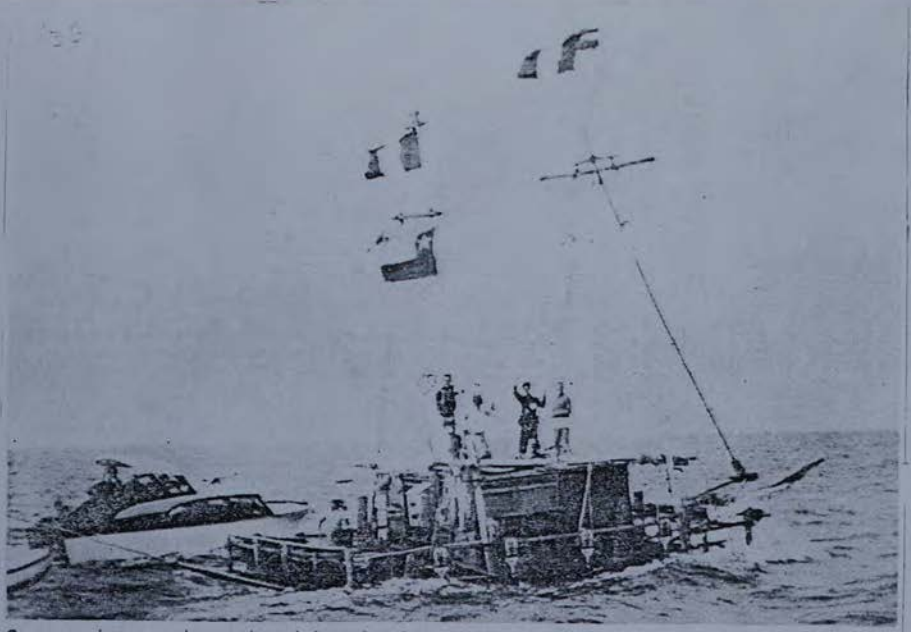
The conspicuous rectal or digitiform gland (appendix digitiformis, processus digitiformis), lying in the dorsal mesentery and opening by a duct into the intestine behind the spiral valve, has been observed by thousands of students in the dissection of various laboratory elasmobranch fishes. While anatomical descriptions are available (*1*), and some chemical tests have been applied (*1, 2*), the function of the gland is obscure (*3*).

The secretion of the gland and data on the rate of flow were secured as follows. The body wall and intestine immediately anterior to the pelvic girdle were opened in the ventral mid-line. The tip of several hundred centimeters of polyethylene catheter tubing was bent to fit the angle at which the duct enters the intestine and was pushed through the anus into the intestine. The tip was inserted into the duct and secured by two ligatures with additional stitches holding the tubing to the intestinal wall and the ventral tail skin behind the anus. It was determined by the injection of colored fluid that this was a leak-proof arrangement. The intestine and body wall were sutured, and the fish was placed unrestrained in a tank of running sea water. The free end of the tubing was secured to a graduated tube placed below the level of the tank. The tubing between its ends was free to move with the fish. This arrangement necessitated that the gland develop and maintain a secretion pressure of about 31 cm-H_2O in order to collect progressively the secreted fluid. In retrospect, we see that an arrangement which does not require the maintenance of this hydrostatic pressure could have been devised.

The chemical composition (*4, 5*) of the collected fluid is given in Table 1. The fluid is colorless, nearly neutral, containing relatively small amounts of urea, magnesium, calcium, potassium, bicarbonate, and sulfate (*5*), but containing sodium chloride at about twice the plasma concentration and at a concentration higher than that of the external sea water. The data on osmolarity indicate that probably no other substance was present in high concentration. The fluid is watery and certainly contains little mucus, as has been suggested (*6*).

The above chemical data point to the possibility that the rectal gland is another "salt gland" concerned with the removal of sodium chloride from the blood. For this to be true, a volume of fluid must be formed sufficient to have more than a negligible effect on plasma salt.

Some flow from the rectal gland was secured from each of nine dogfish tested. The flow in two fish was dramatic. Fish 3 gave a continuous flow of 0.85 ml/kg per hour for a first 24-hour period and 0.72 ml/kg per hour for a succeeding 24-hour period. Urine flow for these 48 hours averaged 0.82 ml/kg hr. Fish 8 gave a flow of 1.3 ml/kg hr for a 12-hour period with a



Crew members are shown aboard the raft Tahiti Nui II at Constitucion, Peru, at the start of the long voyage to the South Pacific. The raft was wrecked on a reef in the Cook Islands last night.

only wanted to know the ship's position.

Last year, De Bisschop almost completed the reverse trip from Tahiti to Chile but his bamboo raft was damaged in a storm 900 miles from Valparaiso and it sank while being towed to the Fernandez Islands.

De Bisschop didn't agree with Thor Heyerdahl, the Norwegian skipper of the Kon-Tiki raft which sailed successfully from Peru to the South Seas, who said South American aborigines settled the South Sea Islands.

De Bisschop, by sailing to and from the South Seas, tried to prove that the ancestors of the Polynesians could have drifted to and from South America on rafts and exchanged cultures.

Eric de Bisschop

Naming The Wiliwili

How. Adv. 3/8/56

By E. H. BRYAN, JR.

Dr. Harold St. John, professor of Botany at the University of Hawaii, and botanist at Bishop Museum, has published a scientific paper on the correct name for the wiliwili tree and its relationship to a species which grew in Tahiti, possibly now extinct.

In 1830, the noted botanist Charles Gaudichaud described the specimen which he had collected on the Hawaiian Islands as Erythrina monosperma. No details were given as to just where the specimen was collected, but since the altitude was recorded as 350 to 400 fathoms (2,100 to 2,400 feet), Dr. St. John concludes that it must have been on either the island of Hawaii or Maui, for the tree is not known to grow at that elevation on Oahu, and Gaudichaud collected on these three islands.

Erythrina monosperma remained the scientific name for the wiliwili until 1932, when Otto Degener pointed out that another botanist, Lamarck, at an earlier date, had given the name monosperma to a related tree in India. Dr. Degener gave the wiliwili a new specific name, Erythrina sandwicensis. Dr. St. John agrees that this is the valid name.

Two scientific names have been given to the oporvainui tree of Tahiti, Erythrina tahitensis and Erythrina montana, but some botanists have claimed that this was the same as the Hawaiian wiliwili.

Dr. St. John had examined the type specimens of the two Tahitian species in Geneva and Paris, concluded that they were one and the same, and also that they were different from the wiliwili of Hawaii. He threw out the name montana, as not properly described, and has decided that the Tahitian species should be called Erythrina tahitensis.

Dr. St. John's paper is published in Webbia (volume 11), produced by the Botanical Institute of the University of Florence (Firenze), Italy.

ing two batches simultaneously,) adding one cup sugar per cupful of juice.

Bring to a rolling boil, adjusting heat to maintain a rolling boil until jelling point is reached. Do not allow to boil over. From time to time, skim foam from the surface of the mixture. Jelling point is reached when syrup sheets from a spoon.

Pour into sterile jars, allow to cool, and then seal with paraffin.

NO ADDED pectin is necessary, says Mrs. Claflin, who has made many batches of sea grape jelly without failure. She has also timed the process, and finds that each batch takes about 10 minutes per cup of juice, when kept at a rolling boil.

The resulting jelly is a lovely pale orange in color, and a mild, sweet-tart flavor that should appeal to everyone. As Mr. Claflin suggested—its exotic sounding name alone makes sea grape jelly intriguing. You who have sea grape trees might consider it for imaginatively bottled Christmas gifts this year.

ANTHURIUM

This exotic leaf flower with its shiny spathe, its spectacular diamond-shaped blossoms in the spadix, its graceful design and its glossy green leaves, is often thought too beautiful to be real. Glamorous anthuriums grow everywhere in the Islands except on the highest mountain tops. Hon. Adv.

Dramatic floral arrangements can be made with anthuriums. If bloom is cut at the proper time, it will stay fresh up to 4 weeks. It is ready for cutting if the stem is strong and unyielding, and if more than half the spadix is yellow in color. Immerse stems in deep water for several hours before arranging. 3/11/56

Choosing Your Varieties—Most popular variety in the Islands is anthurium andraeanum, in shades of red, pink, coral, orange and white. Second in familiarity is the anthurium warocqueanum, with large dark green velvety leaves and striking light-green veins. Anthurium veitchii, with a green spathe and straw-colored spadix, is also grown for its foliage.

Anthurium scherzerianum has a curly-tailed spadix. Anthurium obake is identified by the large spathe which tapers into a tail, and by its green tones on all colors. Tell your garden supply dealer whether you want anthuriums for cut flowers or for foliage, and he will aid in proper selection of plants.

Where To Plant — Anthuriums must be protected from wind and direct sunlight. About 50 per cent sunlight should be excluded from large plants and as much as 75 per cent from younger plants. Anthuriums thrive best in temperatures of 65 to 80 degrees. They require free circulation of air, yet cannot withstand drafts. A lath-house is usually the answer. Although most anthuriums are grown in pots, they can be successfully planted directly in the ground if the soil is well aerated.

How To Pot and Repot—This procedure takes more courage than knowledge. Anthurium roots are strong. Just pull the plant out of pot and break off suckers. Add one inch drainage material such as black sand at the bottom, then one inch of growing medium. Add more mixture to cover new roots as they appear. Press lightly but firmly around roots.

Growing medium for anthuriums can be taro peel. Macadamia nut hulls, tree fern chips, charcoal, compost of decayed banyan leaves, washed crushed beach shells, cane trash, bagasse, or wood shavings.

All anthuriums should be well aerated, yet must retain moisture. Anthuriums should grow without disturbance. Transfer plant to larger pot **only** when roots become overcrowded. Let new plant remain in same pot until it flowers, or is at least one foot high.

Fertilizing — Anthuriums must receive a regular feeding every month. For seedlings, use a teaspoonful per plant and for mature plants use one tablespoon. Occasionally feed your anthuriums liquid plant food of liquid fish. Be sure nitrogen content of your fertilizer is organic or anthurium roots will burn.

Watering — Anthuriums require daily watering if you live in a hot area. If you are in a rainy section, water every other day as necessary. Anthurium roots should always be moist, but not soggy. Planting material must allow thorough drainage.

Pest Control Care—Few insects and diseases in the Islands attack anthuriums. However, should thrips, red spider and scale get started, they can ruin your plants in a hurry.

Whenever you see tell-tale brown rust-like spots, or notice leaves beginning to curl, start spraying with a combination of an improved garden spray and Volck oil spray.

It is better to start with a regular schedule of spraying the whole plant every two weeks. Do not miss the underside of the leaves.

The Jacaranda Tree -- Blue Blossoms, Lavender Carpet

Hon. Adv. 3/11/56

Though the jacaranda has few peers among the flowering trees within its range, some gardeners consider it untidy. It does drop its fernlike foliage in later winter, and the fallen blossoms make a lavender carpet beneath the tree after bloom is through. If you're considering a jacaranda as a patio tree overhanging a paved area, you'll agree a lawn sweeper is a good investment.

The flowers are slippery when stepped on. Elsewhere in the garden—on lawns, among shrubs, or over a ground cover of ivy or star jasmine—dropping foliage and flowers present few problems.

Like Acacias

Jacarandas, resemble acacias in their rather rapid growth and branching habit, but they differ markedly in drought resistance. To give their best performance, they need regular watering and feeding.

They're excellent lawn trees. Out of leaf in early spring, and only lightly clothed with lacy foliage during the rest of the year, they cast a thin shade pattern. This shade makes for good growth of shade-tolerant grasses and semi-shade plant companions. Because jacarandas are immune to crown rot and other moisture hazards you can plant close to the trunk.

Few gardeners make the most of the jacaranda's adaptability to training. The willowy young tree may be wired to bend over a patio or terrace. It will look like an off-center umbrella. You can even lop off the trunk two feet or less above the ground.

New branches will break below the cut, and the tree can be trained to three or four main trunks. Pinch out growing tips every three feet or so to force branching.

Prune Severely

The multiple-trunked jacaranda that results from this training can hold its own from a structural standpoint—over and above its wonderful flowers. But whether or not you choose to train it this way, any jacaranda benefits from regular, rather severe pruning to discourage ranginess and to force branching.

Choose companions which bloom in June to blend with or provide contrast for its lavender flowers. Here are a few suggestions: yellow hypericum or daylilies, peach or white oleander or white **Turnoea obtusifolia**; ground covers, like ajuga, sedum, bergenia, and star jasmine.

Hawaiian Flora

By E. H. BRYAN, JR.

Dr. Otto Degener, assisted by his wife, Dr. Isa Degener, who was formerly with the Botanical Museum, Berlin-Dahlem, Germany, recently has issued another series of pages of his loose-leaf illustrated flora of the Hawaiian Islands. This new series of publications has been made possible by a grant from the National Science Foundation, Washington D. C.

The new pages include a revised list of the recent families of vascular plants, numbered according to the sequence used in the loose-leaf flora; and pages on the ornamental Monstera, the globose Schiedea, the privet-leaved Schiedea, a summary of the sundew family; a key to certain local relatives of the hau tree, in which they are put in a new genus, Pariti, instead of the more familiar Hibiscus; description of a new pale Labordia; summary and key to genera in the dogbane family; key to species of Rauvolfia in this family and description of the Hawaiian species; description of the seaside heliotrope and the narrow-leaved Hedyotis; and a key to genera of Lobelia in Hawaii.

Dr. Degener started privately to print these loose-leaf descriptions of Hawaiian plants about 1930 and issued the first volume in 1932. By 1940 four volumes, containing about 400 sheets, most of them printed on both sides, had been issued. The stock of these, stored in Degener's home at Mokuleia, was ruined by the tidal wave of April 1946. Undaunted, Degener reprinted the four volumes in one large binder.

The writer estimated that there were enough species of plants in the Hawaiian Islands to take at least 50 years to describe at the rate at which descriptions have been appearing. After that additional introductions and revisions might continue the series indefinitely. However, the plan for presenting a drawing of the plant on one side of the page and a description on the other furnishes a very convenient manner of building up a flora, and this is commended to persons wanting such an account of the flora of Hawaii.

Botanical Garden Benefits

Scientific, Commercial, Cultural Values Seen In Development of Island-Wide System

By HUGH LYTLE

III

Hon. Adv. 5/6/56

A Botanical Garden, such as that contemplated by the Honolulu Garden Club under the plan of Dr. Harold Lyon, would provide unexcelled facilities for the teaching of botany. In the words of Dr. Lyon, "it will afford living examples of all forms of land and aquatic plants, and will enable students to study their habits, structures and life histories under natural conditions at all seasons of the year."

LYTLE

Benefits, however, would not be solely botanical, nor would they be confined to Oahu. Reforestation, erosion control and water conservation throughout Hawaii would be some of the direct economic reverberations. The attraction to tourists is obvious.

"Gardens, such as we contemplate, are the only features which Hawaii can develop that cannot be duplicated elsewhere," says Dr. Lyon. "Consequently, they can be made superior attractions to bring tourists to Hawaii as well as to entertain them while they are here."

He believes that, with an adequate budget, Foster Garden alone can keep such a great variety of flowers and ornamental plants on constant display as to make it an outstanding showplace that every tourist will wish to see. He added that Honolulu nestles in a veritable botanical garden and that "we should catalog the specimens in this garden for the benefit of our visitors as well as for our own convenience."

* * * *

Some aspects of that garden, such as the Manoa Arboretum, cannot be opened to inspection by the general public. In its present state access to its trails are restricted to students qualified to study its many wonderful plants. Adds Dr. Lyon:

"Should proper supervision be made available, here is no good reason why this arboretum with its dense jungles, magnificent trees and numerous picturesque waterfalls should not be made available for conducted tours. A 30-minute drive from downtown Honolulu would take tourists into a tropical rain forest in a setting of great scenic beauty."

The Manoa Arboretum is Dr. Lyon's baby, one of a family of outstanding achievements. A graduate of the University of Minnesota, he came here in 1907 for the Hawaii Sugar Planters' Association which, in cooperation with the Board of Agriculture and Forestry, on which he subsequently served, has done so much to develop Hawaii's planting along lines scientific as well as commercial.

* * * *

In the interest of conservation and development in general, Dr. Lyon has brought back thousands of plants from various parts of the world. He opened the orchid industry by demonstrating they could be grown here. He started the Pineapple Research Institute, began plant pathology work and wrote the plant quarantine law. He showed that pure fructose can be produced from the ti plant.

Only recently he was awarded the highest honor in horticulture—award of the George Robert White gold medal of the Massachusetts Horticultural Society. The honor was bestowed "for his work of international scope in establishing the sugar and pineapple industries in Hawaii on a firm, scientific and economic basis through research in the culture and development of new varieties and methods of disease control."

(To be continued)

Every 30,000 Years

That's About Interval Between Arrivals Of Plants That Became Native in Hawaii

By HUGH LYTLE

IV

Hon. Adv. 5/7/56

The system of botanical gardens envisaged by Dr. Harold Lyon, a dream shared by the Honolulu Garden Club members as well as by many others, would help preserve Hawaii's own native plants as well as constitute a scientific tool, soil and water conservation aid and a tourist attraction.

LYTLE

Some of the difficulties of saving our native plants have been described by L. W. Bryan, Big Island forester who wrote recently of the experience with a single, surviving specimen of the native Haukuahiwi found in the Bird Park in 1911. The original tree died in 1923, but "not before an offspring had been securely established," in the words of Col. Bryan. "In a few years this one offspring succumbed, but not before a cutting from it had rooted. This rooted cutting grew and prospered, so in 1940 it was planted out in an area adjacent to Kipuka Puaulaula (Bird Park).

"This plant is still alive and has been given protection for the last 15 years. Protection has not been easy. Rats enjoy the tender young branches, beetles feed on foliage. Red spider can always be found on the leaves. A fence is necessary for cattle.

"In 1954, with just the right kind of weather and by hand pollination a small quantity of fertile seed was produced. A total of 13 plants were raised and all planted in three different localities, all alive and some making good gains. Thus headway has been made."

* * * *

How Hawaii's plants became established here in the first place was described to an extremely interested group of Garden Club members last week by Dr. Otto Degener, whose works on tropical botany are standard.

He told of an island chain emerging from the Pacific 90 to 120,000,000 years ago, weathering under storm, and of seeds reaching the new land by floating on the sea and in the air and through the courtesy of birds. These, if they survived, adapted themselves to the site where they germinated, which accounts for the variety of native flora to be found here.

A period of "from 15 to five million years," he said, was required for the establishment of seeds.

Not more than 250 plants can be called indigenous, he told his listeners, but from those plants here developed 20,000 varieties of offspring, 99 per cent of which are not found anywhere else on earth. Continuance of this botanical museum would be fostered by a chain of botanical gardens supervised by authority at the Territorial level.

* * * *

According to Dr. Degener the seeds that reached Hawaii by one of the three means noted could be said to have taken root here at intervals of from every 30,000 to 40,000 years, a significant commentary on the difficulty of establishing a plant cover in mid-Pacific islands without the agency of man. The Polynesians did bring much, including taro and kukui and other useful plants. They found such trees as koa and sandalwood already established. Eight special kinds of sandalwood, incidentally, still exist in Hawaii and nowhere else on earth. So says Dr. Degener.

(To be continued)

Tongataboo 1 - 254. 1810.

entic Narrative Four Years Residence

ety, arrived but, unsuccessful, left in November of the same year. The next attept to settle white missionaries on Tonga came in 1822. On arrival, the appointed missionaries, aware of grave danger ashore, found it more prudent to remain aboard ship. Then Papehia, a young Christian native, stepped forth, exclaiming: "Whether the savages spare me or kill me, I will land among them."

dictionary of 1922. It says there: "The Hawaiians declare this snail sings." My good wife and I brought up our two children on this same theory (easier to believe than many assertions in the Bible) and sang to them in good faith May Dillingham Frear's charming song of The Landshells:

"Hark! the land shells singing, singing, Pupukanioe!
'Neath the green leaves clinging, clinging,
Hark! the land shells singing, singing,
In the tree tops swinging, swinging!
Hark! little girl and boy,
Hark! the land shells singing, singing, Pupukanioe!

Drive up Nuuanu valley in the dusk of a moist day. As soon as you reach the damp hau jungles, just mauka of Luakaha, where I know that the habitat of the land-shells begins and makai of which region I know they do not exist, you will at once begin to hear the pleasing chirp of the pupukanioe and not sooner. Is not that convincing?

A natural history of Hawaii tries to dissuade me from my belief by ascribing the origin of this chirping to a native cricket. Sic:

"There are in Hawaii about 40 species of crickets belonging to 10 genera. Of that number, three dozen or more are recognized as peculiar to Hawaii, and for the most part confine their range to the native forests on the different islands. Sixteen of the native species are placed in a single genus with a brown mountain cricket as the most widely distributed, abundant and easily captured species. They are fond of the wet woods and damp gulches, and are usually found on the ground. They sing all day long and most of the night with a plaintive chirp that is an audible sign of the moist virgin forest. **Their chirp can usually be heard a long way, and as they occur in localities frequented by tree snails, their song is often spoken of by the layman as the chirp of these tree dwelling animals.**"

But why shunt the origin of this chirping song on to the native cricket? I travel the damp Hawaiian woods frequently. I hear the charming chirp whenever I reach the damp forest.

No Crickets To Be Seen

Invariably, I find the beautiful shells which sing this song— a paean of joy to their Maker—every time I enter the region of their song. I can always count on them for their delightful sylvan music. But—I haven't seen a single Hawaiian cricket in such regions in a decade!

At this point I am reminded of a hot summer evening in a small town in Ohio. Two elderly spinsters were rocking on the front porch. Across the street the choir was rehearsing at the Baptist church. One of the old ladies was enjoying the melody of the old, familiar hymns. The other was fascinated by the loud chirping of the crickets which arose on the still air. One of the spinsters remarked, "How beautiful the music sounds tonight." The other said, "Yes, I believe they make it by rubbing their hind legs together."

Years ago I took my pupukanioe music problem to my landshell friend and asked him point blank: "Do landshells sing?" His reply was: "If the Hawaiians really believe they sing, then I do."

The faith in my belief was not shaken by his reply. Like the Hawaiians, I have not only kept the faith, but this faith has lately been strengthened.

Just the other day, I was passing up the Anahulu trail with my kamaaina ranger and two guests. No sooner had we entered the damp native forest, which is the habitat of the landshell, than we began to hear its cheerful chirp. Facetiously I remarked: "There goes the song of the landshells, pupukanioe."

The Ranger's Proof

One of the guests questioned: "They don't really sing, do they?" My ranger promptly replied: "Of course they do," and substantiated his assertion with a story which ran somewhat as follows:

"About a year ago I came home from work in the mountains quite worn out. I was too tired to eat. I lay down on my bed with my clothes still on and promptly went to sleep. About a dozen land shells I had picked up that day were still in my shirt pocket. They must have crawled out during my slumber and moved across the floor and up the wall of my room.

"At 3 in the morning I was awakened by the cheerful chirp of landshells. Their music sounded so natural that I thought that I was still in the woods. The song was so loud, moreover, that I awakened. I looked in the direction of the chirping and there were the landshells clustered on the wall at the spot whence their song came."

When I read my Bible that night I glowed with satisfaction as I came across these words in the short epistle of Paul to Titus, "Holding fast the faithful word as he hath been taught, that he may be able by sound doctrine both to exhort and to convince the gainsayers."

I am of a slightly scientific turn of mind, however, and conclude this tale with the interrogation:

"Why do landshells sing, and how?"

Collateral Reading

Degener Work On South Seas Plants and Customs Useful Aid In Hawaiian History Study

How Star. 5/13/56

By HUGH LYTLE

In writing a review recently of Brad Smith's remarkable "Yankees in Paradise," just published by Lippincott, the thought occurred that another equally remarkable book—in a different way—still is available in the stores as supplemental reading. The volume is Dr. Otto Degener's "Plants of Hawaii National Park, Illustrative of Plants and Customs of the South Seas."

LYTLE

This book is essential to any library of Hawaiiana because of its variety of subject matter. In dealing with plants and customs of the South Seas (which includes Hawaii although we are north of the equator) the author goes into practices of the Hawaiians of the pre-discovery period. These customs still were, very largely, those of the Hawaiians with whom the first company of missionaries encountered when they arrived in the Sandwich Islands in 1820. Considerable native lore rubs off on the reader, as well as instruction in botany for the author's interests seem universal.

* * * *

The 1820 date is the correct one for the arrival, by the way, not 1818 which got into yesterday's column somehow. Perfectionists save your stamps and letters of protest. It's no claim to fame to be able to remember a famous date like that—unless you were there, naturally.

In a discussion of the use of human bone in ornament, to express contempt for the late owner, or in objects of use, such as fishhooks, Degener cites the case of a commoner of old who won such a reputation as a fisherman that it was thought his success was caused by the character of his bones. If this were true, it was argued, then he would be of more value to the king and chiefs in the form of fishhooks used by many, than alive as a single active fisherman.

"The experiment was therefore tried—to his detriment," comments Degener. (Jean Scott MacKellar has a section on bone fishhooks in another recent book, "Hawaii Goes Fishing." And did you see the Bishop Museum's exhibit at the Bank of Hawaii?)

A geologic history of the Hawaiian Islands and a section on how flora came to Hawaii is a part of the Degener book. It was Otto Degener who spoke to the women of the Pacific Zone Garden Clubs here a few days ago and told the story of the introduction of flora by air, sea and the courtesy, or discourtesy of birds.

A reference to his talk in this column recently reported that only 250 plants could be regarded as indigenous, but that 20,000 varieties of offspring resulted.

* * * *

Dr. Degener, with typical scientific impatience with inaccuracy, hastened to comment that he had said 250 flowering varieties. "I should have stressed it," he commented.

He added:

"Two hundred fifty is correct if you state 'flowering plants' that is those producing seeds. This figure does not include ferns, mosses, limu, fungi, bacteria (these are plants, too) and some additional, obscure groups known to botanists. Figures for these have not yet been worked out because of our present ignorance about what exists here in these groups."

Dr. Degener has just had word that he has received a grant in aid of $12,000 from the National Science Foundation in his capacity as a staff member of the New York Botanical Garden. This will enable him to continue his work in compiling his work on Hawaiian flora.

...Hawaii, where Mormon mission-aries earlier had been teaching, could be the main state of this empire. He, Gibson, would be willing to take the leading part in bringing this plan to pass.

Young saw through Gibson and appraised him for the visionary that he was. Nevertheless, although he did not give his approval to Gibson's "scheme of empire," Young did say that Gibson might go to Hawaii and there try his hand at spreading the teachings of the Mormon faith.

Gibson was baptized in the Mormon church June 15, 1860, in Salt Lake City and, armed with a certificate signed by Young showing that he was a missionary in good standing, set off the following year for Honolulu—intent upon founding a Mormon "Zion" in Hawaii...

HAWAIIANS HAD OWN CUSTOMS

Very Little Variation In Three Meals In Former Days In Islands

By NEVA C. LEWIS
Homemaking Instructor, Hilo High School

Hawaiian girls in my class have compiled details of the manner in which their ancestors ate, finding that it was not only different from the customs used in present-day Hawaii but also very different from the customs followed by any of the immigrants to these shores.

The outstanding table manners and customs of old Hawaii were listed as follows:

There was very little variation in the three meals served. Usually only two or three dishes were prepared.

No tables or chairs were used. A mat made of lauhala was spread on the floor. The food was placed in the center and the family sat round the outside.

Food containers used were calabashes or large bowls made from gourds or koa wood. Also smaller bowls of sea shells and coconut shells. Ti leaves were sometimes used as plates, fish heads and opihi shells as spoons.

The women sat cross-legged on the floor while the men sat with their legs to the side or back of them.

Grace was always said before and after the meal. Pele, the [illegible] of fire, was worshipped.

Everyone ate from the sam[e] [illegible]

The fingers were mostly [illegible] conveying food from the foo[d con]tainers to the mouth.

In eating poi the women u[sed two] fingers; the men one.

Each food was eaten sep[arately] and the lips were smacked [after] tasting or after eating to sho[w ap]preciation.

Small red peppers and [salt] served on ti leaves were us[ed as] seasonings.

For feasts or luaus as they [were] called ti leaves and ferns [were] placed on the lauhala mats [as] decoration and the food placed [on] top.

Typical Hawaiian foods are [illegible] salted or dried, raw or cooked; [poi] made from taro or breadfruit; [ku]olo, a pudding of coconut [illegible] uo; poni, a substitute f[or] [illegible] roasted kukui; uncooked sea weeds, ilis, roasted dog; dried squid; turned in dried or roasted; opihis, small shell con-fish; roast pig and Hawaiian fruit.

Changes in Hawaiian Manners

The Hawaiians have taken t[he] American ways of eating and cook[ing] although they still prepare som[e] of the old foods especially poi, raw fish, salted fish, sea weeds, op[ihis] and sweet potatoes with roa[st] pig.

Foods of Hawaiians

Foods eaten by the Hawaiian people include:

Carbohydrates — Poi, taro, bread-fruit, sweet potatoes, Irish potatoes, wheat flour, bread, macaroni, spaghetti, bananas.

Sugars—Brown sugar, granulated sugar, candies, jellies and marmalades, honey.

Protein—Fresh fish, salted fish, dried fish, pork, beef, squid, eggs, shellfish, cheese (little), milk (little; used by younger generations).

Carbohydrates and protein—Dried beans of all kinds.

Carbohydrates and fats—Coconut, kukui nuts.

Fat—Animal and vegetable fat, pork fat, butter, alligator pears.

Minerals and vitamins — Green [illegible]ns, sea weeds, carrots, spinach, [illegible] string beans, lettuce, Chinese [cab]bage, watercress, round cabbage, [to]matoes.

Fruits—Bananas, apples, mango, [pine]apple, orange, mountain apples, [straw]berries, blackberries, thimble-[berries], guavas, all native fruits.

HAWAIIAN FAMILY EATS POI

Kneeling around a lauhala mat, in the center of which was the family poi bowl, the Hawaiian had table manners distinctive from those of any other race. Miss Neva Lewis explains these in the accompanying article. Sketch by T. Yamabayashi of The Star-Bulletin.

Hon. Adv. 6/4/52

Report On Acerola

Mention was made here some time ago of a shrub named acerola, which flourishes in Puerto Rico and is rich in vitamin C. Just how rich it is was announced recently by the resident commissioner of Puerto Rico in Washington, D. C.

Six ounces of the juice from the green acerola cherry, he said, contained as much Vitamin C as 50 pounds of fresh, raw cabbage.

Plant experiment men here have some of the acerola shrubs and are looking into their culture.

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GARDENING NOTES — (By Alice May)

The Mango Season

SELECT AND PLANT SEED NOW

Once again we have the mango season, and as most all of the trees in the Darwin area have originally come from seed, now is the time to select good seeds and plant them for new trees.

Apart from the fruit which has many uses, the mango tree is one of the best shade trees for this climate. It is an evergreen tree, but it has two dis advantages for the small garden: It will eventually grow into a large tree, and during the fruit season it will attract the flying foxes with all their squeaks and mess.

However if a tree can be planted in the bottom corner away from the house it is a good investment.

Mangoes here will have their first fruit in the fourth year, and from then on will bear prolifically.

Mangoes seem to have originated in Tropical Asia, but they now grow through all tropical countries.

GROW QUICKLY

Mangoes could be used a great deal more in this area as avenues and shade trees, they grow very quickly, and once they have established a deep root system need very little water through the dry season.

They first commence flowering in early August and the first fruit appears early in October with different varieties the season extends for a long period.

Select the seeds of the best favored fruits and throw them into a quiet corner of the garden where there is some mulch, from then on they will take care of themselves.

Soon you will be looking for someone to take away the surplus plants. I have not tried to grow them from cuttings, but can't see any reason why they shouldn't grow this way.

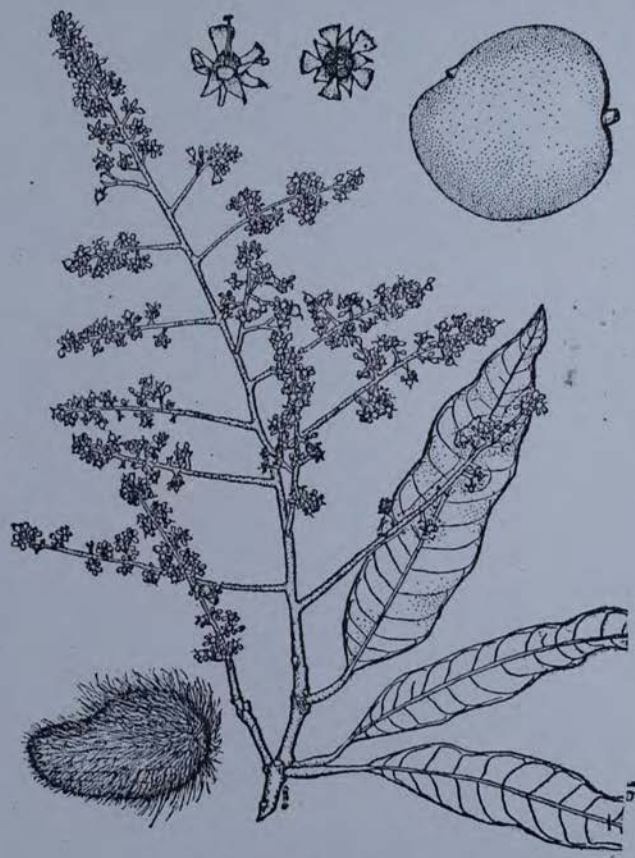
In other countries they have special named varieties, but here in Darwin they are just mangoes.

PEACH MANGO

However there are a few trees that are known as the peach mango, and if you can get seed these trees they certainly are the nicest., the flesh has a definite peach flavor.

When planting the mango into its permanent position dig out a hole at least two to three feet deep, and wide, put some manure or fertilizer and mulch into the bottom sothat when the roots get down there is a supply of material to give the plant a good start. For the first year or two keep well watered.

The illustration gives detail of the mango from flowers to the seed ready for planting, the illustration comes from Dr Otto Degener of Hawaii.



"AFTER DEGENER"

Scrape That Monstera Fruit for Painless Eating

Additional sheets of Dr. Otto Degener's Flora Hawaiiensis appear from time to time. This work is being aided by the National Science Foundation.

Recent additions to the loose-leaf volumes include drawings and descriptions of our familiar Monstera and of our less familiar Hawaiian Rauvolfia.

Rauvolfia, from which reserpine is obtained, has been known long in India as a source of a tranquilizing drug. Rauvolfia sandwicensis (the sandwicensis is for Sandwich Islands) also contains reserpine, the tranquilizer in question. It has been used to treat snakebite and lunacy for at least 2,000 years. Dr. Degener explains the spelling, instead of the more familiar Rauwolfia, required by the International Rules of Botanical Nomenclature.

Anyone who ever waited for the fruit of the Monstera deliciosa to ripen will be glad to know that it requires 18 months to be edible. Says the botanist:

"The fruit are formed rather abundantly but not in sufficient quantity to be marketed commercially. . .When the fruit is not eaten dead ripe it is **mane'o** (itchy) like its relative, the taro. This is due to calcium-oxalate crystals present in the pulp, especially just below the rind. This part should be scraped or washed off. One is then able to enjoy the delicious pineapple-and-banana-flavored flesh relatively painlessly. If one handles the stalk and leaves carelessly for decorations, however, one may suffer from the itch."

The Monstera, or ceriman, as it is called in Mexico, grows more fruit when it is allowed to sprawl on the ground. Mexicans take an infusion of the leaves and stem for arthritis. Ceriman, by the way, means "waxy hand," from the shape of the leaves.

Did You Know?

Hon. Adv. By MYRLE CLARK 12/23/57

Visitors are always interested in our fine Queen's Hospital and most of them are very much interested in the fine botanical garden which surrounds it. The two huge trees with the drinking fountain between them are gular trees, natives of India. A picture of one of these made the front page of The Advertiser about a year ago. In India the bark of these trees is made into rope. The gum from the bark is used to treat sore throats and in the manufacture of cigars, paste and in ice cream industries. A substitute for coffee is made from the seeds.

For the folks from Boston (the seat of learning) the botanical name of this is Sterculia urens.

The late, great volcanologist, Thomas A. Jaggar, spent the last few years of his life thinking and writing about 60 or so years of scientific achievement all over the world. Dr. Jaggar has said he was not a volcanologist, seismologist, geologist or geophysicist, but rather a seeker after the fundamental causes of the universe. The universal aspects of the mind of this remarkable man are apparent in reading his last volume, published posthumously by the Hawaii Volcanic Research Association. The title is "My Experiments With Volcanoes." It is a record of one man's striving to learn the nature of the universe.

* * * *

Written simply, in the main, the book is studded with tales of scientific adventure and discovery from Alaska to Martinique and from Germany to Japan. Dr. Jaggar adventured in ideas as well as in tropical seas and northern tundras. He speculated whether life itself did not originate in volcanic gas because the stuff of volcanoes and the ingredients of protein are the same. His concern with the nature of the inside of the earth was lifelong. Star fire, he called it, and he said a splash of lava might be a souvenir from an era 10 billion years past.

"Man is very tiny, but if he listens he can hear the earth's heart beats," said Dr. Jaggar. He lived to take the blood pressure and the pulse of the globe to a degree, but it was his lifelong disappointment that greater funds were not expended by foundations to penetrate the globe's crust in the interest of finding what lay far below the slimy bottom of the sea. Scientists, if they could start in the ocean's depths, would have a big head start in drilling toward earth's center.

* * * *

Forty-one years of Dr. Jaggar's life were spent with headquarters in Hawaii, centrally located in what geologists call the Pacific ring of fire. Hawaii itself is the product of volcanic fires and as such was a proper location for an experimenter with volcanoes. His story of the study of star fire and of life itself will be of intense interest to all concerned with the nature of the world around them.

The book was printed by the commercial printing division of The Advertiser Publishing Company, Ltd. It can be had for $4 from the Bishop Museum or at bookstores. It was distributed to members of the Hawaii Volcano Research Association and to members of associated organizations before being put on public sale. It is an essential part of any collection dealing with Hawaii, with volcanology, or with inquiries into the origins of life.

When a coconut is ripe, it falls to the ground, whizzing downward to hit the earth with a nasty noise that sounds like "Whump!"

By wild, unofficial guess, six or seven million coconuts bombard the island soil every year, minus those trimmed from the trees by neat homeowners. Since the population is about half a million, this works out to about a dozen falling coconuts per person.

But no one has ever been killed.

The records show that persons have b- bonked, conked, bashed and grazed, but none have been dispatched.

Even more remarkable than this remarkable statistic is a strange psychological malady, probably unknown to medical science: a cringing fear of falling coconuts. Sufferers hunch their shoulders and retract their necks when in the presence of coconut groves. They leap sideways at the lightest rustle in the palm fronds.

YET CONSIDERING the veritable hail of falling nuts, cases of persons being struck are comparatively rare. It is almost as if the law of averages had been repealed.

A midwestern gentleman with a bald head visited here a few years ago. He liked Hawaii but within a few days after arriving developed an acute fear of coconut trees. His bald head made him feel defenseless.

One known case of a tourist being assaulted by a coconut tree is that of an elderly gentleman at Waikiki who paused to watch tree trimmers denude a palm of nuts. Unfortunately, he stood under a neighboring tree which picked that moment to unload a cluster of 34 nuts. The victim survived with the help of tender hospital care.

The estimates vary on the number of coconut trees throughout the Territory. No one has ever made an accurate census. Edwin H. Bryan of the Bishop Museum, who writes many things about Hawaii, doubts if there are more than 75,000 coconut trees in the islands.

* * *

THE FORESTRY division of the agriculture department is supposed to be up on everything that involves trees, but it has no figures on the Cocopalm population. The University of Hawaii extension department has had estimates from time to time, never running higher than 15,000 trees.

Other sources guess that there are as many as 100,000 to 125,000 trees in the Territory. Assuming 100,000 trees and allowing six bunches of nuts to a tree with six to 10 nuts in a total of six to seven million nuts a year. This is a lot of coconuts.

In Honolulu there are coconut tree barbers who make a living by keeping the fronds trimmed and the nuts plucked.

In the old days, not only here but throughout the Pacific, the coconut was an important article. It was used for food, dishware, fuel and many other

things. It was only a short while ago that the coconut was a major ingredient of soaps and shampoos, but the detergents have murdered the copra industry. Coconuts also have been the source of explosives.

* * *

MODERN businesses convert the nuts to syrup, french-fried coconut chips, shirt buttons, ashtrays, salt shakers and other curios. From the fronds, beachboys weave coconut hats which they sell to tourists.

Probably the biggest use of coconut trees here is to give atmosphere to promotional photographs distributed by the Hawaii Visitors Bureau. Who has not seen Diamond Head framed by palm fronds?

Some of Hawaii's most potent advertising is thus derived from the coconut tree. The advertising is particularly potent when a beautiful girl is photographed leaning languidly against a palm bole.

So the trees do a lot of good. They lure tourists, provide snacks for them to nibble on and knick - knacks for their shelves back home. Occasionally a coconut will whack some unsuspecting human on the noggin. But coconut trees are definitely not homicidal.

126. Families of Bivalves In Hawaii

In installments 111 to 115 of this series we gave a systematic listing of the families of gastropods represented in waters around the Hawaiian Islands.

The objects of this tabulation were to help persons arrange their collections in an accepted sequence and to serve as an index to the accounts of these various families in this series of shell notes.

* * *

In this issue and the one next week, we are presenting a similar classification of the families of bivalve shells represented about these islands. The scientific name of the family is followed by acceptable common names and the number of the installment in which an account of the family is given.

There are 40 families of bivalves

R.

PASSION FRUIT FONDANT

1 CUP POWDERED SUGAR — 1 TEASPOON PASSION FRUIT JUICE
1 TABLESPOON MELTED BUTTER OR MARGARINE

SIFT SUGAR AND MEASURE. ADD OTHER INGREDIENTS AND BLEND THOROUGHLY. FORM INTO DESIRED SHAPES AND USE AS ANY FONDANT. YIELD: TWENTY 1/2" BALLS.

PASSION FRUITLETS

1 NO. 2 CAN CRUSHED PINEAPPLE — 2 CUPS SUGAR
3 TABLESPOONS PASSION FRUIT JUICE — 1 CUP CHOPPED NUTS
2 TABLESPOONS UNFLAVORED GELATIN — POWDERED SUGAR

DRAIN PINEAPPLE, SAVING SYRUP. PLACE PASSION FRUIT JUICE IN CUP AND ADD ENOUGH PINEAPPLE SYRUP TO MAKE 1/2 CUP. STIR IN GELATIN. COOK PINEAPPLE AND SUGAR TOGETHER, STIRRING OCCASIONALLY, FOR 20 MINUTES OR UNTIL THICK (224° F.). REMOVE FROM HEAT, STIR IN GELATIN MIXTURE AND NUTS. POUR INTO BUTTERED 8" SQUARE PAN. STORE IN REFRIGERATOR ABOUT 8 HOURS TO HARDEN. CUT INTO SQUARES AND ROLL IN POWDERED SUGAR JUST BEFORE SERVING. YIELD: SIXTY-FOUR 1" SQUARES.

PASSION FRUIT FUDGE

2 CUPS SUGAR — 2 TEASPOONS PASSION FRUIT JUICE
1/2 CUP MILK — 1 TABLESPOON BUTTER OR MARGARINE

COMBINE SUGAR AND MILK. COOK TO SOFT BALL STAGE (238° F.). REMOVE FROM HEAT, ADD JUICE AND BUTTER. COOL TO LUKEWARM. BEAT UNTIL CREAMY AND POUR INTO BUTTERED 8" SQUARE PAN. YIELD: SIXTY-FOUR 1" SQUARES.

PASSION FRUIT JELLY

3½ CUPS PASSION FRUIT JUICE — 7 CUPS SUGAR
1 BOTTLE LIQUID PECTIN

COMBINE JUICE AND SUGAR AND BRING TO A BOIL. IMMEDIATELY ADD THE PECTIN, STIRRING CONSTANTLY. BRING AGAIN TO A FULL ROLLING BOIL AND BOIL FOR 1/2 MINUTE. REMOVE FROM HEAT, LET STAND 1 MINUTE, SKIM, POUR QUICKLY INTO STERILIZED GLASSES. COVER WITH HOT MELTED PARAFFIN. YIELD: TEN 6-OZ. GLASSES.

Hon. Adv. 12/10/56

Did You Know?

By MYRLE CLARK

This little squib is about the garlic scented vine. Sure enough just crush some of the leaves of this beautiful climbing vine with the delicate lavender flowers, and you will agree that they smell exactly like garlic. It may be seen climbing over walls and trellises in some local home gardens and comes originally from the tropics and semi-tropics. Some traveled local folk report that they have seen it in Guatemala, in the West Indies, Brazil and in the famous Ceylon Botanical Gardens. Mainland hothouses display it now and then.

If you think that such a name as garlic is completely unsuitable for such a delicate, beautiful flower, you might prefer to tackle its botanical name which is Cydista aequinoctialia.

Ilima, Royal Lei

Do you know what the Sida Fallax Walpers is? We didn't until we looked it up, and learned it was the scientific name for Ilima, flower of the Island of Oahu. The Island Call

A close relative of the hibiscus, the Ilima is found on other islands of the South Seas and because of the velvety effect which it produces, is very popular in leis. June 1957

It was the Ilima lei that gave origin to the familiar orange paper lei. The true Ilima lei has the soft texture of flesh, created by great numbers of the flowers being strung flatly together.

In early days, such leis were reserved for royalty, and they are still called "the royal lei."

DEGENER, Otto, Collaborator in Hawaiian Bot., N. Y. Botanical Garden, Bronx Park, N. Y., stationed in Hawaii. Home Add.: Mokuleia Beach, Waialua, Oahu, Hawaii. TAXONOMY FERNS AND FLOWERING PLANTS. b. Orange, N. J., May 13, 1899. s. William and Marie Ludovica (Kaempf von Baldenstein) D. Edn.: B.S., Univ. of Mass., 1922; M.S., Univ. of Hawaii, 1923. Hon. Deg.: Sc.D., Univ. of Mass., 1952. m. Dr. Isa Irmgard Hansen, Jan. 10, 1953. Exp.: Instr. of Bot., Univ. of Hawaii, 1925-27; Naturalist, Hawaii Natl. Park, 1928; Private Rsch., Hawaiian Flora, 1929-34; Collaborator in Hawaiian Bot., N. Y. Botanical Garden, 1935— Botanist, Archbold "Cheng Ho" expedition in Fiji 1940-41; Botanical Consult., Civil Aeronautics Admin. for Canton Atoll, Phoenix Islands, 195 [redacted] Hawaiiensis, Book 5, 1957. Gen. Intl: Degeneriaceae, New Ranalian Plant family named in his honor; has enormous collections of Hawaiian and Fijian herbarium specimens amassed since 192 donated continuously to leading botanical institutions for preservation and study (many that are extinct now). Areas of Rsch.: Flora of Hawaiian Islands.

90 Denuded Niihau

SIR: In the Star-Bulletin Feb. 11 is the statement that Gov. Burns said Niihau's flora, birds and marine life are among the best examples of natural life in Hawaii. The above very likely applies to the marine life, but so far as native plants and birds are concerned the statement is unfortunately untrue.

From study of comparable low islands and from past records and a few moderately modern observations of Niihau, this island, next to Kahoolawe, is the least important of our once populated islands regarding native Hawaiian plants and birds. Cut off from most rain clouds by lying lee of Kauai and barely 1,300 feet high at its summit, it was anciently clothed with some patches of dry forest and otherwise covered with pili grass, naio or bastard sandalwood, wiliwili trees, aalii, Canthium, nehe, kokoolau or Hawaiian tea, a few cucumber relatives and mints, etc. With the introduction of European mammals such as goats, horses and cattle the past native vegetation found only on Niihau and no other place on earth, has become as extinct as the dodo of Madagascar and the passenger pigeon of the Mainland United States. With the disappearance of the Niihau plants upon which certain specialized birds depended for food, these last also have become extinct.

Were the browsing and trampling herbivores removed from Niihau, perhaps a few seeds of endemic plants lying dormant in the soil for 50 to 100 years might just possibly germinate and reproduce their kind. But such a hope is very visionary indeed. The fact remains that the endemic biota is gone, and to try to replace it would be far more difficult and costly—actually impossible — than it was sending our men to the moon.

Now that we have practiced genocide, with the aid of our herds of goats and cattle, on the biota of Niihau we cannot bring it back. All the king's horses and all the king's men cannot put Humpty Dumpty together again. Niihau is broken like Humpty Dumpty, the egg, in an ancient lullaby.

There is, however, a future for both Niihau and Kahoolawe. These islands are largely waste land covered with kiawe, weeds and grasses of modest forage value for game animals. If Gov. Burns wishes to promote the further existence of native plants and animals —may the good Lord have mercy on the souls of those who practice genocide on His creations — he should reduce the destruction of such organisms by reducing the number of goat, axis deer, blacktailed deer, sheep, mouflon and pronghorn on those islands where the endemic vegetation and the animals associated with it are still possible to save. These are the higher islands with rainforests. Presently, the State of Hawaii is the laughing stock of biologists and ordinary citizens throughout the world for the inane fumbling with God-given natural resources.

DR. OTTO DEGENER

VISTAS IN SCIENCE

By THOMAS R. HENRY

Nature Takes Over Canton Island

A land of wolf spiders, of cats gone wild, of fishing dogs, of deadly poisonous fishes whose colors rival rainbows—

Such is the picture of desolate Canton Island in the South Pacific reported to the Pacific Science Board of the National Research Council here.

It is an isle of staggering rats, the only native mammal. The abandoned felines, before present operations started, howled among the war wreckage through the moonlit nights. They have nearly annihilated the rats, a serious problem on most Pacific islands.

The island's fauna is described in a report to the Science Board which, working with the Office of Naval Research, is gathering as much data as possible on the war-enshrined atolls.

At best the land fauna on Canton Island is meagre, says the report by Dr. Otto Degener of the New York Botanical Gardens and Edwin Gillaspy of the Civil Aeronautics Authority. Now the rat is an elusive creature, hiding in frigate rookeries far from human habitations. Its ancestors probably reached the atoll in the double canoe of some adventurous Polynesian centuries ago.

Dogs Fish for Sport

Dogs and cats are the only other mammals. The dogs, of many breeds, mostly have been adopted and domesticated by the restoration workers. They have adopted the curious sport of wading in shallow water to pounce on fish which they never eat. None of the cats, descendants of pets of former inhabitants, have been adopted. They take a heavy toll of nesting sea birds.

The big wolf spider, which weaves no web, is everywhere, running about in the open seeking for insects. It is considered the island's most efficient insect killer. This spider not only sucks the juices of its victims but grinds their bodies into dustlike particles which add to the slender supply of fertile soil. A spider found often in abandoned shacks and bushes is the geometricus, a very close relative of the dreaded black widow and probably equally poisonous. It is mostly immobile in its sprawling web, and places its spherical egg cases in a corner of it. No bites have been reported on Canton.

The native insects are few, as would be expected considering the difficulty for these small creatures in crossing the great wastes of ocean and, once there, finding a suitable fare with such a limited plant life. The few that have survived cause little difficulty to native plants and thus offer no problem to the restorers. Plants and bugs have learned to live together through generations. A quite serious worry, however, is a habit of amateur plant lovers introducing plants by boat or plane from Hawaii, Fiji and even the United States. These plants are bound to cause trouble for the new vegetation which is being planted.

"Canton Island," says the report, "is a free paradise for insects such as the mealy bugs that harass native and introduced grasses and scale insects that weaken coconut palms near the hotel. This likewise makes Canton a very dangerous stepping stone for the passage of injurious pests."

The fishes are plentiful and colorful. A high proportion of the species appear to be common to Hawaii, but careful observation usually shows minute differences which would be lost sight of when they are studied in a museum after death. Food fishes that are wholesome in Hawaiian waters may be very poisonous here, especially if caught in the lagoon. Such, for example, are savory looking red snapper and rock cod. When eaten they may cause paralysis severe enough to end in death.

Bathing Dangerous

Sharks, sting rays and moray eels are common in the lagoon, making bathing both exciting and dangerous.

There are abundant species of nonmicroscopic crustaceans on the shores and rocky marine shelves. The unusually salty lagoon with its barren sand and choking mud is "like a desert on land" able to support but little life. But it will probably, Dr. Degener says, reward a collector with many species never before recorded.

Under oceanside rocks, he says, are extremely colorful species of those most primitive of worms, the planarians that when frightened can split into hundreds of pieces each of which becomes a new worm. There are many ocean reef worms armed with stinging bristles.

By HELEN SHIRAS BALDWIN

Most immigrants to our Islands from foreign lands have proved useful citizens, talented and an asset to our country. Those from South America have proved as fine as those from other lands and received as warm an aloha.

But there are some unsavory characters in every country. One of these came here years ago, presumably from Chile or Peru, entered the country without passport and settled on pasture lands btween Pohakuloa and Waikii without obtaining legal permission and shows no sign of being willing to leave.

In fact it is extending its land grabbing, activities into other parts of North Kona and elsewhere, also without permission.

Nobody knows when Tagetes minuta alias "stinkweed", "wild marigold", "stinking marigold", first came here; but it was at least thirty years ago and probably much longer. It has been quietly consolidating its claims ever since.

★ ★ ★

It should be eradicated from roadsides and pastures, especially in places where it is beginning to take hold. It can cause serious cases of hay fever when in bloom. Since this is in summer at the height of the tourist season, "stinking marigold" should be eliminated from our roadsides before it injures our tourist industry.

The plant has no forage value. In Australia where this plant has also gone rampant and is known as "stinking roger", it is claimed to be actually poisonous to livestock. Cattle here seem to avoid it; but it does use space and plant nutriments which should go to true forage plants.

In its native Peru and Chile the leaves of the "stinking marigold" are used medicinally for poultices, as a diuretic and in other ways. The fresh leaves are irritants, but some of the more volatile substances evaporate when the leaves are dried. Acids, oils, resins and saponin have all been isolated from this plant according to Degener's "New Flora Hawaiiensis".

★ ★ ★

"Stinking marigold" is closely related to our garden marigolds. Young plants of this weed are hard to tell from our bright flowered kinds and even have a similar odor to the leaves.

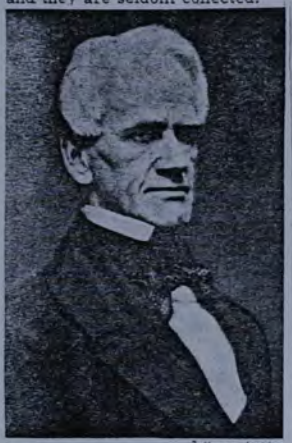
But as the plants grow tall, up to six feet in height, and mature they become lanky, the leaves stick to the plants, and whole plant sticky with an ill-

colony, have been found coiling to both left and right. These cannot breed together, so form two distinct strains. The third Lanai species, L. tetrao, is about three-quarters of an inch long, covered with a network of dark lines (Figure 3).

The species found on both Molokai and Maui, L. alexanderi (Figure 4), is about half an inch long, glossy reddish with black markings. Some of the other Maui species are entirely white and from half to three-quarters of an inch long; others are marked with dark lines. A Molokai species, L. venusta is pale salmon or yellow, some varieties with zigzag black lines, others without any black markings.

• • •

Three other genera of Amastridae are known, much smaller and quite different in shape from those already described. They have a flat, almost discus-shaped coiled shell, very few more than a quarter of an inch in diameter. There are seven species of Pterodiscus (Figure 5) on Oahu and Lanai; Planamastra (Figure 6) has two species in the Waianae Mountains; and Armsia (Figure 7) has one species in the Waianae Mountains. All live on the ground and they are seldom collected.



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EDUCATOR MANN

Teachers' Champion

"A brighter day is dawning," cried the famed Horace Mann, "and education is its daystar." To the 200 educators who had come from all over the country to Cincinnati that day in 1858, the words of the main speaker were not just empty grandiloquence. One year earlier, they had met to form the first national organization that the U.S. teaching profession had ever known.

Last week, as it started celebrating its 100th anniversary, the National Education Association had nearly 700,000 members—teachers, superintendents, principals, professors and college presidents. In its new $7,000,000 green-glass and white-limestone Washington, D.C. headquarters alone, N.E.A. has a staff of 360 running 31 different departments that delve into every aspect of education. Supported mostly by annual dues (now $5), it has grown far beyond its original role as the champion of the schoolteacher. It has become education's statistician, policeman and lobbyist.

Lychee growers who girdled their trees last September to induce flower bud initiation, as advised and demonstrated by agricultural extension agents, are reporting good results, according to Ralph Hayato Okumoto, South Oahu farm agent.

Lychee trees, as many Island growers will testify, are fickle in that they are generally unproductive in Hawaii there being many cases in which they have never fruited.

• • •

ENCOURAGED BY results from preliminary tests on girdling, territorial farm agents conducted method demonstrations of the technique last fall.

Mr. Okumoto alone held 15 meetings in his county last September, attended by more than 300. He told the lychee fanciers that because the Islands generally receive excessive rainfall at the period when the trees should be dormant, vegetative flushing results.

This condition is aggravated by the fact that the temperature at this critical period is not sufficiently low to give the trees the stimulus necessary to produce flower buds.

• • •

TO OFFSET THIS condition, Mr. Okumoto said that girdling branches by running a ⅛-inch-thick pruning saw completely around them, and making a cut, would cause carbohydrates to accumulate and thus suppress flushing.

From experience, September was found to be the ideal time to girdle trees, as untimely heavy rainfall in the succeeding months just before the flower-bud initiation period could cause vegetable flushing and nullify results expected from the operation.

Size rather than the age of trees, Mr. Okumoto said, is a better basis for determining what trees should be girdled, and those six feet or taller may be girdled without harmful effects, he added.

• • •

MR. OKUMOTO has received many reports during the past several weeks from lychee growers concerning the success they have had by following his advice.

Experimental tests on lychee girdling were started in 1951, and Mr. Okumoto has conducted ings on the technique during the past two years.

Many growers outside the boundaries of South Oahu have attended the meetings and many more have followed his advice through television programs.

Hawaiian Flora

By E. H. BRYAN, JR.

Dr. Otto Degener, assisted by his wife, Dr. Isa Degener, who was formerly with the Botanical Museum, Berlin-Dahlem, Germany, recently has issued another series of pages of his loose-leaf illustrated flora of the Hawaiian Islands. This new series of publications has been made possible by a grant from the National Science Foundation, Washington, D. C.

The new pages include a revised list of the recent families of vascular plants, numbered according to the sequence used in the loose-leaf flora; and pages on the ornamental Monstera, the globose Schiedea, the privet-leaved Schiedea, a summary of the sundew family; a key to certain local relatives of the hau tree, in which they are put in a new genus, Pariti, instead of the more familiar Hibiscus; description of a new pale Labordia; summary and key to genera in the dogbane family; key to species of Rauvolfia in this family and description of the Hawaiian species; description of the seaside heliotrope and the narrow-leaved Hedyotis; and a key to genera of Lobelia in Hawaii.

Dr. Degener started privately to print these loose-leaf descriptions of Hawaiian plants about 1930 and issued the first volume in 1932. By 1940 four volumes, containing about 400 sheets, most of them printed on both sides, had been issued. The stock of these, stored in Degener's home at Mokuleia, was ruined by the tidal wave of April 1946. Undaunted, Degener reprinted the four volumes in one large binder.

The writer estimated that there were enough species of plants in the Hawaiian Islands to take at least 50 years to describe at the rate at which descriptions have been appearing. After that additional introductions and revisions might continue the series indefinitely. However, the plan for presenting a drawing of the plant on one side of the page and a description on the other furnishes a very convenient manner of building up a flora, and this is commended to persons wanting such an account of the flora of Hawaii.

The shipment of fresh papayas and pineapples to the mainland in 1956 grossed approximately $1,200,000 wholesale, it was estimated yesterday. Papayas averaged eight cents a pound and pineapples between eight and 10 cents.

The Agricultural Marketing Service, University of Hawaii, reported that territorial exports of fresh papayas and pineapples last year made decisive gains over 1955. Papaya shipments at 1,600,000 pounds represented a gain of 64 per cent. Pineapple shipments totaled 12,000,000 pounds and amounted to an increase of 28 per cent for the comparable period.

• • •

THE PAPAYA shipments last year did not measure up to the record of 1,900,000 pounds established in 1954. In fact, the gain made during 1956 over the previous year, should in all probability, be termed a partial recoupment compensating for the decrease in shipments suffered in 1955, the extension report states.

The volcanic eruption of 1955 on the Big Island was the major factor contributing to the decrease of papaya exports that year. Approximately 60 acres of plantings were destroyed by the lava flows. However, the papaya producing areas of Hawaii have through substantial increases in new plantings within the last year.

Flora Hawaiiensis

By E. H. BRYAN, JR. 8/17/57

Fifteen more leaves, most of them printed on both sides, have been issued by Drs. Otto and Isa Degener for their "Flora Hawaiiensis," new illustrated looseleaf flora of the Hawaiian islands. These leaves present a description of the plant on one side and an illustration of it on the other. Publication was aided by a grant from the National Science Foundation.

Groups included are: The casuarina family and its familiar ironwood tree; the nettle family and a key to its genera; the purslane family and key to genera; the swine watercress, a member of the mustard family; the papaya and its family; the Oahu ohia ha; a genus (Calonyction) of the morning-glory family and the moonflower; the Jimsonweed and a variety tatula; two species and a variety of a composite, known as nehe.

Dr. Degener has also written, in the latest Asa Gray Bulletin, a paper on Hawaii's pioneer botanist, Dr. Wilhelm Hillebrand, who was born in Prussia, educated in Berlin, came to Hawaii in search of a more healthful climate in 1851, and the following year married the stepdaughter of a prominent Honolulu physician and conchologist, Dr. Wesley Newcomb.

First Turkeys Were Brought in 1815

Turkeys were first brought to Hawaii in 1815 by Capt. John Meek, from Coquimbo, Chile, on the trading ship Enterprise.

Mangoes are said to have been first introduced by Capt. Finch on the USS Vincennes, followed in 1824 by plants from Manila by Capt. Meek, then on the brig Kamehameha, which were divided between Messrs. Goodrich and Marin.

Fortunato Teho photo

WHAT'S THE DIFFERENCE?—Mrs. Lucille Leau, secretary for the horticulture department, Hawaii Agricultural Extension Service, displays two hands of bananas. The reader is asked to note the characteristics listed below, and then decide which is the "Apple" and which is the "Brazilian" variety.

Otto Degener's Fiji

Botanists as well as those who didn't know a cassowary from a cassowary will enjoy and find profitable Otto Degener's latest book, "Naturalist's South Pacific Expedition: Fiji," published by himself, printed by the Paradise of the Pacific. Degener, whose volumes on Hawaiian flora have attracted wide attention, has written an account of his eight months sojourn as a member of the "Second Cheng Ho" expedition, headed by Mrs. Anne Archbold, in 1940.

The volume is an account of botanizing, of social studies, of cannibalism, firewalking, religion, native treatments for leprosy, Fiji drums, tattooing and pet doodlebugs. Degener deals with filariasis, wasteful lumbering, the making of mats, miscegenation and the burial alive of Fijian chiefs of olden days. He discourses on the copra industry, witchcraft, native chewing gum and jungle intoxicants. He mixes a technical discussion of a newly discovered fern with a biting commentary on the status of native population under English rule.

A recurrent theme is his recurrent description of the Fijian as "only a partially emancipated peon hedged in by strict laws not applicable to white residents" and he contrasts the status of Fiji islanders unfavorably with the emancipated Hawaiian race. Some of the "more disturbing passages," he said, in a foreword, were deleted at the suggestion of friends.

A high light of the volume is an account of a stinking and poisonous plant called the "ndainga" with which Fijians once used to beat their wives, when the wives had been unfaithful. The book is a valuable contribution to the literature of the Pacific, although Pacific Islands Monthly will not accord it favorable review because of the strong anti-colonial slant.

Bananas: Apple or Not?

It makes a difference what you buy, and if you want the right banana when you go to the store, it will profit you to know the difference between "Apple Bananas" and Brazilian bananas, according to Warren Yee Jr., specialist in horticulture with the Hawaii Agricultural Extension Service. Ac- the difference between the two. kinds of bananas are of entirely different varieties. Some of the characteristics of each are given here to help the consumer know which to ask for.

Fruit Characteristics	Apple Banana	Brazilian Banana
Ripe fruit	Smooth, curved	Angular, straighter
Size	Small	Medium
Odor	Strong, apple-like	Indistinct
Taste	Moderately rich, astringent when not fully ripe	Mild
Texture	Dry and firm	Moist and firm

Before the incorrect name is permanently attached to either, Mr. Yee recommends learning the difference between the two. What is usually wanted, when consumers ask for the "Apple Banana" is actually the Brazilian variety. This usage may lead to confusion or disappointment. Especially when buying for salads, the banana used makes a great difference. Ask right, and buy the banana you really want.

They don't make hula skirts any more from material grown in the Hawaiian islands.

In the tourist shops those swishy skirts on sale are made from raffia that comes from far-off Madagascar.

It handles easily. It takes green dye beautifully. And it swishes—well, like a hula skirt.

HULA SKIRTS are one of the products made at Lanakila Crafts, a rehabilitation center maintained for the handicapped for 16 years.

The center supplies part of the hula skirt output for the tourist shops.

There are 56 workers at Lanakila Crafts learning a skill, such as hula skirt-making.

They are physically or mentally handicapped persons.

* * *

THE JOB PAYS a small wage, gives them a large boost in morale, and often trains them for a steady job elsewhere.

There are four instructors at the shops, and the center is trying to pay its own way from sale of products.

The shops produce a variety of ceramic products, wood products, such as neat little outrigger canoes; paper and wood-fibre leis, shell jewelry, and Hawaiian drums — a No. 2 pineapple can rubber stretched over each end.

* * *

THE SHOP ALSO does bookbinding and printing.

The staff invites the public to visit the workshop at 1700 Lanakila Ave.

Tours will begin next Tuesday.

NATIVE HUKILAU.—"Old Hawaii still lives" and the real Hawaiians along the Kona coast of the Big Island still gain much of their livelihood from the sea. When a large school of ulua and akule appeared a hundred yards or so in front of Kona Inn recently the news was quickly broadcast throughout the neighboring countryside. It was a lively occasion for the native fishermen and equally lively for guests at the Inn who deserted their breakfasts and seized cameras. Photos show (1) the huge net spread around the school from an outrigger canoe; (2) the net is gradually pulled shoreward as fishermen dive to the bottom to keep it from getting caught in the rocks; (3) sections of the big net have been detached and are being placed in the outrigger so as not to interfere with the section containing the fish; (4) sides of the net are raised to see what the haul looks like; (5) fish are lifted from the water and (6) dumped into the waiting outrigger which is paddled ashore and (7) its contents of several hundred pounds of fresh fish admired by the ever-present onlookers at any hukilau. Such scenes as these are quite common in Kona where the skill and seamanship of ancient natives are still passed down from father to son. (Pan-Pacific Press Photos.)

Scrape That Monstera Fruit for Painless Eating

How. Adv. 3/6/57

Additional sheets of Dr. Otto Degener's Flora of Hawaii is appear from time to time. This work is being aided by the National Science Foundation.

Recent additions to the loose-leaf volumes include drawings and descriptions of our familiar Monstera and of our less familiar Hawaiian Rauvolfia.

Rauvolfia, from which reserpine is obtained, has been known long in India as a source of a tranquilizing drug. Rauvolfia sandwicensis (the sandwicensis is for Sandwich Islands) also contains reserpine, the tranquilizer in question. It has been used to treat snakebite and lunacy for at least 2,000 years. Dr. Degener explains the spelling, instead of the more familiar Rauwolfia, required by the International Rules of Botanical Nomenclature.

Anyone who ever waited for the fruit of the Monstera deliciosa to ripen will be glad to know that it requires 18 months to be edible. Says the botanist:

"The fruit are formed rather abundantly but not in sufficient quantity to be marketed commercially. . .When the fruit is not eaten dead ripe it is mane'o (itchy) like its relative, the taro. This is due to calcium-oxalate crystals present in the pulp, especially just below the skin. This part should be scraped or washed off. One is then able to enjoy the delicious pineapple-and-banana-flavored flesh relatively painlessly. If one handles the stalk and leaves carelessly for decorations, however, one may suffer from the itch."

The Monstera, or ceriman, as it is called in Mexico, grows more fruit when it is allowed to sprawl on the ground. Mexicans take an infusion of the leaves and stem for arthritis. Ceriman, by the way, means "waxy hand," from the shape of the leaves.

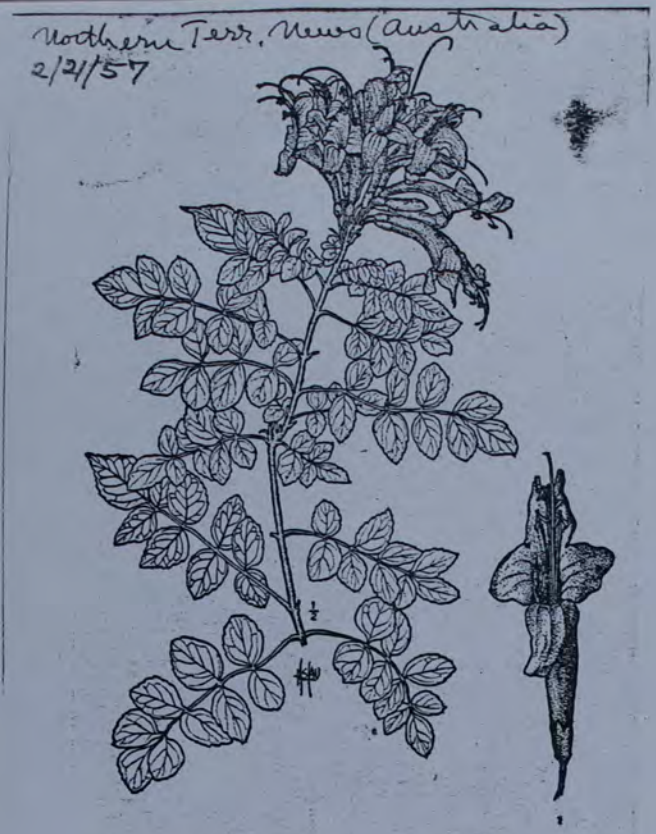
Did You Know?

How. Adv. 4/6/58

By MYRLE CLARK

The Alibangbang is a beautiful shore tree or climbing shrub from the Philippines and Siam: It is very rare in Hawaii but is among those fine trees on the campus at the University of Hawaii. The flowers are white, trimmed with crimson and resemble a butterfly. For the folks from Boston, the seat of learning, the botanical name is Bauhinia binata. In Hawaii this interesting handwork of Mother Nature does not grow as a climbing vine. It is a tree only.

Northern Terr. News (Australia)
2/21/57



A TECOMA SHRUB —— "After Degener"

GARDENING NOTES (By Alice May)

TECOMA COULD BE AN ASSET IN DARWIN

Tecoma could be used more often than it is in Darwin gardens.

It could be planted instead of aralia for a division between gardens, and as a shelter around houses that are on spiles.

The light branches will let a breeze through, but give that privacy that one requires.

The most common tecomas here have leaves a little more serrated than the illustration, but the formation of the leaves and the compact clusters of flowers are the same. The flowers are a bright yellow, and bloom for most of the year.

Tecoma grows quickly from seed; there are generally small seedlings around the parent plant. Although listed as a shrub, if left unpruned it will grow into a small tree.

IF YOU have a small fowl-yard in your garden, be sure to grow some "Blue Pea" on the fence; it is most useful for green feed for the fowls.

It grows from seeds and can be found on vacant allotments. Its proper name is Clitorea ternatea.

When a few trails of it are given the fowls, watch them pick out the flowers and eat them first.

* * *

● **PUT IN some cuttings from the Pride of India tree. They will strike best at this time of year and then you will have a good gift for your friends starting a garden.**

● When platning seeds, save the packet. Slit it open and use it as a small diary on the behaviour and results from the seeds. One's memory is not always reliable.

● **Raise all the beds where veegtables are being planted as much as possible, so that the water run off is quick during the rainy season.**

EVERY NOW and then it is necessary to tidy up the banana patch.

Cut off all the spent leaves, that have produced their bunch and be sure that all the palms of bananas are cut right out.

Use all this material as a mulch around the base of the plants. It can be chopped up so that it will rot into the soil quicker.

By BARBARA LYONS
(Maui Historical Society)

Hawaiian 1/21/57

We are apt to think of the kahuna as one who prayed to death or cast a spell—one who "kahunaed."

The verb kahuna actually means, according to Andrew's Hawaiian dictionary: "To exercise a profession; to work at one's appropriate business. Specifically, to be or act the priest."

When used by itself in Hawaiian antiquities, kahuna referred to the priest who offered sacrifices.

Priesthood in ancient Hawaii was called the Order of Sorcery, and included 10 divisions. To comprehend all of these was hoomanamana (to branch out).

None but the high priests had such inclusive knowledge. A kahuna who practiced only one branch, though he excelled in it, was not called a high priest.

In his "History of Hawaiian Priesthood in Olden Times," S. N. Haleole describes the divisions of priesthood in this way:

Anaana—praying to death.
Hoopiopio—sorcery.
Hoounauna—sending of evil spirits on errands of death.
Hookomokomo—causing sickness.
Poi-uhane—spirit entrapping.
Oneoneihonua—a special prayer service.
Kilokilo—divination.
Nanauli—weather prophecy.
Lapaau—the practice of medicine.
Kuhikuhi puuone—heiau locating and designing.

The kahuna for each of these offices was called the kahuna-anaana, the kahuna-hoopiopio, and so forth.

There were many gods for each of the orders, and the supreme head of these was Kanaloa. Before practicing any of the arts of priesthood, prayers were offered to the particular gods.

The art of priesthood was learned according to certain ordinances, and if any were broken before the novice became proficient, failure would result. Only by the strictest conformity to the laws could one become a priest.

If at the final day of offering sacrifice a fault should occur, the instructor would say, "You cannot learn the priesthood."

The priesthood was hereditary, for those who could learn it successfully. Each chief had his family priest who went with him to war, was the keeper of his war-god, and performed the sacred rites of his household.

A priest's rank was determined by that of his gods and his chief. The great high priest kept the ruler's war-god, and was his personal priest.

Some of the priests attained great power. They were considered sacred because of their knowledge of and familiarity with the gods, and owned much property which was taxed for their support.

Services were bought with offerings, according to the rank of the applicant and the wants of the priesthood. The priests had great influence

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Northern Terr. News

TRICKY NAME BUT A NICE SHRUB

Holmskioldia Sanguinea is the rather frightening name for a little-grown shrub here in Darwin which has the common name of Parasol Flower or Chinese Hat.

It will grow more or less to the height of ten feet, the branches are light and it will not give heavy shade.

There is often a spot where a light, screening shrub would fit in, and this one, with its unusual flowers which are like either the parasol or Chinese hat, would do very well.

The flowers are appearing on the shrub now; they are an orange-red and will last on the bush for some time.

It will probably start from cuttings, but it layers very quickly, and as there are often little scraggly low branches it is easy to put a little soil over one, and hold it down with a stone. After a few weeks the branch may be severed, and after another week or so it can be transplanted.

There is one of these shrubs in Botanic Gardens, but it's rather hidden away.

It is listed in a Queensland Gardening Book, so it should be obtainable from Queensland nurseries, if not available locally.

KOOTENEY and Silver Jubilee are two yellow hybrid tea-roses that are strongly recommended for the tropics.

Combination shades have the Forty-niner—a cherry color with reverse of petals chrome or straw yellow, and the Condest de Sastago — copper-red shading golden yellow. These are also the hybrid tea variety.

The following polyantha roses have been satisfactory: Cecil Brunner, pale salmon pink; Floradora, well-shaped flowers of bright orange red, (but it probably wont have large sprays of flowers as it is listed); Gartendirektor Otto Linne, large clusters of small pink blooms, prolific with flowers; Masquerade, nearly a single rose which changes color from yellow to red.

Roses are the main theme with southern gadening notes and advertisements at the present time; however they rarely give names of roses that will grow best here.

Unfortunately, there are not a great number that really like growing in the tropics, and there is little data given to help you choose a few roses.

However, the following are some that have been tried and found satisfactory; it is by no means complete and many years will go by before we have found by trial and error what is the best for our gardens.

Better Times (HT hybrid tea) a red rose that does exceptionally well.

Daily Mail Scented (HT), another red rose that is popular with rose growers here.

Red Pinnochio—good double-red flowers in quite good clusters.

There are several others that are recommended for tropical conditions but I have had no practical work with them. They are Columbia, Elizabeth Arden, Gloria di Roma, Mabel Francis, Molly Bligh, Mrs. Theodore Roosevelt, Nellie Parker, Priscilla, Red Radiance, and Souvenir de H. A. Verschuren.

Roses ordered now will not arrive until June or July; this gives plenty of time to plan where they are to be planted and to prepare the soil.

They seem to grow best where they get sun for most of the day.

Many people here think that they should be planted in drums for best results, but mine are in the open garden. The soil is occasionally treated to keep down the white ants.

HOLMSKFOLDIA SANGUINEA—After Degener

Displ. to N.Y., Hunt,

New Volume By Salty Plant Scientist

Hon. Adv. 3/19/58

By HUGH LYTLE

Botanists ought to be considered the most important people in the world for they are specialists in plant life, without which no animal life, including man himself, could exist. Actually you don't hear much about them. The atom smashers get the play, for violent departure from life is more dramatic than the sight of green grass rippling in the wind —even if the grass is sugar cane, corn or rice.

DR. DEGENER

Botanists sometimes combine adventure with scholarship, as when plant explorers range the world. One who has done this and written about the adventure as well as the scientific findings is Dr. Otto Degener, whose fifth volume on Hawaiian Flora is just off the press.

Dr. Degener belongs to that group of botanists who record and describe. They are called taxonomists, a word which comes from the Greek and means to put into order. Dr. Degener has the seemingly impossible task of cataloging and picturing all the plants that grow in Hawaii. Asked how long he will keep it up, he answered: "Until I drop."

* * * *

Volume Five of "Flora Hawaiiensis," printed in loose leaf form is extremely technical—it has to be. But interspersed with the Latin and Greek nomenclature are salty observations that are worth much effort to find. The Albizia tree may be "deciduous, glabrate and shallow rooted," but classifier Degener also notes that the Filipinos call it the Woman's Tongue tree. This is because it bears numerous, dry pods which move and rattle in the wind and clack away at a great rate.

* * * *

Then he is apt to explain that the bark of the Hawaiian Sumach is good for tanning and that Gerrit P. Judd sent some to Boston in 1868 in an attempt to start a new industry. He notes that William Ellis found papaya here in 1818 and that the giant herb now furnishes a heart stimulant, a beer clarifier and a process for reducing the shrinkage of wool. There are other, better-known properties. That stuff that oozes out of a cut plumeria stem contains latex, but not enough to make rubber. The jacaranda could become a serious, though beautiful, pest because the winged seeds take root wherever they land.

The enterprise, in which Dr. and Mrs. Degener collaborate, has been made possible by support of the National Science Foundation, Washington.

* * * *

Other work by Dr. Degener includes an account of his eight months in Fiji with the Archbold "Cheng Ho" expedition, published under the title "Naturalist's South Pacific Expedition: Fiji." This contains a remarkable chapter on cannibalism that is worth the price of the book.

Still another exceptional book is Dr. Degener's volume on plants of the Hawaii National Park and the part they played in the culture of the ancient Hawaiians.

All are the works of an individualist who seems to delight in stirring controversy while engaged in a branch of science that goes clear back to Theophrastus.

Milolii:

By REBECCA BANKS

When we first conceived of the notion of going to the valley of Milolii, on the Island of Kauai we were standing at the top of the valley in Kokee.

Miles away, and thousands of feet down, there was a dot of a house on the rocks beside the Milolii River.

We had read and been told so much about Milolii that we decided to try to get to the place. If a house could be there, others before us had surely been there.

* * *

Upon our return to Kapaa we began asking "How does one get to Milolii?"

After a few weeks we knew there was one man on Kauai who knew the trail in, down and down, and returning up and up.

Also the possibility of a boat, but, the sea around from either side made such a trip seem dangerous.

Our next choice of travel were Piper Cub planes. There were three engaged in fish-spotting on Kauai.

On our first trip we had three planes and went only for the day. We made a hasty survey of the valley with its caves, platforms and bluff shelters.

We knew we needed more than a day for the work we wished to do. We made plans with the pilots to return, and to let us use their cabin at a later date for five days.

One of the ponderous walls of Milolii.

After two of the planes had left the 400-foot runway of slightly loose sand, my pilot turned to me and very happily said, "Well, they made it."

Encouraging. Landing on rough runways does not have all the safety factors that could be enjoyed.

We stuck to our plans, however, and returned to the enchanting valley with its cabin and the onion patch growing in the silt by the river.

For five days we walked in the valley, went to caves, counted bluff shelters, made pictures, climbed cliffs and walked on the rolling stones of the beach, or on the shore.

We did no "digging" as we had not made plans for that activity.

Of the many interesting features of the valley the stone walls are outstanding. A great wealth of beautiful water-worn stones on the shore and also in the river made the walls possible.

The caves and bluff shelters had been pilfered of any or all artifacts.

We could see charcoal in the caves, and fine water-worn stones, but no worked artifacts.

We were walking on a ledge about half way up the mountain when we came upon a great number of fragments of blue tapa cloth that had fallen from above.

We tried to find the niche or shelter or cave from which it had been dislodged. We climbed down to the river and up on the opposite side of the valley.

We noted a small ledge with what appeared to be the other parts of tapa cloth.

We returned to Kapaa and learned that on one of the nights we were in Milolii there had been a tidal wave alert—and our cabin was not too far from the sea.

Years later my co-worker returned to the valley with a group of fishermen and a few fellow-wanderers, this time by boat. Perhaps it wasn't dangerous, but the Piper Cubs seemed safer to her after the trip.

A late start—only a couple of dozen people collecting from all over the Island and trying to pack themselves in to one boat—made overnight camping in a small dry valley necessary the first night.

Coleman lanterns all up and down the beach, campfires for each group, and fishing and tale-telling made sleep undesirable.

On the way next morning someone didn't look the right way, or the waves came too strong. Anyway, the bottom of the boat caved in a little, so the rest of the trip to Milolii was made with several people bailing.

Once there, the owner of the boat had to swim back to Polihale, near Barking Sands for repair material, leaving the rest for a long weekend of exploring.

Much of the valley along the river had been changed by the floods that harassed Kauai for several years, and trails were destroyed, and structures down.

Only high along the cliffs could the old things be seen.

The fishermen's tales were that the last people to live in the shelters had been lepers determined not to move to the settlement.

The return was made by two boats.

None were women and children and men who could swim. It turned over, but the only loss was a turtle that swam happily away.

By boat or plane a trip to Milolii will always be remembered and with pleasure.

Chamberlain Family G

The story to date: Maria Patton, 25, was one of four single females sent to Hawaii as "teachers and assistants" in 1828 by the Boston Board of Foreign Missions. The women were sent in a company of 23 Missionaries on the ship Parthian arriving at Honolulu March 30, 1829. By September 1, 1829, Maria Patton had become Mrs. Levi Chamberlain. She gave up teaching to raise a family and assist the mission as hostess to the sick and visiting "out station" mission families.

Levi Chamberlain died in 1849. His widow continued to live in Chamberlain House and be an assistant to the Mission. She supplemented her annual income of $350 by taking boarders.

The widow Maria Patton Chamberlain, lived a cheerful, bustling life until a stroke paralyzed her and she died January 19, 1888, at the age of 77.

Her old age was comfortable. She had two children at home to care for her. They were Evarts, her second son, who never married because he was handicapped with deafness, and Martha Anne, known as Mattie, who never married.

She became a school teacher and was the corresponding secretary of the Cousins' Society for some 40 years.

Evarts was an amateur botanist, spending much of his time collecting Hawaiian flora and sending samples to Eastern colleges.

Warren, the eldest son, married and tried farming, at which he was not very successful. Levi, the third son, became a teacher at Lahainaluna.

Maria Jane, the second daughter, married the Reverend Anderson Forbes on December 21, 1858, in Honolulu. She was widowed in 1888 and became the manager of the Lunalilo Home for aged Hawaiians.

James, the fourth son, delighted his mother's heart by becoming a minister. He settled in the middle west on the mainland. He has descendents living on Maui today. Isabella, youngest daughter, married F. S. Lyman of Hilo.

All seven of the children she had reared to adult life, outlived her. The one child she lost was a nameless baby.

Life was never dull around Chamberlain house. The married daughters and the daughters-in-law came home to have their babies. The little upstairs room over the kitchen was used as a "lying-in" room.

When her own children were not home having babies, widow Chamberlain took in other missionaries or just friends. When the wife of Warren Goodale died, Maria Chamberlain took care of the Goodale twins.

Chamberlain House was an infirmary for the community. In a letter to her sister, Maria Chamberlain tells of an epidemic among the seagoing men in port; she had four Captains recovering at her house.

How she reared seven children, constantly exposed to tuberculosis, would make an interesting medical study.

Next: Mission Houses.

Dr. Otto Degener, Hawaiian Islands, completed with his wife, Dr. Isa Degener, Book V of "Flora Hawaiiensis" or "New Illustrated Flora of the Hawaiian Islands" on December 27. A grant from the National Science Foundation of Washington helped make this 446-page book possible. January 30 the Degeners flew to Canton Atoll, Phoenix Islands, on the Equator as three-week guests of the Civil Aeronautics Administration, to continue study of the atoll. Dr. Degener says, "This atoll is a refuelling station for planes flying between Hawaii and Australia, and really a fascinating place."

Junge Augsburger Musiker in Holland

Auf Einladung der Musikvereinigung Apeldoorn fuhren über die Pfingstfeiertage der Augsburger Spielmannszug „Augusta" und die Gersthofener „Bläserbuben" nach Holland, um dort an einem Musikfest teilzunehmen, das aus Anlaß des 50jährigen Jubiläums der dortigen Musikvereinigung abgehalten wurde. Die Vorstandschaft des holländischen Vereines besuchte vor etwa zwei Jahren Augsburg und bei dieser Gelegenheit wurden die ersten freundschaftlichen Kontakte hergestellt, die nun zur Einladung nach Holland führten. Der Augsburger Spielmannszug unter der Stabführung von Herbert Lenk und die Gersthofener Kapelle unter Leitung von Andre Hoser nahmen dann im Rahmen der Feier auch an einem Wertungs-Spielen teil, bei dem die Augsburger in ihrer Gruppe den ersten und die Gersthofener den dritten Platz belegen konnten. Insgesamt nahmen an diesem Preismusizieren Kapellen und Spielmannszüge teil. Mit dem Ferbelliner und dem Brandenburger Reitermarsch holte sich der Augsburger Spielmannszug Urkunde und Ehrenplakette. — Auf dem Marktplatz von Apeldoorn veranstalteten dann die Augsburger und Gersthofener, die als einzige deutsche Gäste an diesem Treffen teilnahmen, noch ein Standkonzert. Bei dieser Gelegenheit konnten sie im Auftrage des Augsburger Oberbürgermeisters dem Bürgermeister von Apeldoorn noch ein Buchgeschenk überreichen. Nach ihrer Rückkehr hoben die jungen Musiker, die in Privatquartieren untergebracht waren, die herzliche Gastfreundschaft der holländischen Bevölkerung besonders hervor. o. h.

Heimatforschung im Ries

Die letzte Monatsversammlung des Schwäbischen Heimatkreises stand im Zeichen der Heimatforschung. Dr. Ziegenspeck, ein Experte auf dem Gebiete des Vulkanismus, sprach über die geologischen Vorgänge des Ries-Kessels und zeigte dazu einzigartige Lichtbilder nicht nur aus dem Ries selbst, sondern auch aus vielen anderen vulkanischen Gegenden. Dabei ergab sich eine Menge von trefflichen Vergleichen mit den erdgeschichtlichen Vorgängen im Ries. Ein besonderes Erlebnis vermittelte die Vorführung eines Farbfilmes von dem 1942 erfolgten, gewaltigen Vulkanausbruch auf Hawaii. Der Redner bekam diesen nur in einem einzigen Exemplar vorhandenen und unter Lebensgefahr aufgenommenen Film direkt aus Hawaii von Prof. Dr. O. Degener geliehen. Dr. Ziegenspeck wird diesen Film nächstens in der hiesigen Volkshochschule, voraussichtlich auch vor einem interessierten Kreis in München und Stuttgart zeigen. o. h.

Besuch aus dem Oetztal

Unter dem Motto: „Das Schönste auf der Welt ist mein Tiroler Land" fand im Pfarrsaal von St. Moritz ein Heimatabend statt. Die Veranstaltung wurde von den „Oetztalern" bestritten, die auf Einladung eines Augsburger Omnibus-Reisebüros an den Lech gekommen waren. Die aus Umhausen im Oetztal stammenden Gäste boten bereits am Nachmittag des Veranstaltungstages mit ihrer Blaskapelle auf dem Königsplatz ein Standkonzert. Am Abend bestritten ein Chor, eine Volkstanzgruppe und drei Oetztaler Buben mit ihren Liedern, Jodlern und Gedichten das Programm. Dazwischen erklangen immer wieder die Weisen der flott musizierenden Blaskapelle. Das Publikum spendete herzlichen Beifall. o. h.

Alte Soldaten für den Frieden

Die Jahreshauptversammlung der Vereinigung des ehemaligen 4. Chevaulegers Regiments „König" fand in den Räumen der Restauration „Rheingold" statt. Die Jubilarehrung, die der Versammlung vorausgegangen war, wurde von Helmuth Mayer durchgeführt. Vorsitzender Sander erstattete den Tätigkeitsbericht über das vergangene Jahr. Die größte Sorge war die Finanzierung für die Instandsetzung und Pflege des Gefallenendenkmals am Ulrichsmünster. Dank den kameradschaftlichen Spenden konnte dies ermöglicht werden. Zur Wiederbewaffnung meinte Sander, es sei nicht Aufgabe der Vereinigung, diese Angelegenheit zu diskutieren. Man solle diese Probleme den dazu berufenen Bundestagsabgeordneten überlassen. Gerade die alten Soldaten kennen den Krieg und seine Folgen und wünschen daher einen guten und dauerhaften Frieden. Die Vereinigung sei politisch neutral und wird es für alle Zeiten bleiben. Er betonte, daß nunmehr die Mitgliederzahl auf 138 angewachsen sei. Für besondere Verdienste um die Erhaltung der Vereinigung, wurde Johann Gansbühler zum Ehrenmitglied ernannt. S.

74 Aus Augsburger Schwäbischen Landeszeitung 3. Juni 1958

Rafting Around The Pacific 5/31/57

By CHARLES E. HOGUE

Now that we know the crew of the bamboo raft Tahiti Nui is safe and that there is no tragedy involved, except that suffered by whoever put up the dough for the trip and the cost of rescue, it is timely to look with an appraising eye at the jolly lads who go rafting, sailboating or rowing around the Pacific on near-scientific expeditions. Invariably they cost someone besides their promoters some cash for tows and other succor. Occasionally one clicks with revenue from a book of negligible value or a movie contract. Mostly they waste a lot of good white newsprint with stories that are incredibly dull and purposeless, except in their advertising value to the principals.

HOGUE

One notable exception was the late Ira Sparks. He rang a change by nailing himself inside a packing crate and shipping himself by steamer to Honolulu to begin here his Pacific voyage in a skiff. He was no naval architect, and the boat he built was not a craft that a seaman would willing entrust his life to, but Sparks did make it to the Philippines before he drowned. He made no pretense to scientific purpose, or any other beyond his urge to make a trip. And the money he cost the Coast Guard and other succoring agencies was inconsiderable.

What the Tahiti Nui voyagers and their predecessors on another raft hoped to prove that scientists do not already know is a mystery to scientists. Perhaps the rafters did establish to their own satisfaction that ancient Polynesian voyagers, who went bounding around the Pacific pretty much at will, could travel against the wind. But that's old stuff to the Eggheads, and even common knowledge along the waterfronts. Anyway, so what?

* * * *

Perhaps it is wrong to be impatient with restless folk who nowadays get the urge for a sea trip and haven't the inclination, or maybe the price, to buy a ticket, when they buck off on their own aboard flimsy craft. If they can get a kick that way, let 'em go. Still it would be nice if they were required to post a bond before departure to insure John Taxpayer against being billed for hauling them ashore.

Flora Hawaiiensis

By KAPIIKAUINAMOKU

Some few years before the advent of World War II, the Prince Louis Ferdinand of Prussia and his bride, the former Grand Duchess Kyra of Imperial Russia, were in Hawaii on their honeymoon.

One evening after dinner as we sat over coffee and brandy on the lanai at Punaluu, the young prince leaned back and told us stories about his grandfather, Kaiser Wilhelm II, former Emperor of Germany, then living in exile at his castle at Doorn in the Netherlands.

AMONG HIS STORIES the prince told us that once his grandfather had said that during his entire lifetime he had met only two men of whom he could say without qualification —they were gentlemen.

The first was his maternal uncle, the Prince of Wales, who later became the King-Emperor Edward VII of Great Britain. The second was the King of the Sandwich Islands.

Prince Louis asked me if I knew the name of this monarch whose gentility had so impressed his grandfather, and I answered, "Yes, it was the King of Hawaii, David Kalakaua."

Friday was the 120th anniversary of this royal gentleman's birth — the nativity of this prince among men, and Hawaii should indeed halt, if only for a moment, to remember him, Kalakaua, who brought to these islands and to his peoples their most colorful and brilliant era.

THE YOUNG David Kalakaua was born into a noble family on whose ancestral scrolls are emblazoned the names of Hawaii's most powerful and exalted princes.

His great-grandfather, the Prince Kepookalani, was a half-brother of the sacred Prince Kaleimamahu, parent of the Lunalilo Dynasty of Hawaii.

He descended from the Prince of Eternity, Kalaninui-

Dr. Otto Degener and his wife, also skilled botanist with a doctor's degree, have produced another sheath of pages of their "Flora Hawaiiensis," loose-leaf illustrated flora of the Hawaiian Islands, aided by a grant from the National Science Foundation.

This installment describes two shieldferns called by the Hawaiians "neke" and "pauoa"; gives keys to local species of banana, to genera of the pepper, mulberry, buckwheat, amaranth and mint families in Hawaii, to Hawaiian species of the genus Pittosporum; describes and figures species of Pittosporum, hoawa, a native species of Hibiscus, a member of the olive family, and two species of Cordia.

Doctors Degener may be addressed at Waialua, Oahu, T. H.—E. H. Bryan, Jr.

what salty water at the mouth of streams and in low marshy areas.

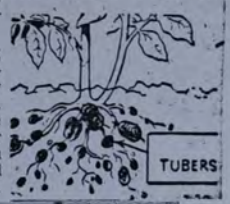
THE REASON that you don't see too many flowers is that the tree grows into such a tangled mass of stems and aerial roots that flowers are hard to collect. The growth gets so thick at times that it is hard to manipulate in the water.

At low tide, the trees stand there with roots that look like stilts. The flowers appear in the early winter. They make a most unusual lei. Because of the dry nature of the stiff calyses, leis will turn brown and last indefinitely. Mrs. Fennel showed me one that was nearly 10 years old. The only thing that had deteriorated was the string that had held it together.

OF COURSE, this tree is no good for a garden unless you are living near a marshy shore. But it is an important tree because it helps build and protect land along the coast. The bark and leaves are high in tannin; the heavy wood is used for lumber.

The American mangrove (Rhizophora mangle), a different plant yet similar in many ways, originally came from southern Florida and South America but also grows in Hawaii. The most fascinating feature of this tree is its system of reproduction.

The seed, before dropping from the tree into the water, starts to germinate by forming a long radicle. Then roots develop at one end and leaves at the other so the young offspring can get a good start in the mud and not float away to sea.



Oriental mangrove flower.

If people were asked to name their favorite vegetables, I feel sure that there would be many answers, including peas, beans, tomatoes, carrots and so on.

The potato, however ranks first so far as use is concerned. More pounds of potatoes are grown than any other five kinds of vegetables combined.

Q. Are potatoes the roots of the plant? 2/28/57

A. Not in the case of the Irish, or white, potato! White potatoes are known correctly as "tubers" (pronounced TEW-burs), and are described as "swollen underground parts of the stems." The true roots are much thinner.

Q. What are the eyes in a potato?

A. They are buds of a sort. When it comes time for planting a new crop, a farmer cuts up seed potatoes. Each part planted should into the custom of describing them as Irish potatoes, but it have at least one eye.

Q. Are potatoes natives of Ireland?

A. No, they are natives of the New World. Spanish settlers found them in several parts of South America, including Peru, Chile and Ecuador.

Q. Why do people often speak of white potatoes as "Irish potatoes?"

A. White potatoes from Latin America were taken to Europe. In Ireland they grew so well that some of them were exported. People fell is better to use the name of white potatoes.

Sweet potatoes also are natives of the New World, but they belong to a different family. The plants have thick sweet-tasting roots which are gathered and sold as sweet potatoes. Some sweet potatoes are called "yams." True yams grow in central Africa and other tropical parts of the Old World.

milies of Gastropoda 4.

ntinuation of the classi- f families of gastropods Hawaiian waters lists stropoda (or Stenoglos- are thought to be the ly specialized of the s Prosobranchia or stropods. 6/16/57

* * *

ntific name of the ollowed by the popular number of the install- his series of articles described it.

NEOGASTROPODA a).

ly MURICACEA.

murex shells, 67,

e (Coralliophilidae) shells, 56.

Superfamily BUCCINACEA.

* * *

Pyrenidae (Columbellidae) little dove shells, 53.

Buccinidae, whelks, 54, 55.

Nassariidae (Nassidae), dog whelks or poet shells, 107.

Fasciolariidae, spindle shells, 37.

Superfamily VOLUTACEA.

Olividae, olive shells, 29.

Mitridae, miter shells, 44.

Vasidae (Xancidae), heavy whelks or vase shells, 104.

* * *

Harpidae, harp shells, 28.

Marginellidae, margin shells, 30.

Superfamily CONACEA (Toxoglossa).

Turridae (Pleurotomidae), turret or tower shells, 108, 109.

Conidae, cone shells, 6.

Terebridae, auger shells, 27.

fine garden. He had introduced many useful plants and after several failures had succeeded in growing rice.

While in Honolulu harbor the ship's bottom was repaired by divers, one of whom, to the astonishment of the Russians, remained under water from three to four minutes.

ATE CACTUS FRUIT UNPEELED

Kotzebue took a trip to Waimomi (pearl water) under the guidance of George Beckley. On his way he picked a cactus fruit and ate it, but as he had not peeled it he had his tongue full of prickers, which gave him pain for some time. He saw a plover and from that he conjectured that there must be land at about 45 degrees north, for he thought it was impossible for these birds to fly from the Aleutian islands, 2000 miles, which we now know they do.

Kotzebue's opinion was: "If any foreign power should consider the foolish idea of taking these islands, the jealous vigilance of Americans and the secure protection of England would not be wanting to frustrate the undertaking."

He wrote that Marini had not been able to discover in the traditions of the Hawaiians any visits of Europeans before the time of Captain Cook. Marini said also that on his visit to Tahiti the natives there had the same tradition as the Hawaiians, but that at some time in the past some foreigners had been wrecked on their islands.

Kotzebue left Oahu with a high opinion of the Hawaiians. He continued his voyage and collected valuable information for the benefit of future navigators. He reached Russia on August 3, 1818.

Note: There are two paintings of Kamehameha in the executive building, one is in the throne room and the other in the senate chamber. One of these was painted in 1850 by a Mr. Sawkins at a cost of $100, the other was made in 1852 and $200 was paid for it, the frame being $40 extra. The money for both was provided by the legislature. (This information is from the archives.)

Books of the Week

PLANTS OF HAWAII NATIONAL PARK: ILLUSTRATIVE OF PLANTS AND CUSTOMS OF THE SOUTH SEAS—Otto Degener—*Edwards Brothers*, 314 p., illus., $2.50. First photo-lithoprint edition of "Ferns and Flowering Plants of Hawaii National Park, with descriptions of Ancient Hawaiian Customs and an introduction to the Geologic History of the Islands."

Hon. Coll. 8/23/57

Imperishable

A monkeypod tree planted in 1866 at Waiohinu on the Big Island by Mark Twain blew down and was cut up into 5,000 board feet of lumber. Its stump, righted and tamped with soil, apparently has the same quality as Twain's writings. It is growing again.

ANCIENT MILL FOR SUGAR IS SET UP AGAIN

Stone Rollers Used 100 Years Ago Restored By HSPA Station Here

By T. T. WATERMAN

The latest enterprise in the Hawaiian sugar business is the setting up of one of the old Chinese sugar mills which used to function in the territory, a hundred years ago and more.

A description of such a mill was found in a very old number of the Hawaiian Spectator. The original document is in the Historical society collection at the Library of Hawaii, along with a sketch of the grinding mechanism, driven by a horse.

By a piece of luck, a pair of the original stone rollers, which are shown in the accompanying photograph, were encountered in the floor of the old mill across the island near Kualoa, where they were used at a later period to anchor down a pair of "centrifugal machines," themselves something of a curiosity. These rollers were deposited at the experiment station by Mrs. F. M. Swanzy, who owns the old mill and all that is in it.

The recent undertaking was to assemble these stone rollers, according to the set-up shown in the old Historical society cut. That undertaking has been accomplished, and the mill is ready to be looked at, examined, and operated. All that is needed is to hitch a mule to it.

The stone rollers are driven by an "arm," cut out of a hao tree, to which the horse or mule is harnessed. As this arm travels around, with the horse pulling it, it drives one roller, which by an arrangement of wooden cogs, drives the other roller. A workingman sits in front of the rollers, and feeds the cane in, one stalk at a time.

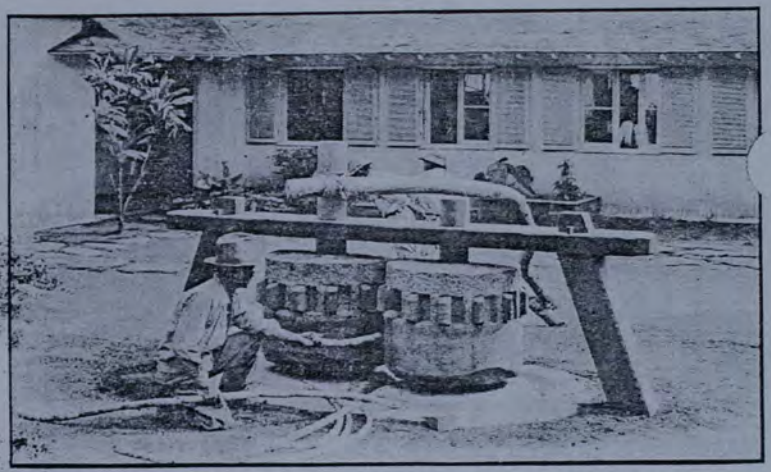
Such mills have not been used in Hawaii for many a long year, but they are still used to some slight extent, it is believed, in the Philippine islands, and have quite recently been used in Formosa.

The experiment station had to write to all these places to find out how the wooden cogs were cut and fitted in the stone rollers. Whether or not they are correctly fitted to the rollers at the experiment station, they make the stones go aorund, which is perhaps the main thing.

The workman who set the mill up is Y. Okimoto, employee of a local contractor, and a very fine mechanic. The rollers are set on wooden spurs made of monkeypod, while the teeth or cogs were cut out of Philippine mahogany, and fitted into sockets in the stone.

The stones were imported from south China in a sailing vessel about a century ago. They are shaped of diorite, and weigh, apparently, in the neighborhood of a ton each.

THIS ONCE PRODUCED HAWAII'S SUGAR



The ancient mill recently set up at the experiment station of the HSPA for grinding cane. Such mills were formerly used in Hawaii for extracting the juice from sugar cane. The stones are more than 100 years old.

Carnation Root Cuttings Available

Rooted cuttings of a new and attractive carnation are now available for free distribution to island commercial flower growers, the University of Hawaii announces.

The plant is called Uniwai, and is a dark pink carnation sport from the variety known as "Light Pink," "Common Pink" and "Pink."

Commercial growers in South Oahu County may obtain 12 cuttings by calling Agent Ralph Okumoto at 90551, Ext. 350.

VISTAS IN SCIENCE

By THOMAS R. HENRY

Nature Takes Over Canton Island

A land of wolf spiders, of cats gone wild, of fishing dogs, of deadly poisonous fishes whose colors rival rainbows—

Such is the picture of desolate Canton Island in the South Pacific reported to the Pacific Science Board of the National Research Council here.

It is an isle of staggering rats, the only native mammal. The abandoned felines, before present operations started, howled among the war wreckage through the moonlit nights. They have nearly annihilated the rats, a serious problem on most Pacific islands.

The island's fauna is described in a report to the Science Board which, working with the Office of Naval Research, is gathering as much data as possible on the war-enshrined atolls.

At best the land fauna on Canton Island is meagre, says the report by Dr. Otto Degener of the New York Botanical Gardens and Edwin Gillaspy of the Civil Aeronautics Authority. Now the rat is an elusive creature, hiding in frigate rookeries far from human habitations. Its ancestors probably reached the atoll in the double canoe of some adventurous Polynesian centuries ago.

Dogs Fish for Sport

Dogs and cats are the only other mammals. The dogs, of many breeds, mostly have been adopted and domesticated by the restoration workers. They have adopted the curious sport of wading in shallow water to pounce on fish which they never eat. None of the cats, descendants of pets of former inhabitants, have been adopted. They take a heavy toll of nesting sea birds.

The big wolf spider, which weaves no web, is everywhere, running about in the open seeking for insects. It is considered the island's most efficient insect killer. This spider not only sucks the juices of its victims but grinds their bodies into dustlike particles which add to the slender supply of fertile soil. A spider found often in abandoned shacks and bushes is the geometricus, a very close relative of the dreaded black widow and probably equally poisonous. It is mostly immobile in its sprawling web, and places its spherical egg cases in a corner of it. No bites have been reported on Canton.

The native insects are few, as would be expected considering the difficulty for these small creatures in crossing the great wastes of ocean and, once there, finding a suitable fare with such a limited plant life. The few that have survived cause little difficulty to native plants and thus offer no problem to the restorers. Plants and bugs have learned to live together through generations. A quite serious worry, however, is a habit of amateur plant lovers introducing plants by boat or plane from Hawaii, Fiji and even the United States. These plants are bound to cause trouble for the new vegetation which is being planted.

"Canton Island," says the report, "is a free paradise for insects such as the mealy bugs that harass native and introduced grasses and scale insects that weaken coconut palms near the hotel. This likewise makes Canton a very dangerous stepping stone for the passage of injurious pests."

The fishes are plentiful and colorful. A high proportion of the species appear to be common to Hawaii, but careful observation usually shows minute differences which would be lost sight of when they are studied in a museum after death. Food fishes that are wholesome in Hawaiian waters may be very poisonous here, especially if caught in the lagoon. Such, for example, are savory looking red snapper and rock cod. When eaten they may cause paralysis severe enough to end in death.

Bathing Dangerous

Sharks, sting rays and moray eels are common in the lagoon, making bathing both exciting and dangerous.

There are abundant species of nonmicroscopic crustaceans on the shores and rocky marine shelves. The unusually salty lagoon with its barren sand and choking mud is "like a desert on land" able to support but little life. But it will probably, Dr. Degener says, reward a collector with many species never before recorded.

Under oceanside rocks, he says, are extremely colorful species of those most primitive of worms, the planarians that when frightened can split into hundreds of pieces each of which becomes a new worm. There are many ocean reef worms armed with stinging bristles.

IAN BOTANICAL SOCIETY
of Botany, University of Hawaii
Way, Honolulu, Hawaii 96822

Smith
Hurov
i.)
Porter
Varner
Krauss
Ulbert
Bohmer
Palmer

THE HAWAIIAN BOTANICAL SOCIETY NEWSLETTER is published in February, April, June, October, and December. It is distributed to all Society members for the purpose of informing them about botanical news and progress in Hawaii and the Pacific. News contributions and articles are welcomed.

Editor Russell K. LeBarron
(Hawaii Division of Forestry)

THE HAWAIIAN BOTANICAL SOCIETY was founded in 1924 to "advance the science of Botany in all its applications, encourage research in Botany in all its phases," and "promote the welfare of its members and to develop the spirit of good fellowship and cooperation among them." Any person interested in the plant life of the Hawaiian Islands is eligible for membership in this Society.

of men and projects. His upholding of Brigham in his museum work and R. C. L. Perkins in his scientific excursions were examples of his insight.

In gauging the potential success of plantations and business proposals generally, he was astute and sound. There was an uncanny rightness to his observations.

But most of all he was respected for his integrity. An old line do-all banker usually takes on an aura of probity — so it was with Bishop. This story of his march to honor in community service has covered none of the bases of his business dealings, corporation "saving" loans, participation in plantations, utility companies, factor groups, ship ventures, real estate, currency problems and countless others.

THE STORY DOES add up however to the reason for the Sesquicentennial celebration of his birth Jan. 25, 1972. In the effort to acquaint the people of Hawaii, young and old, with this great but comparatively unknown figure in Island history, a program of epidemic proportions is bursting forth: essays, posters, exhibits, publications, sermons, speeches, resolutions, articles.

The Senate and House by joint resolution have created a Commission in Bishop's honor. The Governor of New York and Mayor of Glens Falls and Mayor Frank F. Fasi of Honolulu have issued proclamations or will do so. There is a special bookmark and there is a banquet; and at the Museum there is a new medal for distinguished service.

But at his death he really was an old man. He died age 93 in Berkeley June 7, 1915 of full mind and a fairly worn body. His ashes were brought to Honolulu to be placed alongside those of his wife in the Kamehameha Crypt in the Royal Mausoleum.

An inscription on his close-by marker stone reads:

Builder of the State
Friend of Youth
Benefactor of Hawaii

Peleuli II Brought Up In Kamehameha's Court

Hon. Adv. 6/?/56

By KAPIIKAUINAMOKU

Article 47 [illegible]

Namahana-I-Kekua-a-Pi[illegible]

The youngest daughter of the High-Chief Keeaumoku II and the Princess Namahana the Great was the Princess Namahana II surnamed Kekua-a-Pi-ia. When the Prince Kaleimamahu allowed his consort, Kalakua, to wed his younger brother, Kamehameha, the latter sent the Princess Namahana II to be the consort of Kelaimamahu.

They were wed under the rites of Hoao-Wohi, and a daughter was born to them. She was the Princess Elizabeth Peleuli II. Her complete name was Kalani-Maheha-Kui-Kapulikoliko - o-Auliamanu - Kalani-Peleuli - Kauikaiwinui-o-Piilani - Kealiiahilapalapa-I-Kuikaleiapeape.

* * *

THIS PRINCESS was raised in the court of Kamehameha the Great and was the foster daughter of his Queen-Consort Peleuli I. As a result of her living in the royal court many genealogists and even some of her less informed descendants have come to believe that she was really the daughter of the Conqueror.

The Princess Peleuli II was the only daughter of the Prince Kaleimamahu of Hawaii and the Princess Namahana II of Maui.

* * *

PELEULI II married her maternal uncle, George Cox the Prince Keeaumoku III, son of Keeaumoku I and Namahana the Great. A daughter was born of this marriage. She was Lydia the Princess Namahana III surnamed Kaleleonalani — the Flight of the Heavens—as a memorial to the death in England of King Kamehameha II and Queen Kamamalu.

Namahana III married John Harold the High-Chief Kaiheekai-o-Kekuaokalani, the son of the High Chief Hoolulu of the Kameeiamoku-Keawepoepoe branch of the royal House of Keawe. He was a grandnephew of Keeaumoku II. The mother of the High-Chief Kaiheekai I was the Chiefess Charlotte Halaki Cox, daughter of Harold Cox, an Englishman, and the High-Chiefess Namahana of the House of Moana.

* * *

NAMAHANA III had one daughter, Miriam Elizabeth, the High-Chiefess Auhea-Kekauluohi II who married William Issac Jesse Crowningburg, a descendant of the original dukes of Konigsberg former grand masters of the great Teutonic order of knighthood.

Through his mother, the High-Chiefess Kaleimahu-a-Kaheanahui, he was a great-grandson of King Kiwalao of Hawaii. The couple had two children. The eldest was William Charles Crowningburg the High-Chief Keeaumoku IV, and the younger was Lydia the High-Chiefess Keomailani.

* * *

THE HIGH-CHIEF KEEAUMOKU IV was the senior aide-de-camp to his first cousin, King Lunalilo. He was betrothed to wed Anna the High-Chiefess Kaiulani, sister of King Kalakaua and Queen Liliuokalani and also a foster daughter of the Princess Miriam Kekauonohi.

When this chiefess died, he instead married Lydia Kekolomoku-a-Kekuanaoa Pahau, the eldest daughter of Abraham Pahau, a nephew of Matthew Kekuanaoa and thus a cousin of the Fourth and Fifth Kamehamehas. Her mother was Mary Hale Purdy, the eldest daughter of the famed Jack Purdy family of Hawaii; she was also a descendant of the High-Chief Kameailihiwa.

THE HIGH-CHIEF KEEAUMOKU IV and Lydia Pahau had only one daughter. She was the late Miriam Elizabeth Crowningburg Amalu the High-Chiefess Peleuli-Auliamanu III. The sanctity of the Kamehameha Dynasty and also of the Lunalilo Dynasty was vested in and inherent in this woman.

The High-Chiefess Miriam Auhea-Kekauluohi the Second married again after the unfortunate death of her husband William Crowningburg. Her second husband was Paul Kamai, a maternal uncle of the late Mrs. Otto Isenberg (Helen Manaiula Lewis) and her half-sister, Mrs. James Campbell (Abigail Maipinepine later the second Mrs. Samuel Parker). Their only son, Charles Harold Kameeiamoku-Kaiheekai, died as a youth.

Svenska Dagbladet 9/2/52

Hawaiibotaniker på Lapplandsresa

Mannen som samlat ¼ miljon söderhavsväxter, skrivit och skriver Flora Hawaiiensis — fem band är färdiga — som i 30 år bott på Hawaii och är en av de två nu levande botaniker som fått en ny växtfamilj uppkallad efter sig, befinner sig f. n. i Stockholm på resa från New York till Tahiti. Det är doktor Otto Degener, som f. n. delar sin tid mellan sightseeing i Stockholm och växtpressning på Riksmuseet — han kommer närmast från Lappland, där han funnit växter närbesläktade med dem han som skolpojke samlade under sin uppväxttid i Massachusetts.

Dr Otto Degener

Dr Degener är identisk med den botanist, som Kon-Tiki-mannen Bengt Danielsson berättar om i sin bok "Den lyckliga ön". Men han är föga lycklig över den publiciteten. Innan han berättar någonting om fynd på Hawaii och i Lappland är han angelägen om att tillrättalägga vad som står skrivet om honom i den boken. Danielsson talar om en amerikansk miljonärska som så gripits av en häftig passion för botanik och en botaniker, att hon skänkt den senare en kinesisk djonk. Sanningen är, att miljonärskap är en [illegible] på sjuttio våren, som i Kina lät bygga en exakt kopia av en djonk från 1400-talet och inreda den med ädla träslag. Hon betalade 100 000 dollar för nöjet, samlade en rad vetenskapsmän och gav sig ut på expeditioner med fartyget. Dr Degener var en av dem. När kriget kom sålde damen djonken för 1 dollar till amerikanska marinen, och när kriget var slut återköpte hon den för samma facila pris. Dr Degener köpte den senare av henne till ett pris som var betydligt normalare än både byggnadskostnaderna och försäljningsdollarn och överlät den till ett bolag som använde den för fraktfart i Söderhavet. Själv kvarstod han som en av delägarna bland vilka det tyvärr också fanns en vichyfransman, som senare helt enkelt försökte stjäla fartyget. Det är denne bedragare som levererat den fantasifulla versionen till Bengt Danielsson. Efter en process är djonken nu åter i rättmätiga händer, och dr Degener är just nu på väg till Tahiti för att ta hand om fartyget, som han tillsammans med en tahitisvensk, Oscar Nordman, kommer att använda för att frakta copra mellan öarna samt [illegible] som dr Degener fraktar [illegible] själv och de söderhavsväxter han samlar.

Svensk professor lockade till Lappland

Mitt besök i Sverige är min första kontakt med Europa på 40 år — sista gången jag var här var 1910 — säger dr Degener, och anledningen att jag tog den här vägen är främst att jag ville besöka en gammal vän. År 1938 träffade jag på Hawaii professor Olof Selling. Det är han som lockat mig hit och är min ciceron både i den lappländska växtvärlden och bland de stockholmska sevärdheterna.

Växtfamiljen Degeneriaceae? Åh, det är en med mangolian besläktad [illegible] familj, som jag hittade under en expedition till Fijiöarna — den har njurlikpande frukter, fylld med tegelfärgade frön. Från den expeditionen har jag också skrivit en reseskildring från Fijiöarna.

Hawaii och Honolulu — ja, inte är det, särskilt inte Honolulu, vad det var för trettio år sedan. Ryktena om att huvudstaden är turist-[illegible] söderhav är nog sanna, men å andra sidan finns det ganska ursprungliga och oförstörda öar i [illegible]ten. Tack vare flygtrafiken [illegible] man dem lätt — flyget är väl [illegible] här nere och så billigt, [illegible] utbyg[illegible] [illegible]arna nästan helt måst över- [illegible] fraktfart. Jag bor 40 miles [illegible] Honolulu, upplevde Pearl [illegible] och kan intyga, att det [illegible] den stora procenten av ja- [illegible] ingar på öarna under kriget [illegible] huvud taget inte fanns några quislingar.

127. Families of Bivalves in Hawaii (Continued)

Hon. Adv. 9/15/57

Continuing the list of families of bivalves represented in waters about the Hawaiian chain, the scientific name is followed by the common name and number of the installment in this series in which the group is discussed:

Order HETERODONTA:

Family Carditidae, arcinella shells, 116.

Family Condylocardiidae, little carditas, deepsea.

Family Glossidae (Isocardiidae), rare, deep sea.

Family Trapeziidae, trapezium shells, 62.

Family Sportellidae, unlike tooth shells, 63.

Family Erycinidae (also Leptonidae, Keliidae), lepton shells, 117.

* * *

Family Lucinidae, lucinas, saucer or platter shells, 61.

Family Montacutidae, small rare shells.

Family Galeommatidae, small, uncommon.

Family Chamidae, rock oysters, 60.

Family Cardiidae, cockles, 46.

Family Veneridae, venus clams, 41.

Family Mesodesmatidae, small, uncommon.

Family Mactridae, mactra or trough shells, 118.

Family Asaphidae (Gariidae), garid or sunset shells, 119.

Family Semelidae, semele shells, 120.

Family Tellinidae, tellin shells, 47.

Order ADAPEDONTA (shells which bore into soft rocks and wood):

Family Hiatellidae (Saxicavidae), rock-borers, 121.

Family Gastrochaenidae, gaper rock-boring clams, 122.

Family Pholadidae, wood boring angel's wings, 124.

Family Teredinidae, shipworms, teredos, 125.

This completes the present series of notes on Hawaiian marine mollusks. Beginning next week this column will discuss Hawaiian land and fresh water shells.

Two Possible Plans For Diamond Head

Hon. Adv. 11/18/59

By DR. OTTO DEGENER

I read with interest in the Sunday edition that Governor Quinn plans "to review a suggestion for a Diamond Head park that is a carry-over from the previous administration." The suggested Diamond Head Park is the maturely worked out brainchild of Mr. G. C. Munro. Having scrambled on foot about its slopes and peeked from planes into its bowl-like interior, I wish to draw Governor Quinn's attention to an alternate plan for Diamond Head that comes to mind.

* * * *

The Munro Plan worked out in full, as I understand, would keep Diamond Head intact, covering its slopes with native Hawaiian plants, many on the verge of extinction. The area would be covered with **wiliwili** trees whose blossoms vary from yellow through orange to Chinese red and, incidentally, furnish abundant nectar to thirsty birds. Under such an upper story of trees would be planted yellow-flowered **nehe** and **kokoolau**, the Hawaiian tis; and the **aalii** with 3- or 4-winged capsules coming in varying shades of brown and red. Flat on the ground would grow fleshy leaved, native "moss portulacas" with flowers a brilliant scarlet or a snowy white with a delicate fringe of pink.

The native **puakala**, or poppy, with bluish, thistle like leaves; and the night-blooming **puapilo**, or Hawaiian caper, both with white flowers, would grow on sunny ledges. Here and there among the **wiliwili** one would see the false sandalwood or **naio**, a pretty bush with dense clusters of pink flowers and yellow fruits; and the true sandalwoods with yellowish or claret flowers, followed by purplish berries. Dense clumps of shiny leaved **Canthium** with fragrant clusters of white, bee visited flowers; and **ohia lehua** trees could be backdrops for native yellow hibiscus and brick red **kokias**.

* * * *

The peculiar half-flower or Kilauea **naupaka**; and the Hawaiian cotton with velvety leaves, sulphur yellow flowers and snuff colored lint would tend to encroach over the volcanic cinder paths.

But why add to the present list of plants adapted to Diamond Head or Leahi when the kind reader is already bored to death with a project that merely adds beauty to an almost typically American city when beautiful Polynesian vistas are everywhere beyond its environs? I want him to read the alternate plan, based not on idealism but on practical considerations. This plan will reduce the Territory's tax load and thus indirectly add dollars and cents to the pockets of every resident of Oahu!

Diamond Head, with more and more house lots to be chopped into its flanks, threatens to become an unsightly volcanic pimple on the face of our fair city. Why mar this crater for the paltry few hundred thousand dollars gained from the sale of such lots when we can obliterate the entire eye sore and thereby gain as many millions? This heap consists of enormous quantities of upheaved sea sand worth $5 per cubic yard, cinder worth almost as much, and dried ashes and muds of somewhat lesser value.

Why retain such a priceless heap comparatively inactive and worthless in the midst of our city when its various ingredients sold for proper distribution can nullify our taxes? Bulldozers, giving employment to tax payers and voters, can readily haul the sand **makai** in Diamond Head to concrete manufacturers and to Waikiki to augment its beaches.

* * * *

The cinders, further **mauka**, have valuable industrial uses, while the ashes and muds, with a proper reef-edge retaining wall, can reclaim the mudflats extending from Black Point to Koko Head. Think of the vast area then available for residential lots, of multimillion dollar value as any realtor will substantiate. Do not overlook the several square miles of flat ground remaining where once useless, scarred Diamond Head had stood! This could be adapted for additional lucrative hotel sites or for a parimutuel race track and a small, but fair imitation of Coney Island with Ferris wheels, roller-coasters and booths hawking frankfurters and pink lemonade.

If we want to retard our present great rush to become a second Miami, devoid of Diamond Head, lei ladies and other features typically Hawaiian, should we not try improving the unique assets we now possess? If Diamond Head's trademark value to the Islands outweighs its value as sand, cinder and fill is it not worth making into a public park?

* * * *

The Munro plan within five years can make of Diamond Head a unique area of beauty and interest, a native garden topped by colorful **wiliwili** trees visible from afar by every passenger on a plane passing between Honolulu and the Continental United States. We trust Goveror Quinn will not sacrifice the Hawaiians' ancient Leahi to commercialism but will establish it as a public park to be administered along the wise lines already begun by G. C. Munro.

LIKES THE DEGENER LETTER

Editor The Advertiser: 11/22/57

I wish to kokua the fine article by Dr. Otto Degener (Adv. Nov. 18) concerning the desecration of Diamond Head, begun by ex-Gov. King's sale of the Koko Head section. Each time I drive by there I burn with indignation that Hawaii should be so lacking in appreciation of its beautiful, historical landmarks. The money received from that sale was not reinvested but merely dumped into the treasury to be eaten up by current expenses, thus leaving the islands poorer in both financial assets and cultural beauty. It is to be hoped that Governor Quinn will show greater wisdom.

All who cherish the memory of a fast-disappearing Hawaii should rally to the support of that gallant, 92-year-old, far-sighted and patriotic citizen, George C. Munro, who conceived the plan for making the slopes of Diamond Head a vast botanical garden of Polynesian foliage, has assisted in the actual planting done to date, and now so ardently urges its development and perpetuation. His vision and patriotic zeal put to shame those who would destroy the last vestige of our Hawaii Nei.

I hope that Governor Quinn will sign immediately the Executive Order (not signed by the previous governor) which will establish the botanical garden as planned.

Nov. 18 KAMAAINA

Living Museum at Diamond Head

Hon. Adv. 11/27/57

By GEORGE C. MUNRO

Though they may be giving me credit for more than is my due I feel grateful to Dr. Otto Degener for his article in The Advertiser of 18th and the letter of Kamaaina in that of the 22nd. Any plea for Old Leahi is treasured.

It will not be possible to change all of Diamond Head back to native vegetation but parts can be completely changed and so far Na Laau Hawaii has made a good start.

In regard to the 9,000 wiliwili seeds planted in 1950 and 1951 a few thousand planted on unsuitable ground died during the drought years. But judging from the small area that has been under observation a few thousand more have thrived and a specimen can be shown that is ten feet high with a branch spread of 12 feet. Trees from seed broadcasted on the surface and given no cover in 1953 or '54 are now several feet high and all under observation during the week before the rain of the 21st were sprouting fresh shoots along the branches.

This surely shows that when they come to flowering stage they will flower in November even with only light showers. That this tree will start from broadcasted seed and the young plants compete with foreign trees is something to know for the improvement of Diamond Head, and when a kukui tree seed will germinate and the succeeding plant flourish through two dry seasons with scarcely any watering many dryland trees will succeed.

The extension of building on the east side of Diamond Head no doubt destroyed a number of wiliwili trees and further extension if continued will destroy many more. Yet many will be left that were planted by my younger friends at higher levels and at Na Laau Hawaii where can be seen the ones from broadcasted seed. This "living museum" must be saved and from it other like groves can be made and Leahi eventually become a helpful tourist attraction.

New Volume By Salty Plant Scientist

Hon. Adv. 3/19/58

By HUGH LYTLE

Botanists ought to be considered the most important people in the world for they are specialists in plant life, without which no animal life, including man himself, could exist. Actually you don't hear much about them. The atom smashers get the play, for violent departure from life is more dramatic than the sight of green grass rippling in the wind —even if the grass is sugar cane, corn or rice.

DR. DEGENER

Botanists sometimes combine adventure with scholarship, as when plant explorers range the world. One who has done this and written about the adventure as well as the scientific findings is Dr. Otto Degener, whose fifth volume on Hawaiian Flora is just off the press.

Dr. Degener belongs to that group of botanists who record and describe. They are called taxonomists, a word which comes from the Greek and means to put into order. Dr. Degener has the seemingly impossible task of cataloging and picturing all the plants that grow in Hawaii. Asked how long he will keep it up, he answered: "Until I drop."

* * * *

Volume Five of "Flora Hawaiiensis," printed in loose leaf form is extremely technical—it has to be. But interspersed with the Latin and Greek nomenclature are salty observations that are worth much effort to find. The Albizia tree may be "deciduous, glabrate and shallow rooted," but classifier Degener also notes that the Filipinos call it the Woman's Tongue tree. This is because it bears numerous, dry pods which move and rattle in the wind and clack away at a great rate.

* * * *

Then he is apt to explain that the bark of the Hawaiian Sumach is good for tanning and that Gerrit P. Judd sent some to Boston in 1868 in an attempt to start a new industry. He notes that William Ellis found papaya here in 1818 and that the giant herb now furnishes a heart stimulant, a beer clarifier and a process for reducing the shrinkage of wool. There are other, better-known properties. That stuff that oozes out of a cut plumeria stem contains latex, but not enough to make rubber. The jacaranda could become a serious, though beautiful, pest because the winged seeds take root wherever they land.

The enterprise, in which Dr. and Mrs. Degener collaborate, has been made possible by support of the National Science Foundation, Washington.

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Other work by Dr. Degener includes an account of his eight months in Fiji with the Archbold "Cheng Ho" expedition, published under the title "Naturalist's South Pacific Expedition: Fiji." This contains a remarkable chapter on cannibalism that is worth the price of the book.

Still another exceptional book is Dr. Degener's volume on plants of the Hawaii National Park and the part they played in the culture of the ancient Hawaiians.

All are the works of an individualist who seems to delight in stirring controversy while engaged in a branch of science that goes clear back to Theophrastus.

Haven Proposed for Hawaiian Plants

Christian Science Monitor 1/20/58

Botanist Pushes Project

By Janet Faure
Special to The Christian Science Monitor

Honolulu

As home subdivisions are leveling the lower flanks of Honolulu's famed landmark, Diamond Head crater, naturalists are attempting to save part of its more accessible slopes for a "living museum" of native Hawaiian plants.

At the instigation of a remarkable, self-taught pioneer botanist, George C. Munro, the Territorial Board of Agriculture and Forestry has officially approved sponsorship of his "Na Laau Hawaii" ("vegetation belonging to Hawaii"), but the project has run into some thick interdepartmental underbrush.

Started Five Years Ago

Although both former Gov. Samuel Wilder King and new Gov. William P. Quinn have gone on record as favoring the natural park on Diamond Head, land surveys and steps to transfer the area from the Territorial Land Commissioner's jurisdiction to the Board of Agriculture and Forestry, under an executive order, have not been expedited. There has been some criticism recently of commercial land development on Diamond Head, which could provide house lots on perhaps the lower third of its 760-foot elevation.

Mr. Munro started the native plant refuge five years ago, with permission from the National Guard of Hawaii, whose headquarters, Fort Ruger, lies along the northeastern base of the extinct crater slopes. The crater itself is used for a rifle range, and the entire area is closed to the public.

However, Mr. Munro's planted area is on the Waikiki side of the crater, just above Diamond Head Circle with some of the finest homes in Honolulu. The tile roofs of the Walter Dillingham estate are just below the native plant reserve, which commands a view of Kapiolani Park and Waikiki beach below, and the rocky peak of Diamond Head above.

The area can be reached by a half-mile-long footpath, and under territorial development would be a pleasant, easy walk for tourists. For the past few years, Mr. Munro has been hiking up two or three times a week with the aid of two walking sticks, clearing the path as he goes. His own gardener does the heavy work of clearing, planting, and irrigating, and the Hawaii Audubon Society pays for labor and supplies.

In Hawaii Since 1890

Mr. Munro, an Australian, came to Hawaii in 1890, and recalls that on Dec. 17 of that year he walked from Honolulu to the top of Tantalus and down into Pauoa valley.

"Hawaiian forest trails have been fascinating to me ever," he says—and now he has been commemorated for his pioneer conservation work by the Munro Trail on Lanaihale, Lanai.

Mr. Munro was manager for large ranches on Lanai, Molokai, and Kauai for 34 years. He came to Hawaii as an assistant with the Lord Rothschild bird collecting expedition—he taught himself taxidermy as a boy—and his career has included several trips for ornithological research. He has left valuable bird collections in Australian and Hawaiian museums.

In 1950, when he began planting more than 50 native trees and plants in the Diamond Head area, Mr. Munro also began an educational letter-writing campaign via the "letters to the editor" columns in a Honolulu newspaper. His letters are treasures of botanical information on Hawaii.

An associate, Dr. Otto Degener, a botanist who does experimental work at the Bishop Museum, has written the following colorful projection of the native plant reserve, which will require at least three years intensive development from its present embryonic state:

"The area would be covered with wiliwili. Under these trees (with red and yellow flowers) would be yellow-flowered nehi and kokoolau and aalii in brown and red. On the ground there would be moss portulaca with white and pink or red flowers. The native puakala, or poppy, with bluish, thistlelike leaves, and the night-blooming puapilo, both with white flowers, would grow on sunny ledges.

Humorous Sidelight

"Here and there among the wiliwili one would see the false sandalwood or naio, a pretty bush with dense clusters of pink flowers and yellow fruits, and the true sandalwoods with yellowish or claret flowers, followed by purplish berries.

"Dense clumps of shiny-leaved Canthium with fragrant clusters of white, bee-visited flowers, and ohia lehua trees could be backdrops for native yellow hibiscus and brick-red kokias. The peculiar half-flower of Kilauea, naupaka, and the Hawaiian cotton with velvety leaves, sulphur yellow flowers and snuffed-colored linf would tend to encroach on the volcanic cinder paths."

Dr. Degener humorously suggested an alternative to this tropical picture: level Diamond Head, sell its upheaved seasand which is now worth $5 a cubic foot, process its cinder worth almost as much, bulldoze the entire area to build up other beaches, and then use the leveled area for subdivisions, a race track, or an amusement park.

Meanwhile Mr. Munro continues his determined but slow inspection trips of "Na Laau Hawaii," and writes on its progress through wet and dry seasons.

"When the trees and plants are established, it will add considerably to the beauty of the hillside as viewed from Waikiki," he forsees. "It is already furnishing some very interesting studies on the rotation of plants.

"I hope that all lovers of the things of old Hawaii, botanists and plant lovers will help to persuade our officials to have this small portion set aside and dedicated to the preservation of the endemic plants of Hawaii."

TOKYO, Dec. 8 (UP)—The Pearl Harbor attack might have never happened, and possibly the Pacific war could have been averted, if the Tokyo telegraph office had not taken 10 hours to deliver an urgent message from President Roosevelt to Emperor Hirohito, a Tokyo newspaper editor wrote today. Hon. Advt.

Kimpei Sheba, editor of the English language Asahi Evening News, reviewed the final, frantic hours of diplomatic efforts to stop the fateful attack that plunged the United States, Japan and most of Asia into war. He recorded the little-known human errors and delays which may have been decisive in history.

About 1 a.m. Sunday, Dec. 7 (3 p.m. Dec. 7 in Tokyo), a radio broadcast from the United States heard by U.S. Ambassador Joseph Grew in Tokyo reported that Mr. Roosevelt had sent an urgent message to Hirohito.

Not until 10 p.m. Tokyo time did a brief, triple-priority telegram from Secretary of State Cordell Hull reach Grew, alerting him to deliver immediately to the emperor a message which would follow. 12/9/58

THE PRESIDENT'S coded message arrived at 11:30 p.m. In it Mr. Roosevelt took a conciliatory line, made no mention of earlier tough demand which Japan could not accept, and asked only for Japanese withdrawal from Indochina. Grew was elated and hoped this would mean a new chance for peace.

The call came too late.

Sheba concludes:

"If President Roosevelt's telegram to Hirohito had been relivered a few hours earlier, this might have changed the whole course of history.

"Actually, the triple priority telegram which Grew received at 10:30 p.m. was in the Tokyo central telegraph office at noon, and the President's message was received an hour later. Why they took such a long time reaching the embassy is a mystery to this very day.

* * *

NOBODY AT THE telegraph office knew that war would break out the next day. At the war office, officers of the intelligence section, who were on Sunday duty, had also not been told. Had they known that war was to start the next day, the telegrams would not have been delivered at all.

"One man living today might know, for he was the intelligence officer on duty on that fateful Sunday. He now runs a Turkish bath establishment in Tokyo. Contacted by Asahi Evening news, he played it dumb.

"'It was so long ago. I do not remember,' is all he would say."

In a small shop on South King St., an entomologist named Samuel K. Kamaka Jr. labors with band saws and spray guns to manufacturer "fleas." Hon. Adv.

The shop is the ukulele factory of Kamaka & Sons Enterprises, largest uke maker in the Islands. 12/9/58

Mr. Kamaka, an amiable 34 - year - old businessman-craftsman - scientist, is the managing partner.

He spends his days at the shop as an artisan working with the skill handed down to him by his father.

But his spare time is spent on research for a Ph.D. thesis, "Translocation of a Systemic Insecticide in Nursery Plants."

His father, inventor of the "pineapple" - shaped ukulele, made the instruments for more than 35 years.

* * *

THE UKE WAS introduced to Hawaii in 1879 by a Portuguese immigrant named Joao Fernandez as the "braginho," Portuguese for the four-string instrument. But the Hawaiians called it "ukulele," a reference to the flea suggested by the jumping motion of the hand in strumming.

Sam has a lot of competition in the ukulele-making

SAM K. KAMAKA JR.
An Ukulele Takes Shape

industry. Locally, there's Sam Chang, who also makes guitars; Ah Tau Kam of Kam's Ukulele Shop, and Kaniela Makini of Makini's Ukulele Shop.

New Volume By Salty Plant Scientist

By HUGH LYTLE

Botanists ought to be considered the most important people in the world for they are specialists in plant life, without which no animal life, including man himself, could exist. Actually you don't hear much about them. The atom smashers get the play, for violent departure from life is more dramatic than the sight of green grass rippling in the wind —even if the grass is sugar cane, corn or rice.

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Of all the shipwrecks mentioned in Kauai's history, probably the most noted is that of the ill-fated Pride of Hawaii, bought in 1820 by King Liholiho, Kamehameha's heir, for about $80,000 worth of sandalwood.

The 190-ton brig, proudly launched in Salem, Mass. in 1816 as Cleopatra's Barge, came to an inglorious end when an apparently over-celebrating crew put her aground at Hanalei Bay in 1824.

A comparative handful of men did the damage; thousands more, tugging at hau-bark cables, couldn't undo it.

Cleopatra's Barge, as recounted in Koamalu, was built by the Crowninshields at a cost of about $50,000. Modeled after the famous Yankee Clippers, she was one of the first de luxe American yachts.

It was in 1821 that the ship, re-christened Pride of Hawaii, made her first visit to Kauai. King Liholiho came over in an open sailboat; the Pride of Hawaii and another brig followed.

Liholiho, with Kauai's King Kaumualii and a following of chiefs and others, set off on a tour around Kauai. The trip took 40 days.

It was during this visit by Liholiho that Kaumualii was kidnaped and taken to Oahu to live out the rest of his days. That was after the royal party had returned to Kaumualii's capital, Waimea.

Kaumualii was aboard one of the ships at Liholiho's invitation. Then one night Liholiho issued an order for the anchor to be raised, and set sail for Honolulu.

It was in May, 1824, that the Pride of Hawaii made a return visit to Kauai and came to grief, lying on its side in 10 feet of water near the western side of the bay.

Attempts to salvage the vessel were soon under way. Possibly 4,000 people gathered at Hanalei for the big project. Swimmers and divers removed what they could from the yacht —hundreds of others gathered hau bark, made it into ropes and finally into three large cables.

These were fastened to the mainmast. Then the swarm of natives lined up along the cables, awaiting the instructions of Kiaimakani (Windwatcher), an old chief formerly from Oahu.

According to the account of the Rev. Hiram Bingham, early-day missionary who witnessed the event, Kiaimakani "instructed them to grasp the ropes firmly, rise together at the signal, and leaning inland, to look and draw straight forward without looking backwards toward the vessel. They being thus marshaled, remained quiet for some minutes. . ."

Plans were to first roll the stranded Pride of Hawaii over the reef, to the chanting of an old mele (song), used when drawing a tree for a canoe from the forest to the sea. The chant to unify the efforts of the thousands began.

As reported by Bingham:

"The multitude quietly listening some six or eight minutes, at a particular turn or passage in the song indicating the order to march, rose together, and as the song continued with increasing volubility and force, slowly moved forward in silence; and all strained their huge ropes, tugging together to heave up the vessel.

"The brig felt their power, rolled up slowly towards the shore, upon her keel, till her side came firmly against the rock, and there instantly stopped: but the immense team moved on unchecked; and the mainmast broke and fell with its shrouds being taken off by the cable drawn by unaided muscular strength. The hull instantly rolled back to her former place, and was considered irrecoverable."

And that was the end of Cleopatra's Barge.

William

DRURY

COLUMNIST ● CARTOONIST

HAWAII is up to its ears in frangipani. For decades Islanders have been weaving this scented blossom into leis to hang on tourists. And for decades they have been blissfully calling it plumeria.

Pronounced plume area.

That name might have endured for ever if a columnist of the Honolulu Star-Bulletin, thumbing through Webster the other day, had not discovered it was wrong.

Chuck Frankel gave a frank chuckle and reached for his typewriter.

"It's plumiera," he wrote, "not plumeria."

Ploo-me-air-a, not plume area.

Named for the French botanist, Charles Plumier.

Pronounced Sharl Ploo-me-air.

Certain old-timers got annoyed at this and wrote angry letters to the newspaper, the loudest voice raised in protest being that of a noted botanist, Dr. Otto Degener, who has written books on the subject of Pacific flora and knows plume area when he sees it.

IT SO HAPPENS I have read one of Dr. Degener's books — a treatise called "Naturalist's South Pacific Expedition: Fiji" — and found it vastly amusing in spite of its academic title.

In 1940, Dr. Degener went to Fiji to study the local vegetation and to record his findings for posterity. What he actually produced, however, was hardly a learned volume on Fijian flora so much as a remarkably unscientific analysis of a rather peculiar species of fauna found there.

That animal known as The Englishman.

There are those who cling faithfully to the image of an Englishman as a rather pompous sort of chump, with buck teeth, an absurdly comical manner of speech and absolutely no sense of humor, who eats atrociously bad food, drinks endless cups of tea (never coffee), and lives in a perpetual blanket of fog, in which he somehow manages to play cricket.

And that this feeble, foolish, fumbling fathead, presumably through sheer bungling, subdued one-fifth of the world's surface with his cricket bat and brutally subjected untold millions to a life of abject slavery.

Dr. Degener seems satisfied with this caricature.

The very background music to his book is a hymn of hate which sounds curiously like "Gott Strafe England."

DR. DEGENER is a "somebody told me" writer. Hearsay constitutes the greater source of his information.

For a scientist he seems strangely willing to accept in good faith the idle gossip of beachcombers and, what is worse, the official opinions of minor British colonial officers, who, since they are feeble, foolish, fumbling fatheads, should be regarded with suspicion.

That is why I find his book hilarious.

It is filled with classical errors, all conforming beautifully — a little too beautifully — to the accepted British image, the very least of which is the author's sweeping statement that the word "bloody" in British communities is "extremely obscene," which it bloody well isn't.

It was never more than a very mild oath — equal to "darn" in America — and in these enlightened days it is not even that.

Mind you, I wouldn't take MY word for it. Everybody knows where I was born, and therefore anything I say should be taken with a jolly old pinch of salt.

Dontcherknow.

THE GOOD DOCTOR encountered kindness from Britons now and then, but he does not waste much space on these. Instead, he dwells at length on his unhappy experiences with a "fat, beef-faced white snob" he calls Orkney. And offers that one bad apple as proof that the whole barrel must be rotten.

One might just as carelessly classify all Americans as gangsters because of Al Capone.

From all this colonial wickedness, Dr. Degener himself emerges as a sort of "white father" — he actually uses the term — to the poor, benighted, downtrodden heathen.

I love his description of the wampum he bought in Honolulu "for trading with the natives" before he sailed for Fiji. Thirty dollars worth of costume jewelry, socks and dime bottles of perfume. Oddly enough, nobody wanted to work for such valuable trinkets. They asked for hard cash.

The British had corrupted them.

IN ORDER not to destroy Dr. Degener's picture of the English as being utterly unprincipled, willful, pigheaded and perverse, I think I shall stick to Webster's spelling of ploo-me-air-a.

Not that it really matters.

A rose by any other name has the same smell, unless it be the Tudor rose of England.

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Die Samenoberfläche aller Juncus-Arten besteht aus starren, jedoch gut flottierbaren Lipoiden und zeichnet sich durch eine etwas erschwerte Benetzungsfähigkeit aus. Die Oberfläche von Federn zeigt die gleiche Lipoidnatur. Kommen zwischen feste Lipoide halbflüssige Fette oder salbenartige Körper, so ist ein Verkleben möglich. Das Bürzelfett von Zugvögeln ermöglicht auf diese Weise das Anheften und den weiten Transport der Samen.

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Manuskript abgeschlossen am 1. Februar 1958.

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...be gradually shorn of their despotic powers. ...
...should be parceled out among the individual ...
... farming or stock raising. It is hardly ne...
...kind of justice should be meted out in the ...
...ter what his racial background. The present ...

All early writers tell of the dry and dusty condition of Honolulu before there was water for irrigation.

At Hilo he was present at the organization of a temperance society at which an "old drunk" was the chief speaker. Eleven out of the 14 present signed the pledge. He visited Mrs. Coan's school for girls and the Lyman school for boys, where he was pleased to see the 55 boys spending part of the time at work of different kinds.

Cave Is Visited

Hearing of Kaahumanu's cave he set out with a guide to see it, and after an arduous walk through thick brush and up and down steep places they came to the spot and entered the cave.

The story told him was that Kamehameha one day saw the sister of Kaahumanu and was so pleased with her appearance he ordered her to be taken to his house. This aroused the jealous spirit of Kaahumanu, who would be second to no one, so she made up her mind to hide herself.

She stole away and hid in this cave, and when she was missed there was great excitement, so that the whole village turned out to try to find her.

They failed, but what men could not do, a favorite dog did.

By following her footsteps, the dog came to the precipitous place which led to the cave. Here he ran backward and forward, and the natives descended and found the cave and Kaahumanu secreted in it. This was seldom mentioned by natives, and a haole who had lived in Hilo 10 years had never heard it.

He visited the tabu spring of Kamehameha, and on his way back he saw a small grass house with a cross surmounting it. He was told it was a Roman Catholic church, and the door being open he entered.

The floor mats were rolled up and at the end of the room was an altar with a white tapa frontal and pieces of the same material hung behind it and at the sides.

There were wreaths of maile and some common pictures of the Savior and Sts. Mary and Joseph. The church looked as if it had not been used for some time.

This was the chapel which Henry M. Lyman saw the same year, he being then 9 years old. With his Protestant training, when he and his brother were told what it was, he wrote in his Hawaiian Yesterdays: "We were stricken with terror and fled from the spot, lest we might somehow suffer martyrdom like those pictured in Fox's Book of Martyrs."

Before starting for Kau he saw and heard many interesting things the story of which must wait till next Saturday.

Did You Know?

Hon. Adv. 10/23/58

By MYRLE CLARK

Our Honolulu Academy of Arts has given old-timers as well as newcomers keen delight in the opening of Old Plantation to the public. Local folk are becoming increasingly interested in our trees and plants. Visitors are usually enthusiastic.

On the ewa side of the lanai of the old homestead is to be seen a Tahitian kou tree. This tree stands approximately 25 feet high and is highly revered by old-time Hawaiians who made its soft beautifully grained wood into dishes and calabashes.

In the yards of some of the old-timers, the Hawaiian variety of kou may be seen. This variety has brighter green leaves and gayer red flowers—so say the Hawaiians.

A camphor tree may be found in both rows of Old Plantation trees as you stand on the lanai and look toward King street. This tree is a handsome tree which hails from China and Japan. For the folks from Boston, the botanical name is Cinnamomum camphora. Camphor may be used medicinally, in the manufacture of perfume and in celluloid.

The teak tree may live as long as 200 years. It grows in the forests of India eastward to Java. This tree may be seen in the left hand row of trees as you stand on the lanai of the Old Plantation. It is almost as valuable as mahogany in the manufacture of furniture.

—HIRONPOTO

MEET DR. DEGENER, DR. DEGENER

She marvels supermarkets, he studies South Pacific flora.

GERMAN-BORN BOTANIST NOTES 'MUCH JUICES' HERE

"Juice, so much juice, and all one does is reach out the hand for a can!" marvels German-born Mrs. Otto Degener, newly introduced to the American supermarket and home freezer.

Mrs. Degener and her husband, both internationally known botanists, have been visiting his brother and sister-in-law, the Armin Degeners of North Hollywood, en route to their home in Hawaii.

Dr. Degener's specialty is the vegetation of the South Pacific. Explorer, writer and teacher, he is also a consultant to the Civil Aeronautics Administration.

One of his recent jobs has been to recommend vegetation for Canton Island, an arid speck of land on the equator with such white sand it blinds the fliers and service personnel stationed there.

His wife, who is still a bride, will be seeing Pacific flora in their native habitat for the first time when she begins housekeeping in Honolulu.

As Dr. I. Hansen, German botanist of note, she corresponded for several years with Dr. Degener. When visiting Germany last year he decided to call on his colleague, whom he pictured as "a nice old graybeard."

Their meeting was, to say the least, a surprise. But apparently not a shock—for romance blossomed. Now reportedly not a shock—for romance blossomed. Now references in scientific publications will have to distinguish between the work of I. Degener and O. Degener.

Hon. Adv. 3/11/56

Did You Know?

By MYRLE CLARK

Isn't the Sunshine Tree a dandy name for a tree growing in sunny Hawaii? (We hope it isn't raining today.) This is one of the Tecoma trees and its original home is Tropical America. Its glorious yellow flowers cover most of the tree and the famous one on School St., near Nuuanu Ave. and the Foster Gardens, has brought pleasure to thousands including many artists who delight in painting it. Since 1922 this tree has developed seeds which germinate. Soon there will be many more of the Sunshine trees to brighten the landscape. The Parks Board has planted a number in the upper sections of the Aina Haina district, and there are a sprinkling of the gay trees in other areas. A young tree is putting on its spring showing just now. It is not far from The Advertiser building on King St. The blooming period of these beautiful trees seems to differ with the years. Our "cold snap" may have made them a bit late this year.

Another Sunshine tree very popular with visitors is near the Moanalua Gardens. Special tours stop here frequently for color photography enthusiasts.

Emma Rooke Weds Kamehameha IV With Elaborate Ceremony In 1856

By H. B. RESTARICK

(This is one of a series of articles by Bishop Restarick, narrating events and describing personalities of the early days of Hawaii and the Pacific region. One appears each Saturday in this paper.)

Since an article appeared in this column May 2 telling the story of the visit of Queen Emma to England, several Hawaiians have asked me to write about her marriage.

Many of this generation will need to be told something of her history. The future queen was the granddaughter of the Englishman, John Young, who landed in Hawaii in 1790. Becoming the friend and adviser of Kamehameha I he was made a kapu chief and married a niece of the king. Queen Emma's mother was Fanny Young Kekelaokalani, and her father the high chief Naea.

Their daughter, Emma, was born January 2, 1836, in a house makai of the site of the present Roman Catholic cathedral. According to a native custom, before her birth she had been promised to her mother's sister, Grace Kamaikui, who had married Dr. T. C. B. Rooke, an Englishman of rare cultivation and refinement. He was born in 1806 and had studied medicine in London. Having had a disagreement with relatives he left home and took up his residence in Honolulu in 1830, where he became a friend of the royal family.

When Emma was received into Dr. Rooke's home he devoted himself to the care and education of his adopted daughter, who was always called Emma Rooke. At an early age she was sent to the Royal school where she was confided to the care of those excellent people, Mr. and Mrs. C. M. Cooke. Among her companions at school were her future husband, Alexander Liholiho, later Kamehameha IV, and his brother, Lot, Kamehameha V. There were also Lunalilo, Bernice Pauahi (Mrs. Charles R. Bishop) and many other chiefs.

Was Great Reader

At the age of 14, Emma returned home and her education was entrusted to Mrs. von Pfister, an educated and cultured Englishwoman. Emma was a great reader in the excellent library of the doctor and under his guidance she became remarkably well versed in English literature and history.

There was general satisfaction when it was known that the young king, Kamehameha IV, had chosen Emma Rooke for his bride. Elaborate preparations were made for the wedding. The date was set for January 19, 1856, and the place Kawaiahao church. The building was decorated until it presented a beautiful appearance. Festoons of greenery were hung from the roof and gallery. The ends of the pews, the pulpit, the sounding board and the pillars were profusely decorated with flowers, under the direction of Mr. Webster, who had charge of the king's garden, which was situated where St. Andrew's cathedral now stands.

In front of the pulpit a large platform had been erected, high enough for all in the church to see the ceremony. A flight of steps led up to it from the main aisle, and back of it were hangings of scarlet and gold. At an early hour the church was filled. The dresses of the women added brightness to the scene. The style and richness of the gowns elicited surprise from strangers who were present.

From the tower the royal standard floated and the whole town was adorned with so many flags that people wondered where they all came from. The road leading from the palace to the church was covered with grass and rushes and lined with soldiers behind whom spectators thronged.

Firing of Royal Salute

Shortly after 11 a. m., the procession of the bride, consisting of several carriages, with grooms at the heads of the horses, arrived before the palace gate, and the bridegroom with his equipage came out and joined the procession. The king was in a carriage with his brother, the aides were on horseback and Captain Ford's cavalry formed an escort.

As the king issued from the palace gate the firing of the royal salute began and as the royal company proceeded toward the church an ancient custom of obeisance to high chiefs was performed. The soldiers by order and the spectators from a spontaneous loyalty prostrated themselves as the royal personages passed. The hulumanus (favorite men around a chief) took off their outer garments and threw them under the horses feet.

On arrival at the church as the procession advanced up the aisle the palace band played "God Save the King." The bride and her company on ascending the platform took their positions to the right and his majesty and suite occupied the space on the other side. The marriage service of the Episcopal church was read in English and Hawaiian by the Rev. Richard Armstrong. This lengthened the ceremony but made it more impressive.

The king was in full uniform. The bride wore a gown of Parisian origin, made of heavy white silk with three richly embroidered flounces. The veil was of Brussels point lace confined to the hair with roses and orange blossoms. Her jewelry consisted of a superb set of diamonds beautifully designed. The whole effect was happy in the extreme and nothing could have been more elegant or more suited to her figure. The bridesmaids were three, Princess Victoria Kamamalu, Lydia Kamakaeha (later Queen Liliuokalani) and Miss Mary Pitman. Dr. Rooke gave away the bride.

As the bridal party left the church, a salute was fired by the shore battery and another from the French brig-of-war Alcibiade. The royal pair and attendants returned to the palace where their majesties were waited upon by the diplomatic corps and by Captain Marigney of the Alcibiade. Monsieur Perrin, commissioner of France, in the name of the diplomatic corps addressed the king and queen, conveying the felicitations of his government. In the course of his brief remarks he said:

"In the charm and goodness of heart which distinguish the partner this day chosen by your majesty, we see with pleasure new guarantees of happiness and prosperity for the Hawaiian nation. For this we offer Providence our sincerest thanks."

L. H. Anthon, the Danish consul, spoke a few words and then members of the house of nobles and the privy council were presented to the king and queen.

Grand Ball That Night

In the evening there was a grand ball to which the invitations had been generally extended. More than 400 attended. The palace had been closed for some time in order that it might be remodeled and furnished. (This palace was the one which preceded the present building. It was erected in 1843 and razed in 1878 to make room for the present structure.) A special agent had been sent to the United States to purchase all that was necessary for refurnishing the palace that it might be ready for the bride.

The building and grounds were illuminated and presented a beautiful sight. At the principal gate a triumphal arch had been erected surmounted by a crown and the royal coat of arms. On the trees of the avenue leading from the gate to the palace lamps were hung and on each of them a motto was inscribed. The large verandah and the whole building were bright with lights. The ensemble produced a fairy-like effect.

The supper tables were laid in a circular tent large enough to accommodate the many guests. All the grounds were strewn with grass and soldiers were drawn up here and there standing like statues in uniform. To W. C. Parke and Paul Emmert was due the credit of managing the illumination and decoration of the palace grounds.

Queen Emma's evening dress was an exquisite airy fabric of lace embroidered in white silk interspersed with marabou feathers and worn over an underdress of satin. The first quadrille was led by the king and queen. Princess Victoria Kamamalu and Monsieur Perrin; Prince Lot Kamehameha and Miss Hamelin, Mr. Wyllie and Miss Miller; Mrs. Charles R. Bishop and Captain Marigney.

Lot Handled Entertainment

As the guests arrived they were presented to their majesties by Prince Lot Kamehameha, made their bows and offered their felicitations. To his promptness and tact in ordering and arranging details was ascribed the perfect order which prevailed. The ease with which the prince directed the entertainment made it a delightful evening.

The supper was ample and the delicacies were enjoyed. Dancing continued until a late hour, the guests being reluctant to depart.

Foreigners were amazed at the conduct of the whole ceremony both at the wedding and the entertainment at the palace. The dresses of the ladies, and the punctilious etiquette observed reminded them of European courts. They had not expected to see, in these remote islands, such splendor and such knowledge of court procedure.

In the town the day had been universally observed by feasting and in the afternoon by riding. At night every house where it was possible was illuminated, each seeming to vie with the other in producing a pleasing effect. Monsieur Victor's Hotel de France was pronounced particularly attractive.

It was a great gala day and it closed with a united aloha for the royal pair whose wedding day they hoped was the portent of a happy reign.

After the death of her husband, Queen Emma when writing to friends signed her name Kaleleonalani, which means "the chiefs have fled." When her little boy died in 1862, she called herself Kaleleokalani, "the chief has fled," but when the king died next year she changed "ka," the, to "na," the plural.

Dry Cane Brings Low Yield at Ewa

Tinder dry sugar cane in two fields at Ewa Sugar Plantation has yielded what appears to be an all-time low for sugar content.

It took [illegible]3 tons of cane to make one ton of sugar, the plantation recently reported. Normally, it takes an average of eight tons of cane to produce one ton of sugar.

The cane came from Fields 73 and 75. The fields had been damaged by lack of water and care during the 126-day strike.

Yields in these fields came to less than three tons of sugar per acre. Normally, it works out to 13-15 tons of sugar per acre.

Wien, 12. September 1958

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Betr.: Buchbesprechung

Degener, Otto: Flora Hawaiiensis (The New Illustrated Flora of the Hawaiian Islands), Book (Centurie) 1:1933, 2:1935, 3:1938, 4:1940, 5:1946-1957; Books 1-4, 2.Auflage, 1946. Im Selbstverlag: Dr. Degener, Mokuleia Beach, Waialua, Oahu, Hawaii. Books 1-4 je Doll. 3.50; 2.Auflage in einem Bande ~~Bell~~, 596 Blätter, 428 Abb., Doll. 6.50; Book 5,223 Blätter, 128 Abb., Doll.? - .

Die Hawaii- oder Sandwich-Inseln, mitten im Pazifischen Ozean gelegen, besitzen schätzungsweise 2500 Arten einheimischer Blütenpflanzen und Farne, von denen weit über 90% endemisch sind, d.h. ausserhalb dieser Inselgruppe nicht vorkommen. Viele dieser Arten sind heute bereits der sich rapide ausbreitenden Zivilisation zum Opfer gefallen und ausgestorben, andere schwer bedroht und nur mehr an entlegenen, kaum zugänglichen Stellen zu finden; manche Art harrt aber wohl auch noch ihrer Entdeckung. Im höchsten Masse eigenartig wie der Gegenstand von Degeners Werk ist auch dessen Anlage. Aehnlich einem Markenalbum besteht jeder der bisher erschienenen 5 Bände (davon die vier ersten bereits in 2. Auflage) aus gelochten losen, in zwangloser Folge erscheinenden, nicht paginierten Blättern, die mittels Durchsteck-Schrauben in soliden Einbanddecken zusammengehalten werden. Provisorische Indices erleichtern die Benützung der Bände in der gegenwärtigen vorläufigen Form, Leitvermerke am Kopfe jeder Seite mit Familien-Nummer, Gattungs- und Art-Namen ermöglichen ein künftiges systematisches Zusammenordnen. Jeder Art ist ein Blatt gewidmet, das auf einer Seite Synonymie, ausführliche Beschreibung, Fundortsangaben und allgemeine Bemerkungen, auch über praktische und volkstümliche Verwendung enthält, (auf der anderen Seite die zugehörige ganzseitige Abbildung. Die Abbildungen - sowohl Habitus- wie auch Detailbilder - sind als klare Strichzeichnungen ausgeführt. Für manche polymorphe Arten finden sich Uebersichten über die Varietäten, für bereits abgeschlossene Gattungen und Familien sind [illegible] Bemerkungen beigefügt, die-

HAWAII'S CROP PARADE

For those readers of "Hawaii's Crop Parade" who are interested in the technicalities of botanical nomenclature, the following corrections are suggested by Otto Degener:

PAGE	LINE	
33	1 & 31	Interchange *macraei* and *hawaiiensis*
41	25	For *gratissima* read *americana*
59	23	For *hispida* read *Soja*
65	22	For *hispida* read *Soja*
71	27	For *semmifera* read *gemmifera*
79	34	For *Elleteria* read *Elettaria*
80	1	For *Carandas* read *grandiflora*
82	1	For *utilissima* read *esculenta*
84	19	For *Taraktogenos* read *Hydnocarpus*
86	9	For *ke-tsai* read *pekinensis*
	23	For *japonica hazara* read *mitis*
	28	For *saccharatum* read *macrocarpon*
87	15	For *hortorum* read *morifolium*
90	31	For *Erithroxylon* read *Erythroxylon*
103	13	For *muratima* read *maritima*
106	33	For *variabilis* read *pinnata*
109		Delete footnote
135	1	For *grandis* read *paradisi*
136	15	For *anioloides* read *catharticus*
136	21	For *violascens* read *fuscescens*
137	12	For *rosea* read *repens*
146	8	For *integrifolia* read *integra*
147	26	For *bicornis* read *natans*
148	13	For *cattapa* read *catappa*
	25	For *Cripa* read *Ceiba*
150	18	For *Sterculia* read *Cola*
153	33	For *japonica* read *margarita*
157	23	For *lunatus* read *limensis*
160	29	For *Nelumbo nucifera* read *Nelumbium Nelumbo*
164	10	For *mahogani* read *mahagoni*
172	6	For *cerifera* read *hispida*
	23	For *Chaetochloa* read *Setaria*
176	28	For *Sinapis chinensis* read *Brassica integrifolia*
188	32	For *lingularis* read *laurifolia*
190	25	For *hypogea* read *hypogaea*
194	19	For *indicus* read *cajan*
213	27	For *vulgaris* read *oblonga*
221	37	For *glaziovia* read *Glaziovii*
222	23	For *braziliensis* read *brasiliensis*
224	24	For *campestris napo-Brassica* read *napobrassica*
226	36	For *sapota* read *zapota*
258	22	For *reptans* read *aquatica*
272	3	For *Nicotianum Tabacum* read *Nicotiana tabacum*
277	39	For *chamisoi* read *Chamissoi*
282	11	For *planifolia* read *fragrans*
283	2	For *carolinensis* read *amicorum*
283	34	For *scampi* read *lanstum*
284	33	For *Roripa nasturtium* read *Nasturtium officinale*
285	11	For *stoloniferа* read *laciniata*
288	1	For *dulcis* read *Cytherea*
	15	For *vitellina* read *alba var.*
289	13	For *paraguayensis* read *paraguariensis*

THE FLYING MONGOOSE

Editor The Advertiser: 10/14/58

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 fledgings of any tree-nesting birds it happended 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 writers' 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; pheasant, chucker 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!

Oct. 9 DR. OTTO DEGENER
Naturalist, Haw. Nat. Park, 1929

OWLS AND SNAKES 10/?/58

Editor The Advertiser:

"The Flying Mongoose" article by Dr. Otto Degener, dated Oct. 9 has considerable merit. Particularly, if the Barn Owls, perpetuate themselves successfully in our clime.

Unlike the predators of the Giant African Snail, whereby through cannbalism they annihilate themselves, Barn Owls, will attack full grown chickens.

How they would fare in an attack on a Mongoose, would be of interest.

For Kageyama, to object to the "Piranha" fish, borders on and smacks of lack of investigation and/or understanding or pure ignorance. As the good Doctor Degener points out, it can only live in fresh water. If it could get out of its state of captivity, it would die like any other fish. It certainly is not going to walk from the Aquarium, looking for a stream or pond, in which to cause havoc.

While on the subject of the animal kingdom, why not have our zoo supplied with snakes! Charge admission. Most natives have never seen them. And few have seen all the varied varieties. They could be all of one sex, say males and could not reproduce.

Mr. Paul Breese, understands how to handle them. Most every zoo in America, has them.

Dr. Raymond L. Ditmars (late) Curator of the New York Zoological Park, taught me how intriguing they are and I learned to face them with respect. One can watch them by the hours. Feed a Boa Constrictor, Python or Anaconda, anything from a mouse or rat to goats which are killed wastefully on Molokai, and a rare picture is in store.

Admission charges would pay for their housing, food and keep and may reflect a profit. And the local populace would be seeing something out of this group of Islands. Worth thinking about for educational reasons.

Oct. 15 INTERESTED

P.S.: Perhaps for Christmas dessert, the larger snakes might go for a Supervisor, even if they got indigestion and required Alka-Seltzer.

130

ex PHYTON vol. 8 fasc. 1–2.

DEGENER, Otto: Flora Hawaiiensis. (The New Illustrated Flora of the Hawaiian Islands). Book (Centurie) 1: 1933, 2: 1935, 3: 1938, 4: 1940 (Books 1–4, 2. Auflage: 1946); Book 5: 1946–1957. – 8°, 596 Einzelblätter mit 428 Abbildungen; 223 Einzelblätter mit 128 Abbildungen, Leinen-Sammelbände mit Durchsteckschrauben – Selbstverlag Dr. Otto DEGENER, Waialua, Oahu, Hawaii – 1933–1957 . . . – Je Band $ 3.50 (1–4, 2. Auflage $ 6.50).

Die Hawaii- oder Sandwich-Inseln, mitten im Pazifischen Ozean gelegen, besitzen ungefähr 2500 Arten einheimischer Farn- und Samenpflanzen, wovon mehr als 90% endemisch sind, d. h. außerhalb dieser Inselgruppe nirgends vorkommen. Viele dieser Arten sind heute bereits der sich in erschreckender Weise ausbreitenden Zivilisation zum Opfer gefallen und fast oder ganz ausgestorben; andere sind aufs schwerste bedroht und nur mehr an entlegenen, kaum zugänglichen Stellen zu finden, wo vielleicht noch so manche Art entdeckt werden dürfte. Ebenso beachtenswert wie der Inhalt des Werkes ist auch dessen Anlage; ähnlich einem Markenalbum besteht nämlich jeder Band aus gelochten, losen, in zwangloser Folge erscheinenden, nicht paginierten Einzelblättern, die mittels Durchsteckschrauben in der festen Einbanddecke zusammengehalten werden. Eine vorläufige Ordnung der Blätter wird durch Buchstaben mit Indexziffern, durch Familiennummern, durch einen „Temporary Index" und andere Hilfen erleichtert, die zunächst vielleicht verwirren, aber schließlich doch als zweckmäßig gelten können. Für jede Art ist ein Blatt bestimmt, das auf der einen Seite Synonymie, ausführliche Beschreibung, Fundortsangaben und allgemeine Bemerkungen auch über praktische und volkstümliche Verwendung – auf der anderen Seite die Abbildung trägt. Diese Originalabbildungen sind sehr gut erfaßte Habitus- und Detailbilder, die besonders auf dem in den letzten Jahren verwendeten Kunstdruckpapier ausgezeichnet wirken. Für manche polymorphe Arten finden sich Übersichten über die Varietäten, für bereits abgeschlossene Gattungen und Familien sind Schlüssel beigegeben. Auf den bisher vorliegenden Blättern ist mit über 500 Arten rund ein Fünftel der Farn- und Samenpflanzen der Inselgruppe dargestellt. Ein rascheres Erscheinen dieses ungewöhnlichen, aber sehr willkommenen, bei strenger Sachlichkeit mit viel Begeisterung und Idealismus geschaffenen Werkes wäre sehr erwünscht. Der seit 1922 fast ständig auf Hawaii lebende Verf. hat sich mehrere Mitarbeiter zumeist selbst geschult und genießt die wissenschaftliche Unterstützung mehrerer amerikanischer und europäischer Institute, namentlich des New York Botanical Garden, sowie die finanzielle Hilfe der National Science Foundation.

RECHINGER & WIDDER

5354. DEGENER, O. & DEGENER, I. **Flora Hawaiiensis. Book 6.** Published privately 1957–1963: unpaginated: figs.

The sixth section of the Flora is similar in format to the preceding sections, with the same high standard of illustration and the same irritating use of numerous type sizes [cf. XXVIII, 3568]. An index is omitted for reasons of economy and it appears that economies have also been made at the proof-reading stage. These details detract little from the general value of this series of volumes. The loose leaf form allows the insertion of the leaves of Book 6 among those of the previous books, giving "a truer picture of the Hawaiian flora".

The Imperial (Commonwealth) Bureau of Plant Genetics presents its compliments and begs to draw your attention to the attached review which appeared in "Plant Breeding Abstracts"

Vol. XXXIV, No. 4, p. 5354

SCHOOL OF AGRICULTURE, CAMBRIDGE, England.

Naturhistorisches Museum
Botanische Abteilung
Wien I, Burgring 7

Dr.R.-4[illegible]/58

Wien, 1[illegible]. September 1958

Herrn
Dr. Otto Degener,
Mokuleia Beach,
Waialua, Oahu, Hawaii

Lieber Dr. Degener !

Vor einigen Wochen von meiner neunten griechischen Reise zurückgekehrt, habe ich meinem Versprechen gemäss die Besprechung Ihrer schönen Flora Hawaiiensis verfasst und zur Veröffentlichung sowohl an die Redaktion der Annalen unseres Museums als auch an diejenige der Zeitschrift Phyton in Graz gesandt. Ich hoffe, dass diese Ihren Wünschen entspricht und lege hier einen Durchschlag der Besprechung bei. In Phyton wird diese in leicht veränderter Fassung unter gemeinsamen Namen von Prof. Widder und mir erscheinen, da Prof. Widder soeben seinerseits eine Besprechung Ihres Werkes vorbereitet hatte.

Mit vielen herzlichen Grüssen und den besten Wünschen

Ihr

K. H. Rechinger

Dr. K. H. Rechinger

Boy Meets Girl Cannibal

Hon. Adv. 12/22/58

By HUGH LYTLE

Sailors in equatorial waters used to dread shipwreck more than most others, for cannibals seemed to lurk everywhere. It was indeed the destiny of many mariners to be roasted or boiled and served up ceremonially or just informally. Sometimes the sailors were dispatched to the accompaniment of magical or religious rites. Sometimes they were the victims of mere gluttony.

LYTLE

"Long pig" was the common name for human flesh served at savage banquets and "Long Pig" is the title of a first novel by Russell Foreman of Fiji, where the scene of his story is set. The date is 1800. It is a historical fact that the brig Argo went on the reef there about that time. From that disaster Foreman has built up an adventure story that for realism equals the authentic chronicles of other seamen and travelers of the period, including that of the slaver Theodore Canot, whose own memoirs make grisly reading.

* * * *

Fifteen men escaped from the shattered Argo. Their subsequent adventures with Fijians who never before had seen a white man offers the author a chance to paint a picture of tribal customs, of wild wars in a wilder land, of pestilence and hurricane. Across it all recurs the theme of long pig, into which many of the crew are transmuted.

There is a love interest, naturally, and this is perhaps the weakest part of the work, although without the help of the island girl, Seyawa, Oliver Slater, mate of the Argo and hero of the work, would not have survived. It is in the description of violent adventure that Foreman is at his best, and he weaves into it his wide knowledge of Fijian customs.

Some of the sailors shipwrecked in the South Seas in those days were a wild lot, and a few who escaped being eaten became as savage as their hosts. Dr. Otto Degener of Hawaii, who has delved into Fijian history (and nutrition), tells of a seaman named Charles Savage who arrived in Fiji about 1809. Dr. Degener says Savage's speaking knowledge of some Fijian dialect pointed to an earlier arrival, possibly on the brig Argo itself.

* * * *

"He taught the natives the use of firearms," says Degener, "earning the unenviable distinction of being the first man on Fiji to do so. With this knowledge the ruler of Mbau, one of the Fiji islands, was able to conquer his neighbors and became the head of the most powerful state in all the islands.

Savage, unlike the noble hero of "Long Pig," was a nogoodnik, however, and finally was killed and served up. His bones were converted into sail needles and other indignities were perpetrated upon his relics.

McGraw Hill Book Co. is publisher of "Long Pig," a contribution to the literature of cannibalism, or anthropophagy, as the scholars say. That literature includes works by W. S. Gilbert, specifically "The Yarn of the Nancy Bell," and Conan Doyle. Sherlock Holmes himself was aided in the solving of a mystery by remembering that human flesh tasted like pork, or long pig. Russell Foreman's "Long Pig" will keep you up all night. You can buy it here.

When you read Kamakau, enjoy his stories, but be cautious about his dates, his genealogies and some of his theories. When in doubt, check them against modern authorities.

The story to date: Almost 100 years after it was written, the Kamehameha Schools Press has published S. M. Kamakau's history, The Ruling Chiefs of Hawaii. Kamakau was a middle class Hawaiian born in 1815 at Mokuleia, Oahu. He became a student at Lahainaluna School at the age of 17. After graduating, he remained seven years at the school as a teacher. He came under the influence of the Reverend Sheldon Dibble and became an ardent lover of Hawaiiana. He wrote prolific accounts of history and customs for the Hawaiian language newspapers from 1837 to 1871.

Hon. Star-Bull. 12/11/61

It is S. M. Kamakau who is credited with the story which makes Kamehameha the son of Maui's great King, Kahekili. Kamakau did not write the story until 1867, but Abraham Fornander also wrote it and today you will find few persons on Maui who do not believe it.

Since the story did not come to light until 50 years after the death of Kamehameha, many question its authenticity. The question is asked: did Kamakau confuse a story about Kamehameha-nui with that of Kamahameha I of Hawaii?

Kamakau tells of it in his Peaceful Transfer of Kauai to Kamehameha, page 188. According to him, Kamehameha returned to Hawaii Island after the battle of the Pali in 1794 and began preparations to take Kauai.

He built his Pele-uli fleet, collected stores and sailed in 1802. He remained at Lahaina for a year restoring heiaus on Maui.

During the stay at Lahainaluna, Kamehameha lost one of his old counsellors. He was Ka-me'e-ia-moku, one of the Royal twins who had set Kamehameha on the path to kingship.

Ka-me'e-ia-moku was supposed to have been a son of Kekaulike, king of Maui, and therefore a half-brother of Kahekiki.

As he was dying, Ka-me'e-ia-moku turned to Kamehameha and said:

"I have something to tell you. Kahekili was your father, you are not Keoua's son. Here are the tokens that you are the son of Kahekili." Unfortunately, Kamakau does not say what the tokens were.

Perhaps Kamakau was right. Best evidence is that Kamehameha tried to collect all the gods worshiped by Kahekili. A man with a "two-headed father" could take either father's genealogy and he adopted the worship of both father's gods.

Save the Good Insects

Editor the Star-Bulletin: Plants, like animals, reproduce sexually. Practically all flowering plants with inconspicuous flowers, like our grasses, sedges and ironwoods, depend on the wind to carry their light pollen from the kane (male) plant to the wahine (female) one so that keiki (offspring) can be produced.

Practically all plants with flowers conspicuous by their color or odor depend on insects and rarely birds to carry their heavier pollen from one plant to the other. Who of us kamaaina residents have not imitated the insect to produce our magnificent display of hybrid hibiscus, orchids and other plants?

The Star-Bulletin of February 19 stated that one of our Kauai legislators, annoyed by mosquitoes, has as his "goal—the eradication of all insects in the state."

The eradication of all insects in the state, even if possible, would mean the gradual elimination of much of our state's present vegetation. As the plants depending for reproduction on insects die of age, no offspring will have formed to take their places. Instead, the vegetation of our state would become more and more drab and monotonous as low mosses, ferns, grasses, sedges and other wind-pollinated plants with inconspicuous flowers producing millions of seed would take over.

All insect-eating birds would die of starvation, and no grocery shelves would stock algaroba honey.

Let not mosquitoes bite us silly. The haole introduced the mosquito to our state. Let his science eliminate the nuisance caused by it. Nature or the Creator, according to the reader's individual tenets, graciously supplied the state with insects. Let us practice infinite wisdom and preserve the native ones for our own good.

DR. OTTO DEGENER
Naturalist, Hawaii
National Park, 1929

Editor's note: It was not a Kauai legislator but County Chairman Raymond X. Aki who made the statement mentioned by Dr. Degener. Presumably Chairman Aki, who was discussing the mosquito problem, meant insect pests rather than those of a beneficial nature.

An Island Wildflower

DR. OTTO DEGENER
d on Flora Hawaiiensis
Book 6

studying the prickle-
ies in the Hawaiian
ds, the one with yel-
flowers growing on
is technically Arge-
mexicana L., while
ne growing on Oahu
e variety ochroleuca-
t) Lindl.

t, of Mexican origin,
become widely scat-
throughout the trop-
hese two plants are
le interest to us.

roughout the Hawai-
Islands, however,
a stately prickle-
with pure white
rs.

tems and leaves are
not unlike those of
le. It can be recog-
rom afar by its un-
pale, almost bluish
caused by a bloom
to that found on
lums and grapes.

* * *

PLANT, appropri-
named Argemone
(Prain) Degener &
, brightens arid re-
lower elevations,
ly on dark lava

ound in the Hawai-
nds and no other
earth.

a conspicuous
as well known to
er Hawaiians who
it, because of its
"puakala" or
ickly flower."

nately, the Ha-
have left all too
ords about their
or us to read.
must delve in the
oks of early Cau-
casian travelers for crumbs of their precious lore.

* * *

CAPTAIN COOK'S botanist, David Nelson, was the first white man to collect specimens of this plant, proving it is native to the Islands and not brought by the white man. This was on the Island of Hawaii in 1779.

Incidentaly, unfortunate Nelson accompanied the sadist Capt. Bligh of the famed "Bounty" into Pacific waters again, even on his flight to Timor. There Nelson succumbed to some disease, apparently unconnected with his hazardous trip.

Meyen, a ship's physician, spent some time botanizing in the Islands in 1831.

He wrote about his experiences in German, of which the following is a free translation:

* * *

"AS WE passed through the streets of Honolulu, we noticed almost everywhere and in the neighborhood of the houses, a large amount of Argemone, which grew like a weed everywhere.

"In the midst of such plants we saw an Indian woman standing. She touched individual flowers, thus accomplishing something.

"We approached and saw, to our astonishment, that the woman was thus occupied in artificially transferring the pollen of the flower onto its stigma.

"In answer to our enquiry why she was doing this, she answered that she thus stimulated the formation of more seed. These in the Islands, as with us (in Germany) are eaten."

* * *

MEYEN, WHO over a hundred years ago thought the Hawaiians were Indians, gives us a clue of the high state of early Hawaiian agriculture. How fascinating it would be if the older Hawaiians living among us today would record what they remember about their ancestors' culture.

E. D. Merrill, Botanist, of Harvard, Dies

BOSTON, Mass., Feb. 25.—Elmer Drew Merrill, seventy-nine, Arnold professor emeritus at Harvard University, died today. An authority on the flora of the Far East and South Pacific islands, he lived at 960 Center St., Jamaica Plain.

Dr. Merrill, a former director of the Arnold Arboretum at Harvard and administrator of the school's botanical collections, prepared an emergency food manual for American troops serving in the Pacific theater during World War II. The manual described non-poisonous plants to be found in combat areas.

Surviving are his wife, Augusta Merrill, and a son Dudley Sperry Merrill.

Before coming to Harvard University in 1935 Dr. Merrill was director of the New York botanical Garden.

A native of East Auburn, Me., Dr. Merrill attended Edward Little High School at Auburn; received a B.S. degree from the University of Maine in 1898 and an M.S. in 1904. He held the honorary degrees of Doctor of Science from the University of Maine (1923) and Harvard University (1936) and LL.D. from the University of California (1936).

During World War II, from 1943 to 1945, Dr. Merrill was a special consultant to the Secretary of War and as a lecturer on tropical medicine at the Army Medical School in Washington. For the former service he received an appreciation of service award.

Technical Papers

Dr. Merrill was the author of more than 500 technical papers, chiefly on the botany of North Africa, the Philippines, China, Indochina, Burma, Micronesia-Polynesia, Sumatra, Borneo, Moluccas, New Guinea and the Solomon Islands.

His most recent honor was accorded in 1952 when he received a Guggenheim Fellowship for the study of Indo-Malaysian and Philippine Flora. In 1939, Dr. Merrill became the first American botanist to receive the Madel of the Linnean Society of London. He had been named a foreign member of the society in 1933.

Dr. Merrill was a member of Phi Beta Kappa, Sigma XI, Alpha Zeta and Phi Kappa Sigma honor societies, the American Botanical Society (president, 1934); American Association for the Advancement of Science; Taxonomic Society of America (president, 1946); New England Botanical Club (president, 1937-'39); American Academy of Arts and Sciences; National Academy of Sciences and the American Philosophical Society.

took formal possession in the King's name, and soon he was able to satisfy himself that New Holland and New Guinea were distinct lands. He arrived at Batavia on Oct. 11 with a ship badly in need of overhauling, but with a healthy crew. In Batavia another story was recorded. "We came in here with as healthy a ship's crew as need go to sea and after a stay of not quite three months left it in the condition of a hospital ship." Cook logged the deaths of twenty-three men before he reached England on July 12, 1771, by way of the Cape of Good Hope. "I flatter myself," he wrote in his report to the Admiralty, "that the discoveries we have made, though not great, will apologize for the length of the voyage."

Cook had indeed earned his five shillings a day. Ably seconded by Banks, the captain had opened an era of scientific exploration. Their reports were complete in every respect. They brought home not only descriptions and charts of the lands they had visited, but adequate records of their inhabitants, customs, flora and fauna, and Cook, the farm boy, rarely neglected to discuss the quality of the soil. He foresaw the day when the white man would make both New Zealand and Australia his own.

There were some scientists in England who asked further proof of the non-existence of a Southern continent reaching into the temperate zone, and Cook was sent out again, this time with two ships, Resolution and Adventure, the latter commanded by Captain Tobias Furneaux. The expedition sailed on July 13, 1772, touched at the Cape of Good Hope, passed the Antarctic Circle, and went to New Zealand. From this base Cook worked up and down across the South Pacific, penetrated the ice fields, and concluded that if a continent existed it "must be so far south as to be wholly inaccessible on account of the ice." Cook was right. He had blazed a trail toward the great white continent from which Commander Byrd, following a long line of explorers, will soon try to wring long-hidden secrets.

***

IT was three years before Cook returned to England with a map of the South Pacific more complete than any hitherto drawn. He had discovered new islands, rediscovered old ones, and substituted fact for theory. And he had lost but four men, only one of whom had died of sickness. Furneaux, who came home before him, had been less fortunate, for the Maoris of New Zealand had massacred a boat's crew and eaten their bodies.

Cook was elected a member of the Royal Society and received the Copley medal for a paper explaining how, by the use of anti-scorbutics and attention to personal cleanliness, he had, to quote the President of the society, found the "means by which Britain may now, on the most distant voyages, preserve numbers of her intrepid sons, her mariners." Cook had conquered scurvy, the curse of generations of sailors, on both of his voyages. Thus he qualified in medicine.

The circumnavigator was now to write the last chapter in his career. His purpose was to determine whether there was a northern passage between the Pacific and the Atlantic. With two ships, Resolution and Discovery, he went first to the South Pacific and worked his way north until he fell in with the Hawaiian group, which he named the Sandwich Islands in honor of his patron, the Earl of Sandwich. Next he struck the coast of America and continued north into the Bering Sea, where the ice finally stopped him. The Northwest Passage was still a mystery.

***

COOK turned south again and entered Kealakekua Bay in the Island of Hawaii in January, 1779. The Hawaiians believed him to be their god Lono returned to the islands after a long absence. They and their King, Kalaniopuu, showed him many favors and gave him the use of a temple at Napoopoo, facing the bay. Finally Cook sailed away, but was forced to return on account of damage to one of his ships. He found soon that the attitude of the natives had changed. There was friction; one of Cook's boats was stolen. He went to the King at Kaawaloa with the purpose of taking him aboard his flagship as hostage for the return of the boat. Meantime a chieftain had been killed by one of Cook's men for sailing across the bay against the captain's orders. The natives showed their anger and Cook retreated with his men to the shore. He was now in grave danger. He shot a native and was in turn stabbed to death.

In a ghastly religious ceremony the natives burned Cook's body to separate the bones (which were kept for sanctuary) from the flesh. This was the custom followed in the case of their chiefs, and Cook had been rated as a long-lost god. Some parts of the body were recovered by Captain Clerke, who succeeded to the command, and they were committed to the deep of Kealakekua Bay with military honors.

Cook, like many other captains of his day, was accused of dealing harshly with natives with whom he came in contact. His journals show that he was quick to punish thieving and treacherous savages, and that also he had a good deal of sympathy with their faults and virtues. When, on his third voyage, he heard from the Maoris the story of the massacre of Furneaux's men he concluded that he would not seek vengeance. "War," he wrote, "is their principal occupation." "Their articles of commerce," he added, "are curiosities, fish and women."

REPLY FROM A JEALOUS BOTANIST

Editor The Advertiser:

Your editorial stating that "Botanists are Jealous" and "seem to resent the fact that an author who entered the scientific field as an entomologist should have compiled a book bringing together useful information in a field which they consider rightfully their own," hardly hit the bull's eye. If I am not mistaken, Mr. Crawford taught botany on the Mainland before teaching entomology, or at about the same time.

According to book reviews of the time, professional botanists showed neither animus nor jealousy toward similarly interesting books on local plants by Mrs. Frear (2 books), talented amateur gardener; by Dr. Pope who, I believe, was an early head of the Department of Public Instruction and of our College of Hawaii; by Mr. Tongg (landscape architect) and Miss Kuck (not a professional botanist); and by Miss Neal, who was first a conchologist. Their works were acclaimed. It is strange that out of the group of books published on plants during the last dozen or so years, "Hawaii's Crop Parade" by David Livingston Crawford, LL.D., should have been singled out for special attention.

One local botanist, checking the scientific plant names, discovered between 60 and 70 errors. These were submitted to Mr. Crawford and to a Mainland botanist for rechecking. The critic suggested that a list of errata be published and tipped into copies of "Hawaii's Crop Parade." When Mr. Crawford intimated he would correct his books and even sent the critic printed lists of corrections evidently as proof of good faith, the critic recalled his article from publication in "Science." This would prevent possibly embarrassing the author in the continental United States. To place these scientific corrections on record as well as to shower Mr. Crawford "with roses" where roses were due, the reviewer then chose just about as obscure a country as possible for the publication of his criticism, of Mr. Crawford's book. He published his review in Montevideo, Uruguay, a country so little known that about half of us must think twice before remembering whether it is in South or Central America. If this is an example of botanical "Animus" or "Jealousy," it was certainly tempered with mercy.

Later, even though the author had published a list of corrections easy to insert in his books, "Hawaii's Crop Parade" was being sold at three different down-town Honolulu bookstores without corrections. Copies were sold at the "University" bookstore on the edge of the campus uncorrected. Purchasers by special request, however, could get the printed copy of corrections from the president. The corrections evidently were not for the general purchaser. Just a week or so ago, I purchased a copy of the book at a Honolulu bookstore. It contained no list of corrections.

Oct. 29 ONE OF THE "JEALOUS BOTANISTS"

Hon. Adv. 9/19/58

Annalen des Naturhistorischen Museums in Wien

63. Band - 1959 Seite 472-473

Degener, Otto: Flora Hawaiiensis. The New Illustrated Flora of the Hawaiian Islands. Book (Centuria) 1 (1933), 2 (1935), 3 (1938), 4 (1940), 5 (1946–57). Books 1–4, 2. Aufl., 1946. Im Selbstverlag Dr. Degener, Mokuleia Beach, Waialua, Oahu, Hawaii. Book 1–4 je Doll. 3,50; 2. Aufl. in einem Band, 596 Blätter, 428 Abb., Doll. 6,50; Book 5, 223 Blätter, 128 Abb., Preis unbekannt.

Die Hawaii- oder Sandwich-Inseln, mitten im Pazifischen Ozean gelegen, besitzen schätzungsweise 2500 Arten einheimischer Blütenpflanzen und Farne, von denen weit über 90% endemisch sind, d. h. außerhalb dieser Inselgruppe nicht vorkommen. Viele dieser Arten sind heute bereits der sich rapid ausbreitenden Zivilisation zum Opfer gefallen und ausgestorben, andere schwer bedroht und nur mehr an entlegenen, kaum zugänglichen Stellen zu finden; manche Art harrt aber wohl auch noch ihrer Entdeckung. Im höchsten Maße eigenartig wie der Gegenstand von Degeners Werk ist auch dessen Anlage. Ähnlich einem Markenalbum besteht jeder der bisher erschienenen 5 Bände (davon die vier ersten bereits in 2. Auflage) aus gelochten, losen, in zwangloser Folge erscheinenden, nicht paginierten Blättern, die mittels Durchsteck-Schrauben in soliden Einbanddecken zusammengehalten werden. Provisorische Indizes erleichtern die Benützung der Bände in der gegenwärtigen vorläufigen Form, Leitvermerke am Kopfe jeder Seite mit Familien-Nummer, Gattungs- und Artnamen ermöglichen ein künftiges systematisches Zusammenordnen. Jeder Art ist ein Blatt gewidmet, das auf einer Seite Synonyme, ausführliche Beschreibung, Fundortsangaben und allgemeine Bemerkungen, auch über praktische und volkstümliche Verwendung, enthält, auf der anderen Seite die zugehörige ganzseitige Abbildung. Die Abbildungen, sowohl Habitus wie auch Detailbilder, sind als klare Strichzeichnungen ausgeführt. Für manche polymorphe Arten finden sich Übersichten über die Varietäten, für bereits abgeschlossene Gattungen und Familien sind Arten- bzw. Gattungs-Schlüssel beigegeben. Die bisher erschienenen über 500 Arten stellen etwa ein Fünftel des Artbestandes der Inselgruppe dar. Ein rascher fortschreitendes Erscheinen dieses unkonventionellen, aber äußerst praktischen und hochwillkommenen Werkes wäre dringend zu wünschen. Der Autor lebt seit 1922 mit geringfügigen Unterbrechungen auf Hawaii. Bei aller Sachlichkeit merkt man dem Werk

an, daß es mit viel Begeisterung und Idealismus geschaffen worden ist. Der Autor erfreut sich bei seiner Arbeit der Hilfe mehrerer, meist einheimischer Mitarbeiter, die er zumeist selbst angewiesen hat, sowie der wissenschaftlichen Unterstützung mehrerer amerikanischer und europäischer Institute, besonders des New York Botanical Garden, sowie der finanziellen Unterstützung der National Science Foundation.

K. H. Rechinger

Hon. Star-Bull 9/12/60

Funeral Announcements

STOKES, JOHN FRANCIS GRAY, age 84 years, of 2618 Ferdinand St., died Sept. 9, 1960, at Queen's Hospital at 3:05 p.m. Born Dec. 9, 1875 at New Castle, New South Wales, Australia. FUNERAL SERVICES OVER THE ASHES TUESDAY, SEPT. 13, 1960 AT 4:30 P.M. AT WILLIAMS MORTUARY CHAPEL OF THE CHIMES, UNDER THE AUSPICES OF HAWAIIAN LODGE NO. 21, F.&A.M. BURIAL OF ASHES IN MASONIC VAULT IN MAKIKI CEMETERY. Survived by his wife, Eunice M. Stokes; foster son, Frederick Allen Stokes of Puna Sugar Plantation, Hawaii; 2 sisters, Mrs. Lillian H. Hefferman of Sydney, Australia, Mrs. Helen J. Forbes of Honolulu; 3 brothers, Allan F. Stokes of Coonabarabran, N.S.W., Australia, Sydney W. Stokes of Sydney, Australia, and Charles L. Stokes of Calabasas, California; numerous nephews and nieces in Australia, California and Honolulu. He was a co-author with Henry P. Judd and Mary Kawena Pukui, Introduction of Hawaiian Language, published in 1945. He was a member of Hawaiian Lodge No. 21, F.&A.M., Hawaiian Historical Society, Anthropologist Society of the Academy of Science of Hawaii, Bishop Museum Assoc., member of Friends Library of Hawaii, Hawaiian Resident Assoc. The family requests please omit flowers; in lieu contributions can be made to his memory to the Hawaii Cancer Fund. WILLIAMS MORTUARY CHAPEL OF THE CHIMES IN CHARGE OF ARRANGEMENTS.

GOMEZ, MARY MAGDALENE & MARIA ELENA (twins), infants of 2048 St. Louis Drive, died Monday, September 5, 1960 at St. Francis Hospital at 1:45 a.m. They were born September 4, 1960 in Honolulu. FRIENDS MAY CALL AT ORDENSTEIN'S CHAPEL OF PEACE FROM 6 TO 9 P.M. MONDAY, SEPTEMBER 12, AND AFTER 7 A.M. TO 9:30 A.M. ON TUESDAY, SEPTEMBER 13. MASS OF ANGELS WILL BE HELD AT ST. PATRICK'S CATHOLIC CHURCH AT 10:00 A.M. TUESDAY. BURIAL WILL BE AT THE NATIONAL MEMORIAL CEMETERY OF THE PACIFIC AT 11 A.M. TUESDAY. They are survived by the parents, Mr. and Mrs. Juan Idica Gomez; 2 brothers, Roland and John Dwight Gomez; paternal grandfather Agapeto Gomez of the Philippine Islands; maternal grandparents, Mr. and Mrs. Maximo Padua; also uncles, aunts and cousins. ORDENSTEIN'S MORTUARY IN CHARGE OF ARRANGEMENTS.

Did You Know?

By MYRLE CLARK

Hon. Adv. 10/22/55

Did you know that a Bengal Banyan is growing in the grounds of the Queen's hospital? This is the very large tree which is planted not far from the circular driveway about half way between the main building and the nurses' home. It is quite different from the huge banyans in the grounds of our Capitol building. These are Indian banyans also. The latter trees appear to be one tree but are in reality two—their branches having grown together. In olden days "carriages" frequently drove between the two trees. The grounds under the Capitol banyans as well as the banyan of the Queen's hospital grounds, are littered with small reddish figs. Don't waste your time devouring the fruit. You will be disappointed unless you are powerfully hungry.

Banyan trees are sacred to the Hindus. In fact the trees were named after the Hindu traders who were called banyans.

Tahitian legend tells us that the banyan originated in the moon where it gave shade to all the inhabitants. One large branch fell with great force until it reached Tahiti. There it became the parent of all the other banyans. The tree may readily be seen minus its branch, say the Tahitians. The next full moon, just have a real good look yourself and you will agree!

mit herzlichen Grüssen zu Dr. Rechinger (derzeit England) und Ihnen ergeben

[illegible]

DEGENER & DEGENER

NINETEENTH & TWENTIETH CENTURIES

Degener & Degener at International Botanical Congress
1959

In prehistoric times Austria was peopled by emigrants hunting and fishing their way up the Danube Valley; later by races with high cheek bones from the steppes; and in relatively recent times by warriors and traders from all points of the compass, one great Turkish horde even beleaguering the walled city of Vienna. Austria by the Nineteenth Century had become a racial melting pot of caucasoid *haole* with some mongoloid admixture. At that time the Karl Denike family had not yet lost its estate Kranichsfeld†, near Graz, Austria, due to the debacle of Maximilian in Mexico. Though the manor house is still standing, it is now a government experiment station in present day Yugoslavia. Luise, daughter of Karl Denike and his wife Marie, *nee* Löbbecke, in 1860 married the Cavalry Officer Joseph Johann Kaempf, of Swiss alpine stock, who, after military victories, was named Kaempf von Baldenstein by the grateful Emperor Francis Joseph I. Marie Ludovica was born to the couple during a campaign in Mantua, at that time under Austrian rule. Her youngest sister, Irene*, survived until January 13, 1962.

† Personal research in Vienna in 1964 disclosed that Kranichsfeld last belonged jointly to the Denike and Löbbecke families who speeded its loss not only by an unfortunate Mexican investment but by extravagance; for example, when no passenger train was available for a pleasure trip to Vienna, they simply consigned a carload of hogs, whether the market was favorable or not, to the capital and had a lark riding the freight with the cargo. In truth, a family tree is worth bragging about only if it has consistently produced good timber and not just hard, indehiscent, 1-seeded fruits.

(*Mit Unterstützung von Irene Contessa Smecchia geb. Kaempf von Baldenstein)

(Degener & Degener, 2/15/66)

D DEGENER

The Henneberg family, early origin unrecorded, suddenly appeared conspicuous in Brunswick affairs. Friedrich Christian Ludwig Henneberg (1748–1812) initiated a private postal service, was private secretary to Duke Karl Wilhelm Ferdinand and, under Napoleon's brother Jerome, was regent of the Duchy. When the exiled Duke, with his puny army planned to wrest his lands from Napoleon, Henneberg prevented almost certain slaughter by secretly dissuading the former from his rash plan. Jerome, furious on learning of Henneberg's seeming treachery, first condemned him to death but finally pardoned him. Henneberg's daughter Henrietta married Heinrich Löbbecke, grandfather of William Degener and great-grandfather of Marie Ludovica.

The Löbbecke family, men and women both usually well over six feet tall, was prominent in banking, commerce and politics in Brunswick. One of the first recorded was Gerhard, burgomaster of Iserlohn in 1313. The Degener family had similar interests to the Löbbeckes in Brunswick, specializing however in wool for which reason the coat of arms depicted a sheep, hardly as flattering an animal as a rampant lion. The first to bear the name Degener, some of whose forebears seem to have been cowherds, was a judge. When the headsman, it is said, neglected to appear at the appointed time, the judge made sure that justice triumph by donning the former's black hood and cloak, drawing his *degen*, or sword, and dispatching the criminal he had condemned. Just as a man using a cart might acquire the family name Carter, so did the judge acquire the family name Degener.

Wilhelm, or William, Degener (1844–1916), son of Wilhelm Friedrich Eduard Degener and Etta Löbbecke, the latter the sister of Marie who married Karl Denike, spent years as agent for a German firm in the Orient before emigrating from there for America. Reaching San Francisco, he embarked on another vessel for Panama to cross the Isthmus on mule back to catch a vessel bound for New York. Properly attired for the Orient in pajamas and practically so for a torrid New York summer day, he was hustled from the vessel by his horrified elder brother into a cab for the nearest tailorshop. With the industry ravaged by the Civil War, he enjoyed a lucrative business with his brother and other partners importing textiles from the factories of Europe, his firm eventually establishing branch offices in London and Paris.

On a combined European business and pleasure trip, William Degener visited his Viennese relatives, the Kaempfs. There he met the Officer's daughter Marie Ludovica, whose grandmother Marie Löbbecke was his mother Etta's sister. They married. The youngest child, Otto, of this union was born in the last year of the Nineteenth Century. Educated in New York City by tutors and later at Trinity and Collegiate Schools, Otto was an uninspired pupil. He spent more than his spare time at the nearby American Museum of Natural History, in his private hallroom of his brownstone home, and in his little fenced-in yard a stone's throw from Riverside Drive. Here he studied and grew citrus and other plants from breakfast fruit pips, and took care of his pets. These last included such animals caught, usually with the help of his elder brother Herbert week-ends and summers, in the environs of Manhattan*. The assortment included chrysalises and cocoons, sticklebacks and other fishes, newts, tree toads, turtles, New Jersey swifts, snakes which once crawled out the window to imitate elaborate wrought iron on the fire escape, deer and meadow mice, flying squirrels, cow and other birds, a bat that on escape drove the visiting seamstress up a chair, and two skunks which were donated under protest to the Bronx Zoo when the police could not understand how a simple operation had made them inoffensive.

When he expressed his desire for farming as observed on an uncle's entailed estate, his father remonstrated that he did not wish "one of his sons digging his own potatoes," and hence Otto Degener prepared to enter college. Enrolling as Freshman at Massachusetts Agricultural College in 1918, two years after his father's death and two years before his mother's, he studied Botany under the stimulating teacher and philosopher Ray Ethan Torrey. Dr. Torrey chose Degener in his Sophomore Year as permanent Laboratory Assistant and later as Graduate Assistant; thus botanical interests displaced agricultural ones.

* Always interested in Zoology, in 1925 he published "*Dardanus sanguinocarpus*, new [hermitcrab] species"; in Edmondson, C. H., Mar. Zool. Trop. Pac. Crust. Bishop Mus. Bull. 27(4) : 24.

Kohlland, wo viele Kohlenmeiler im Betriebe sind, erzeugt man jährlich bei [illegible] Faß Kohlen. In der Nähe dieser Kohlland steht auf dem Krampenbache ein sehr fester Holzrechen.

Krampenbach, der, entspringt im [illegible] Graben, Gemeinde Mürzsteg, Gerichtsb. Mürzzuschlag; theilt sich in den inneren Krampen- oder Tirolerbach und den äußeren oder Kohlgrabenbach. Sie treiben 1 Mauthmühle und 1 Sägewerk (die früheren Werke ruhen) und münden in die Mürz.

Krampengraben, zwei nördlich verlaufende Gräben; nämlich der innere, der sich bis in die Gegend Tirol und zur Thorwand, und der äußere, der bis an die Schneealpe sich erstreckt. Beide werden im Süden von der Neuberg-Mürzsteger Bezirksstraße begrenzt. Beide liegen in der Gmd. Mürzsteg.

Krampusgraben, der, ein Seitengraben des [illegible], in der Gmd. [illegible], Gerichtsb. Mürzzuschlag.

Kranabethkogel, Berg in der Gemeinde [illegible], Gerichtsb. Kindberg; man genießt von ihm eine sehr schöne Aussicht in's obere und untere Mürzthal.

Kranach, Katlgmd. der Ortsgmd. Leutschach, Gerichtsb. Arnfels, nach Leutschach eingepfarrt und eingeschult, hat 1219 Joch ([illegible] Hkt.), 90 Hsr. und 406 Ew. (194 ml., 202 wbl.). Die Gemeinde ist sehr bergig und hat den Marnerberg, über den die Bezirksstraße von Leutschach nach Ehrenhausen führt, dann den Wurzen- und Sausberg. Außer einigen kleineren Bächen entspringt hier auch der Gamlitzbach. Nordwestlich grenzt diese Gmd. an die gleichnamige Gmd. des Bz. Leibnitz.

Kranach, Katlgmd. d. Ortsgmd. Gamlitz, Gerichtsbzk. Leibnitz, nach Gamlitz eingepfarrt und eingeschult, hat 1234 Joch oder 709·550 Hkt., 88 Hsr. und 505 Ew. (259 ml., 246 wbl.), ist ganz von Bergen und Hügeln bedeckt, auf denen ziemlich viel Weinbau getrieben wird. Im Westen, wo diese Gemeinde an die gleichnamige des Bezirkes Arnfels grenzt, steht der 2010 Fuß (635·16 Meter) hohe Kreuzberg. In dieser Gemeinde am südöstlichen Abhange des Kreuzberges entspringt der Fahrenbach.

Kranerbach, der, entspringt auf der Hirschegalpe, fließt östlich, treibt 3 Hausmühlen in Hirschegg, Bzk. Voitsberg und mündet in die Teigitsch.

Kranichsfeld (slov. Račje), Orts- und Katlgmd. des Gerichtsbzk. Marburg r. D. U., mit 1430 Joch (822·250 Hkt.), 105 Hsr. und 698 Ew. (336 ml., 362 wbl.), nach Schleinitz eingepfarrt und theils ebendahin, theils nach Wrefola eingeschult. Diese Gmd. ist ganz eben, schon im [illegible] Felde und wird vom Frauheimer Bache, der hier durch den Schloßteich geht, durchflossen. Von hier gehen 4 Straßen aus, u. z. westlich nach Frauheim, nördlich gegen Schleinitz, beide in die Hauptcommerzialstraße auslaufend und zwei südöstliche Straßen nach Pettau, wovon die eine ganz gerade über Neubraunschweig, Ebensfeld, Haidin und Rann, die andere über Wrefula, Podova quer über das Pettauerfeld. Kranichsfeld wird westlich von der Südbahn in senkrechter Linie durchzogen und bildet eine Station, die von den Nachbarstationen Marburg 11 und Pragerhof 8 Kilometer entfernt ist. Die Station ist wichtig für den Verkehr wegen der von Pettau aus in kürzester Linie einmündenden Straße. Wein- und Holzladungen gehen von hier in großen Quantitäten ab. — In Kranichsfeld ist eine k. k. Postexpedition und Telegraphenstation, dann eine Kaffeesurrogatfabrik von C. Jäger & Comp. In Kranichsfeld werden jährlich 5 Märkte abgehalten, nämlich: am 14. Februar, Pfingstdienstag und 15. October Jahr- und Viehmärkte, dann am 3. März und 3. September Pferdemärkte (diese letzteren zwei erst 1877 privilegirt). In unmittelbarer Nähe des Dorfes, welches sich zu beiden Seiten der Straße ausdehnt, liegt das Schloß Kranichsfeld. (Siehe nächsten Artikel.) Die Gemeinde besitzt einen Grundcomplex von 130 Joch 1500 □Klf. (75·280 Hkt.) u. z. 3 Joch 800 □Klf. Äcker, 400 □Klf. Wiesen, 34 Joch 1200 □Klf. Weiden und 92 Joch 1100 □Klf. Waldungen.

Kranichsfeld, Schloß und Gut in der gleichnamigen Orts- u. Katlgmd. d. Gerichts-Bzk. Marburg r. D. U., im Besitze des Carl und der Maria Denik, mit einem Grundcomplex von 625 Joch 1100 □Klf. (359·770 Hkt.), u. z. 156 Joch 800 □Klf. Äcker, 193 Joch 600 □Klf. Wiesen, 600 □Klf. Weiden, 8 Joch 1200 □Klf. Weingärten, 16 Joch Teiche und 250 Joch 1100 □Klf. Waldungen, welcher Besitz sich aber bereits bedeutend vermindert haben dürfte. Das Schloß liegt etwas mehr als ¼ Std. von der Hauptstraße und Bahnstation in einer flachen Ebene, ehemals von weitläufigen Teichen umgeben. An die Stelle ehemaliger Wassergräben sind freundliche Gartenanlagen getreten, die alten Rundthürme dienen zu ökonomischen Zwecken und die festen Vorwerke nützen einer weitläufigen Kaffeesurrogatfabrik. Wenn man sich von der Hauptstraße aus nähert, so erreicht man zuerst den westlichen älteren Flügel des Gebäudes, eine ansehnliche Fronte, an der sich ober dem Haupteingange ein Balcon und neben demselben die Buchstaben: M. T. F. v. W. (wahrscheinlich: Maria Theresia Frau von Werdenberg) befinden. Der große Hof wird durch

die mittleren Flügel, oder welchen sich der bedeutend hohe Wartthurm mit den ehemaligen Gefängnißlocalitäten befindet, in zwei ungleiche Hälften geschieden, um die sich lange Gallerien, auf mehr als 50 Säulen gestützt, ziehen. Im zweiten oder eigentlichen inneren Schloßhofe befinden sich im ersten Stocke nordwärts der Speisesaal, in welchem vor nicht langer Zeit ein Dutzend historische Porträts, darunter das des unseligen Erasmus Grafen v. Tattenbach im spanischen Costüme; eine Copie davon in Lebensgröße ist im Gange, an der Stelle einer vermauerten Thür, nächst der höchst einfachen, oder gut gelegenen Kapelle, die dem heil. Johann von Nep. geweiht ist. Das lang vermeinte Porträt Tattenbach's hat sich jedoch in neuester Zeit als ein Bildniß Kaiser Leopold's I. in seiner Jugend herausgestellt. Im östlichen Flügel war noch vor 1845 der alte Saal, welcher den Verschwornen Tattenbach's zur Versammlung diente. Eine große Rose unter den Arabesken des Plafonds gab Veranlassung zu dem Sprichworte: sub rosa. Auf der Gallerie befindet sich ein bemaltes Wappenschild mit reichem gedrehten Steinwerke verziert, im Wappen ein Panther im rothen Felde, darunter Erasmus Freiherr v. Trübenegg zu Schwarzenstein, Herr auf Stattenberg und Kranichsfeld, röm. kais. Majestät Rath und Kämmerer 1625. Uebrigens fest sind die Rundthürme, welche das Schloß gegen Osten, wo sich gegenwärtig reiche englische Anlagen an der Stelle der doppelten Wassergräben ausdehnen, beschützen. Kranichsfeld war in den ältesten Zeiten Eigenthum der edlen Herren von Kranichsfeld, über deren Familie sich jedoch keine weiteren historischen Daten finden lassen. Freiherr von Stadl vermuthet, daß die Herren von Kranichsberg, welche Mureck und andere Güter besaßen, auch Herren von Kranichsfeld gewesen seien. Spätere Besitzer waren die Stattegg, Montfort, die Freiherren von Regall, die Anfangs des 17. Jahrh. wegen ihres eifrigen Protestantismus nach Schweden auswanderten, hierauf Otto Freiherr v. Teufenbach, von dem es 1655 Erasmus Graf v. Tattenbach erkaufte. Letzteres Geschlecht stammte von den Gegenden des Niederrhein. Ueber die Verschwörung Erasmus', in welcher auch Kranichsfeld eine große Rolle spielte, siehe den Artikel Gonobitz Seite 300. Nach Tattenbach's Hinrichtung wurde Kranichsfeld vom Staate eingezogen. Später besaßen es die Haydeck, Zerini ꝛc. Im Jahre 1725 war Josef Ludwig Freiherr v. Werdenberg, mit 28. September 1739 dessen Vetter Leopold Freiherr v. Werdenberg, 1768 Franz Freiherr v. Werdenberg, mit 31. Juli 1795 Theresia Freiin v. Kottenaberg, verehelichte gewesene Freiin v. Werdenberg, mit 25. November 1811 Gottlieb von Rainer zu Lindenbühel, hierauf der gegenwärtige Besitzer.

Kranzalpe, die, im Jagerlingraben, Gerichtsbzk. Knittelfeld, mit einem Auftriebe von 50 Rindern.

Kranzbauernviertl, Ortsch. d. Kirchgmd. Kindberg-dorf, Ortsgmd. Kindberg (Land), Gerichtsbzk. Kindberg, nach Kindberg eingepfarrt und eingeschult, hat 22 am nördlichen Abhange der Stanglalpe und am Lebelsterberge liegende Häuser mit 133 Ew. (71 ml., 62 wbl.)

Kranzsee, der, im Ursprunggebirge, Gmd. Breunegg, Gerichtsbzk. Schladming, hat 1 Joch (0·575 Hkt.) Flächenraum und ist mit Saiblingen besetzt.

Krapfenalpe, die, unter dem Gesäuse, Gmd. Johnsbach, Gerichtsbzk. Liezen, zwischen dem Bruckstein, Lauferwald und dem Bruckgraben, mit einem Auftrieb von 20 Rindern.

Kraping, slov. Krapje, Kirchgmd. der Orts- und Steuergmd. Gerichtsbzk. Luttenberg, nach Luttenberg eingepfarrt und eingeschult, mit 741 Joch (427·508 Hkt.), 43 Hsr. und 291 Ew. (124 ml., 167 wbl.), besteht aus Oberkraping (gornje Krapje) und Unterkraping (spodnje Krapje). Beide liegen ganz nahe bei einander zwischen der Straße von Luttenberg nach Ungarn (Vernsdorf) und der Mur, die die Grenze mit Ungarn bildet. Die ganze Gemeinde ist eben. An der Mur liegt eine Mauthmühle. Kraping besitzt an Gemeindeeigenthum einen Grundcomplex von 194 Joch 100 □Klf. (111·656 Hkt.), u. z. 1 Joch 1000 □Klf. Aecker, 1 Joch 400 □Klf. Wiesen und 191 Joch 300 □Klf. Weiden.

Krapje, siehe Kraping.

Krasche, Ober- und Unter- (sloven. Gornje und spodnje Kraše), zwei Ortschaften der Kirchgmd. Dedenfeld, Ortsgmd. Kokarje, Gerichtsbzk. Oberburg, nach Rietz eingepfarrt und eingeschult, 2 Stunden von Rietz, am Driethbache, in einer Ebene, hat 25 Hsr. mit 169 Ew. (83 ml., 86 wbl.)

Krasina, Ortschaft der Orts- und Kirchgmd. Hrastovetz, Gerichtsbzk. Windischfeistritz, nach Studenitz eingepfarrt und eingeschult, hat 15 Hsr. mit 82 Ew. (36 ml., 46 wbl.), liegt am Kletschabach, unfern der Mündung dieses Baches in die Drann, am Abhange des Gulnikkogels, ½ Stunde von Studenitz.

Kraß, Kirchgmd. der Ortsgmd. Arnfels, Gerichtsbzk. Arnfels, nach Arnfels eingepfarrt und theils nach Arnfels, theils nach Oberhaag eingeschult mit 377 Joch (216·775 Hkt.), 49 Hsr. und 241 Ew. (118 ml., 123 wbl.), ist fast ganz gebirgig, liegt westlich von Arnfels gegen Pongratzen. In der Ebene liegen zwei der Herrschaft Arnfels gehörige Teiche und nördlich gegen die Eibiswalder Straße das Schloß Burgegg.

The banyans there enveloped entire buildings in their roots, the roots entwining themselves in and about the structures like so many ageless boa constrictors.

• • •

NO ONE KNOWS for certain how the Chinese banyan originally came to Hawaii. It was listed by Dr. William Hillebrand here in 1880. Some think Hillebrand brought the tree here after a trip to the Orient in 1865 to gather exotic plants for transplanting in Hawaii.

Some think the giant Chinese banyan at Chun Hoon's market, School and Nuuanu, is the original of its kind here. That tree is said to have been planted by Chun Afong, whose home once stood there.

Afong came to Hawaii in 1849, made a fortune here as a merchant, and later left the Islands for a palace in Macao, where he died in 1906.

Dr. Hillebrand started the garden now known as Foster Garden on Nuuanu Ave., less than a block from Afong's home.

The Chinese banyan not only volunteers to grow wherever its seed alights, it is also noted for growing very fast when it lands in a favorable place, and it hybridizes easily with other banyans.

Loraine Kuck of the Honolulu Parks Department notes that it was selected as the shade tree for the medial strip of Ala Moana Blvd., along Kewalo Basin and Ala Moana Park, because of its hardiness.

• • •

"THEY GROW in the most impossible situations. There the trees have to grow in coral rubble, with only a few feet of soil, but they are flourishing."

Marie Neal of the Bishop Museum notes that the tree has been found useful in its native habitat—Southern Asia. From its roots and bark, the Chinese and Malayans

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Silversword As State Flower

For Mr. Yamato, head of Orchids of Hawaii, that the vanda orchid by Hawaii's official state perhaps logical from Mr. Yamato's standpoint.

For the head of the sugar industry to propos tassel be Hawaii's official state flower would be logical for the cane industry.

For the head of the pineapple industry, the macadamia nut industry, the papaya industry, etc. to propose their particular flowers as official would be logical, certainly from the advertising standpoint of these industries.

To have any one of these flowers proposed as Hawaii's state flower is from scientific and other standpoints entirely illogical. It would be crass commercialism.

We presume Mr. Yamato, an orchid specialist, proposed the vanda as Hawaii's state flower on April Fool's Day as a joke.

We propose that Hawaii's official state flower be our magnificent Silversword.

DRS. OTTO AND ISA DEGENER

EDITOR'S NOTE: The writers are authors of Flora Hawaiiensis. Their letter, too long to be published completely, discusses the introduction of various flowers to the Islands.

"mightier than the sword, The pen is also mightier than the telephone) ? Take this means of communication -

I want to say how pleasing your letter about the vandas was. You handled the subject beautifully, so that many folks thought you expressed -

Now - down Memory Lane we go - Dr. Otto sent me a very interesting clipping of his book review,

(5|362. Export from Jan. 1836 to August 1841 in sandalwood was 65,000, and arrowroot $5,820.

Hon. Adv. By MYRLE CLARK 2/22/59

Dates, but not the kind you think, would be plentiful here if someone set about the business of raising them scientifically. Oldtimers tell tales of the luscious dates found on the grounds of the Queen's Hospital. These trees, now cut down, are said by some to have been raised from slips brought from Africa.

The dates you see youngsters nibbling are sweet but consist chiefly of seed. This is due to the fact that they have not been properly pollinated.

An Island Wildflower

By DR. OTTO DEGENER
Based on Flora Hawaiiensis Book 6

In studying the prickle-poppies in the Hawaiian Islands, the one with yellow flowers growing on Maui is technically Argemone mexicana L., while the one growing on Oahu is the variety ochroleuca (Sweet) Lindl.

Both, of Mexican origin, have become widely scattered throughout the tropics. These two plants are of little interest to us.

Throughout the Hawaiian Islands, however, grows a stately prickle-poppy with pure white flowers.

Its stems and leaves are prickly not unlike those of a thistle. It can be recognized from afar by its unusual pale, almost bluish color, caused by a bloom similar to that found on some plums and grapes.

• • •

THIS PLANT, appropriately named Argemone glauca (Prain) Degener & Degener, brightens arid regions at lower elevations, especially on dark lava flows.

It is found in the Hawaiian Islands and no other place on earth.

Such a conspicuous plant was well known to the older Hawaiians who called it, because of its prickles, "puakala" or the "prickly flower."

Unfortunately, the Hawaiians have left all too few records about their plants for us to read. Hence we must delve in the musty books of early Caucasian travelers for crumbs of their precious lore.

• • •

CAPTAIN COOK'S botanist, David Nelson, was the first white man to collect specimens of this plant, proving it is native to the Islands and not brought by the white man. This was on the Island of Hawaii in 1779.

Incidentaly, unfortunate Nelson accompanied the sadist Capt. Bligh of the famed "Bounty" into Pacific waters again, even on his flight to Timor. There Nelson succumbed to some disease, apparently unconnected with his hazardous trip.

Meyen, a ship's physician, spent some time botanizing in the Islands in 1831.

He wrote about his experiences in German, of which the following is a free translation:

• • •

"AS WE passed through the streets of Honolulu, we noticed almost everywhere and in the neighborhood of the houses, a large amount of Argemone, which grew like a weed everywhere.

"In the midst of such plants we saw an Indian woman standing. She touched individual flowers, thus accomplishing something.

"We approached and saw, to our astonishment, that the woman was thus occupied in artificially transferring the pollen of the flower onto its stigma.

"In answer to our enquiry why she was doing this, she answered that she thus stimulated the formation of more seed. These in the Islands, as with us (in Germany) are eaten."

• • •

MEYEN, WHO over a hundred years ago thought the Hawaiians were Indians, gives us a clue of the high state of early Hawaiian agriculture. How fascinating it would be if the older Hawaiians living among us today would record what they remember about their ancestors' culture.

By JO BIEHL

Let's talk for a minute about flowers. Not about their cultivation and successful gardening techniques, but about their romance.

Josephine

Flowers have had important roles in the cultures of many lands, but nowhere have they come to have greater importance than here in the Islands.

Every state has a flower, prized above others, which it has designated as one of its official symbols.

Hawaii's official flower is the hibiscus. But each of the individual Islands has its own flower, too, designated by joint resolution of the Legislature.

Here is the list, together with the color represented by each:

Our largest Island, Hawaii, claims the lehua blossom, sometimes called the rain flower, which is a vital, lively red.

Maui, second in size, claims the pink lokelani.

For Oahu, the yellow-orange ilima, the color of light.

Kauai chose a purple berry, the mokihana.

Molokai takes the color of green put forth by the kukui.

To Lanai belongs the yellow kaunaoa.

Niihau chose a shell, rather than a flower, the tiny white pupu.

For Kahoolawe, the island where no one lives, the gray hinahina was designated.

In Lei day pageants, and on other days of Hawaiian celebrations the princesses of the Islands wear these flowers and colors.

sprayed. However, when plants are exposed to volatile growth regulators or aerosols, stomata probably play a more important role.

Often 2,4-D enters the leaf with great rapidity. On warm, sunny days young broadleaf plants sprayed with this compound may exhibit epinasty and stem curvature within one hour after treatment.

It was originally believed that there might be a high degree of compound-crop specificity. This was found to be true to a limited extent. In general, the compounds were more toxic to broadleaf plants than to grasses. One group of compounds, however—the carbamic acid derivatives and, in particular, isopropylphenylcarbamate—was more toxic to cereals than to broadleaf plants. This confirms the results of British investigators (*1*). Among the broadleaf plants only one instance of compound-crop specificity was noted. The compound, 2,4,5-trichlorophenoxyacetic acid, and its derivatives were highly inhibitory to Irish potatoes, while all the other phenoxyacetic acids and derivatives tested on this crop had little effect.

Reference

1. TEMPLEMAN, W. G., and SEXTON, W. A. *Nature, Lond.*, 1945, 156, 630.

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THURSDAY, MAY 28, 1959

Of Poppies, Warts and Love

Editor The Advertiser

Dr. Otto Degener's article Sunday about the prickly poppies brings memories of a time when Round Top, Rocky Hill, and, indeed, all Oahu's open spaces, were dotted with the picturesque bluish plants, with their spikey leaves and lovely white flowers.

Everyone called them "Mexican poppies," but the Degener article shows this to have been a mistake, the description and the sketch there given of an exclusively Hawaiian plant fitting them exactly.

It was a widely accepted juvenile belief that the sap—which resembled the yoke of a raw egg—would cure warts. Many were the smeared little thumbs and fingers, to say nothing of marks of thorn jabs.

Then, gradually, the poppies disappeared. Years later, when they were rarely seen, we heard of another tradition. Old Kamaki, very aged, a wit, a philosopher and a treasure trove of Hawaiian lore, asked one day for a needle and thread. He must mend the leg of his pants. A

very objectionable dog had molested him when he was climbing over somebody's back fence—this to get a prickly poppy plant that was growing in the yard.

Some part of the plant, he explained, was an absolutely reliable love potion. Eager purchasers were always willing to give $5 for a plant. Kamaki was positive that Iehova would forgive him for a little aihue now and then, and understand how sorely he needed the kala. (I fully agree.)

I don't recall how the potion was obtained from the plant, nor do I know how modern or how ancient the tradition. In 1935 our dear Kamaki departed to the spirit land of his fathers—on the very day that he had poetically predicted some time before he was ill.

Yes, Otto Degener, there are many fascinating stories, could they but be revealed.

EMMA LYONS DOYLE

Shiny green foliage, gorgeous white blossoms make Spathiphyllum a popular ground cover. Look about and you can see why so many gardeners are growing Spathiphyllum as ground cover. It is now the blossoming season.

Gorgeous white flower spathes rise above thick masses of lanceolate green foliage. It is a beautiful sight. The blossoms are long-lasting and eventually turn green after maturity.

Of some three dozen species the most suitable for ground carpeting is S. clevelandii. Many of Honolulu's most attractive gardens use it in their landscaping.

THE PLANT is hardy and grows in most soils under partial shade. It can survive in sunny locations but its foliage will be stunted and burnt.

Divisions of clumps or rootstocks are the quickest means of propagation. Because of Spathiphyllum grows rather slowly it must be planted closely where quick cover is desired.

It needs but little care once established and gets along with occasional irrigation and fertilization.

The majority of Spathiphyllum species are more suitable for container cultivation. They thrive in loose, moist, loamy, well-drained soil in partial shade.

453-C Waianuenue Ave.
Hilo, Hawaii
Dec. 30, 1958

Dear Dr. and Mrs. Degener,

Thank you again for your trouble in looking up the names for the specimens I sent you. I hope that they may be of some use to you, even if they are exotics. Since both seem to be seeding well, we may see more of them in the future.

I am sorry to be so long in answering your inquiries about camping facilities, but with all the Christmas activities going on it has taken some time to get details.

Yes, we have many more roads and trails available than when you were here before. The Stainback Highway, where we got the exotics, is one which should yield good hunting for you, especially around the gardenia tree (which seems tobe in a vary ancient kipuka) and about Kulani cone.

To reach the latter you would need to contact Charles C. Smith, warden of Kulani Prison. I am sure he would help you in many ways as he is much interested in native plants. I understand that the Kulani area, which is a vary large and ancient kipuka, has never been botanized, save by a student group under Dr. St. John; and I am not sure how much they did.

The Saddle Road, between Mauna Loa and Mauna Kea should prove one of the best places for you. This goes from Hilo to join the main highway some 11 miles towards Kona from Waimea (see enclosed map) The kipukas here are many and vary greatly from one another. Dr. Rock found some choice Lobelias and related plants there a year or two ago. We call these the "low kipukas" because of their elevation and because most of them are depressed below the level of the surrounding lava flows.

The "high Kipukas" (around 10,000ft. elevation on Mauna Loa) can be reached from the truck trail which leads to the IGY observatory on Mauna Loa from Kulani Prison. These have never been botanized. Howard Pierce of the Hilo Tribune Herald can tell you more about them. He is fond of them. They are too far above the regular vegetative areas for the wild goats to have wandered to them, so some things which have been exterminated elsewhere may still dive there. The growth is all very low, about a foot high according to Mr. Pierce's pictures. I have not been there myself. Contact the U.S. WeatherBureau station at Hilo airport to arrange to go there. They go up every week and sometimes take interested scientists, or know when the IGY people are going up. The "road" is the butt of a lot of local jokes, and no place for a low slung car.

The PuuWaawaa areas are of course is very good, and quite accessible. Write to the new manager for T.H. Davies Co.'s ranch holdings, Mr. John Peacock, Hilo, for permission to collect on the ranches, and to Mr. Fred Schattauer, Naalehu Hawaii, for similar permission on C. Brewer holdings; also to Norman K. Carlson, Kealakekua, Hawaii for similar permission on Bishop Estate lands. You'll find all these gentlemen very helpful in many ways, I'm sure.

I enclose a map and a sheet put out by the Dept. of Parks and Recreation on faciilities at the various County parks on this island. I put chek marks after the ones that are best for over night camping and a double check by those which I think you would find best for your needs. There is no charge for the overnight use of the parks. Even the electricity is free. But you do have to get a permit to stay overnight so the park keeper at the particular one will know you have a right to be there.

Write to Raymond C. Carvalho, Supt. Parks Recreation for Hawaii County, P.O. Box 452, for permits.

At this time of year we don't have much trouble with hoodlums or vandals. The Hilo parks, being in the midst of the most people, have the most trouble; but Kona and Kawaihae have their share, too.

For a beach park for your purposes, I think you would find Keokea in Kohala best located. Most of the other parks are not near much native flora. I haven't seen this park since it was fixed up. It is in a rainy district, too. Neither have I seen Kapaa park. Mahukona is hot and dry and desolate.

I think that for your base of operations your best bet is the hunting lodge at Pohakuloa, 7,000 feet up the side of Mauna Kea. Write to Associate Forester L.W. Bryan for reservations. Pick up the key at the Tree Nursery and Forester's office (P.O.box 1761, Hilo) at Kilauea Ave., Hilo, before you go up. The charge is $1.00 per person per night for the use of the lodge and $2.00 per person for use of a cottage. In both cases you get use of the kitchen. Fuel is furnished, also running water, hot showers, electricity, etc., but you must furnish your own blankets or sleeping bags (It gets down to 16 F. at nights there sometimes) and bring your own food, for there are no stores near, no service stations either.

Pohakuloa is centrally located. It would be as easy to study the Mauna Loa "low kipukas" from there as Hilo, and you could branch out to many other places. There are no mosquitoes or cockroaches, either. You would find the resident personel there most helpful. I am sure they would invite you to go with them in the Territory's jeep to distant parts when their work takes them such places, for they have done this for visiting ornithologists.

Mr. Bryan can also tell you where the best rare flora spots are on his big map and maybe take you to one or more of them if his work takes him there. He has done this for others, too.

From Mr. Bryan you can also get a permit to stay at the Manuka Territorial Park or McKenzie Park, both free of charge and quite primitive. Manuka is about 3,000 feet elevation, I judge, and near native forest which might be good hunting grounds for you. (lots of mosquitoes there, I hear, also much rain).

Half way between Waimea and Hawi in Kohala is a small shelter type park that is privately owned and maintained. This is the Ronald Von Holt Memorial Park. You may stay in it free without a permit if you get there first. There is not much travel on this road so I think you would have no trouble. It has water and roof but no rest rooms, is dry and windy, elevation about 4,000 feet I judge, in pasture land with an ironwood windbreak and a marvelous view. Nice for a one night stop. From there you may be able to get to upland Kohala.

In Kohala, please contact our friends the William Wylies at Union Mill. They can tell you the best roads to take to the uplands through the cane fields to reach native flora and will likely help you in many other ways. There is an excellent hotel and restaurant at Hawi in Kohala dist. where you can stay for $3,00 a piece per person per nightif you tire of camping. Similar accomodations may be had at Kona Hotel in Holualoa, Kona (upland) and Managa's Hotel, Captain Cook, Kona (upland). All beach areas in Kona are very expensive and like Waikiki. In Hilo, write to Miss Mildred Manty, in charge of Haili House at 191 Ululani St. Hilo for reservations at Haili House if you want a room there. The charge is $5.00 per couple per night, including hot showers and kitchen priveledges. If you do write, tell her I recommended you, for this is not a regualr hotel, but she takes paying guests who come with recommendations.

I am very sorry our little apt. does not permit us to have overnight guests, but we do look forward to meeting you and entertaining you when you do come. Hope we can guide you more especially to interesting fields too.

Don't do feel free to park in our yard, sleep in your car, and use our facilities. We would love to have you do that. I am not working, so will feel free to guide you, etc., as will have other friends. I hope all this is of use to you and that we may see you in 1959, and that it will prove a happy & prosperous year for you. Michael & Alvida, Helen & Baldwin, Robert Baldwin

Dr. and Mrs. Otto Degener
P.O. Box 187,
Waialua, Oahu
Territory of Hawaii
U.S.A.

Oslo Sept. 15, 1954

Best wishes and kindest regards from Oslo where I am now visiting the Kgl. Bot. - Museum. I wish you were here.

Aloha nui,
Otto

Best wishes
Thor Holmboe

6/7/52

Spring
FIELD UNION

NDAY MORNING, JUNE 2, 1952 18 PAGES T

-SWOLLEN RIV
IACE WESTERN

Receive Honorary Degrees at UM

Five alumni, distinguished in various endeavors, and the ill Dean William L. Machmer were awarded honorary degrees at the 82d commencement at the University of Massachusetts yesterday. They are, left to right, Frank P. Washburn, Perry, Me., agriculture; Howard Lawton Knight, Westminster, Md., agriculture; Otto Degener, Hawaii, science; Emerson Greenaway, Philadelphia, humane letters; Rev. Albert F. McGuinn, Boston, science. Dean Machmer received his award by telephone to his bedside.

MR. AND MRS. ERNST NISSER

HAVE THE PLEASURE OF ANNOUNCING

THE MARRIAGE OF THEIR DAUGHTER

NINA

TO

PROFESSOR OLOF H. SELLING, SC. D.

DIRECTOR OF THE PALAEOBOTANICAL DEPARTMENT

SWEDISH MUSEUM OF NATURAL HISTORY,

STOCKHOLM

THE CEREMONY WILL TAKE PLACE

ON NOVEMBER 26TH, 1955, IN STOCKHOLM

ALSTRUM, ULVSBY, NOVEMBER 6, 1955

Red crab mystery deepens

By JAN TenBRUGGENCATE
Advertiser Kauai Bureau

LIHUE — For at least the second time in this decade, millions of tiny crablike creatures washed up on Hawaiian beaches 5/20/79

After studying the crustaceans, each of which is smaller across than a dime, scientists have concluded they are relatives of the Samoan crab. But no one is sure which relative.

No one seems to know why the creatures end up dead on the beaches, or whether it's a good sign or a bad sign.

Nobody knows what can be done about it, if anything at all needs to be done.

Earlier this summer — in late June and early July — people began noticing them on Kauai's beaches. Tiny reddish creatures with miniature tails similar to those of lobsters. They formed a band perhaps a foot wide at the high water mark. They appeared on beaches on every side of the island.

People took them to the Kauai marine adviser's office, an arm of the Sea Grant Marine Advisory Service. Adviser Jeremy Harris and assistant Jacqui Thomas sent specimens to Honolulu.

They ended up in the hands of William J. Cooke, a graduate student in zoology working on his doctorate with studies on soft corals. Cooke has also for several years worked under contract from the Research Corporation of the University of Hawaii to the Naval Ocean Systems Center at Kaneohe, where his job is to identify invertebrates, an area that includes crablike creatures.

Cooke was able to identify the mystery creature as a member of the family *Portunus*. The family includes such common Hawaii "swimming crabs" as the halole crab and the Samoan crab.

But the mystery crab is not like any crab whose immature stages have been researched, Cooke said.

It is a megalops, a stage in the crab's growth between the planktonic free-floating stage and the bottom-dwelling true crabs.

It is in the megalops stage that the crab moves into shallower waters and prepares to stake out its undersea terrain. Once it finds its spot, the megalops will molt and become a juvenile crab that looks like the adult form. Generally, before this stage, the crabs don't look anything like their adult forms, Cooke said.

The mystery megalops never got to stake out much terrain, except for the shoreline they covered as dying flotsam.

And it's not the first time the mass strandings have occurred.

Such an event was reported on the north shore of Oahu in 1977 by noted botanist Dr. Otto Degener, Cooke said. Degener at that time presented Cooke with specimens of the creatures he found. They are identical to the ones found this summer on Kauai, he said.

There was another stranding in the 1930s. Cooke studied preserved specimens of that stranding at the Bishop Museum and they were the same, he said.

Is it something to be worried about?

It's impossible to tell, Cooke said.

In the meantime, he said it is important that regular beachgoers who notice odd things at the shore, such as a sudden increase in crustacean deaths, report them to officials like those of the Sea Grant Marine Advisory Service.

Part of the key to finding out why the deaths are occurring is to have accurate records of past activities, he said.

DR. ROCK'S LIBRARY Hon. Adv. 3/9/55

Editor, The Advertiser:

Today I received a clipping from your paper of Feb. 18 regarding my library recently purchased by the University of Washington, Seattle, Wash. In the letter by Professor Krauss occurs the statement that the library was originally loaned to the University of Hawaii. This statement is not correct. Before returning—1940 from Indochina to Honolulu—I wrote to the then President of the U.H., David Crawford, that I am shipping the library to Honolulu, and that the minute the books left Saigon they were a gift (not loan) from me to the Oriental Institute of the University of Hawaii.

On my arrival later in 1940 in Honolulu I found that the books were on the floor in a little room of the building which then housed the Oriental Institute, that rats had been attacking them and cockroaches had eaten the bindings. I then remonstrated with President Crawford saying that I did not give the books to the university to be kept on the floor to be eaten by rats and cockroaches. He thereupon replied, "This is the only way we can take care of them and if you don't like it you can take them back again." I paid $670 U.S. freight from Dalat Indochina to Honolulu, via Saigon—Manila and partly via Bangkok—Manila. After the library was spurned in such a rude manner by the president of the university, I packed up the books in many trucks and boxes and stored them with the Honolulu Construction and Draying Co. In 1944 I loaned the books to the U. S. Army Map Service which shipped them to Washington, D. C., but I paid insurance of $500 for the war was still on.

This is the true story and the reason why the library left Hawaii.

Merano, Italy
March 1

JOSEPH F. ROCK

EDITOR'S NOTE—The Rock library has come to rest at last. The Rockefeller Foundation recently contributed $8,000 toward its purchase price of $25,000 and it was acquired by the University of Washington.

99 YEARS AGO—APRIL 17
From The Advertiser Files

Cotton cannot properly be treated as a product of these islands although the plant has been growing here for many years.

It is found wild on the five principal islands. It was introduced here in 1829. In 1835 an attempt was made to manufacture cotton cloth at the Wailuku Seminary on Maui, and about ninety yards were then made, but the imported article was so much superior and cheaper, that its manufacture was given up.

Also about that time a Charles R. Smith of Haiku, Maui, commenced a cotton plantation, but for want of means to carry it on, was forced to give it up.

The climate and soil here are adapted to the cultivation of this plant, and with someone with capital and experience, the cost of growing cotton could be cut so that the finished produce would make a profit on a sale.

Hon. Adv. 4/17/56

Aquaculture bill gets OK

Aquaculture got a boost yesterday when the U.S. Senate passed a bill to authorize $70 million over the next three years for studies into the industry's development. Fish, Calif.

The proposed National Aquaculture Act, introduced by Sen. Daniel Inouye and co-sponsored by Sen. Spark Matsunaga, directs the departments of agriculture, commerce and interior to put together a national aquaculture development plan.

The plan would identify aquatic species which could be cultivated and sold commercially. 5/5/80

The bill also calls for studies on financial aid for the aquaculture industry and on government regulations which might discourage its growth.

Inouye said that although the bill does not establish new incentive programs for the industry's development, it would require that studies be done to document the need for such programs.

The bill authorizes the appropriation of $17 million in fiscal year 1981, $24 million in 1982 and $29 million in 1983.

It now goes to the House for further action.

Marijuana harvest continues with hauls in Waialua, Haleiwa

Hon. Adv. 9/23/81

In their fourth day of uprooting marijuana plants, Honolulu police officers yesterday confiscated an undisclosed number of plants in the Waialua and Haleiwa areas.

On Saturday, officers swept through the Mililani hills behind Kipapa, taking 261 pounds of the illegal plants. Some 2,087 pounds were netted in Kunia the next day. On Monday, 1,129 pounds were confiscated from Poamoho Gulch and canefields in the Leeward area.

Police spokesman Max Kaniho said the forays "partly resulted" from recent searches for two missing men who police believe may have been killed Aug. 29 in connection with marijuana farming.

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

Uniquely bound loose-leaf **"books"** profusely illustrating and describing the wild and cultivated ferns and flowering plants of our gardens, roadsides and mountains. Here are the authoritative books giving you the plant's correct English and scientific names, native home, distribution, present and former uses and other facts of interest. Moreover, as many of these plants are found elsewhere in the South Seas, this work is useful in the study of other Pacific regions.

Read about the Spanish moss & auto cushions, tacca and calico frocks, a runaway orchid, pickleweed to lay the dust, Mexican tea, 4 o'clock face powder, cherimoya, avocado & rats, air-plant, klu & perfume, poinciana & pavements, peanut chocolate, Clitoria & blue rice, wiliwili & surfboard, indigo, Tephrosia fish poison, Pride-of-India, mahogany & Kalakaua, poinsettia, castor-oil, California pepper-tree, christmasberry, soapberry, kokio the missing link, milo & calabash, passionflowers, day-blooming cereus, cochineal cactus, prickly pear, pomegranate & Pliny, Indian almond & Indian summer, rose apple & Byron, mountain apple, fuchsia, Chinese violet, scarlet pimpernel, Natal plum, periwinkle, dodder, Cape gooseberry & poha jam, popolo, African tulip, Liberian coffee, gardenia, hedgehog gourd, Star-of-Bethlehem & blindness, Trematolobelia the native saltshaker, maidenhair, Bermuda grass & hayfever, waterhyacinth & navigation, yam & whaling, wauke, macadamia, Diamond Head sandalwood, seagrape jelly, chickweed, Ulupalakua goldencup, caper sauce, thimbleberry, Chile algaroba & bees, Canary tagasaste, cotton & Don Marin, kamani & Molokai, anatto & butter, crownflower, apple-of-Peru, false ipecac, tree-thistle, and silverswords galore!

"Books" are simply convenient storers of usually single sheet publications with names of authors and dates of publication at bottom. The Flora Haw., hence does not exist in volumes and must not be cited thus.

Flora Hawaiiensis, Book I. 336 pages profusely illustrated with 107 full-page plates $3.50

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Flora Hawaiiensis, Book III. 310 pages profusely illustrated with 127 full-page plates $3.50

Flora Hawaiiensis, Book IV. 326 pages profusely illustrated with 127 full-page plates $3.50

(Flora Hawaiiensis, Books I-IV, have been sold out, but a slightly revised **edition on poor World War II emergency paper bound in single poor cover (1192 pages) available for $15. Flora Haw., Book V, 438 pages with 127 plates. $15. Flora Haw., Book VI, 532 pages with 165 plates. $15. Book VII, presently incomplete & lacking cover, "as is, where is". $15. ALL WHOLESALE PRICES.**

Plants of Hawaii National Park

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

A book of human interest emphasizing the culture of the ancient Hawaiians. As many of the plants growing in Hawaii grow likewise in other islands of the Pacific and as many of the ancient Hawaiian customs are like the customs of the present inhabitants of other Pacific Islands, this book is actually illustrative of plants and customs of the South Seas. Read about tree ferns and the pulu industry, hala and mat making, lei and hula dancing, idols, sugarcane and pineapple industries, coconut and the giant crab, taro and edible past-like poi, ti leaves for dresses, banana and the taboo, shampoo ginger and earth oven, beefwood tree, breadfruit and surfing, making of bark cloth, sandalwood and the disastrous New Hebrides expedition, mistletoe and other parasites, koa and its two kinds of leaves, outrigger canoe, grass house, candlenut-lighting, human sacrifices, passion flower, guava and coffee, the poisonous Star-of-Bethlehem, besides other plants and native customs.
Paperback, 315 pages, $ 4.50

NATURALIST'S SOUTH PACIFIC EXPEDITION: FIJI. An account of human interest dealing with social conditions, cannibalism, fire-walking, religion, native treatment for leprosy, Fiji drums, tattooing, doodlebugs, filariasis, flying foxes, burial alive of chiefs, strangling of widows, peonage, and Missionary foibles and successes in Hawaii and elsewhere. 312 pages with 166 photos- $30.

For above books or for information write;
Drs. Degener, Waialua, Oahu, Hawaii 96791,
or
Drs. Degener, Volcano, Hawaii, 96785.