

THE IDENTITY OF UCUQUÍ

BY

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ONE of the results of recent field work in the upper Rio Negro basin of Brazil has been the identification of a useful plant of that area—the *ucuquí*. The fruit of this tree has an edible and delicious mesocarp and is an important part of the diet of the native peoples of the region.

Investigation has shown that the *ucuquí* is an undescribed species of the sapotaceous genus *Pouteria*. It is altogether fitting that, in publishing a description of this food plant, we employ as a specific epithet the common name which refers exclusively to this species over the greater part of its range.

Pouteria Ucuqui is immediately set apart from all other species of the genus by the excessively developed disk which surrounds the ovary.

Pouteria Ucuqui Pires & Schultes *sp. nov.*

Arbor enormis, usque ad centum viginti pedes alta, radicibus tabularibus, trunco columnari usque ad tres pedes in diametro, cortice crasso, molli, extus atrobadio

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et intus sanguineo cum latice albo aquosoque. Ramuli juniores, inflorescentiae, petioli et foliorum nervi indumento ferrugineo-pulverulento vel ferrugineo-furfuraceo obtecti. Folia alterna, bene coriacea, elliptica, basi et apice acuta vel obtusiuscula, plerumque cum acumine 7-10 mm. longo, margine integra, 11-20 cm. longa, 5.5-10 cm. lata, supra nitidula, subtus opaca (statu bene juvenili ferruginea), minutissime ferrugineo-pilosula; costa leviter striata, supra prominens, subtus valde elevata et robusta; nervi secundarii utrinque octo ad quindecim, supra leviter insculpti, subtus valdissime prominentes; venulae superficie utraque paulo impressae. Petiolus elongatus, siccitate striatus et leviter rugosus, saepissime 3.5-5.5 cm. longus, 2-3 mm. in diametro. Inflorescentiae axillares, valdissime congestae, fasciculatae. Flores mordaciter fragrantés, flavo-virides, gemmationis statu longe persistentes sed flores ipsi fugaces. Sepala quinque, imbricata, subrotundata, plerumque 2 mm. longa, utrinque minutissime adpresso-pilosa, intus demum glabrescentia. Petala quinque, per $\frac{1}{2}$ vel $\frac{2}{3}$ longitudinis partem connata, imbricata, oblonga, apice acutiuscula vel obtusa, margine integra, plerumque 3 mm. longa, 1 mm. lata, extus pilosiuscula sed demum glabrescentia, intus subglabra, tubo vulgo 0.5-1 mm. longo. Stamina quinque, petalis opposita, filamentis vix 1 mm. longis; antherae apice acutae, basi rotundatae, connectivo mediano crasso, loculis duobus, sublinearibus, rimis oppositis, dehiscentibus. Staminodia petalis alterna, apice acuta, 1 mm. longa vel minora, aliquando inconspicua. Ovarium biloculare, minutissimum, pilosum, disco valde hispido, circiter 0.5 mm. alto circumdatum; stylus circiter 1.2 mm. longus, pilosus vel glabrescens, cum stigmatibus inconspicuis. Fructus maximus, 9-13 cm. longus, 5-7 cm. in diametro, monospermus; semen magnum, plerumque 7-10 cm. longum, 3.5 cm. latum, 3 cm. in di-

ametro, cum testa crustacea, nitida, plusminusve 2 mm. crassa, area umbilicali magna.

Arbor a regionis typicae brasiliensis incolis *ucuquí* (in lingua nheenagtú), *puch-pee-á* (in lingua tukanorum tribus); a regionis colombianae incolis *ob-le-da* (in lingua kuripakanorum tribus), *ka-he-pa* (in lingua mirañorum tribus) appellatur.

COLLECTIONS EXAMINED:

BRAZIL: Estado do Amazonas, Upper Rio Negro, Igarapé Uabá, opposite mouth of Rio Xié. "Immense tree, 110 feet tall, with wide-spreading crown. Large buttress roots up to 6 feet. Tree columnar, $2\frac{1}{2}$ to 3 feet in diameter. Bark dark brown, shaggy externally, red internally, soft, $\frac{1}{2}$ - $\frac{3}{4}$ inch thick. Latex sparse, white. Wood of medium hardness, compact, white. Flowers in extremely dense clusters, falling easily. Sepals greenish; petals white; anthers brown, apparently odourless. Common name: *ucuquí*." January 5, 1948, *Richard Evans Schultes & Francisco López 9553* (TYPE in Herb. Gray; DUPLICATE TYPES in Herb. Inst. Agron. Norte (Belém do Pará); U.S. Nat. Herb.; Kew; Econ. Herb. Oakes Ames).—Rio Issana basin, between Rio Aiarí and Rio Caiarí (Uaupés), near Serra Tunuí. "Arvore 25 m. \times 40 cm. Frutos estimados como alimento indígena. *Ucuquí*." October 13, 1945, *Ricardo de Lemos Fróes 21388*.—Rio Negro, near Uaupés (Sao Gabriel), Serra de Uanari "*Ucuquí*. Arvore muito grande. Latex branco, pegajoso, página inferior da folha revestida por leve indumento escamoso ferrugineo, fruto amarelado." October 26, 1947, *João Murça Pires 773*.—Same locality. "*Ucuquí*. Arvore muito grande. Latex branco, pegajoso, página inferior da folha revestida por leve indumento escamoso ferrugineo; fruto amarelo." October 30, 1947, *João Murça Pires 799*.—Same locality. "*Ucuquí*. Arvore muito grande no alto da serra. Floras quasi brancas (botoes)." November 17, 1947, *João Murça Pires 1165*.—Rio Negro, near confluence with Rio Uaupés. "*Ucuquí*. Arvore muito grande. Madeira dura. Latex branco, pegajoso. Pagina inferior da folha revestida por leve indumento escamoso, ferrugineo, amarelado." November 5, 1947, *João Murça Pires 833*.—Rio Uaupés, Serra Uapici. "*Ucuquí*. Arvore grande." November 17, 1947, *João Murça Pires 1150*.—Rio Negro, near Uaupés (Sao Gabriel). "*Ucuquí*. Arvore platinhas novas, colhidas sob a arvore." October 30, 1947, *João Murça Pires 792*.—Rio Uaupés, Ipanoré "*Puh-piá*. Arvore grande." November 15, 1947, *João Murça Pires 1057*.—Rio Uaupés, Taracuí.

"*Ucuquí*, (lingua geral). *Puh-piá* (Tukano), November 8, 1947, *João Murça Pires 905*.—Rio Uaupés, Serra Uapici. "*Ucuquí*. Arvore grande." November 17, 1947, *João Murça Pires 1149*.—Rio Negro, Sao Gabriel. "*Coquí*. Enormous tree. Buds brownish. Fruit edible." November 20-25 1947, *Richard Evans Schultes & Francisco López 9184*.—Rio Negro, Sao Gabriel. "*Ucuquí*. Enormous tree." January 14, 1948, *Richard Evans Schultes & Francisco López 9618*.—Middle Rio Negro basin, Rio Curicuriari. "*Ucuqui*." *Richard Evans Schultes & Francisco López 9710*.—Rio Negro, Ipanoré. Caatinga forest beyond town. "*Coquí*. Enormous tree. Fruit edible." November 14-15, 1947, *Richard Evans Schultes & Joao Murça Pires 9096*.

COLOMBIA: Comisaría del Vaupés, Río Negro, opposite Piedra del Cocuy. "Enormous buttressed tree, 110 feet tall, diameter 3 feet. Flowers greenish yellow. Bark shaggy, brown. Fruit edible." December 28, 1947, *Richard Evans Schultes & Francisco López 9484*.—Río Guainía, near Sejal. "Tree 100 feet tall, buttressed. Kuripaka name: *ó-le-da*." June 1948, *Richard Evans Schultes & Francisco López 10058a*.—Comisaría del Amazonas, Río Caquetá, near La Pedrera. "Enormous tree. Fruit edible. Miraña name: *ká-hé-pa*." July 15, 1948, *Richard Evans Schultes & Francisco López 10215*.

VENEZUELA: Territorio del Amazonas, Río Negro, base of Piedra del Cocuy. "Enormous tree 120 feet tall, $2\frac{1}{2}$ feet in diameter, slightly buttressed. Bark brown, shaggy, soft, scarlet within. Latex sparse, white. Buds greenish yellow." December 24, 1947, *Richard Evans Schultes & Francisco López 9458*.

Pouteria Ucuqui is very common in the northwesternmost part of the Brazilian State of Amazonas along the upper Rio Negro, from Tapuruecuara (Santa Isabel) upstream, and along its affluents: the Uaupés, Issana, Tikié, Curicuriari, Dimití, and probably many others. It is known to occur in Colombia in the Ríos Guainía (constituting the source of the Río Negro) and on the Río Caquetá. It has also been found on the Japurá in Brazilian territory and has been reported from the Río Solimões (Le Cointe, P. "Arvores e plantas uteis" (1934) 457). According to reliable reports, it occurs in certain places far into Venezuelan territory along the lower course of the Río Guainía and on the Casiquiare itself.

In this entire area, the plant—an enormous, heavily
owned tree which fruits profusely once a year—is found
abundance in the virgin forest on high, well drained
oil. It is also often encountered in a state of apparent
cultivation, since, in clearing for house sites, the tree has
been spared. When completely ripe, the thick, fleshy
mesocarp of the fruit, which resembles that of the avo-
cado (*Persea americana* Mill.) to a striking degree, is
very palatable. When green, however, it is full of latex
and is extremely sticky.

Pouteria Ucuqui is known in the entire Brazilian part
of its range by the name *ucuquí*, a word originating from
the Lingua Geral or Nheengatú language which is spoken
widely in the State of Amazonas, and especially in the
Rio Negro. The Tukano Indians of the Rio Uaupés re-
fer to the tree as *puch-pee-á* (the *ch* being soft as in the
German *ich*). In Colombia, the native name for *Pouteria*
Jcuqui amongst the Kuripaka Indians of the Río Guainía
is *oó-le-da*; and amongst the Mirañas of the Río Caquetá
(La Pedrera), *ká-he-pa*. The tree is called *yucú* by the
Spanish-speaking population of the Venezuelan town of
San Carlos on the uppermost Río Negro.

The term *ucuquí*, so far as we have been able to ascer-
tain, refers exclusively to *Pouteria Ucuqui* and should
not be confused with *ucuquirana* (i. e., “false *ucuquí*”),
a name widely applied in the same area to the sapotaceous
Ecclinusa sanguinolenta Pierre (*E. Balata* Ducke)—also
called *abiurana*—a tree which is actively exploited as the
source of a type of balata. The two trees are completely
distinct from all points of view.

Pouteria Ucuqui is a very tall and robust tree, usually
with comparatively large buttresses at the base; the low-
est branches are at a great height from the ground. These
conditions make the study and collection of herbarium
material rather difficult, especially since the flowers,

which are borne on the branchlets, are very minute and cannot be seen from the ground, even with binoculars.

Dr. Adolpho Ducke, who has visited the upper Rio Negro basin several times, was unable to collect flowering material of *ucuquí*, although he devoted special attention to this tree which he believed represented an undescribed species. Without flowering material, however, there was some question as to even its generic affinities.

When we began our work in the upper Rio Negro in late 1947, Dr. Ducke counseled us to try to find flowering material which would settle definitively the identity of *ucuquí*. With this in mind, we studied a number of individuals over a wide area. It was almost always necessary to use the balatero's climbing-irons (employed during the extraction of balata from species of *Manilkara*), since the girth of the tree usually prevented the use of the "peconha" (a band of pounded bark which the Indians place on the feet to aid them in climbing). The expertness of our assistant, the late Francisco López, in the use of the climbing-irons greatly increased the number of trees which we could study.

During October and November, this work was carried on principally by Murça Pires. At first, sterile specimens only were obtainable. Then, gradually, we began to secure material which was in bud. No flowers, however, were found, and we later learned that the species develops the flower with extreme slowness, persisting in bud sometimes for three or four months. Many experiments were tried to force the buds to open: sun, artificial heat, soaking in hot and warm water; but all these efforts failed.

It is interesting in this connexion to note how little the natives know about the life-history of this species, even though it is one of their common and useful plants. Repeated questioning on our part brought forth the most divergent and amusing remarks concerning the flowering

f *ucuquí*. Many, when asked during what month the tree flowers, replied that they had never seen it flower and that, therefore, it did not flower. Others insisted that the tree blooms during the night and immediately drops all the flowers. This second "explanation" is, in any way, ingenious, because, as we later witnessed, the forest floor under an *ucuquí* tree, where there had even the day previously been no indication of blossoms, would suddenly be covered with literally hundreds of thousands of flowers or parts of flowers. Our studies showed that, in spite of the very long period of aestivation, the flowers are almost ephemeral in *Pouteria Ucuqui*.

During the last few months of 1947, Murça Pires revisited trees in bud several times in an attempt to collect fertile specimens. When he returned to Belém, Schultes and López continued the search. In late December, it was noted that the buds on a number of trees previously examined were swelling rapidly, in spite of the fact that for at least a month previous there had been no appreciable alteration in their size.

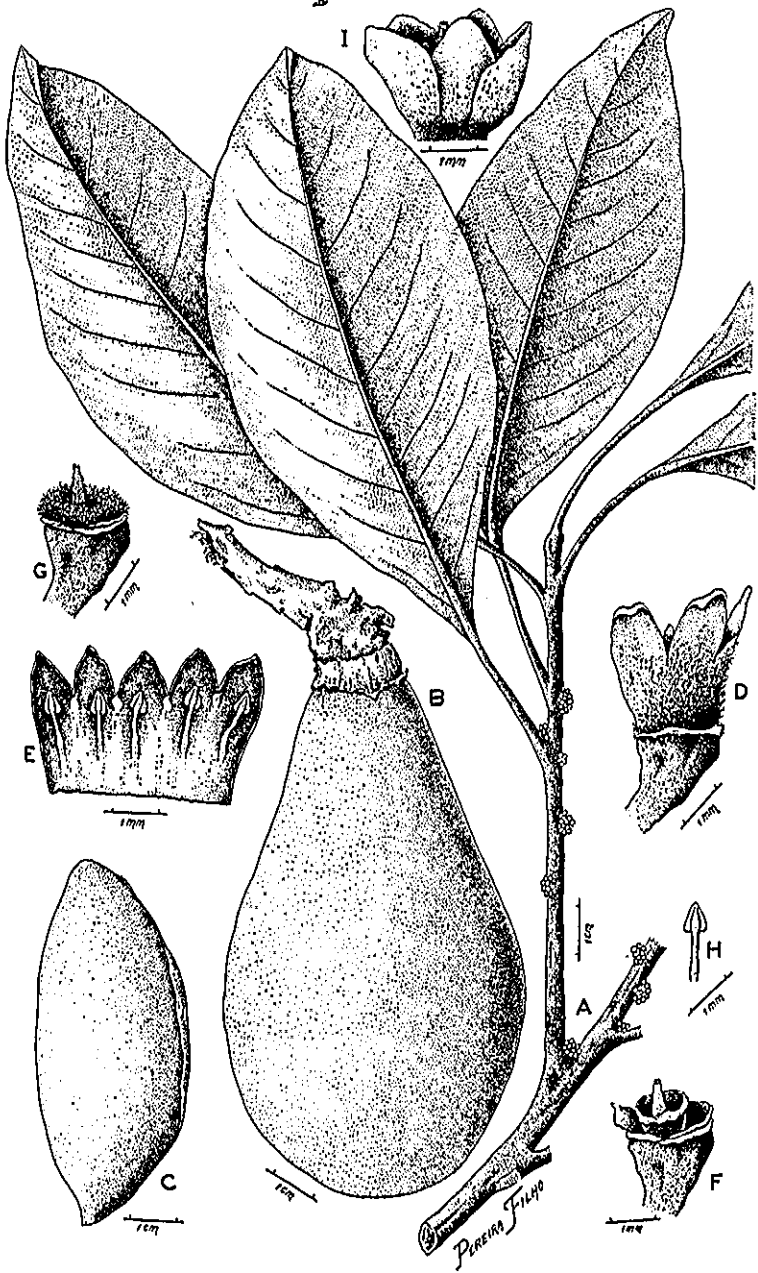
On January 5, we found our first flowering tree. It was very early in the day, about six o'clock in the morning, when our attention was called to the tree by the patter of falling flowers. Upon climbing the tree, we noted a very strong aromatic and pungent odor. It is significant to note that the buds never had a fragrance. There were innumerable large bees and several other kinds of smaller insects visiting the flowers even at this early hour. Later, we encountered other trees in flower, but the pronounced odor was not noted. It is possible that the strong, aromatic fragrance is given off only for a short period during the very limited blossoming time. As accurately as we could calculate, open flowers persist for no longer than three days on an individual tree and usually are much shorter lived.

EXPLANATION OF THE ILLUSTRATION

PLATE XX. *POUTERIA* UCUQUI *Pires & Schultes*. A, flowering branch, about one half natural size. B, fruit. C, seed. D, flower. E, dissection and view of interior of corolla. F, dissection of flower showing disk around ovary. G, dissection of flower showing pilosity around ovary. H, anther. Each drawing has a millimeter scale to indicate magnification.

Drawn by PEREIRA FILHO
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POUTERIA Ucuquã Pires & Schultes

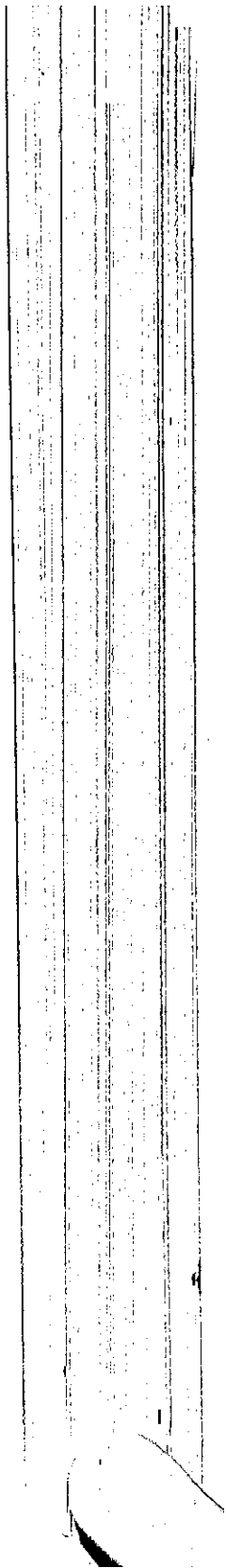


EXPLANATION OF THE ILLUSTRATION

PLATE XXI. *POUTERIA* UCUQUI *Pires & Schultes*.
Basal portion of trunk of type tree, showing the
buttress roots.

Photograph by R. E. SCHULTES

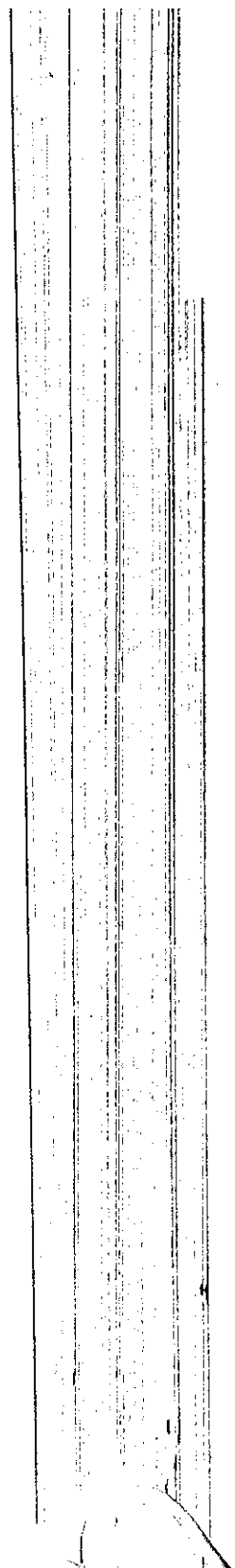
PLATE XXI



EXPLANATION OF THE ILLUSTRATION

PLATE XXII. *POUTERIA* UCUQUI *Pires & Schultes*.
Inflorescences from branchlets of type tree.

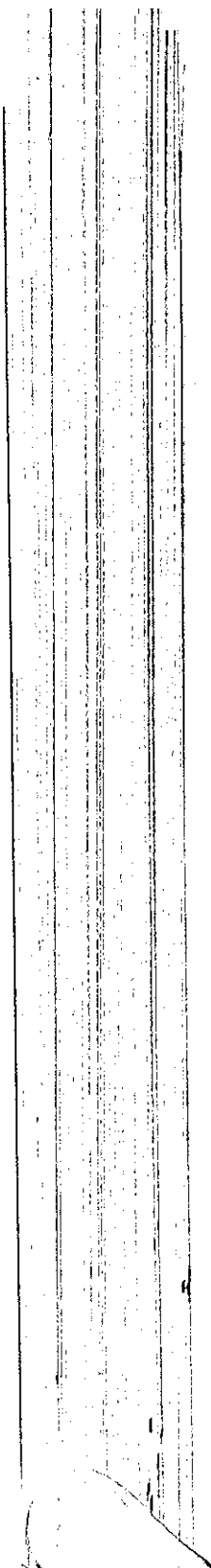
Photograph by R. E. SCHULTES

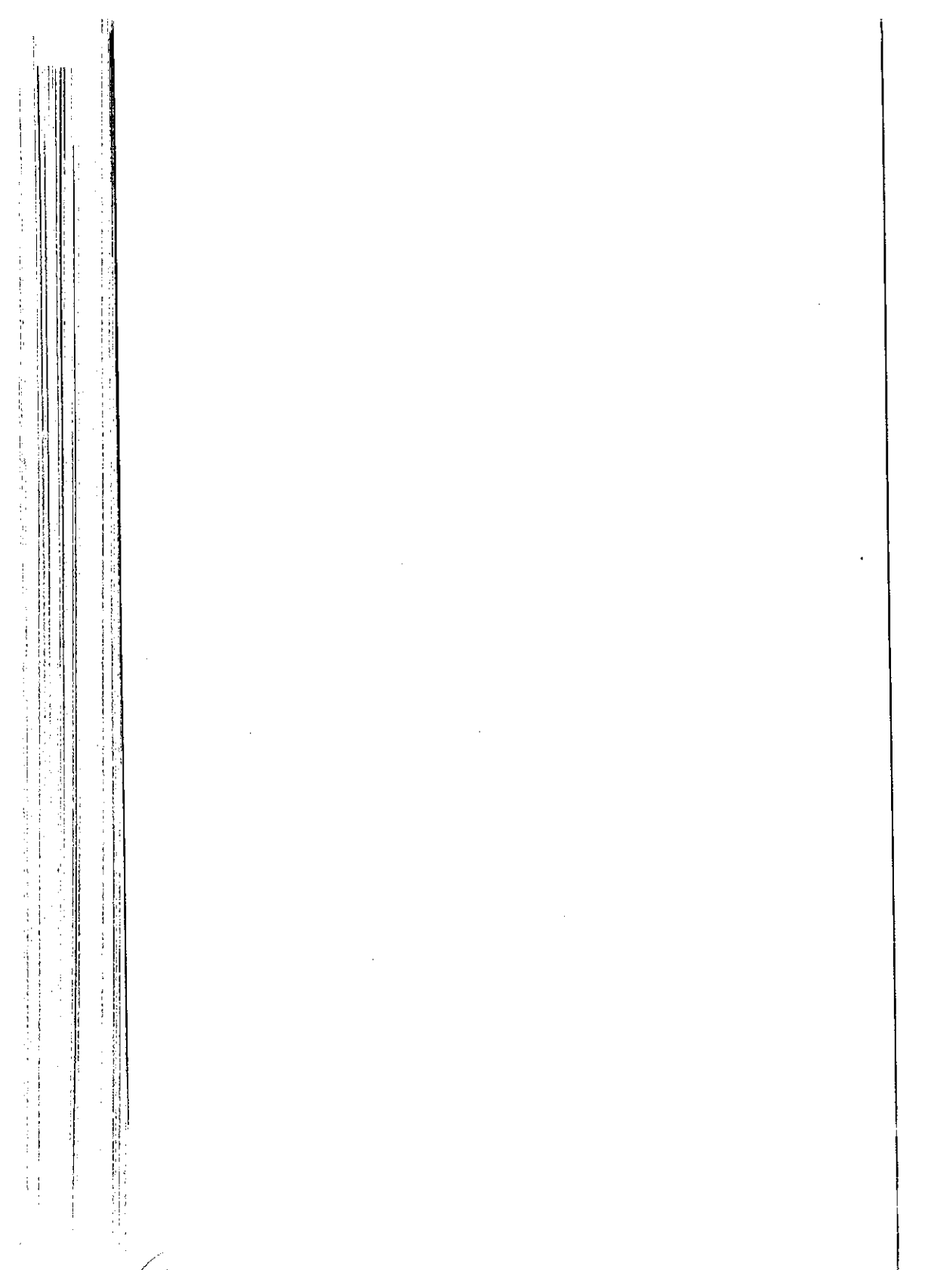


EXPLANATION OF THE ILLUSTRATION

PLATE XXIII. *POUTERIA UCUQUI* Pires & Schultes.
Flowers from type tree.

Photograph by R. E. SCHULTES





A century set (i. e. one hundred herbarium specimens) was collected from the type tree for distribution by the Gray Herbarium of Harvard University. Floral material was also obtained from the same tree and preserved in alcohol and glycerine for use in drawing up the description.

An interesting Indian use of *ucuí*, discovered by Fróes along the Rio Japurá, is the manufacture of toy whistles from the seeds. All of the interior of the seed (the cotyledons) is removed and a number of holes, over which the fingers are placed, are made. In popular medicine in Amazonian Brazil, the fruit is sometimes employed as a vermifuge (Le Cointe loc. cit.).

The earliest and, in fact, the only reference of an extended nature to *ucuí* which has come to our attention is Wallace's interesting discussion of the plant (Wallace, A. R. "A narrative of travels on the Amazon and Rio Negro" ed. G. T. Bettany (1889) 243-244). Because of its historical significance, we quote it in full. "Of a passing Indian [on the Rio Uaupés] I bought a basket of Ocokí, and some fish. The Ocokí is a large pear-shaped fruit, with a hard thick outer skin of almost woody texture, then a small quantity of very sweet pulpy matter, and within a large black oval stone. The pulp is very luscious, but is so acrid as to make the mouth and throat sore, if more than two or three are eaten. When, however, the juice is boiled it loses this property; and when made into mingau with tapioca, is exceedingly palatable and very highly esteemed in the Upper Rio Negro, where it is abundant. It takes at least a peck of fruit to give one small panella of mingau.

"On the next day, the 10th in the afternoon, the Indians all suddenly sprang like otters into the water, swam to the shore, and disappeared in the forest. 'Ocokí' was the answer to my inquiries as to the cause of their sudden disappearance; and I soon found they had discovered

an ocoki-tree, and were loading themselves with the fruit to satisfy the cravings of hunger, for the Indian's throat and mouth seem invulnerable to all those scarifying substances which act upon civilised man. The tree is one of the loftiest in the forest, but the fruit falls as soon as ripe, and its hard woody coating preserves it from injury. Baskets, shirts, trousers, etc., were soon filled with the fruit and emptied into the canoe; and I made each of the Indians bring a small basketful for me; so that we had 'mingau de ocoki' for three succeeding mornings."