The USSR authorities deserve the thanks of science for furthering these researches more actively than is now possible or done in any other country.

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U. S. NATIONAL MUSEUM

A SECOND HOUSEHOLD PALM, OMANTHE COSTARICANA

A NEAT little palm brought home in 1902 from mountain forests of eastern Guatemala was described in SCIENCE for August 6, 1937, as *Neanthe bella,* the first member of the palm order to prove well adapted for domestication as a house-plant, flowering and fruiting readily in living rooms, classrooms or laboratories, and opening this group to study as never before. The flowers of the two sexes are specialized and borne on separate plants, but simple methods of pollination have been devised, breeding-stocks are being established at several universities and experiment stations, and additional seeds or young plants are being supplied for educational, experimental or commercial propagation. Two detailed accounts have appeared, with photographs, "A Diminutive Palm from Mayaland," in *The National Horticultural Magazine* for January, 1938, and "Neanthe, a Palm for Genetic Study," in *The Journal of Heredity* for March, 1939.

Another attractive small palm obtained at San Jose, Costa Rica, in 1903, is related to Neanthe and tolerant of household conditions, but of cespitose habit, forming clumps like a bamboo. The creeping root-stocks may be divided, or cuttings may be rooted like "slips" of house-plants, a striking departure from Neanthe, which grows only from seeds. Other obvious differences are larger size and later fruiting, long-jointed trunks, closed leaf-sheaths, strongly veined pinnae and floral adaptations not previously reported. The principal diagnostic characters of the new genus Omanthe are the crassate style, accrescent perianth, excavate embryo, separate triangular male petals, sessile stamens, attenuate pistillode, plicate pinnae, evittate rachis and auriculate petiole-base.

The name Omanthe, meaning shoulder-flower, refers to the remarkably thickened upper part of the pistil, filling the female corolla and raising the stigma to the entrance of the flower, between the narrow recurved angles of the wide overlapping petals. The thickened shoulder may be described as a stylar cushion and compared with the large staminal cushion of Neanthe, the two structures doubtless serving similar functions in retaining moisture, but obviously not homologous. The staminal cushion of Omanthe is very small, the filaments obsolete and the anthers much exceeded by the tall conic-prismatic pistillode.

The type species is *Omanthe costaricana,* described by Oersted in 1858 as *Chamaedorea costaricana,* from the volcano Turrialba. The genus is represented in the U. S. National Herbarium from numerous localities in Costa Rica, including Guanacaste and Nicoya, also from Nicaragua and from the Chiriqui volcano in Panama. Outdoor plants at San Jose reach a height of 8 to 10 feet and form striking clusters of bright green foliage.

The leaf-sheaths are longer than in Neanthe, the petioles shorter and the leaf-blades larger; the pinnae, 17–20 on a side, more widely spaced, longer and more tapering, more curved and drooping and more prominently 5-veined, a single intermediate vein on each side stronger than the others, though weaker than the submarginal vein. The rachis and petiole uniform green underneath, lacking the pale stripe of many related palms. The mouth of the leaf-sheath has a triangular stipule-like tooth on each side, at the base of the petiole.

The inflorescences are developed below the leaves, the peduncle slender with 7 or 8 joints, the second extremely short, 5 or 6 joints with narrow scarious spathes; the axis emergent, relatively short; branches 20–35 in the male, 10–15 in the female, the male branches longer and the flowers closer together, though not crowded; base of branches often decurrent, the subtending bracts represented by broad short rims. Female calyx and corolla accrescent and persistent, yellow with brown margins. Staminodes minute, usually 3, opposite the petals, oblong or tapering, the apex thin and pale, truncate or retuse, doubtless a rudiment of the anther.

Fruits broadly oval, nearly round, turning black from green, only the point of attachment yellow like the branches; exocarp firmly fleshy, forming a rather tough rind coarsely wrinkled in drying, lined with a thin green pulp and a close network of fine mesocarp fibers. Seeds spherical, marked on each side by a widely arcuate groove, the embryo subbasal, the cavity protected by a specialized operculum minutely apiculate outside and an endosperm lining with a central prominence accommodated by a cavity in the base of the embryo. Seedling with first leaf simple, broadly v-shaped.

A single large inflorescence had somewhat larger fruits and more accrescent perianths, many of these with four calyx-lobes and only two petals, a notable example of metaphanic variation or replacement in a group generally adhering regularly to its basic number three. The petal that subtends the stigma often is smaller than the other two, and where only two petals are present the stigma usually is exposed, though not in all cases. On a greenhouse plant of Omanthe two forms of abortive fruits were developed from pollination with Neanthe and another related palm, as shown in the *Journal of Heredity.*

Only a few clusters of Omanthe, without flowers or seeds, were seen at San Jose in June, 1903, and only a female plant obtained, but now this palm has be-

come a popular ornamental, variously used in open plantings, hedges, screens and arbors. "Pacaya" is the local name, though also applied to related kinds, more properly to those that have edible inflorescences. The present status of the palm in San Jose was observed by Mr. Loren G. Polhamus, of the U. S. Department of Agriculture, in December, 1938. Flowers of both sexes were collected, but no seeds were found, and even in March, 1939, when another visit to Costa Rica was made, only green fruits had developed. A rather definite seasonal habit is indicated, flowering in December and ripening its fruits in May, the fleshy pericarp doubtless attracting birds and the seeds scattered before the summer rains.

Through the kindness of Mr. W. E. Klippert, of the Goodyear Rubber Plantations Company, it was possible to arrange for ripe fruits to be sent, and a generous shipment reached Washington in May, 1939. The seeds were in excellent condition, were planted at once and germinated promptly. By the middle of July many seedlings had appeared, and a few had reached the stage of opening their first leaves. Thus adequate tests are in prospect at field stations and with private growers, to determine the value of the palm for household use with Neanthe and also for outdoor planting in Florida and California.

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FRESH-WATER MEDUSAE FOUND IN KIATING, SZECHUEN, CHINA[1]

Two species of fresh-water medusae were found in a pond along Tatu River, Kiating, Szechuen, China, in association with tadpoles, green algae, diatoms, protozoa, rotifers, small Crustacea and other aquatic forms. The pond is about four hundred meters long, thirty meters wide and two meters deep, the bottom of which is covered by sand and gravel. The water is fairly clear, and at the time of the discovery of the medusae its temperature and hydrogen ion concentration were 12° C and 7.2, respectively.

One species, possibly a variety of *Craspedacusta sowerbii,* was found on January 14, 1939. A large number of them has been found since then, mostly on sunny days. The average diameter of the umbrella measures about 2.2 cm during expansion and 1.6 cm during contraction, although much smaller young and un-mature forms were observed. The manubrium is rather long; its ratio to the diameter of the umbrella is about 1:1.5. The height of the umbrella varies, of course, with the diameter as well as the activity of the animal, whether it is in expansion or in contraction. The number of tentacles is not constant, being variable from 259 to 272. They are of seven kinds in respect to their length, arranged radially around the margin of the umbrella with more or less regularity. Located at the base of the velum and inside of the small canals (which are in direct connection with the circumferential canal) are sense organs whose number varies from 129 to 146. The gonads as four greenish pocket-like outgrowths are situated at the junction of the gastrovascular cavity and the four radial canals.

The other species found in the same pond on February 12, 1939, is much smaller, whose average diameter is about 7. cm during expansion and .45 cm during contraction. The manubrium is relatively shorter. Its ratio to the diameter of the umbrella is about 1:2. The number of tentacles varies from 44 to 115, and they are of four kinds in respect to their length. Sense organs and gonads are located at the same positions as those of the preceding species, but the number of sense organs is less, only 29 to 71. So far, only four such specimens were found.

It might be interesting to note, in view of the observations made by Powers,[2] that the medusae we collected on January 14 have been living since in our unaerated aquarium, in which, however, the water is constantly changed, without showing any visible abnormality.

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[1] The detailed description of the organisms will appear shortly in the Biological Science Series of the Science Reports of National Wuhan University.

ANTHELMINTIC ACTIVITY OF FRESH PINEAPPLE JUICE

THE use of latexes from Ficus species as anthelmintics has been known for a very long time. Robbins[1] and Walti[2] as well as others have shown that the enzyme ficin which they obtained from some of these latexes was the active agent responsible for the digestion of the parasites.

Since ficin, papain and bromelin belong to the class of so-called papain enzymes, it occurred to the authors that the bromelin of pineapple juice might exhibit anthelmintic activity similar to that of the ficin of the latexes. On looking over the scientific literature on pineapple juice no reference was found on the matter. However, it has been reported that the juice has been used in folk medicine as an anthelmintic.[3]

Living *Ascaris lumbricoides* and *Macracanthorynchus hirundinaceus,* obtained from hog's intestines, were incubated at a temperature of from 35° to 40° C. with pineapple juice freshly squeezed from a Cuban

[2] Edwin B. Powers, SCIENCE, 88: 498, November 25, 1938.

[1] B. H. Robbins, *Jour. Biol. Chem.,* 87: 251, 1930.

[2] A. J. Walti, *Jour. Biol. Chem.,* 119, *Sci. Proc. Soc. Biochem.,* 31. Ci., 1937.

[3] K. M. Nadkarni, "The Indian Materia Medica," p. 62. Bombay, 1927.