

many species of plants, such as azaleas and rhododendrons, are really the requirements of their mycorrhizal fungi." This statement should influence the grower to use an acid medium.

I hope that the problems involved will be a ready challenge to fellow palm growers, and that our society will be a clearing house for the reporting of their experiences.

## Exotic Palms in the Western World II

### ARECA LANGLOISIANA

HAROLD E. MOORE, JR.

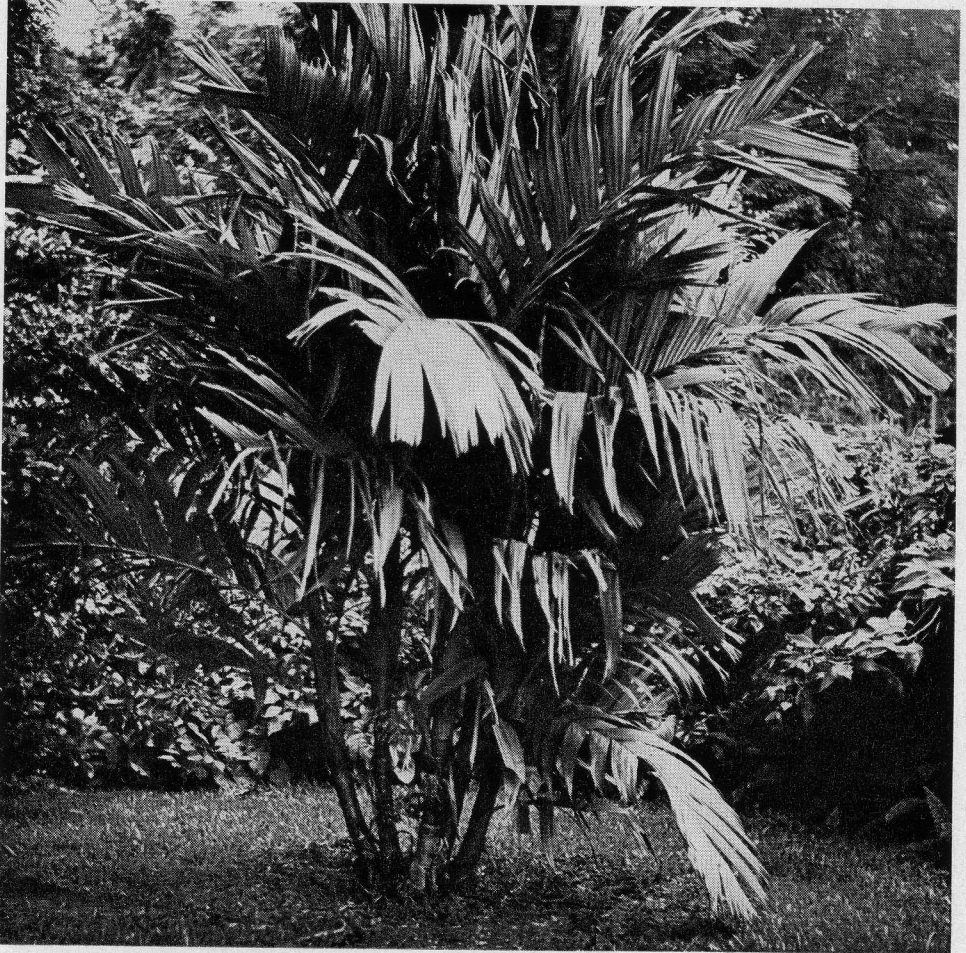
An account of some palms introduced into cultivation by the Fairchild Tropical Garden Expedition of 1940 appeared in *Gentes Herbarum* 8: 295-315, 1953, wherein *Drymophloeus* and *Siphokentia* were considered. Another handsome palm collected on the expedition (Number 208) and successfully grown by Mr. and Mrs. A. C. Langlois at "The Retreat," Nassau, Bahama Islands, has recently been described as a new species by Dr. Eva Potzta of the Botanical Museum at Berlin-Dahlem, Germany, under the name *Areca Langloisiana* (*Willdenowia* 2: 628, 1960). Specimens for Dr. Potzta's study were provided by Mr. Langlois from the plant in his garden at Nassau. Apart from one plant on the grounds of Mrs. Archbold's estate at Nassau, no other survivors from the original lot of seed, sent also to Florida and the Philippines, are known to exist, but offspring from the Langlois' plant are now grown elsewhere.

Seed of *Areca Langloisiana* was collected by Hugo Curran and Edward P. Beckwith in February, 1940, on the slopes of the volcano Sapoetan above a rest-house at Noongan back of Manado on the Minahassa Peninsula of Celebes Island (Sulawesi), Indonesia. Dr. David Fairchild described the event on page 105 of his delightful book *Garden Islands of the Great East* (Charles Scribner's Sons, 1943) as follows: "Hugo and Ned set off up the slopes of Sapoetan with cameras . . . Quite unexpectedly

they discovered three other very handsome palms; one an *Areca* with lacquered sheaths, reminding me of the famous "lacquer palm," *Cyrtostachys lakka*, rare even in botanic gardens. This is a larger palm with stilt roots and large fruits an inch long, a beautiful red in color like the stem on which they are borne."

From the time I first saw *Areca Langloisiana* at The Retreat in 1951, I have been perplexed by the difference in color between the lacquer-red sheaths described by Dr. Fairchild and the orange sheaths of the cultivated *Areca* "208" as it has been called. A very pleasant afternoon spent with Mr. Beckwith at his home in Garrison, New York, in early June of this year has answered my questions at least in part. He not only gave me his account of the day when 208 was collected from memory and his journal, but had set up projectors for color transparencies and for movies in color.

Mr. Beckwith recalled the day as a rainy one when he and Hugo Curran set out. On the way, they added to the party two local helpers who assisted in clearing the dense undergrowth to make photography possible. A color transparency was obtained of the red-sheathed *Areca*, and a handsome tree it must have been. In addition, both a color transparency and movies were obtained of a second *Areca* not mentioned by Dr. Fairchild which had taller, slender, clus-



51. *Areca Langloisiana* at Springfield Estate, Dominica, twelve years old. Photograph by W. H. Hodge.

tered stems tipped with crownshafts of orange sheaths and rather dense crowns of leaves. Several clumps of this orange *Areca* grew on the same slopes but in a location removed from that of the red *Areca*. Mist covers these slopes a large part of the time making them damp and chilly and rendering photography difficult, yet the orange sheaths of the second *Areca* were in marked contrast to the red sheaths of the first. I concur with Mr. Beckwith in thinking the two clearly distinct, at least so far as color is concerned. Whether two species or

color variants of a single species are represented by these photographs cannot be stated without revisiting Sapoetan for no specimens, which might have given a clue, have been preserved.

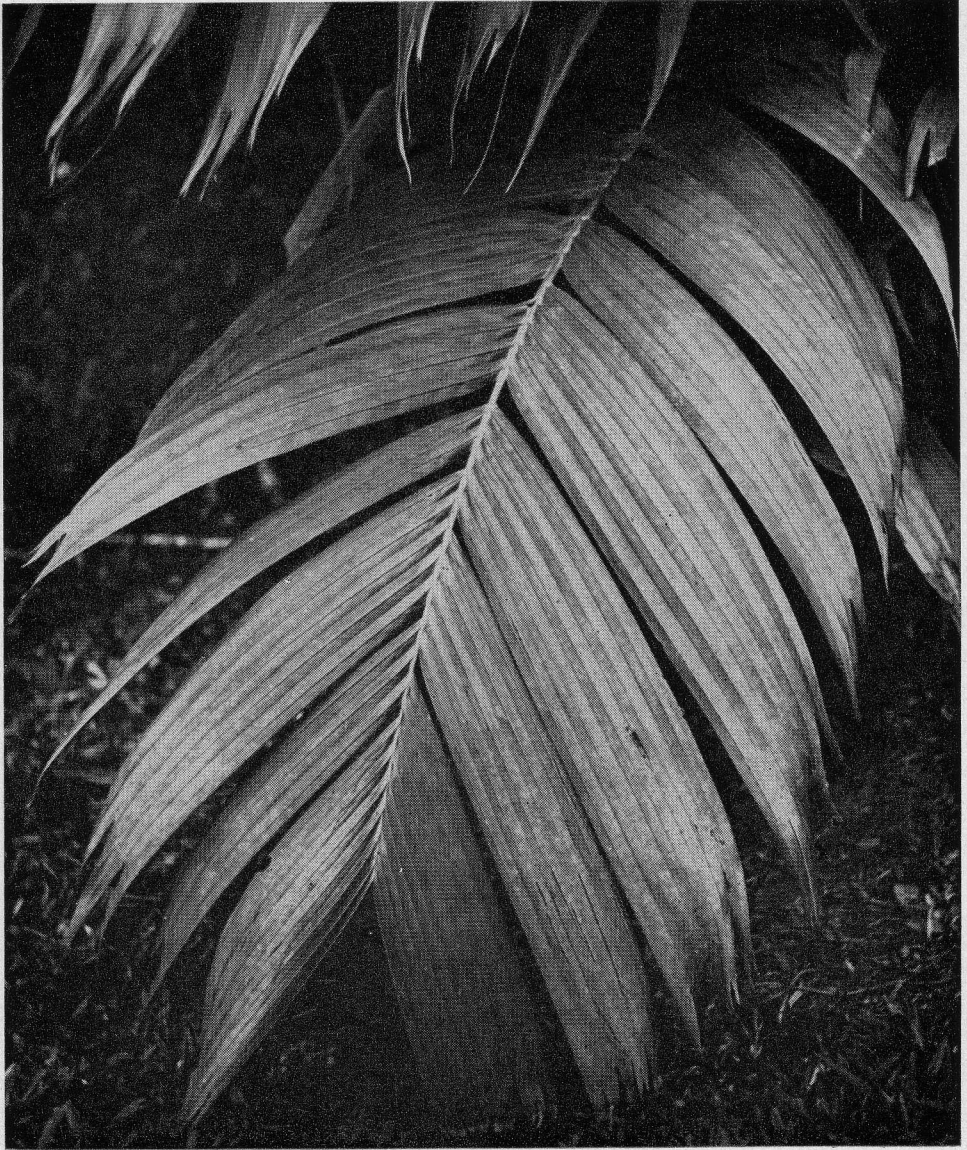
Dr. Walter Hodge, while visiting Dominica in 1961, photographed a second-generation plant of *Areca Langloisiana* grown at the Springfield Estate of Mr. John Archbold from seed sent to Dominica by Mrs. Langlois in August, 1949 (Figs. 51, 52, 53). Color transparencies show the persistence of orange sheath-color in this plant, albeit some-



52. A young plant of *Areca Langloisiana* on Dominica shows beginnings of aerial roots and inflorescences below the leaves. Photograph by W. H. Hodge.

what more intense than in my color transparencies of sheaths of the Langlois' plant taken for specimens in 1951. Mrs. Langlois writes: "I have seen with our plant that the orange can change into a deep orange-red." One may now only hope that someday it will be possible to collect and study again the arecas of Sapoetan to determine whether sheath-color is truly of specific import-

ance thus suggesting that seed of the two arecas was confused in 1940. Even more, one may hope that a study of *Areca* in Celebes and nearby islands will clarify not only color differences but the relationship of *Areca Langloisiana* to the very closely allied *Areca vestiaria*, *A. paniculata*, *A. Henricii*, and *A. leptopetala* with which it belongs in the section *Mischophloeus* of the genus.

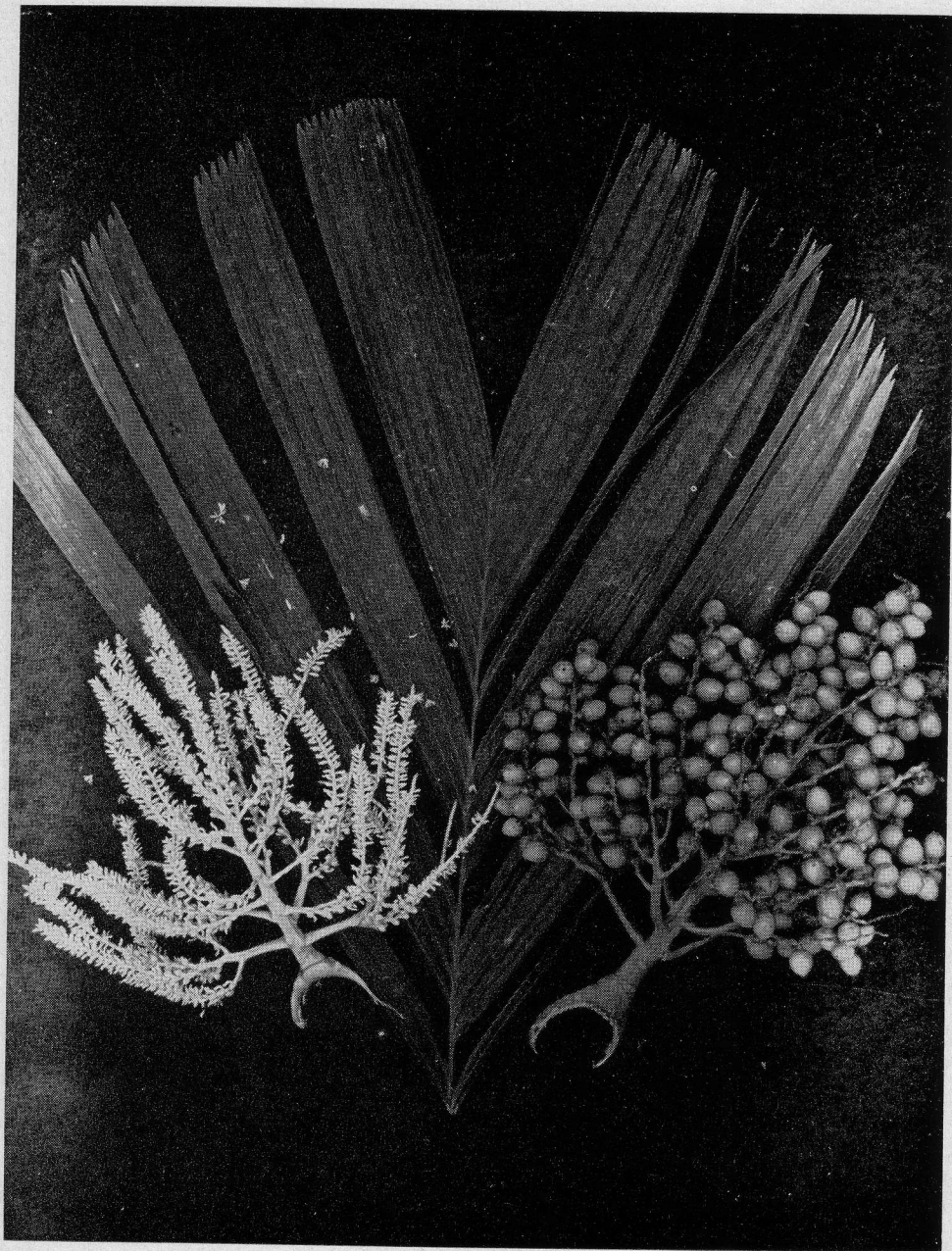


53. The upper part of a leaf of *Areca Langloisiana*. Photograph by W. H. Hodge.

In the meantime it will be of interest to watch further the color of plants in cultivation.

*Areca Langloisiana*, as we thus far know it in cultivation, is a species of moderate size with trunks not yet reaching the height suggested by Mr. Beckwith's movies. The clustered stems are

dark green, prominently ringed and, in Dominica, begin to show the development of aerial roots. Leaves have orange to orange-red sheaths about 2 ft. long flecked with minute dark brown scales, orange petioles about 14 in. long, and a rachis to 6 ft. long or more. In mature leaves 14-15 pinnae are borne on each



54. Flowers, fruit, and tip of leaf of red-sheath stilt *Areca* from Mt. Sapoetan. Photograph by Edward P. Beckwith.

side of the rachis, these being green and 1-nerved to mostly 2-3-4-nerved with sharply incised oblique apices. The

apical pinnae are about 10 in. long on their inner margin and about 10-nerved; the central pinnae measure about 28 in.



55. Aerial roots of red-sheath stilt *Areca* from Mt. Sapoetan. Photograph by Edward P. Beckwith.

long, to  $2\frac{1}{2}$  in. wide; the lower are shorter and narrower.

Inflorescences, borne below the leaves, are encased in a single deciduous orange to yellow two-edged bract about 14 in. long, 3 in. wide. The entire inflorescence may measure nearly a foot in length and is canary yellow in flower with the lower rachillae once-branched, the upper unbranched. Flowers are

borne in spiralled clusters of two male and a central female except toward the tips of the rachillae where male flowers alone occur. The latter are about  $\frac{1}{4}$  in. long with 6 stamens. Yellow female flowers are about the same length as the male and have the sepals united at the base. These, with the petals, form a yellow cup about the base of the inch-long shining red fruit.

## Palms of Africa

P. B. TOMLINSON

Compared with the American and Eastern tropics, in which extensive speciation of palms has taken place, the palm flora of continental Africa is poor. In fact, that of Madagascar, the Seychelles and Mascarene Islands of the Indian Ocean is much richer than that of the whole of the African continent and shows a much greater degree of endemism. This is but a general reflection of the poverty of the whole African flora compared with the rich floras of tropical America and particularly of the Malay Archipelago. Plant geographers have not explained this fact satisfactorily apart from making the suggestion that the flora of tropical Africa is a relatively young one in which evolution of new plant forms has not been proceeding for as long a period as in other parts of the tropics.

Comparing the palm flora of Africa with that of the rest of the world, it is evident that it is made of outliers from richer palm floras elsewhere. The subfamily Borassoideae is the best represented group and three (*Borassus*, *Hyphaene* and *Medemia*) of its seven genera occur in Africa. Of the remaining genera *Bismarckia*, *Lodoicea* and *Lantania* are restricted to Madagascar and the nearby islands of the Indian Ocean, while *Borassodendron* is Malayan. *Medemia* is entirely African. *Borassus* in

West Africa represents the westerly limit of this genus which extends eastwards as far as New Guinea. *Hyphaene* has its maximum development in East Africa.

*Phoenix*, which is the sole member of the subfamily Phoenicoideae, has three of its twelve species in Africa, most of the others being in Asia Minor and the Indian continent. The subfamily Lepidocaryoideae has its center of development in the Eastern tropics but is represented in Africa by four genera of scandent palms and by *Raphia*. *Ancistrophyllum*, *Eremospatha* and *Oncocalamus* might be thought to represent an African offshoot from the group of scandent palms of Malaysia, but their different leaf morphology suggests that they may have had a separate origin. The fourth scandent palm, *Calamus deerratus*, is the sole African representative of the genus *Calamus* which has very many species in the Indo-Malayan region. *Raphia* is probably the largest genus of African palms and elsewhere is represented only in Madagascar, together with a single species, *R. taedigera*, in South and Central America, which forms one of the rare links between the palm floras of America and Africa.

*Elaeis* and *Jubaeopsis* are the only two African genera of the subfamily Coccoideae, although they seem but dis-