

# NEWSLETTER

of the

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### 'AWA : S T O N E A G E T O S P A C E A G E

Richard Cracknell 1/

'Awa (botanically: *Piper methysticum* Forst.) is a shrub growing about four to eight feet high. The leaves are heart shaped, pointed, smooth and green on both sides. The leaves are usually about six inches in length and tend to be wider than long. The above ground stems are jointed. The part used for making the beverage is the underground stem, but often called the root. Just below the surface of the ground it becomes three to five inches thick and two feet long at maturity, which is two to five years after planting. In a patch of 'awa, the roots eventually form a heavy, knotted mass, and such a patch was highly prized, for the root gathers strength and flavour with age.

With sufficient sunlight it grows densely to a height of about twenty feet. Planted in the forest, or at the edge, where it has to climb to reach sunlight, it sprawls over sturdier growth. Such 'awa plants make use of the decayed vegetable matter in the crotches of trees, roots are formed at the nodes, and extra nourishment and a second hold are gained. The plant is not epiphytic, however.

It is evident that the Hawaiians noted such manner of growth. Not having planted 'awa in that way, they gave credit to the birds, thereby reflecting their love of poetic figure.

'Awa thrives in cool, moist uplands, high lava flows (as soon as Pele is pau, 'awa grows. -- Mrs. Young), but will grow at lower levels if cared for. After cuttings were set out in a cleared area in the forest, the patch was weeded once or twice when young, and needed no further care. After maturity, a supply could be taken out at any time, but a thought for the future was ingrained in the Hawaiians, and fresh cuttings were planted when roots were dug.

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1/ The author is a University of Hawaii student who prepared this as a report for a class in Ethnobotany taught by Beatrice Krauss.

The Hawaiians used 'awa leaves as a poultice. The root was roasted in an imu and the ashes were used as we would use "Wicks" on children with colds. The beverage extracted from the root was the most important use of the 'awa plant. The root has two classifications: green and dry. Green 'awa is the root direct from the ground, where as dry 'awa has been dried in the sun. Dry 'awa is reportedly more potent and more desirable in making the beverage. The 'awa beverage that is prepared by chewing is said to be more palatable, which is perhaps due to the conversion of the starch into a fermentable substance by the ptyalin of the saliva, and the other substances contributing to the flavor of the 'awa may be insoluble in water but soluble in the saliva and the gastric juices. The 'awa root was probably chewed as the most available way to disintegrate the fibers.

In Hawaii, the pounding process finally superseded the chewing process, and special tools were developed for the new method of pounding. Old adze-polishing surfaces, old poi pounders were frequently used. Another pounding apparatus was a wooden mortar made from a tree trunk usually used with a wooden pestle.

The root was pulverized with mortar and pestle, water was added to prevent scattering and forming dust. When well pulverized, water was mixed with the mash to bring it to a proper dilution, then it was strained.

The strainer (ahu-'awa) of tangled fibers, tied together at one end, and grasped with both hands, was moved slowly through the liquid, to pick up the fibrous root particles, then squeezed dry, shaken out at the side of the bowl and the process repeated until the liquid seemed free of fibers.

In order that persons of unfriendly or evil intent might not use the discarded fibers in sorcery, they were carefully thrown away in a running stream or into the sea.

The amount drunk varied greatly. A coconut cup was invariably the container from which to drink and would contain half a pint or more, the amount commonly taken before a meal. At a drinking party much more would be taken.

'Awa was never made ahead of time and kept, but the chewed balls were sometimes prepared and wrapped in paihihi moss, or banana leaves. This met the necessities of long journeys or voyages, or the wish to serve a chief expeditiously. The strength of the brew was roughly measured by the number of these balls. If a strong concoction was wanted, about four balls per person were allowed. Two were usually sufficient. When all the balls were ready and placed in the kanoa (community 'awa bowl used for mixing), a coconut cup of water was added for each person to be served. For chiefs, and on rare occasions, the water from the coconut was used.

When a scarcity of the supply of 'awa demanded it, two or three infusions were made from the same mass of chewed 'awa. The first brew was called mahu, the second the hope, and the third the kua.

The appearance of the 'awa beverage is not attractive to the eye. If dried 'awa is used, the liquid is greyish, if green 'awa is used it is greenish. The liquid is never clear in spite of straining and is usually a fairly thick liquid.



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If a cup of 'awa is allowed to stand, a thick sediment accumulates at the bottom.

There is disagreement as to the taste of the 'awa beverage. This is easily traced to the wide differences in personal reaction, potency of the root used, strength of the infusion, and familiarity with the taste and the custom.

Personally, I find numbness to be the strongest characteristic of the 'awa taste. Upon chewing you will feel your mouth and tongue become thick and numb. The taste is not a pleasant one nor is it a truly unpleasant one. Whatever the taste may be it is not one you tend to linger over.

The effect of 'awa varies according to the amount taken. In moderation, it relaxes the nerves and induces refreshing rest and sleep. Taken often in large quantities it makes the skin scaly (mahuna) and ulcerous, the eyes bloodshot and suppurated, and reduces the control of the arms and legs. Walking becomes difficult or impossible. The mind still remains clear until sleep comes and the emotions are not affected.

'Awa was used medically by physicians of the kahuna class. It was dispensed for ailments such as: "general debility, especially in children", "chills and hard colds", "difficulty in passing urine", "disorderly stomach", "thick white coating on the tongue", "weaknesses arising from certain conditions during virginity", "displacement of the womb", "headaches", "weary muscles", and a "poultice for boils". Babies were given the juice of a certain variety of 'awa ('awa nene) as a type of soothing syrup. 'Awa was also given as a means for a weight loss.

'Awa was used religiously as an offering. 'Awa was supposed to be the favorite of the gods. If nothing else was offered, then 'awa must be offered.

The distinction in 'awa drinking between the alii and the commoners was one of manner and purpose. The aliis drank mostly for pleasure, the kahunas ceremonially, and the working class for relaxation after labor. There was always plenty of 'awa for everyone.

With the coming of foreigners to Hawaii the customs of the people started to fade. 'Awa had been important in religion, but it was no longer an offering, for the old religion was dying. 'Awa had been important as a pleasure drink, but now liquor is better. 'Awa was important in medicine and still persists to some extent in that capacity.

'Awa today is used mostly for its medical properties and somewhat as a leisure time beverage. As to some of its medical properties, it is a spinal rather than a cerebral depressant, it steadies the pulse, does not raise the temperature, and acts as a diuretic. 'Awa is used in the synthesis of meprobamate the chemical used in "Miltown", "Equanil", and other popular tranquilizers.

'Awa was extensively used in Germany before World War I, in the manufacture of certain drugs. Today in Germany a Dr. Steinburg is researching green 'awa, its oil and leaves, as a means of treating tobacco in the prevention of cancer

through cigarette smoking.

In 1965 Mrs. Young lectured a group of astronauts from NASA on the uses of 'awa. They jokingly suggested that 'awa would be the first thing planted on the moon. Mrs. Young also believes that 'awa is being used in the space program. A substance is extracted from the green 'awa, frozen, dehydrated, then bottled for use as an inhalent relaxant in outerspace.

'Awa is still used today by elderly Hawaiians as a leisure time beverage for relaxing the tired body. The preparation is still essentially the same except "Primo" is usually added to the mash instead of water.

As one can plainly see, 'awa has made the full swing from sorcery of the stone age to science of the space age.

Acknowledgements. Most of the information in this paper is the result of an interview with Mrs. Elizabeth K. Young of Pahoia, Hawaii on December 20, 1968.

I first heard of Mrs. Young (the only supplier of 'awa in Hawaii today) through a friend that had met her while visiting her neighbor. My wife and I flew to the Big Island and called Mrs. Young's neighbor to arrange an interview. We were immediately invited to Mrs. Young's house.

Mrs. Young is an elderly Hawaiian lady, a granddaughter of King Kalakaua and Princess Kapiolani's Lady-in-Waiting. Mrs. Young's house, a large, old, wooden cottage, is very warm and informal. My wife and I were greeted with true Hawaiian aloha. Mrs. Young talked very freely and at length about the 'awa (however, she refused to talk about legends surrounding 'awa as historians and researchers have misinterpreted them). We were offered slabs of ham and coffee and not allowed to refuse. After lunch Mrs. Young drove us to her 'awa factory in Kalapana. After a tour of the shed we were ushered into the adjacent house, which to our surprise was offered to us for our use until we had to return to Oahu. For all these things I express my sincere thanks to Mrs. Young.

HAROLD ANDERSON WADSWORTH  
(1893-1969)

The death of Dean Harold A. Wadsworth on April 6, 1969, represents a great loss to the scientific community. His efforts in research, teaching, and administration had a profound effect on agriculture in Hawaii and in many other areas of the world.

Harold Anderson Wadsworth was born in Superior, Wisconsin in 1893. He received his B. S. in agriculture from the University of California at Berkeley in 1916. After serving two years with the 13th Engineering Regiment of the American Expeditionary Forces, he continued at California as an assistant and instructor in irrigation investigation and practice until 1923 when he became an assistant professor. After doing graduate study in hydraulics and physics at Stanford University, Mr. Wadsworth came to Hawaii as an associate professor in 1920. He became a full professor in 1932. His research was in the areas of



plant and water relations, responses of the sugar cane plant to irrigation, and capillary processes in highly colloidal soils of Hawaii. During his years of research he published some 70 scientific papers.

He was instrumental in the formation of the University of Hawaii College of Agriculture and was appointed dean in 1947 when it was established. He served in this capacity until 1950. From 1947 to 1954 he also served as director of the Hawaii Agriculture Experiment Station and director of the Agricultural Extension Service. Dean Wadsworth, in addition, served as : irrigation consultant to the Hawaiian Sugar Planter's Association, chairman of the Food Production Committee of the Territorial Civil Defense, member of the Governor's Advisory Council on Reorganization of the Territorial Government, member of the United States Navy Advisory Committee on Education in Guam and the Trust Territory, and president of the Hawaiian Botanical Society. Upon his retirement in 1958 Dean Wadsworth was named Dean Emeritus in recognition of his many years of service.

For over 40 years he was a leader in science and was devoted to the advancement of agriculture and agricultural practices in Hawaii. His scientific writings and teachings have influenced and will continue to influence generations to come.

William Sakai

### B O O K R E V I E W

A. C. Smith

Purseglove, J. W. Tropical Crops: Dicotyledons. Volumes 1 and 2 (consecutively paged). 719 pp. John Wiley and Sons, Inc., New York. 1968. \$8.50 per volume.

In the area of economic botany, the significance of the tropics can scarcely be over-estimated. A far greater number of crops is grown in tropical parts of the earth than in temperate parts. Many highly important crops - cocoa, coffee, rubber, and many spices, to mention a few - can be grown only in the tropics; many others which originated in the tropics - for instance cotton and tobacco - are now important in warm temperate regions. The converse is not true: most temperate crops can indeed be successfully grown in the tropics, at least at least at high altitudes.

It is the intention of the author of this book on tropical crops, however, to emphasize those plants that are grown primarily in the real tropics, that is at lower altitudes between the tropics of Cancer and Capricorn. Therefore certain deciduous fruit crops, such as apples, pears, peaches, and plums are not included, even though they often succeed in tropical highlands.

Nearly 800 species of dicotyledonous plants are discussed by Purseglove as being significant in tropical agriculture, a crop being defined as "a plant which is grown on a field scale, the produce of which is either used locally or is partly or wholly exported." As to be expected, the author found it difficult to comply rigidly with this definition, and therefore certain "back-yard" plants

and even a few wild plants yielding useful products are included.

An interesting introductory essay on "the origin and spread of tropical crops" re-states the viewpoint that agriculture developed independently in the Old and New Worlds, and that there was no movement of crops by man between the hemispheres in pre-Columbian time. Purseglove would explain the putative occurrence of certain important plants, such as the sweet potato, cotton, the bottle gourd, and the coconut, in both hemispheres prior to 1492 without invoking the agency of man.

To a taxonomist the sequence for the consideration of species is refreshing. Purseglove does not group the crops according to the type of commodity they produce, but rather brings together all the crops of a natural plant family. The families are arranged alphabetically, and similarly the genera are arranged alphabetically within the families. This sequence seems entirely acceptable in the present period of taxonomic re-assessment; a logical linear sequence of dicotyledonous families and genera may indefinitely remain illusory, whereas the convention of the alphabet has been with us for sometime.

Twenty-five families are selected by Purseglove as containing, in his judgment, the most important tropical crop plants, and an additional 22 families are grouped in a chapter on "other useful products." The great detail accorded about 100 species will indicate the author's concept of the most important tropical crops; each of these species is illustrated by an original and excellent full-page drawing. Some of the families with a large number of genera containing crop plants, such as the Cucurbitaceae and Leguminosae, are provided with simple but accurate keys to genera, and there are additional keys to the commonly cultivated species of such difficult genera as Brassica, Phaseolus, Citrus, and others.

The alphabetical (rather than utilitarian) grouping of families and genera makes possible introductory notes at these levels which need not be repeated for individual species. References to important specialized literature are inserted in the most logical positions, with either the family, genus, or species, or in a more generalized, final bibliography; these references appear to have been carefully selected and to be quite up-to-date. Under the species treated in detail the reader will find a wealth of information as to chromosome number, obvious common names, uses, systematics, origin and distribution, ecology, structure, pollination, chemical composition, diseases and pests, breeding, and production.

While the book, according to its author, is offered primarily for the guidance of "the man in the field," it will be equally valuable to all students of botany and agriculture, to tropical travellers, and certainly to professional taxonomists. Professor Purseglove merits the warm congratulations of everyone concerned with plants for presenting such a wealth of information in so well organized and polished a style. We must hope that the companion volume on monocotyledons will appear in the very near future, thus completing an exemplary reference work.

B O T A N I C A L S O C I E T Y N E W S N O T E S

New Officers Elected: At the December 2 meeting of the Hawaiian Botanical Society the officers for 1969 were elected. They are:

President: Dr. Robert M. Warner, Professor of Horticulture, University of Hawaii.

Vice-President: Dr. Clifford W. Smith, Assistant Professor of Botany, University of Hawaii.

Secretary: Mr. William Sakai, N.D.E.A. Fellow in Botany, University of Hawaii.

Treasurer: Dr. Paul Ekern, Professor of Soil Science and Hydrologist, Water Resources Research Center, University of Hawaii.

Directors: Dr. Daniel D. Palmer, Physician, and Assistant Professor of Pharmacology, University of Hawaii.

Dr. Charles F. Poole, Senior Professor Emeritus of Agriculture, University of Hawaii

KIPAHULU VALLEY: In mid-January The Nature Conservancy announced that its campaign to raise funds in excess of one-half million dollars for the purchase of property at Kipahulu Valley, Maui had been successfully concluded. The necessary funds were raised in less than one year, rather than five years as originally estimated. Purchase arrangements were immediately completed and the land was turned over to the National Park Service, thus extending Haleakala National Park to the sea. The area acquired includes the upper part of Kipahulu Valley with its magnificent native biota as well as a narrower strip along the stream in the lower part of Kipahulu which includes the Seven Sacred Pools. The Hawaiian Botanical Society was one of the contributors to this project.

BOTANICAL GARDEN ON KAUAI: Society members Ray and Bettie Lauchis have recently opened a botanical garden, Olo Pua Gardens at Kalaheo on Kauai. The gardens were formerly a plantation manager's residence, but since 1964 the Lauchises have been adding to the plantings, and have made an attempt to include native plants of Kauai in their collection along with exotic species. The gardens include more than 12 acres of land, and are open daily from 8:30 to 5:00.



OFFICERS OF THE HAWAIIAN BOTANICAL  
SOCIETY: 1950 - 1969

In 1949 the Society issued a publication, The Hawaiian Botanical Society, 1924-1949 in which the history of the first 25 years of the Society was reviewed, and a list of officers for that period was published. Twenty years have now passed, and it seem worthwhile to put on record the officers who have served during this period.

President	Vice-President	Secretary	Treasurer
1950 Beatrice Krauss	Chester Wismer	Gordon Mainland	William M. Bush
1951 C. A. Wismer	M. L. Lohman	L. B. Loring	William M. Bush
1952 M. L. Lohman	William S. Stewart	Marion Okimoto	William M. Bush
1953 William S. Stewart	J. H. Beaumont	D. P. Gowing	William M. Bush
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1966 Dieter Mueller- Dombois	Gladys E. Baker	Richard M. Hartmann	William M. Bush
1967 Albert C. Smith	Yoneo Sagawa	Richard M. Hartmann	William M. Bush
1968 Daniel Palmer	Douglas Friend	William S. Sakai	Paul Ekern
Robert Warner	Clifford Smith	William S. Sakai	Paul Ekern







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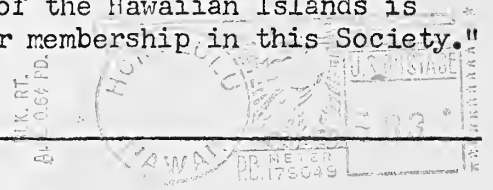
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THE HAWAIIAN BOTANICAL SOCIETY NEWSLETTER  
is published in February, April, June,  
October, and December. It is distributed  
to all Society members with the purpose  
of informing them about botanical news  
and progress in Hawaii and the Pacific.  
News contributions and articles are  
welcomed.

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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."



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