

PRINCIPES

Journal of the Palm Society

July, 1959
Vol. 3, No. 3

THE PALM SOCIETY

A non-profit corporation primarily engaged in the study of the palm family in all its aspects throughout the world. The Society relies on voluntary contribution for support, and membership is open to all persons interested in the family. Requests for information about membership or for general information about the Society should be addressed to the Executive Secretary.

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PRINCIPES

JOURNAL OF THE PALM SOCIETY

An illustrated quarterly devoted to information about palms published in January, April, July, and October, and sent free to members of The Palm Society

EDITOR: Harold E. Moore, Jr.

EDITORIAL BOARD:

Paul H. Allen, David Barry, Jr., Duncan Clement, Walter H. Hodge, Eugene D. Kitzke, Harold F. Loomis, Nixon Smiley, Dent Smith.

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Cover Picture

Epiphytic lichens on the trunk of a royal palm in southern Florida. Photograph by W. H. Hodge. See pages 93-95 for story and additional photographs.

Mailed at Miami, Florida, July 13, 1959

NEWS OF THE SOCIETY

Membership is increasing at the rate of about one new member per 1.5 days since the first of the year. This phenomenon is due to the untiring efforts of our membership in telling others about the Society, and these efforts are truly bearing fruit. In March, David Barry, Jr., of California Jungle Gardens, enclosed 4,000 invitations to join The Palm Society with one of his advertising leaflets. A steady stream of new members is coming from that solicitation. Invitations issued by other members are being accepted also. Thank you, one and all.

* * *

The Palm Society has become one of more than 65 plant societies affiliated with The American Horticultural Society, Inc., which has headquarters in Washington, D. C. One of the objectives of the AHS is "to maintain a national organization of amateur and professional gardeners, garden clubs, horticultural and plant societies . . . for the promotion of mutual objectives and the more unified protection of broad mutual interests." Affiliation also permits our members to subscribe to the National Horticultural Magazine and other of their publications at a reduced rate. Since the AHS plans to publish our Palm Handbook in the near future and our members surely will wish to purchase at least one copy, this results in a considerable saving. Any member desiring to know more about joining the AHS may inquire from our Executive Secretary.

* * *

Dr. Walter Hodge, our President, has appointed a Finance Committee to study any problems of finances which might be brought to its attention and to make recommendations to him. This committee is headed by Dent Smith and H. F.

Loomis as co-chairmen. Other members are: David Barry, Jr., Nat J. De Leon, Frank R. May, Nixon Smiley. The financial well-being of the Society will be the immediate concern of this group.

* * *

The number of Society members in California has increased greatly in the past year, and it has been found desirable to have a correspondent in that state who will pass along information of interest to the Society. Mrs. Gunter F. Herman, 701 Tigertail Rd., Los Angeles 49, has graciously consented to act as correspondent. Will all California members please send her any newsworthy items? We are eager for news from all other localities, also.

* * *

At the thirteenth annual Fillmore Festival and Flower Show, Fillmore, California, on May 9th, Mr. and Mrs. Winston Haase presented a display of palms for the West Coast of the U.S.A. Fronds of twenty-six species were displayed, all of them from the Haases' collection, with the exception of five from the collection of Mr. Joe Sullivan, of Ventura. Each frond bore a card giving common and botanical names and native habitat of the species.

Kodachrome slides of thirty-two different species were mounted, labeled and lighted from behind. Beside the pictures was placed a pile of mimeographed sheets with brief descriptions of their culture in the area. Ninety-seven persons took these sheets home. The palms described were: fan palms—*Washingtonia filifera* and *W. robusta*, *Erythea edulis* and *E. armata*, *Livistona chinensis*, *L. australis* and *L. Mariae*, *Trachycarpus excelsa* [*T. Fortunei*], *Chamaerops humilis*, *Sabal Blackburniana* and *S. Palmetto*, *Rhapis humilis*; feather palms—*Phoenix canariensis*, *P.*

dactylifera, *P. reclinata* and *P. Roebelenii*, *Arecastrum Romanzoffianum*, *Buttia capitata*, *Jubaea spectabilis* [*J. chilensis*], *Archontophoenix Alexandrae*, *Howea Forsteriana* and *H. Belmoreana*, *Chamaedorea erumpens*, *C. elegans* (*Neanthe bella*) and *C. sp.*, *Caryota urans*. At the end of the list Mr. Haase gave The Palm Society a good "plug."

The exhibit won a "Special Award" ribbon.

Mr. Haase writes: "Yes, it was a lot of work and took a lot of time, but we do feel some good was accomplished. Palms have received a rather bad reputation in our vicinity due to the fact that in the early days everyone planted the biggest ones of all. Often these were in small gardens. Our people have to learn that all palms are not massive things."

* * *

Our Society soon may be able to proudly announce its first "offspring." The Japan Palm Society is being formed, with an initial membership of thirty, and six committees. It has two main purposes: to work on the correct nomenclature of the palms being grown in Japan, both scientific and common; and to help those palm students who speak only Japanese. Our eight members in Japan surely will be active in helping to organize this local group. Mr. Toshihiko Satake and Mr. Jenbei Tachibana have kindly written in detail about the reasons for forming the Society, and have asked our assistance.

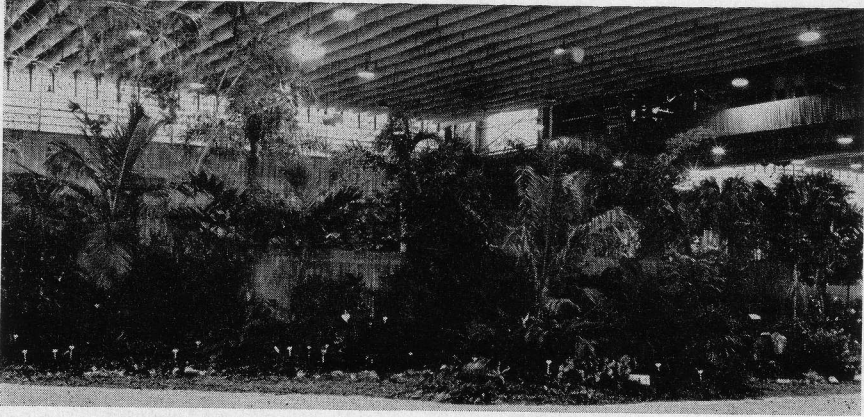
Mr. Tachibana states that many thousands of palms are being raised by wholesale nurseries and sold in carload lots to retailers, who rent them to business houses for decorative purposes. Since the mortality of palms in unfavorable conditions is high, the demand remains great. Mr. Tachibana goes on: "In such areas, a leading greenhouse

sows some 100,000 seeds of each variety of palm (*Phoenix Roebelenii*, *Howea Forsteriana*, *Chrysalidocarpus lutescens* and others) in every season. In prewar years, I never dreamed of the present large demand on palm seeds. Nowadays, my firm is making endless imports of large lots of palm seeds from month to month from Formosa, Australia, California, Malaya, Ceylon, Africa, besides, always imported stock is sold as soon as the seeds arrive in our warehouse, and always our firm advertises "Sold Out" to our clients. Indeed, this is a true "Palm Boom," and I suppose that even U. S. palm seed dealers have never experienced such sales of these seeds just like our present conditions. . . . I feel that to associate the Japan Palm Society will be very reasonable, as most of the Japanese cannot read English and they hope to give a Japanese name to each palm. In the past various Japanese palm names were written by horticulturists in Japan, but some of these names were not good ones, and we have to change such names to better ones, by the new society." This confusion of names is not peculiar to Japan alone; work needs to be done in other parts of the world, also, including the U. S.

Mr. Tachibana celebrated the marriage of the Crown Prince by planting three large royal palms, with 10 ft. of trunk, in his garden, that of Mr. Okamoto and the Tokarazuka Botanic Garden.

* * *

The Society was represented at the International Flower Show, Miami, Fla., on April 10-13, by a truly lovely palm garden. A winding jungle path covered with moss and dried oak leaves, led one along mass plantings of about fifty species of palms. Large trees for the background consisted of *Ptychosperma Macarthurii* and *elegans*, *Dictyosperma*, dwarf Malay golden coconut, *Thrinax*



40. Prize winning display of The Palm Society at the recent Miami Flower Show, executed by Alix. Reproduced with permission from *Southeastern Nurseryman*, May, 1959.

and *Veitchia*. Below and in front of these were artistically placed smaller specimens of such palms as *Archontophoenix*, *Trachycarpus*, *Chrysalidocarpus*, *Livistona*, *Arenga*, *Ptychoraphis*, *Pinanga*, *Coccothrinax*, *Pritchardia*, *Opsiandra*, *Howeia*, *Geonoma*, *Licuala*, and several species of *Chamaedorea*. A grouping of boulders held an artistically arranged collection of colorful palm flowers and fruits. Large labels, beautifully lettered by Mr. Harvey Beswick, identified each kind.

The overall design was by Alix, Landscape Decor. Alix is one of our newer members—she worked very hard and produced a thing of beauty. Plants were lent by T. R. Baumgartner, H. L. Nies, Raymond Hogshead, Alix, Robert G. Wilson, South Florida Nurseries, D. J. Greer, Mrs. C. E. Ingalls, Hans Eisele. The Featherock boulders were lent by Shaw Nursery. The flower and fruit exhibit was donated by Fairchild Tropical Garden and Mrs. Alvin R. Jennings.

A number of members worked very late the evening before the show opened, and returned the following morning to add the finishing touches. One of them commented on the good humor and lack

of dissension among the group in spite of fatigue and hunger.

Society members acted as hosts and hostesses during the three and a half days of the show. Several new members, renewals and prospects were obtained by them. We are very proud of all who helped, and grateful for their successful efforts. Although our garden was not in competition with any others, it won a special award ribbon. Many visitors learned things about palms that were entirely new to them.

* * *

You may have noticed that the April issue of *PRINCIPES* seemed to be thinner and lighter. It was, but not because of any reduction in content or quality. There is the same of each as usual—except when occasionally the issue is increased from 36 to 40 pages. Due to the 33 per cent increase in postage rates, and for other reasons, it was decided to use the 100-lb. stock which we had been using throughout for the cover only, and print the inside pages on 70-lb. stock. This reduces the weight and makes a considerable saving in postage, which is one of our major items of expense. Now that we are mailing out more than

500 copies per quarter, two or three cents' saving on each item makes quite a difference.

* * *

The Society has sustained a great loss in the death of three members: Mr. Jack Evans and Mr. Allen Davies of California, and Mrs. C. E. Ingalls of Flor-

ida. Mr. Evans was a member of the firm of Evans & Reeves, internationally known nurserymen. Mr. Davies, an insurance broker, gained note as an amateur ichthyologist and herpetologist as well as a plant lover. Mrs. Ingalls was the wife of one of the earliest members of The Palm Society, and carried on his nursery after his untimely death.

Mrs. Ben Roth, substituting for Mrs. Gunter Herman, has written us about the first meeting of California members.

About forty of them, coming from as far away as Palm Springs and San Diego, met at the Los Angeles State and County Arboretum, Arcadia, on the afternoon of Sunday, June 14th.

Mr. Charles E. Hallberg was elected chairman and Mrs. Gunter Herman secretary. Each person present introduced himself and stated his particular interest in palms. By coincidence, Dr. Walter Hodge, Society president, was in California and was able to spend a short time with the group. He told of

the Society's current activities and of the forthcoming Handbook of Palms, to be published late this year.

Following the formal meeting, Mr. Hallberg guided the group through the Adboretum's palm collection, naming and speaking briefly about each species. A number of persons who were unable to attend expressed their interest and sent in self-addressed postcards so they may be notified of future gatherings. Objectives of the next meeting will be Mr. Stiles' palm collection at Santa Ana and the park at Anaheim, which also contains a number of species.

Society Finances for 1958-1959

Although meetings of The Palm Society are scheduled every other year, it is useful for budgetary purposes to review annually the status of the Society's finances.

A brief report for the period April 17, 1958—April 16, 1959, has been submitted by the Treasurer and is published below. Members should be pleased to learn that, largely through the joint efforts of all, a small working balance exists which will permit us to continue meeting current expenses, most important of which is that related to the publication of PRINCIPES.

Receipts:

Balance 4/16/58	\$ 331.52	
Contributions	4,250.59	
Other receipts	661.91	\$5,244.02

Disbursements:

Printing	\$2,094.36	
Postage	180.00	
Miscellaneous	424.89	
Dues (American Horticultural Society)	5.00	
Secretary's Salary	1,236.27	
Withholding and Social Security	185.63	4,126.15

Balance:

\$1,117.87

WALTER H. HODGE, *President*

Diseases of the Coconut Palm*

M. K. CORBETT

*Plant Pathology Department, University of Florida, cooperating with
The State Plant Board of Florida, Gainesville, Florida*

III. RED RING

The third disease of coconut palms to be considered in this series is red ring, which has not been reported in the United States. It seems to be confined to the Western Tropics and has been recorded from Barbados, Brazil (Alagoas, Sergipe, and Bahia), British Guiana, British Honduras, Grenada, Honduras, Panama, St. Vincent, Tobago, Trinidad and Venezuela (1, 2). It was first described by Nowell (8) who derived its name from the very characteristic red ring that is present in the trunk of diseased palms. The external symptoms of this disease, unfortunately, are not easily separated from the external symptoms associated with other diseases. The etiology or cause of the disease was shown by Cobb (2) and since by others to be due to infection by the nematode *Aphelenchoides cocophilus* Cobb (1, 2, 4, 6, 8). According to Dr. B. G. Chitwood (formerly Chief Nematologist, State Plant Board, Florida; present address, Kaiser Foundation, California), the nematode should be called *Chitinoaphelenchus cocophilus* (Cobb) Mic. (Micoletzky 1922, *Arch. Naturg.* 87 J., Abt. A., 9 Heft pp. 584, 586, 587). Dr. Chitwood examined preserved males, females, and larvae from diseased coconut palms from Trinidad and suggested the renaming of the nematode based upon priority and the fact that the framework of the head is sclerotized (chitinized!). Such a head framework is not developed in any other members of the genera *Aphelenchus* and *Aphelenchoides* (3).

*For previous articles in this series, see PRINCIPES 3:5-12, 49-52. 1959. Florida Agricultural Experiment Station Journal Series, No. 846.

The type host of the worm or nematode is the coconut palm (*Cocos nucifera* L.), but according to Filipjev and Stekhoven (5) the oil palm (*Elaeis guineensis* Jacq.) and Canary date palm (*Phoenix canariensis* Chab.) have also been reported as hosts.

In the coconut palm the disease is mainly a juvenile one, for very rarely do trees over ten years of age become infected (7). Trees less than four years of age are rarely affected, the highest incidences of infection occurring in trees four to seven years old (1). The onset of disease appears to be associated more with bearing than with absolute age (Fenwick, personal communication).

The first symptom of infection in a young tree is the conspicuous discoloration of the leaves. The lowest fronds start to turn yellow from the tip backwards. Figure 41, photograph taken in Trinidad, illustrates a young palm in the early stages of infection. The lower fronds are yellowish-bronze in color. At a more advanced stage the fronds may turn reddish-brown and tend to wilt. The leaves progressively turn yellowish-bronze and wilt until the entire crown has changed color. The heart leaves may or may not turn yellow. They may turn a greyish color and collapse at the base due to infection by secondary organisms. Here, as with lethal yellowing and bronze leaf wilt, the final stage of disease development is a rotting of the heart or bud. Infection by the nematode is fatal. If a palm shows symptoms of recovery, then it is probably not infected



41. Young coconut palm in Trinidad exhibiting symptoms of the red ring disease resulting from infection by the nema *Chitinoaphelenchus cocophilus*.

by the nema but most likely affected by bronze leaf wilt (1).

The symptoms illustrated in Figure 41 are not indicative or a reliable criterion of the red ring disease caused by infection with the nema *Chitinoaphelenchus cocophilus*. The external symptoms may be confused with those of several other diseases of the coconut palm. The most reliable symptom of the disease is the actual presence of a red ring, which occurs approximately 2 inches from the periphery in the trunk of an infected palm (Figure 42). The

ring is approximately 1 to 2 inches wide. The coloration, width, and position of the ring may vary, especially in the cases of older palms (Fenwick, personal communication). The palm illustrated in Figure 42 is actually a cross section of the same palm as shown in Figure 41. The presence of the red ring usually is indicative of infection by the nema. It is desirable that the diagnosis be confirmed by the actual presence of the nema, since reddening of palm tissue may occur from other causes, though the color usually does not occur

in a ring. There are no recorded cases of the red ring appearing without the nemas, nor, conversely, the nemas without the red ring.

In longitudinal section the red ring has its point of origin in the bole of the palm and extends upwards into the trunk.

Inoculation experiments have been conducted (2, 4, 6) with the nema at various entry points and infection has occurred. The palm weevil (*Rhynchophorus palmarum*) and ants have been implicated as disseminators of the nemas. Fenwick (4) proposed the following hypothesis to explain the distribution of the nema in the plant and the site of inoculation: "One is that infection starts in the bole and spreads upwards into the stem and downwards into the roots and the worms escaping into the soil; the other is the worms are present in the soil to start with, they penetrate the roots and work up into the bole and hence up the trunk." Fenwick points out that conclusive evidence does not support or condemn either theory but the available evidence supports the latter.

Trees older than ten years have been reported infected with the nema, but the symptoms produced by these trees were not identical with those of young trees. Fenwick (4) describes the external symptoms of such old trees as the leaves being brown, dead, and collapsed downward. The internal tissues of the trunk were high in moisture and corky. Very little discoloration occurred at the base. The typical red ring pattern was only visible just below the crown, where it was not so dark as that which occurs in young trees.

Fenwick (4) was able to recover nemas from all tissues except the flower stalk and fruit. He could find no evidence that nuts borne on old infected trees carried the nemas. However, nuts



42. Cross section of the coconut palm from Figure 41. Note ring which is red in color.

that have fallen and are considered by planters as suitable for seed may contain the nemas. Fenwick (4) found a few *Chitinoaphelenchus cocophilus*, along with several soil nemas, in the husks of such nuts. Thus the possibility that the organism may be disseminated in seed nuts should not be disregarded until positively eliminated.

The disease appears to be more prevalent in areas that are poorly drained.

Information on control measures unfortunately is not readily available. Briton-Jones (1) recommended isolation by trenches dug around the infected trees. The soil from such trenches should be thrown inwards towards the tree. The practicality of such a measure is doubtful and the operation of digging trenches expensive. If soil drainage plays a part, then it would be advisable to plant on well drained soil. This precaution would also help to control the bronze leaf wilt if it is caused by physiological drought. The use of soil fumigants and chemicals for control or

reduction of nematode populations or as barriers to their spread or the use of chemical injections to cure infected palms has not been adequately tested to merit recommendation. Growers should be cautious about the use of such chemical products as they may kill an otherwise healthy tree. Fenwick (4) reports several cases of product misrepresentation in Trinidad and Tobago. Another precaution for the palm grower is that he should not use seed nuts from infected areas as they may contain the nema *C. cocophilus*.

Acknowledgments

Grateful acknowledgments are made to the State Plant Board of Florida for making this study possible; to Miss Jean Smith for assistance with illustrations; and to Dr. B. G. Chitwood and R. P. Esser for their work on the identification and naming of the nema. The author is sincerely grateful for the assistance received in Trinidad.

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eases of the Coconut Palm. pp. 1-176. Bailliere, Tindall and Cox, London.

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THE EDITOR'S CORNER

David Barry has already provided us with an account of *Jubaeopsis caffra* with particular reference to its cultivation in California (*Principes* 2: 180-182. 1957). Dr. Walter Hodge has prevailed upon his friend Robert Story to prepare an account of this rare palm in its native habitat. Let Dr. Hodge introduce this new contributor.

"Robert Story is a scientist working as a survey officer in the Division of Botany (National Herbarium) in the Department of Agriculture of the Union of South Africa in Pretoria. In a recent letter he tells me that he is migrating to Australia within a few months . . . I met Robert Story while working in South Africa in 1951. He is a chap about my age and during the time that

I was in the Union he was one of the field officers in botany located with the Albany Museum at Grahamstown in the Eastern Cape Province. His daily work covered the whole area of the eastern Cape and, of course, this included Pondoland where the subject of [his] article is native. Story was born and brought up near Grahamstown on a farm where he first became associated with plants. I visited his home farm, still run by his elderly mother. She was a delightful person with a great love for plants and was the person who had stimulated him to get into botany.

"Besides Story's routine work as a field man and now a herbarium worker, his chief contribution to South African botany is the *Botanical Survey of*
Continued on Page 92

A New Copernicia Hybrid From Cuba

B. E. DAHLGREN AND S. F. GLASSMAN

Chicago Natural History Museum and University of Illinois

Copernicia hospita Mart. is a widely distributed endemic in Cuba. In a number of localities it is suspected of hybridizing with several other species of *Copernicia*, namely *C. Baileyana* Leon, *C. Cowellii* Britt. & Wils., *C. Leoniana* Dahlgr. & Glassm., *C. macroglossa* Wendl. ex Becc., and *C. rigida* Britt. & Wils. In contrast, *C. Cowellii*, another Cuban endemic, has a restricted distribution. It is found only in the north-eastern part of Camaguey province, from near the city of Camaguey to several miles north of Minas. Much of this region is an extensive savanna, with clay soils two to eight inches thick and underlain by serpentine rock (See H. H.

Bennett & R. V. Allison, *Soils of Cuba*, Washington, 1928). The vegetation here is subjected to frequent grass fires, apparently set off by sparks from railroad trains which run through the region.

Besides *C. Cowellii*, the other important palms growing in the savanna are *C. hospita*, *C. macroglossa* and several species of *Coccothrinax*. Here and there are large numbers of trees which appear to be intermediate between *Copernicia hospita* and *C. Cowellii*. At least 60 of these plants were recognized by the senior author. In Table I the differences between the three taxa are listed, and figures 43-45 illustrate some of these differences. Apparently, these

Table I. Comparison of three Copernicias

	<i>Cowellii</i>	× <i>Shaferi</i>	<i>hospita</i>
Height of Mature Trees	4-8 ft.	6-11 ft.	10-18 ft.
Leaf Blade Length	Up to 60 cm.	Up to 90 cm.	Up to 109 cm.
Distribution of Wax	Densely white waxy on lower surface, green or with light coat of wax above	Densely white waxy on both surfaces	Densely grayish waxy on both surfaces
Stigmata	Prominent on lower surface, absent above	Prominent on lower surface, absent or inconspicuous above	Prominent or inconspicuous on both surfaces
Inflorescence Branches			
Length	3-4 cm.	1.5-3 cm.	0.75-1.5 cm.
Width	1.0-1.5 mm.	1.5-2 mm.	1.5-2.5 mm.
Floral Bracts	Mostly folded backwards	Mostly horizontal or folded backwards	Mostly horizontal
Average number of flowers per cm. of branch	12-14	18-20	24-26
Flowers			
Length	4-6 mm.	4.0-4.5 mm.	4-5 mm.
Width	1.5 mm.	1.5-2.0 mm.	2.0-2.5 mm.
Distribution in Cuba	Confined to northeastern Camaguey	Confined to northeastern Camaguey	Reported from all six provinces



43. *Copernicia* × *Shaferi* at Cromo. Photo 490.144.

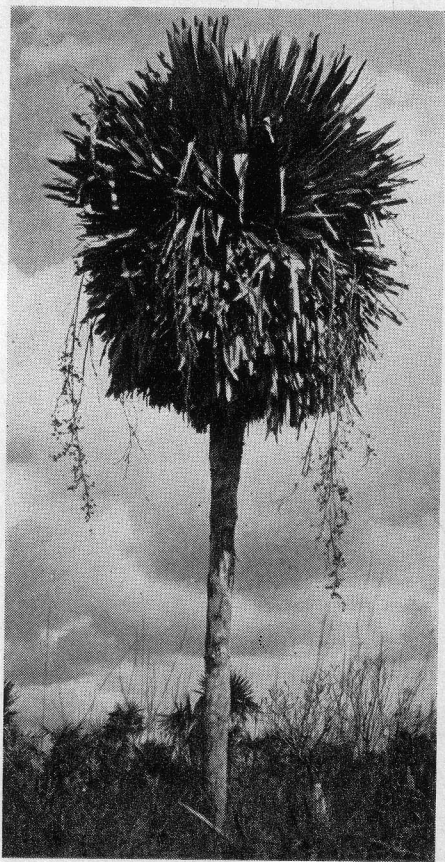
hybrid plants produce viable seeds; a number of seedlings and young plants were found growing near the bases of many of the mature trees. Furthermore, Mr. Eugene Kitzke of S. C. Johnson & Son has successfully germinated seeds from some of the hybrids at Racine, Wisconsin.

Although cytological preparations of root tips of plants of the three taxa listed above were made by the late Dr. John M. Beal of the University of Chicago, further study is necessary before definite conclusions can be reached. It

is hoped that pertinent information regarding the karyotypes of most of the species of *Copernicia* will be available by the time our revision of this genus is completed.

Apparently, the earliest report of possible hybridization between *C. Cowellii* and *C. hospita* was by N. L. Britton (*Journ. N.Y. Bot. Gard.* 13: 74-76. 1912); however, since no one has named or described this taxon in the literature, we do so here:

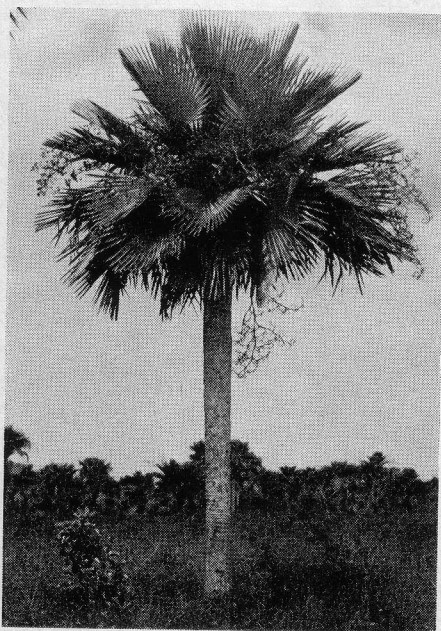
Copernicia × *Shaferi* Dahlgren & Glassman, hybr. nov.



44. *Copernicia Cowellii*. An unusually tall tree in savanna northeast of Minas. Photo 510.035.

Palma 2—3.5 m. alta. Lamina 55—90 cm. longa, utrinque ceram dense albam ferens, infra cum punctis rubris conspicuis notata, supra punctis vere aut sensim absentibus. Ramuli floriferi 1.5—3.0 cm. longi, 1.5—2.0 mm. lati. Flores 4.0—4.5 mm. longi, 1.5—2.0 mm. lati, bracteolis aequis aut retrorsim plicatis; modus 18—20 florum per 1 cm. ramuli. Alioquin *C. Cowellii* Britt. & Wils. et *C. hospita* Mart. similis.

Tree 2—3.5 m. tall. Leaf blade 55—90 cm. long, densely white waxy on both surfaces, with conspicuous red stigmata below; stigmata absent or inconspicuous above. Flowering branches



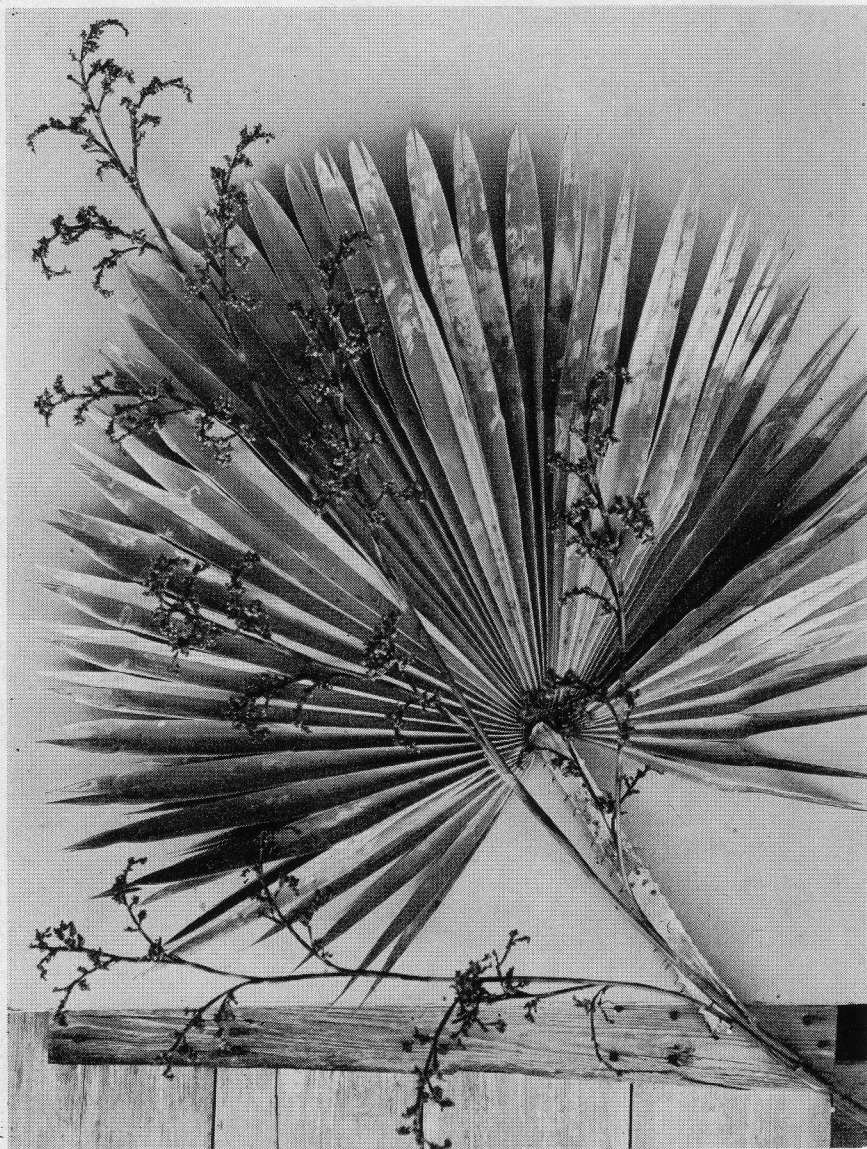
45. *Copernicia hospita* at Finca Los Cocos. Photo 480.226.

1.5—3.0 cm. long, 1.5—2.0 mm. wide. Flowers 4.0—4.5 mm. long, 1.5—2.0 mm. wide, bracteoles horizontal or folded backwards; each centimeter of branch with an average of 18—20 flowers. Otherwise with the characters of *C. Cowellii* and *C. hospita*.

We are describing this taxon in honor of the late J. A. Shafer who made many collecting trips in Cuba at about the same time as did N. L. Britton, Percy Wilson, and other members of the New York Botanical Garden in the early 1900's.

All specimens examined are deposited in the herbaria of the Chicago Natural History Museum and the University of Illinois, Navy Pier, Chicago.

CAMAGUEY: Camino al Cueva de Anton, March 4, 1953. *Dahlgren* 53/040 (TYPE—leaf and inflorescence in flower); 2 km. N.E. of Minas. Feb. 10, 1948, *Dahlgren & Cutler* 48/027; Camino Anton, April 3, 1950, *Dahlgren* 50/019, April 11, 1950, *Dahlgren &*



46. *Copernicia* × *Shaferi*. Specimen (Dahlgren 53/010) from Cromo showing waxy upper leaf surface and part of inflorescence.

Cutler 50/042; Villa Napoli schoolhouse, near Santayana, March 10, 1954, *Dahlgren & G. Moore* 54/017; Cromo, Feb. 8, 1951 and March 3, 1951, *Dahlgren & Macbride* 51/037 and 51/054, Feb. 6, 1953, *Dahlgren* 53/010, Feb. 17, 1955, *Dahlgren* 55/004, 55/005.

We are most grateful to S. C. Johnson & Son for the generous financial assistance which made the trips to Cuba possible; and to Dr. Francis Drouet of New Mexico Highlands University for valuable suggestions in the preparation of this paper.

PALM LITERATURE

Palm Papers. A series of occasional papers devoted to the Palm Family. Edited by Alex D. Hawkes. Published by The Orchid Journal, P. O. Box 435, Coconut Grove 33, Florida. Number 1, 1 June 1959. Price \$1.00.

The first number of *Palm Papers*—14 pages of multilithed material published by the apparently defunct Orchid Journal—appeared in May, 1959. Contents include a reprint of Beccari's notes on stem thickening in palms from *The Pomona College Journal of Economic Botany* 3 (1913), reviews of recent papers by C. X. Furtado and Harold St. John, and an original article entitled "A Check-List of Palm Genera" by the editor of *Palm Papers*.

With regard to the check-list, the author used the verb "pretend" well when he wrote in a preliminary paragraph "... certain alterations in the old lists have of necessity been made, in the light of researches by various students in recent years. These are incorporated in the ... check-list, which pretends to give those genera of the Palmae which are now generally considered valid by students of this fascinating and complex family." Yet he continues with the statement that the list is to be taken merely as a provisional preliminary list of the valid palm genera to be corrected in subsequent numbers of the papers.

Unhappily, Mr. Hawkes does not elucidate his use of the word valid. In connection with botanical names, valid denotes that a name has been effectively published in a printed form available to scientists and that the name was accompanied by a description of the plant or plants concerned or by a reference to a previously and effectively published description of the group concerned. (Article 32, *International Code of Botanical Nomenclature*, 1956.) A less

specific and more usual usage given by *Webster's New Collegiate Dictionary* is "Founded on truth or fact; capable of being justified, supported, or defended; well-grounded; sound," which would correspond in botany with the accepted name, that which is correct and capable of being justified taxonomically. Whichever use is intended, the list of 252 genera numbered alphabetically with place of publication for each genus suggests that it was compiled without critical assessment, witness among other errors the inclusion of 152. *Microcalamus* which is not a genus of palms but one of the grass family, and the listing of a new generic name (number 40) without description.

If, in the first instance, the aforementioned check-list pretends to give those genera which are valid according to rules of botanical nomenclature, one wonders why *Acanthorrhiza* (= *Cryosophila*), *Acanthosabal* (= *Paurotis*), *Adonidia* (= *Veitchia*), *Aeria* (= *Gausisia*), *Alfonsia* (= *Corozo*), *Arikury* (= *Arikuryroba*), *Atitara* (= *Desmoncus*), *Augustinea* (= *Bactris*), *Beethovenia*, etc. are not listed. These are all validly published though they are not accepted as distinct genera today. But 24. *Baculalaria* is included in the list though it was not validly published by Mueller in *Fragm. Bot.* (sic) [*Fragmenta Phytographiae Australiae*] 7: 103. 1870. It was validly published later but was then illegitimate since *Linospadix* H. Wendland had already been described in *Linnaea* 39: 177, 198. 1875, for the palm casually mentioned as *Baculalaria* in 1870. *Linospadix* is also listed (number 137) but is attributed to Beccari in 1877 despite the fact that Beccari refers directly to Wendland's earlier description. Other names included in the check-list were validly published but not in the place cited by Hawkes: 68. *Collinia*, 93. *Dypsis*, 207. *Reinhardtia*. Incorrect dates

are given for *Aiphanes*, which actually appeared in 1807 not 1804, for *Arenga* (1800 in *Bull. Sc. Soc. Philomath. Paris* 2(45): 162, not 1801 in another journal), and for a number of Beccari's genera which appeared in reprint form in 1920 before release of volume 5 of *Webbia* in 1921. Though Mr. Hawkes has reviewed the latest of Dr. Furtado's papers, he obviously has not read an earlier one (*Palmae Malesicae*—X, *Gardens' Bulletin, Singapore* 12: 378. 1949) in which Furtado drew attention to the correctness of the original spelling of *Salacca* rather than *Zalacca* (which genus Hawkes attributes to Rumphius in 1747 before 1753 when acceptance of generic names begins). No notice has been taken of the correct spelling of *Howeia* (*Webbia* 11: 35. 1955; *Principes* 2: 141. 1958).

If, in the second instance, the check-list pretends to give those genera that are valid in the sense of being accepted as justifiable taxonomically, and this is the implication, then it is confusing to find that two names are listed for some genera: 3, *Acoelorrhapha* and 177, *Paurotis* are the same with the latter name currently accepted; 24, *Bacularia* and 137, *Linospadix* are the same as noted earlier in this review. The illegitimate name *Rhynchocarpa* Beccari (number 212) is listed while the correct name for this genus, *Burretiokentia* Pichi-Sermolli, does not appear. One does not note acceptance of conclusions reached by Beccari, Burret, Jumelle, Moore, and others (all students of palms in this century) regarding the union of 7, *Actinophloeus* with the earlier 203, *Ptychosperma*; 9, *Adelodypsis* and 237, *Trichodypsis* with 92, *Dypsis* (for which place and date of valid publication are incorrectly given); 28, *Barkerwebbia* with 112, *Heterospatha*; 33, *Bentinckia*, 63, *Clinostigmopsis*, and 99, *Exorrhiza* with 62, *Clinostigma*; 66, *Co-*

lococcus with 151, *Metroxylon*; 91, *Dypsidium* and 109, *Haplophloga* with 161, *Neophloga* (though there is a problem concerning the correct name for this combined genus); 134, *Leptophoenix* with 168, *Nengella*; 199, *Pseudopinanga* with 187, *Pinanga*; 81, *Dammera* with 136, *Licuata*; 144, *Malortia* with 207, *Reinhardtia*. Nor have recent genera of Burret, Dugand, and Furtado been listed: *Eleiodoxa*, *Lophospatha* and *Micrococelum* of Burret (the last with Pottal); *Metasocratea* Dugand; *Cornera*, *Liberbaileya*, *Maxburretia*, *Schizospatha* of Furtado.

It is to be hoped that lists announced on page 14 of *Palm Papers* for future publication will be not only technical but technically correct. It is further to be hoped that a projected book on palms announced by Mr. Hawkes will receive more careful attention than has this check-list, in which no confidence can be placed, and than earlier palm and aroid papers unfavorably reviewed by Bondar in *Rodriguezia* 27: 189-190. 1952, by Dugand in *Mutisia* 20: 1-2. 1954, and by Birdsey in *Madroño* 13: 47-48. 1955. H. E. MOORE, JR.

Editor's Corner

Continued from Page 86

South Africa Memoirs No. 27 entitled "A Botanical Survey of Keiskammahoek District" published in 1952."

Many residents of the Miami area will already be acquainted with Mrs. George Adams who writes of palms in the Bahamas. Mrs. Adams was born in England but went to live at Mauritius, in the Indian Ocean, when three weeks old. Her father, who was in the British army, was interested in plants; she recalls his showing her the palms, bananas, lychees and pineapples which grew on that beautiful volcanic island. She met Mr. Adams, an American, in New York immediately after his return from

an expedition to the South Pacific with scientists from the Philadelphia Museum of Natural History. After a stint in the Navy and a year's residence in Haiti, they settled in Miami in 1949. Mrs. Adams' ancestors in England were keen amateur horticulturists and rather

closely connected with Kew Gardens. Her great grandfather collected rhododendrons in the Himalayas, turning them over to Kew for propagation. Several are named for her relatives.

Random thoughts and observations
Continued on Page 100

Palm Trunks As Living Planters

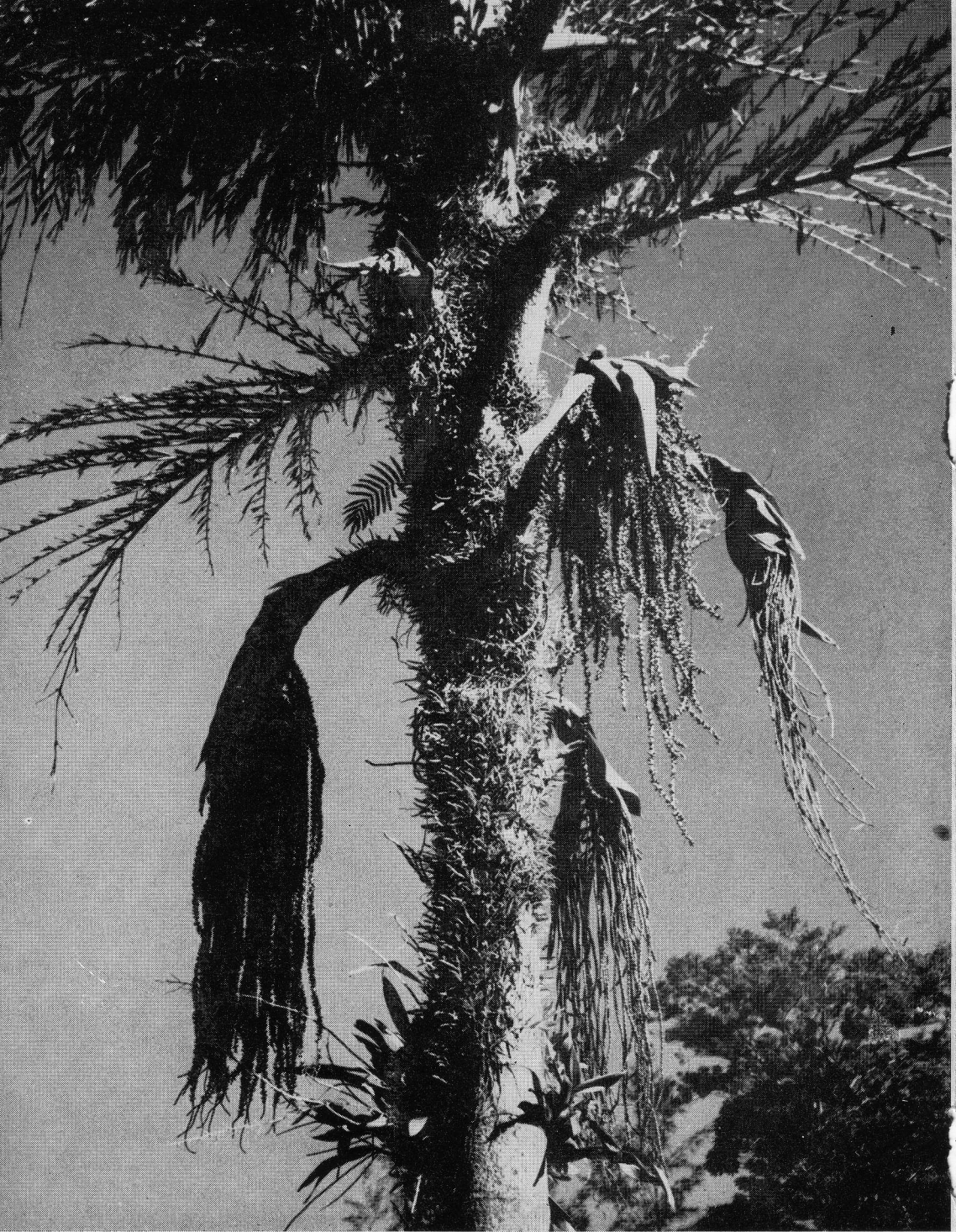
W. H. HODGE

In nature the trunks of palms, like those of many other trees, frequently serve as the home for other plants. Such plants, which simply use a tree solely for support, are known botanically as *epiphytes*. Their primary purpose in occupying such grandstand seats high above the shaded ground is to better their position in relation to sunlight. Familiar examples of epiphytes include most showy cultivated orchids as well as the great family of the Bromeliaceae, or bromels as they are more familiarly known. In general, the wetter the climate the more abundant the epiphytic population in a tropical forest.

Guest plants such as these naturally find it easier to gain a toehold on trees that have rough bark. Consequently, they are usually more numerous on such trees. This follows in the family of the palms as well and as a rule those palms whose older leaves are tardily deciduous or which hang on for several years, building up a dry mass or "shag," are the most frequent species to be found supporting colonies of epiphytes. The quantity of decaying organic material accumulating in such clusters of dried leaves is considerable and its loose, well aerated mass becomes a natural growing medium for many an epiphyte, especially ferns, which commonly "seed" themselves into such sites. This is not to say that, given the opportunity, epiphytes cannot thrive on smooth palm boles, for they do. Hardly

a royal palm can be found without its smooth gray bole speckled with lichens. Though representing lower plant forms they are none the less epiphytes. Given a high enough rainfall even the smoothest palm trunk will develop its epiphytic family, usually of ferns, orchids or bromels—many, if not most of them, of ornamental habit.

To the person growing palms as garden subjects, this natural and intimate association of palms with epiphytes should be of interest for, if desired, it can be encouraged in the backyard, often with very attractive results. Ferns growing locally in the area will often naturalize themselves on your palms whether you want them to or not. But where old palm leaves persist, requiring trimming, the old stubs that remain offer suitable niches in which to encourage the growth of more ornamental species. The result is a living backyard planter. One of the most interesting examples that I have seen, using such a trimmed palm trunk in this way, was in Mexico City a few years ago. Here a species of *Echeveria*—hardly an epiphyte in nature—had been encouraged to cover over the crevices and chinks existing between the old cut-off leaf bases of a young date palm. As the accompanying figure shows, the result was very attractive. Doubtless many other garden subjects which are by nature epiphytes could be similarly used with equally interesting results.



47. Orchids and ferns growing wild as epiphytes on the smooth trunk of a cultivated fishtail palm. Wet tropical environment, West Indies. Photograph by W. H. Hodge.



48. Echeverias planted on the trunk of *Phoenix* growing in Mexico City. The Boston fern (*Nephrolepis*), also to be seen, probably naturalized itself. Photograph by W. H. Hodge.

Palm Hunting in The Exumas

MRS. GEORGE F. ADAMS

When we were invited to visit Georgetown, Great Exuma, in the Bahamas, I was not at all enthusiastic, imagining dried-up little islands without a palm in sight! However, Stanley Kiem, Superintendent of Fairchild Tropical Garden at Miami, Florida, assured me they were tremendously interesting botanically speaking, and very little had been done to classify the flora. He also asked me to try to collect specimens of *Coccothrinax argentata* (?) and *Pseudophoenix Sargentii*.

Georgetown is roughly one hundred miles south of Nassau in a long thin chain of Cays or small islands. We flew down from Nassau in an hour by four-engined Heron of Bahama Airways, but could not see much because of low clouds. The air strip at Georgetown is in rather a desolate area, as it was bulldozed and cut about two years ago. Now one sees only scrubby secondary growth.

What first caught my eye were the Geiger trees (*Cordia Sebestena*), the leaves a beautiful shade of green, large and shining, about five or six inches across and seven or eight long, with big clusters of brilliant flame-colored flowers, both larger and brighter than the ones found in southern Florida. The trees are everywhere, some with twisted, grotesque trunks growing right out of the solid rock within reach of the waves. The children call the tree "nuts" and eat the kernels of the fruits.

The contrast of the luxurious Club Peace and Plenty, where we stayed, and the very poor, somewhat primitive island was quite fantastic! The Club is only about a year old and is chiefly in aid of visiting yachtsmen, as the surrounding waters are a sailor's paradise. The color of the sea is absolutely breath-

taking, no one will believe it who has not seen it. There were miles and miles of beautiful white sandy beach, spotlessly clean, without a soul in sight, and crystal-clear blue water.

My first question naturally was "Where are the palms?" I was told there were plenty of "silver tops" and "cabbage palms" over on Stocking Island, which is about two miles to the eastward across the ten-mile-long harbor. However, it blew so hard the first week that we couldn't get over in a small boat.

Taking our first walk north of the club, I spotted a few small *Coccothrinax* in the scrubby growth near the rocky coast. There are goats tethered at intervals all along there and no doubt they eat the seedling palms as well as everything else within reach.

Later we were taken for a very bumpy ride to Symond's Point, about three miles to the northward, and I practically fell out of the jeep with excitement when I saw literally hundreds of *Coccothrinax* with their silvery fans waving in the breeze like beckoning white hands. Crashing happily through the brush, being torn to bits and stung by hornets, I hunted for palm blossoms or seeds but found none, probably because it was so late in the year (late November and early December).

Here and there all over Great Exuma there are small groves of coconut palms, all planted by someone's father or grandfather. Coconuts do not seem to germinate very readily there.

The people grow many winter vegetables, particularly onions for the Nassau market. They have some citrus, breadfruit, a few mango and avocado trees—all seedlings, I gathered from



49. *Pseudophoenix Sargentii* at bottom of steps leading to club-house on Stocking Island, transplanted from the wild. The trunk of the nearest measures 81 inches to bottom of leaf sheaths.

questioning various people, with the exception of one or two Haden mangos, very proudly pointed out to me.

Large ponds have been painstakingly

filled in with earth carried in baskets on peoples' heads and lovingly tended to grow very good tomatoes, cabbages, carrots, beets, okra, bananas, some



50. A young *Pseudophoenix Sargentii* growing naturally on Stocking Island southwest of the club-house.

sorghum and a little cane. Elsewhere it is terribly rocky and one is amazed that anything can grow at all.

When the wind abated we sailed over to Stocking Island and saw the handsome *Pseudophoenix Sargentii* which were used to landscape the grounds of the Yacht Haven. They had been transplanted without root pruning but looked beautiful. Flanking each side of the steps leading up-hill to the small club-house were six of the largest *Pseudophoenix* I've ever seen. One was seven feet six inches from the ground to base of leaf-sheath, with 80 leaf-scars on the trunk; width between rings varies very much from a bare line to three inches.

The ground has largely been cleared around the club-house but fortunately all the "silver tops" and "brickel tops"

(*Coccothrinax* and *Thrinax*), as well as the pretty little "joe-wood" trees (*Jacquinia keyensis*) have been left. The latter have silvery-grey and black markings on the trunks, and both flowers and fruits at the same time. There is also another smaller bush with grey-green linear leaves and small pinkish-lilac flowers. Both of these last with their rather angular flat-topped wind-blown somewhat oriental appearance would drive the landscape people wild!

A fine old gentleman living on the island told me the "cabbage" or *Pseudophoenix* grew over to the north in a hidden fold of the hills. He tried to get a man to guide me to the spot, but was unsuccessful; however, I went on another of my "crashing" expeditions, slipping and sliding, hacking my way through the thick brush under the "silver tops," but unfortunately never came across the big stand of *Pseudophoenix*. There were plenty of isolated ones here and there, presumably from seeds dropped by birds.

In the old gentleman's garden there were several fine specimens, including the only one I saw with fruits. This one had three large bunches, two green, the other bright cherry red, some of which I collected for Fairchild Tropical Garden. Another striking feature of this garden was a pair of very large silver buttonwood trees (*Conocarpus erecta* var. *sericea*). They are twenty-five to thirty feet high, and just as wide. Fluttering and shining in the sun, they were a lovely sight. The silver and duller-leaved buttonwoods grow all over Exuma down to and into the seawater. They are very attractive mixed in with the darker green foliage on the hillsides.

From studying the *Coccothrinax* quite closely, I would venture a guess that there are two kinds of *argentata*—one with the fan open at the hastula,

the other with the segments meeting. There was another *Coccothrinax* which looked rather like *C. Miraguama*, with the segments swirled past each other at the hastula, but without the distinctive fibre mat of *C. Miraguama*. Still another had very wavy fans, reminiscent of *Livistona chinensis*.

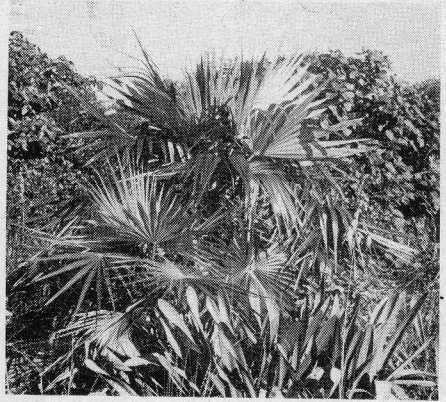
There were few fruits to be found on the very silvery *C. argentata*. Those I collected for Fairchild Garden seemed larger, plumper and juicier than the ones we see in southern Florida; they were of a deep grape-purple color.

Of the *Thrinax* species found, one was *T. microcarpa*; the other resembled *T. parviflora*, with its white fruits, while another had very long (dead) flower spikes reaching to the ground.

On another trip to the south coast of Exuma near the bone-fishing grounds, there was a very large colony of *Thrinax (parviflora?)*; many of them had great masses of *Oncidium* and *Broughtonia* on the trunks. There were no



51. This *Coccothrinax* on Fowl Key was very silvery and had wavy leaves.



52. *Coccothrinax* on Fowl Key appearing more like *C. argentata* than anything else seen. Strap-shaped leaves in the foreground are those of a *Crinum*.

flowers at the time but I was told that the *Oncidium* flowers are yellow spotted with brown, and the *Broughtonia* has pinkish-lilac flowers.

In a boggy area to the north of the airstrip, *Sabal Palmetto* or "pond top" was found ("very good for baskets!"). The plants seemed to differ a bit from the Florida kind, the leaf blade much arched, with many "strings" hanging below. These palms had come up in the past two years, since the area had been bulldozed. None had yet made a trunk; the largest had leaf petioles four to five feet long. There were many very large old trunks lying around, some as much as twelve feet long.

The islands were beautifully fresh and green, as there have been two years of good rainfall. Twenty-eight to thirty inches per annum is the average. However I was told of one drought which lasted nearly two years; the people suffered greatly as rainwater catchments are the only source of supply in most places. There are many wells, but most of them become brackish when rainfall is low.

In the center of Georgetown there is a very large *Ficus nitida*, known as "THE Evergreen". No one knows who

planted it. Elsewhere I saw a *Ficus religiosa* and two *Salmalea malabarica*, as well as other familiar trees and shrubs. The number of plants I *did not* know or even vaguely recognise was legion; it would be a fascinating place for a trained botanist, I would say.

On the way home to Florida we spent a few days with friends in Nassau. I had the great pleasure of visiting Mr. and Mrs. Arthur Langlois and seeing their magnificent palms once more. I was specially eager to see Dr. Fairchild's *Areca* species 208; it has grown enormously since my previous visit, and is perfectly beautiful. Then I was shown the glorious *Stevensonia Borsigiana*. It is really breathtaking with its orange leaf-stalks and almost entire leaves spotted with orange. Hearing so many names new to me made me feel appallingly ignorant, but this did not interfere with my enjoyment. Mr. and Mrs. Langlois sent all members of The Palm Society their kind regards and good wishes.

Editor's Corner

Continued from Page 93

of a member who remains anonymous by request appear in this issue for the first but we hope by no means the last time under the title "Notes of a Palmophile." Since the Editor was once saved from a 100 foot fall by a large barrel cactus into which he rolled backwards, he has mixed feelings about the manner in which one may become a palmophobe according to our nameless correspondent (page 101). Perhaps one may learn to love even *Acrocomia*.

Mr. Robert L. Bishop of Lake Grove, Oregon, whose notes on palms in Oregon appear elsewhere in this issue and in *Principes* 1: 99, 1957, adds the following in a letter. "*Trachycarpus Fortunei* is probably the only palm which has truly been proven hardy in western Oregon. I have located about 35 ma-

ture specimens in the past three years here, ranging from sea level to 2000 feet in elevation. The girl in the photos (see page 111) is my daughter Barbara, who incidentally is 12 years old and precisely five feet tall."

The April mail brought a most generous offer from a member in Malaya whose letter is reproduced herewith:

DEAR SIR,

I read with interest the article on "Diseases of the Coconut Palm" by Dr. Corbett in your *PRINCIPES* Vol. 3, No. 1, January 1959 issue.

The green, yellow and golden varieties seed nuts of the Malayan dwarf coconut from parent trees in pure stands for planting purposes are available in large quantities here. Should your members require any for planting, I am prepared to offer my services free of all charge. But the cost of the nuts, shipping and documentary fees, etc., must be paid.

Those who are interested please write to me at P. O. Box 105, Kulai, Johore, Malaya.

Yours faithfully,

TAN AH KING

NOTES OF A PALMOPHILE

Though Webster never heard of one, a palmophile is, as you correctly surmise, a lover of palms; but in plain American speech he is more likely to be called a "palm nut" or a "bug on palms," the same kind of fellow that would be termed in *Time*-ese a "palm buff." Due to the universal attention accorded the palms in poetry, in prose, in song and even in the Scriptures, they evoke dreams of tropic grandeur and other assorted romantic notions in almost everybody, everywhere. But these millions are not palmophiles; they merely approve of the palms in general, as they approve of flowers, trees, angels, champagne, the moon.

There may be also on this contrary planet a few palmophobes, *i.e.*, fearers or haters of palms. It seems reasonable since we have claustrophobes, demonophobes, photophobes and a hundred other phobes and phobias. One way to become a palmophobe is to back up into an *Acrocomia* trunk while bending low after a daisy.

* * *

In the poetical reaches of literature women have been likened to the palms for their beauty, and men for their strength. Besides having been for ages a standard symbol of victory, the palms have had linked to them such human attributes as nobility, grace, honor, virtue and even qualities more far-fetched than virtue. In the Bible we find a woman's stature compared to a "palm tree," in a passage lying amidships of Chapter 7, The Song of Solomon, which is composed of some of the most gorgeous poetry in the King James Version. "This thy stature is like to the palm tree" may seem downright foolish to dealers in hard facts only and in any case a doubtful compliment, but it manages to sound gracious and poetical to those more in sympathy with the strange fancies allowed to poetry.

* * *

The palm gardener propounds endless questions to himself, especially while still new at the business. His first question, inevitably, is: Why is there no one-volume edition of a work authoritatively dealing with the several hundred kinds of cultivated palms? This is not the only question to which he finds no ready answer. He may become calloused though not quite reconciled to going answerless; but whether new at it or an old hand, the wonder never fully subsides and the questioning that grows out of wonder continues. Why, he may ask himself, is *Washingtonia filifera* seldom if ever met with in Florida? Why are

species of *Trachycarpus*, *Chamaerops*, *Erythea* and *Jubaea* relatively common in California but extremely scarce where not altogether missing in Florida? Why can't one find in nurseries anywhere plants of *Rhapidophyllum hystrix*, a Florida native? Why is it easier to buy diamonds at ten cents on the dollar than just one plant of *Nannorrhops Ritchiana*? Why did no one ever follow up Bomhard's sagacious suggestion to make experimental plantings of *Ceroxylon* species on the lower slopes of Pacific coastal ranges in Washington, Oregon and California? Why has no attempt ever been made to cultivate many of the hardier palms? Why is *Phoenix rupicola*, which is often called the finest species of its genus, so sparsely planted? But the questions go on to infinity, and one might just as well speculate about why some people prefer a dip of Copenhagen snuff to a slice of apple pie. And yet this is shading the truth a mite, for delving deep enough does produce a fair number of partial answers and a further number of plausible excuses (the baboons eat all the seeds before any higher primate can get his clutches on some). One must conclude for the rest, finally, that part of the trouble lies in that much advertised human failing, inertia. Not mine or yours, of course—the other fellow's.

* * *

Take *Trachycarpus*. Maybe you prefer to leave it, in the belief that many other palms are more rewarding. Few specimens indeed of its species are to be found in Florida; nowhere in the state are they abundant, and in the southern parts they are something of a rarity. They are common enough in California (mostly *T. Fortunei*, probably), in New Orleans, in parts of Mexico, and at least one fine specimen is reported to be flourishing at Summit, Canal Zone. The

Continued on Page 107



53. Habitats of *Jubaeopsis caffra*. Above, mouth of the Umsikaba River; below, mouth of the Umtentu River, both in Pondoland. Photographs by R. Story.

The Pondoland Palm

ROBERT STORY

Department of Agriculture, Division of Botany, Pretoria, Union of South Africa

When Dr. Hodge asked me to write a short article on *Jubaeopsis caffra* for the journal PRINCIPES I thought it best to see first what the author (Beccari) had said about it in his original paper. Apart from the formal Latin description, Beccari wrote in Italian. My war-time vocabulary took me part of the way and the rest of the translation was done with the help of a young lady from the Italian Legation in Pretoria who coped with all the words except *spata*, which defeated us both (but I realized later it probably meant *spathe*). Beccari points out that this palm is closely related to *Jubaea spectabilis* [*J. chilensis*], a monotypic genus from Chile, so much so that it could be considered a second species of *Jubaea*. It differs in having sessile male flowers and free sepals and is (or at least was when he wrote his paper in 1913) the nearest known relative of the coconut. Its fruit is built on the same general lines, with a large hollow in the middle, and the male flowers have the same type of calyx formed from three imbricate segments. In Marloth's *Flora* it is stated that the nut is without milk, but this is a mistake—it does contain milk, just like the coconut. The nut is, however, much smaller, about an inch and a half in diameter, and the germinating holes also are different, not situated at the bottom as in the coconut but equatorially.

Beccari's specimens were sent to him by Sir David Prain, Director of the Royal Botanic Gardens, Kew, and "had been collected by Mr. Charles Ross (1909) along the rivers Umukaba and Mtentu in Pondoland (South Africa) from where later other examples were also sent to Kew by Dr. Marloth. 'Inkomba' is the Native name of *Jubaeopsis*." There are two points of interest in

this quotation. Firstly Beccari is mistaken in giving the name of the river as Umukaba, it is Umsikaba (with the stress on the second syllable). We may as well get both names correct while we are about it—while it is permissible to leave out the first letter of the prefix, one should be consistent and call the rivers either Umtentu and Umsikaba or Mtentu and Msikaba). Secondly Ross's collection was evidently not the first, for T. R. Sim, in his work published in 1907, speaks of *Hyphaene crinita* and then goes on to say "This or another Palm occurs on the Egossa coast in East Pondoland; specimens sent me from there by Forester Campbell have fruits answering the above description and 1½ inches diam., but the leaves were said to be pinnate. He gives the Native name as *Inkomba*, and states that the leaf is fully 6 feet long, panicle about 5 feet long, each branch has about 40 twigs thickly clustered with fruits which are apt to drop off, and that it only occurs, as far as he knows, at one place on the Egossa coast." Ross, incidentally, was also a member of the staff of the Department of Forestry. He was then Conservator of Forests in that area.

There is one more observation of Beccari's worth quoting: "I am almost sure that figure 164 in *Historia Naturalis Palmarum* of Martius, which is supposed to show *Phoenix reclinata*, shows instead the habit of *Jubaeopsis caffra*. It is easy to see that the said figure has nothing that could make it resemble a *Phoenix*, and much less *Phoenix reclinata*. It represents instead a medium-sized palm with a short trunk covered by the bases of the leaves, which are large, rigid, gracefully arched and have a short stalk; the spadices appear exactly as in a typical *Coccoloba*, have



54. *Jubaeopsis caffra*. Photograph by L. E. W. Codd.

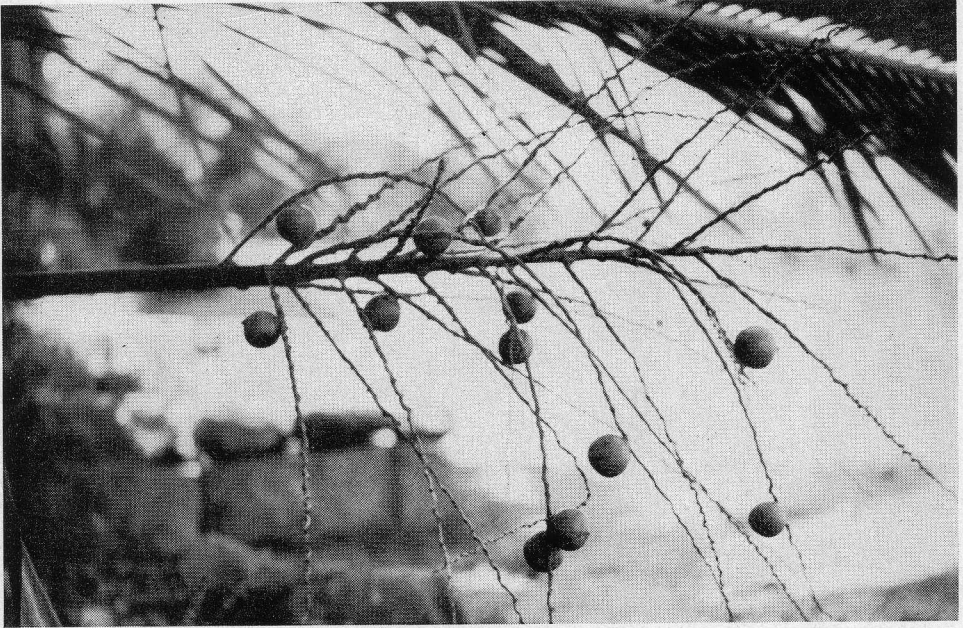


55. *Phoenix reclinata* at Letaba, Kruger National Park, South Africa. Photograph by W. H. Hodge.

an internal cymbiform-fusiform spathe, and a simply-branching panicle bearing round fruits. Martius writes that this plate was done by Ecklon on the hills near the Fish River (33°30' south latitude), that is to say in a region a little further south than Pondoland." I cannot agree with Beccari's conclusions. Mr. W. Marais has examined the figure in question at Kew and finds that it is a habit sketch on quite a small scale with the fruits mere blobs, some round and some more or less ovate, and although they are too big for *Phoenix reclinata* the plate is out in perspective and far too poor to warrant Beccari's assumption. In addition, *Phoenix reclinata* and *Jubaeopsis* are extremely alike vegetatively. I know this from my own experience, for I am familiar with *Phoenix reclinata* in the field and yet mistook *Jubaeopsis* for it. I remember at the time absently wondering why the rachis was such a deep gold instead of the usual nondescript pale yellow, and I should never have realised I was looking at *Jubaeopsis* if it had not been for some broken nuts on a flat stone near by, evidently broken open by the native herdboys for the sweet edible flesh inside. The palms are protected but they grow in native territory miles away from authority and I doubt if the local small boys have any idea of their status anyway. The two river mouths where they are found are about eight miles apart, the rivers flowing between rocky thickly wooded banks in rolling grassy country. The northern one, the Mtentu, is reached over a rather rough track which (getting fainter and fainter as it goes) winds past scattered native huts and small herds of cattle and sheep and finally runs down a steep rocky slope to peter out on the river bank, and right there is the first *Jubaeopsis*, the same one that I mistook for a *Phoenix*, in a most attractive spot, sheltered, deserted

and quiet except for the noise of the surf on the beach below. The palms at the mouth of the Msikaba River to the south fall within the Mkambati Leper Institution, which is beautifully situated on a headland overlooking a rather wider and deeper valley and the sea. No one may enter Mkambati without a permit and in consequence it is one of the few places in the native territories where the vegetation has not been profoundly disturbed and the wild animals have not been exterminated. It is a valuable and interesting place scientifically and those who have the interests of wild life at heart (that is to say very few) will find it hard to suppress a sneaking sympathy with a certain highly-placed official of the South African Department of Agriculture who was heard to make the following tactless remark: "Unfortunately they have advanced so much in their treatment of leprosy that there is a danger that Mkambati may close down!" The palms, as far as we know, are restricted to an extremely limited area—a few on the outskirts of the riverine bush and the remainder on rocky shelving banks near the water, forming small thickets, sometimes stemless and at other times with stems about six feet high. They may be elsewhere as well, for this is an out-of-the-way place and is little known botanically.

The one big snag as far as I am concerned in botanising along this lovely stretch of coast is that it is the home of a swift and deadly snake known as the black mamba. Although it is doubtful whether this snake would attack without being molested, the risk is that in making straight for its lair, as it invariably does when alarmed, it will bite anyone in its way. Weight for weight its venom is a little less potent than that of the Cape cobra but quicker in taking effect, and this together with its size and vigour makes it greatly feared. According to



56. Fruits of *Jubaeopsis caffra*. Photograph by L. E. W. Codd.

the *Guide to the Albany Museum* there are in this area "tracts of land quite unoccupied by the Natives on account of mambas." The mamba is nearly at its southern limit here—it has not been recorded south of the Mbotyi River about seventeen miles from Mkambati. This is puzzling, for the coastal strip is frost-free for hundreds of miles further south and, one would think, better suited to the mamba than many parts of the Transvaal where it is found in areas that are subject to heavy winter frosts. However, I suppose this is no more puzzling than the distribution of *Jubaeopsis*. At least it has been established that the mamba will not live at Port Elizabeth, but there appears to be no reason at all why *Jubaeopsis* should stop short where it does because there is a thriving specimen growing in the open in St. George's Park at Port Elizabeth (Cook, 1950). In Natal it has been grown from seed by Mr. D. E. Mitchell of Margate, and seed from Mr. Mitchell's

palm has in turn produced seedlings. We have also germinated several nuts in Pretoria and have sent some over to Dr. Hodge to try, in the hope that he will have every success in establishing it near what is generally held to be its ancestral home.

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Notes of a Palmophile *Cont. from P. 101*

possible planting range extends through all the warm or moderate temperate climates, in the Western Hemisphere, from a little south of Buenos Aires to Victoria, B. C., and thus the species have greater latitudinal adaptability than any other representatives of the palm family. Perhaps the slow growth and unkempt long-persistent shag has deterred Florida planters, but it has not deterred too many others. From seed to maturity might be fifty years, but in time this palm is often more ornamental than some species of *Coccothrinax*; eventually the trunk becomes bare, the foliage is usually a deeper green color, and though the crown is small it is still not too skimpy when the palm is well grown.

* * *

Then there's *Rhopalostylis*, another genus of the cool sub-tropical belt, not now represented in Florida except by seedlings or juvenile plants; and in California, where attempts to grow two of the species antedate any attempts in Florida, plants either large or small are so few that a stranger might need a corps of detectives and a pack of bloodhounds to find them.

Because gardeners in both states mentioned are more or less concerned with winter weather a shade too cool, there should be more interest in propagating three species of *Rhopalostylis*: *R. sapida*, native of areas in New Zealand sometimes visited by frost; *R. Baueri* of Norfolk Island, northwest of New Zealand and near the 30th parallel; *R. Cheesemanii* of the Kermadec Islands in about the same latitude but northeast of New Zealand. Since *R. sapida* is the southernmost palm on the globe, in theory it should be the hardiest of the three; but the New Zealanders prefer to cultivate the Norfolk Island palm, *R. Baueri*, which they have found to be equally tolerant of the climate at Auck-



57. Characteristic feather-duster heads of nikau palm, *Rhopalostylis sapida*, in northern New Zealand. Reprinted from *Gentes Herbarum* 3: 429. 1935.

land and certain other places. They consider it more elegant than their native nikau palm, which has stiffish ascending foliage and grows to but half the height of *R. Baueri*. Also the latter has longer, more arching foliage. *R. Cheesemanii*

apparently is not known to palm culture in the United States.

* * *

Since the above was written, more specific information about *Rhopalostylis* in California has been received from David Barry, Jr. of Los Angeles. "In the 1920's," Mr. Barry states, "*R. sapida* was in many yards in Santa Barbara. This species and *R. Baueri* were planted in rows under lath in Lejeune's Exotic Nursery in Santa Barbara. These plants were mature and fruited regularly. They were a source of seed for me at the time. I heard that the State Highway Department had bought this stock, but I have never seen the plants on any highway planting, so I assume that the stock has disappeared. As to the plants in the yards in Santa Barbara, Los Angeles money in the hands of specimen tree men long ago raided that city of fine plants. I have no idea where the palms went. However, if you had looked methodically up and down the streets of Santa Barbara I venture to say that you would have found a few old plants in front yards.

"I recently bought from Bud Hallberg, the young man [at the Los Angeles State and County Arboretum] who cares for the palm section (with much pride) about two dozen seedlings of *R. sapida* that he had grown from seed taken off the ground below a mature parent that was in the park at San Diego. To sum up, there are probably a few plants of *R. sapida* around in the coastal belt of So. Calif., but hard to find. *R. Baueri* has always been rarer. Too bad, as it is the finest solitary trunked palm that we can grow here. I am trying to get a lot of seed of it and its close relative, *R. Cheesemanii*. The seed that they have been sending has been old. . . . Since writing the above I showed your letter to Byron DuCharme who commented that Bud Hallberg said that there

are some specimens of *R. sapida* at the Santa Barbara Mission and a number in the city of San Diego."

* * *

Two hardy palms of the genus *Sabal* from northwestern Mexico, *S. uresana* and *S. Rosei*, are apparently still unknown in the United States as cultivated adults—unless, of course, flourishing lonesomely in some mute corner out of sight and out of mind. The foliage of both has something of a bluish cast. *S. uresana* is reported from the states of Sonora and Chihuahua; *S. Rosei* from Sinaloa and Nayarit. It would seem that the latter, *S. Rosei*, would make the better garden subject, for besides the bluish cast of the foliage the segments of the blades are divided nearly to the continuing petiole or midrib, which is strongly decurved, and thus at a distance one might mistake the sharply rising segments for the pinnae of a plumose palm, especially in the upper half of the crown.

Landscapers and gardeners tend to plant very few species of *Sabal*, no doubt partly because they see no gain in having plants that, though supposed to be specifically different, may scarcely be differentiated one from another. *S. Rosei*, nevertheless, is one of the more distinctive species—so much so, in fact, that the same David Barry once referred to it as "a sort of missing link between the palmate and plumose palms." Further comment by Mr. Barry, who has grown a number of small plants from seed of this palm, appears below.

"Clarence Edwards, of the Sugar Mill at Los Mochis, was a great plant lover. We used to exchange material a great many years ago. It was he who sent to me the seeds of *Erythea aculeata*, which was probably its first introduction to horticulture. He also sent me seeds of what I call *Sabal Rosei*. These seeds came from Sinaloa. . . . Come to think about it, I believe that it was the picture

of the beautiful palmetto in Bailey's first fascicle on *Sabal* that inspired me to seek seeds of *S. Rosei* from Edwards. . . . I know of no other plants in California. . . . I am down to four plants. . . . Apparently the palm is one of great beauty, and with the heat that it enjoys in its native habitat, grows with a graceful, slender trunk."

* * *

Visitors to California from "back East" might find it a little easier to see the cultivated palms of San Diego than those in such a huge area as metropolitan Los Angeles. This is not to suggest that anyone should overlook the old palmetum at Huntington Botanical Gardens or the newer plantings at Los Angeles State and County Arboretum; it is to say, rather, that except for such concentrations, the palms of Los Angeles are scattered to all points of a giant compass. The case is different in San Diego because of the smaller area, but the representatives are pretty much the same except, possibly, for the mature howeias and erytheas (especially *Erythea Brandegeei*) in Balboa Park. These and two or three others are not duplicates of something the Easterner has got at home.

In 1953 the San Diego Society of Natural History published an unpretentious booklet on the "Palms in San Diego," containing brief comments on those commonly found there and citing the location of specimens, with illustrations. This publication may still be obtained from the Natural History Museum, San Diego, for 60c postpaid.



58. *Sabal Rosei*, the Tepic palmetto, with slender trunk and peculiar crown in southern Sinaloa, Mexico. Reprinted from *Gentes Herbarum* 3: 331. 1934.

Why doesn't some California palmo-phile, or else some plain palm fancier there, promote a members' convention of The Palm Society to be held in that state? Call it a convention, a conclave, a seminar, a field trip, a palm-man's holiday, or call it what you will, it would still entice a score or more of stay-at-homes to desert their cherished cocoons to see another small part of a worldful of palms, slink out to Disneyland on

an off afternoon, and down a \$5 high-ball 'neath the palms at Palm Springs.

* * *

"Look here what I found on a palm-tree."

As You Like It, iii, 2, 186.

Well, as you may remember, this girl Rosalind was mooning around in the Forest of Arden when she found this love-note pinned on the tree by this creep Orlando, who was also mooning around. Any chump would know that there were no palms in that part of France, the Ardennes, so the reader has to wonder if the printer hadn't fumbled "plum-tree" way back in that first folio. But no, the Bard was well within his rights in infesting the forest with a palm-tree, a lioness and other such delicatessen. Poets, notoriously, are not much concerned with facts.

* * *

The lot of the subtropical gardener is not so smooth, if he is at all venturesome with his palms, as the lot of his counterpart in the real tropics. Due to sudden unwonted, and yea unwanted, cold waves his misfortunes follow as one unexpected eclipse follows another, in an irregular and diabolic pattern. The writer is to be numbered amongst the fold and knows whereof he speaks. We have the great, good fortune, or great misfortune, to have been born daring, like Nicky Arnstein and Alexander the Great. Despite our temerity we are perpetually concerned with cold hazards that might destroy our palms.

The logical places to look for hardier palms would be in southern Brazil, Paraguay, Uruguay, Argentina and in any other far southern latitudes in either hemisphere from which palms have been reported, and after that limited field has been exhausted there would remain the indigenous palms of medium to medium-high elevations, say from 3500 to 6500 feet above sea level, anywhere

within the tropics. Poverty of the palm flora may be extreme at such elevations, as when aridity is a factor, but where the conditions are right in tropical highlands the family gains more than just a freakish representation. Witness the Himalayan foothills and other Asian ranges where species of *Licuala*, *Calamus*, *Plectocomia*, *Pinanga*, *Caryota*, *Didymosperma*, *Wallichia* and still other genera ascend to surprising heights, some of them to 7000 feet or higher.

But for highland palms, perhaps no other equal area can outdo the astonishing island of Madagascar, where according to Jumelle (in his contribution to Humbert's *Flore de Madagascar et des Comores*) seven different species of five genera are found at something above 6000 feet, all of them pinnate-leaved palms and all endemic. Armchair planters can speculate about their possibilities by looking them up in the mentioned flora and then dream pleasant dreams about them. Capsulated, they are:

Dypsis Hildebrandtii Becc. Clustering palm of many slender stems to not more than about 3 feet long.

Chrysalidocarpus acuminum Jumelle. Straight single stem to 6 m.

Chrysalidocarpus decipiens Becc. Solitary stem from 10 to 20 m. tall, often somewhat swollen towards the middle like a cigar. The trunk diameter may be 40 cm. at its base, 70 cm. at its largest part and 30 cm. just below the leaf crown. Leaves to 3 m., the pinnae standing out at various angles. Jumelle calls it a "grand et beau palmier."

Phloga gracilis (Jumelle) Perrier. Quite slender, growing in a cluster of 4 to 8 stems from 4 to 6 m. long.

Neodypsis heteromorphus Jum. 4 to 6 stems attaining from 3 to 12 m. when mature.

Ravena robustior Jum. et Perr. var.

Kona Jum. Ponderous palm from 50 to 90 feet tall, leaves to 15 feet.

Ravenea amara Jum. Tall but slender.

Very likely not one of these palms is known in palm culture. Of course much the greater part of the palm flora in Madagascar is to be found at lower elevations, that is, on the mountain slopes and on the low coastal plains flanking a large plateau lying from 4000 to 6000 feet above sea level. The highlands have mean monthly temperatures below 65° F. during several winter months, and light frosts are not unknown.

WHAT'S IN A NAME?

Gronophyllum (gron oh fill um), a genus with the tips of the pinnae irregularly toothed, takes its name from the Greek words *gronos* (eaten out) and *phyllon* (leaf).

Heterospathe (het err oh spáy thee), from the Greek *heteros* (different) and *spathe* (sheath enclosing a spadix), is an appropriate name for this genus in which the inner bract or spathe is much longer than the outer and differently shaped.

Mischophloeus (miss ko flée us) is also from the Greek. *Mischos* means stalk and was equated with the term pedicel by Scheffer; *phloios* means bark. The name was chosen because of the pedicel-like base of the male flowers. The genus is now usually united with *Areca*.

Ptychandra (tie kán dra) has male flowers with anthers bent over in bud. This characteristic caused Scheffer to unite the Greek words *ptyx* (a fold) and *aner* (man) in a generic name.

Ptychococcus (tie ko cóck us) also comes from the Greek *ptyx* with the addition of *kokkos* (seed) because of the grooved seed.

Ptychoraphis (tie ko ráy fiss) is another name derived from *ptyx*, to which has been added a derivative of *rhaphe* (a

seam) because of the deep groove on the seed along the raphe.

Rhopaloblaste (ro pal oh bláss tee) is so named because of the club-shaped embryo: *rhopalon* (club) and *blaste* (bud) are both Greek words.

Synechanthus (sin eh cánth us) is composed from the Greek words *synechos* (holding together, continuous) and *anthos* (flower) because the flowers are in groups of several in linear arrangement along the rachillae. Strictly speaking, *Synechanthus* should be neuter in gender but through long usage it and other names ending in the same fashion are treated as masculine.



59. *Washingtonia robusta* begins life among pioneer trees of Oregon.

EXPERIMENTAL PALM PLANTING ON OREGON'S CAPITOL GROUNDS

ROBERT L. BISHOP

Through the efforts of Mr. J. D. Rowell of Sacramento, California, formerly an Oregon resident, a number of small palms were planted this past year of 1958 on the state capitol

Continued on next Page

grounds at Salem, Oregon. The palms selected for this experiment have been carefully chosen for their reputation for hardiness.

In the late spring of the year a *Trachycarpus Fortunei* was planted along with a specimen of *Washingtonia robusta*. To date both of these palms have done exceedingly well. In late September, not the best time of the year to set out a young palm, one specimen each of *Butia capitata*, *Erythea armata* and *Erythea edulis* were added. Though very small, the last two were placed one on either side of the entrance to the capitol

building itself. If they prove successful they will present a striking scene in maturity.

The state capitol building lies just two miles south of the 45th Parallel, halfway between the North Pole and the Equator. The year of 1958 was the warmest year ever experienced in western Oregon. The annual mean temperature for the year was 57.5 degrees Fahrenheit recorded at the office of the U. S. Weather Bureau in Portland. Let's hope that this proves to be a good omen for these new palms at Oregon's capitol in this centennial year.

Classified Section

Field size, marl grown: *Heterospathe elata*, *Opsiandra Maya*, *Livistona chinensis*, and *Hoogendorpii*, *Veitchia Merrillii*, *Ptychosperma elegans*, *Archontophoenix Alexandrae*, *Dictyosperma*, *Mascarena Verschaffeltii*, Coconuts, Royals, *Caryota mitis*, *Arecastrum Romanzoffianum* (*Cocos plumosa*), *Actinophloeus Macarthurii* and *propinquus*, *Chrysalidocarpus lutescens*, *Phoenix Roebelenii*.

Gallon can size: *Arikuryroba schizophylla*, *Aiphanes acanthophylla*, *Chrysalidocarpus* sp. "Cabada", *Dictyosperma album* and *album* var. *rubrum*, *Ptychosperma elegans*, *Chamaedorea erumpens*, *Latania Loddigesii*, *Veitchia Merrillii*. T. R. BAUMGARTNER, 14451 N. E. 2nd Ct., North Miami, Fla.

Wanted: Flora of Jamaica, Vol. I. Orchids, by Fawcett and Rendle, British Museum Natural History, 1910. CLYDE HARRIS, 901 Belmont Pl., West Palm Beach, Fla.

Wanted: Fresh crop seed *Licuala grandis*, *Neanthe bella*, *Syagrus Weddelliana*, *Jubaea spectabilis*. SANDHURST NURSERIES, near CAMBERLEY, ENGLAND.

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