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## Cultivated Palms in Tahiti and The Jardin Botanique de Papeari

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While living in Tahiti for six months in 1980 and early 1981, I had the opportunity to survey the palms that are cultivated there. It must be noted that no palms are presently known to be endemic or indigenous to Tahiti and her immediate islands of Moorea, Huahine, Raiatea, and Bora Bora. The closest naturally occurring palms are *Pritchardia vuylstekeana*, known from Makatea, about 150 miles north of Tahiti; *P. pericularum*, reported from the Tuamotu Archipelago to the east of Tahiti; and the famous *Pelagodoxa henryana*, found in the remote Marquesas Islands about 750 miles northeast of Tahiti. Mention is made in Langlois (1976) of the possible existence of a *Balaka* in Tahiti but this is not too probable. It is now thought, as Langlois speculated, that the report of a *Balaka* from Tahiti by Pickering of the United States Exploring Expedition in the 19th century was due to human error in the mislabeling of an herbarium folder from Samoa to Tahiti.

The present state of cultivated palms in Tahiti is only slightly more encouraging than that of the native palm situation. In fact, with the exception of the coconut, palms are not at all common in Tahiti and are very rarely seen. My survey revealed that there are only 33 species of palms currently established successfully. Although a few species may be seen scattered here and there throughout

Tahiti, the best, and for all intents and purposes, the only location for viewing palms in Tahiti is at the Jardin Botanique de Papeari, a 35 mile and one hour drive along the south coast from Papeete. Almost all 33 species of palms can be seen at the Jardin Botanique.

### Jardin Botanique de Papeari

The Jardin Botanique de Papeari was originally the estate of Harrison Willard Smith, an American from Boston Massachusetts, who was a professor of electrical engineering at Massachusetts Institute of Technology. In 1919, after serving as a volunteer ambulance driver on the western front in World War I, Smith gave up his professorship at M.I.T. and position of instructor in navigation for the U.S. Navy and abandoned the amenities of western living to return to his beloved Tahiti that he had initially visited and fell in love with in 1903. There he lived out the remainder of his life in simple native fashion until his death in 1947.

Upon his return to Tahiti in 1919, Smith set about building a tropical paradise and purchased Motu Ovini, a flat promontory of land laced by the Vaite River and heavily fringed with coconut palms, that juts into the spectacular blue, green, and turquoise waters of the Papeari Lagoon. A more idyllic setting for a tropical garden could not have been chosen. In addi-

tion, Smith acquired hilly land, containing three small protected valleys and their adjacent plateaus, that is directly opposite and across the around-the-island road from Motu Ovinu. The entire estate was known as Motu Ovinu. Today, the Jardin Botanique is composed solely of the flat promontory of land on the lagoon side of the road while the hilly land across from the Jardin on the opposite side of the road is privately owned. This latter area is now an overgrown jungle but contains a wealth of plant material with some specimens, palms included, being the only or the most outstanding examples of Smith's numerous introductions. It is hoped that someday this area will become part of the Jardin Botanique.

Harrison Smith has been described as a gracious, humorous, considerate, and personable but outspoken man whose altruistic nature and love and compassion for Tahitians are well illustrated by, among other things, his donations of funds to build the first school and hospital in his district. In addition, he made generous loans to farmers, gave money to schools, assisted the poor, and protested to the government about the ease of access to alcohol by the natives and the destruction it was causing. He also distributed seeds and plants of his introductions to all those interested, making Papeari the "flower district" of Tahiti which it still is today (Barrau and O'Reilly 1972).

Although he had travelled widely, having visited Sumatra, Sarawak, Borneo, Moluccas, New Guinea, New Zealand, Australia, Hawaii and Panama, and was well educated, having graduated from Harvard in 1895 and M.I.T. in 1897, Smith deplored large cities and wealth, opting instead for a simple native lifestyle. In fact, visitors to Motu Ovinu were always requested to give a loud warning shout upon their

arrival for Smith was usually out and around, dressed in his typical attire which was nothing! Smith was close friends with the writers Charles Nordhoff and James Hall of the *Bounty Trilogy* fame, and John Russel and Robert Dean Frisbee. A prolific letter writer, he corresponded with such great botanists of his time as David Fairchild and Elmer Merrill and botanical institutions around the world, not only to exchange scientific information but to procure seeds of valuable plants for introduction into Tahiti. Much revered and nicknamed "Grandfather of Trees" by Tahitians, Smith was responsible for introducing over 250 species of plants into Tahiti during the 1920's and 1930's for his gardens at Motu Ovinu. This is remarkable when one considers that in those days the mode of mail carriage was ocean steamers which stopped only occasionally in Tahiti on their months-long trans-Pacific voyages. Most of his introductions are plants of food and/or economic value but many, like the palms, are outstanding ornamentals.

Before his death, Smith attempted to donate Motu Ovinu to Harvard University as a tropical experiment station but this could not be arranged. Finally in his will, he left his gardens to Jean-Marie Boubee, who along with Edward John Spies, an American who lived nearby, was Smith's right-hand man. Boubee in time sold Motu Ovinu to an American industrialist from Chicago, Cornelius Crane, who had philanthropic ties with Tahiti. In the early 1950's, Crane donated a parcel of land of about 40 acres, consisting of the flat point of land on the lagoon side of the road, to the Territory of Tahiti with the expressed wishes that the portion of Smith's botanical collections contained therein be maintained and open to the public. Today, the Jardin Botanique is administered under a dual



1. A trio of *Pelagodoxa henryana* located across the road from the Jardin Botanique.

program of the Territory of Tahiti and the Harrison Smith Foundation with Michel Guerin, a Palm Society Member, as director and Tevai Vanaa as foreman, and houses, in addition, a museum honoring Paul Gauguin, the French painter of Tahitian fame.

Thanks to Harrison Smith, there are many fine old specimens of plants, including palms, at the Jardin Botanique that date back to the 1920's and 1930's. This is the great attraction of this garden besides its idyllic setting; all the plants introduced by Smith are now approaching 60 years of age and as such are fully grown and mature, placing them in their prime as botanical specimens. Two exceptions to this among the palms are *Corypha elata* and *Metroxylon warburgii* which flowered, fruited, and died in 1976-1978

but have been replanted as young plants.

The palm that Tahiti and the Jardin Botanique are famous for is, of course, *Pelagodoxa henryana*. For detailed accounts accompanied by excellent photos of this palm in Tahiti and the Marquesas, see Gillett (1971) and Sneed (1974) and (1979). While Tahiti and in particular the Jardin Botanique are famous for *Pelagodoxa*, there are other magnificent palm specimens at the Jardin meriting special mention. Among these are several fine old plants of *Arenga pinnata* and several enormous clumps of *Oncosperma tigillarum*, the latter with trunks up to 80' tall. Both are located on the hills across the road opposite the Jardin Botanique. In the Jardin proper, palms worth noting include large clumps of



2. Clumps of *Nypa fruticans* thrive in brackish water ponds in the Jardin Botanique.

*Nypa fruticans*, a 35' tall *Phoenicophorium borsigianum*, several very tall *Areca catechu*, two *Pritchardia* spp. from Polynesia, and a handsome grand allée of *Chrysalidocarpus madagascariensis* v. *lucubensis*, many of them over 50' tall. All the above are fruiting and with the exception of the *Arenga* and *Oncosperma*, are located along the grand allée of *Chrysalidocarpus madagascariensis* v. *lucubensis*.

Papeari has a very wet and warm climate that makes it possible for the most tender and sensitive of tropical plants to thrive. The average annual rainfall is 100" while the mean annual temperature is 80° F. Almost all the species of palms have become naturalized throughout the Jardin Botanique due to the amiable climate. This naturalizing of palms is very prevalent

in the swampy and shady areas in and adjacent to the intriguing forest of native *Inocarpus edulis* (Tahitian Chestnut or *Mape*) trees. This forest of *Mape* trees with their huge but very thin, plank-like buttresses reaching 30-40' up the tree and numerous flying stilt roots spreading out over the dark still water is one of the outstanding features of the Jardin. Several species of palms have also become naturalized in the forest on the hills and in the valleys opposite and across the road from the Jardin Botanique. Here, in the 1920's Smith planted such great forest giants as *Cavanillesia*, *Durio*, *Sterculia*, *Pterocarpus*, *Swietenia*, *Terminalia*, *Bombax*, *Couroupita*, *Parkia*, and *Artocarpus* that are now spectacular specimens pushing their crowns over 100' high, creating





3. Sixty-year old plants of *Areca catechu* are now almost sixty feet in height.

a shady jungle where palms have become well naturalized.

In addition to palms, visitors to the Jardin Botanique cannot help but be captivated by the various trees and shrubs introduced by Smith that are noted for their spectacular floral displays. Among these are *Brounea* spp., *Saraca* spp., *Cassia* spp., *Amherstia nobilis*, *Warszewiczia coccinea*, *Medinilla magnifica*, *Clerodendrum* sp., and various gingers and heliconias. High overhead in the crowns of tall trees, large vines such as *Mucuna* spp., *Strongylodon macrobotrys*, and *Thunbergia mysorensis* are eye-openers with their showy flowers. Also noteworthy at the Jardin are such famous tropical fruit and spice trees in-



4. Two young plants of *Chrysalidocarpus madagascariensis* var. *lucubensis* in the Jardin Botanique are handsome specimens.

troduced by Smith as *Garcinia mangostana* (mangosteen), *Nephelium lappaceum* (rambutan), *Lansium domesticum* (lansett), *Durio ziebitinus* (durian), *Citrus* cf. *grandis* (pamplemousse), *Cinnamomum zeylanicum* (cinnamon), *Pimenta dioica* (allspice), and *Myristica fragrans* (nutmeg).

Harrison Smith died on January 3, 1947 at Motu Ovini in Papeari. On the night of his death, the local Tahitian villagers cut a trail to a point on one of the plateaus across the road from and overlooking Motu Ovini. Here they laid their beloved friend to rest. Today, it is a steep but interesting walk through a dense jungle of trees to Smith's gravesite where the visitor will be rewarded with a spectacular view of Motu Ovini and the Papeari Lagoon. The trees and palms of the Jardin Botanique and those that have been scattered from there throughout



5. This *Pritchardia* sp. was thought originally to be *P. vuykstekeana* but its identity is now uncertain.



6. A graceful specimen of *Heterospathe elata* that originated as a volunteer on the edge of the *Mape* forest. This species has become naturalized extensively in the Jardin Botanique, forming beautiful stands in and near the *Mape* forest.

Tahiti, all stand as living monuments to the pioneering efforts of the "Grandfather of Trees."

### Cultivated Palms in Tahiti

The following list of palms that are cultivated in Tahiti is by no means exhaustive as I did not have time to search out every back road. The list includes only those species established in the ground as of January 1981. The Jardin Botanique has in its nursery young seedlings of many species not included on my list and waiting to be set out in the grounds. In the years to come these will swell the number of species of palms cultivated in Tahiti.

*Aiphanes caryotaefolia*—one fruiting specimen across the road from

the Jardin Botanique, a few fruiting specimens elsewhere.

*Areca catechu*—several very tall fruiting specimens in the Jardin Botanique, several fruiting specimens elsewhere.

*Arenga pinnata*—several fruiting specimens and many naturalized seedlings across the road from the Jardin Botanique, none seen elsewhere.

*Caryota* aff. *cumingii*—a few flowering specimens at the Jardin Botanique, very few elsewhere, identity of this species not certain.

*Chrysalidocarpus lutescens*—several fruiting specimens and naturalized seedlings in the Jardin Botanique, several fruiting specimens elsewhere, fast becoming one of



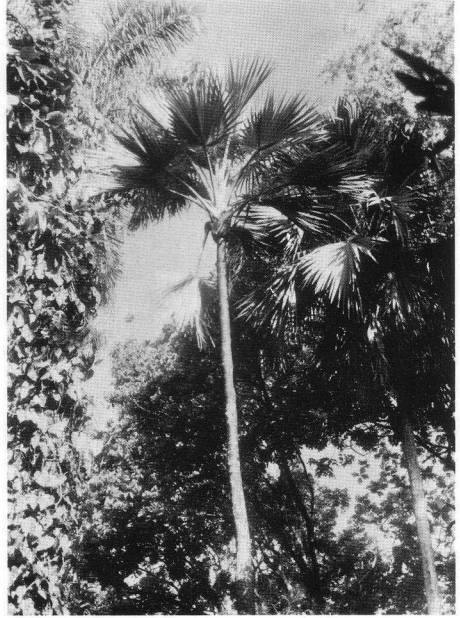
7. *Livistona rotundifolia* (right) and *L. saribus* (left) are stately palms in the Jardin Botanique.

the most widely planted palms in Tahiti.

*Chrysalidocarpus madagascariensis* v. *lucubensis*—a handsome grand allée of old fruiting specimens in the Jardin Botanique, naturalized in Jardin Botanique and adjacent areas, several fruiting specimens elsewhere, becoming more widely planted.

*Coccothrinax* sp.—rare, only a few fruiting specimens in Tahiti, none at the Jardin Botanique.

*Cocos nucifera*—abundant in the Jardin Botanique and throughout Tahiti, introduced by the early Poly-



8. Two tall specimens of *Latania* sp. grow side by side in the Jardin Botanique, the only location in Tahiti where two individuals (and in this case, both sexes) can be seen together.

nesians to whom it was the tree of life, widely used today for its domestic and landscape value.

*Corypha elata*—several young plants in the Jardin Botanique grown from seed collected when the initial tree flowered and fruited from 1976–1978; naturalized in the Mape forest, a few young plants elsewhere, possibly is *C. umbra-culifera*.

*Elaeis guineensis*—several fruiting specimens in the Jardin Botanique, a few fruiting specimens elsewhere.

*Gaussia* sp.—one fruiting specimen in the Jardin Botanique, none elsewhere.

*Heterospathes elata*—several fruiting specimens in the Jardin Botanique, naturalized in the Jardin

- Botanique and adjacent areas, none seen elsewhere.
- Howea forsterana*—only one immature specimen cultivated in a private residence in Papeari, none elsewhere.
- Latania* sp.—one male and one female tree adjacent to each other in the Jardin Botanique, with few seeds produced; several mature handsome specimens elsewhere, but always occurring as lone individuals so there is little chance for seed production.
- Licuala grandis*—several fruiting specimens in the Jardin Botanique, several fruiting specimens elsewhere with a handsome planting of mature specimens along Avenue Bruat in Papeete; a popular palm among Tahitians, many young plants to be found in yards and nurseries.
- Licuala spinosa*—two fruiting specimens observed in private residences on Tahiti, only seedlings in the Jardin Botanique.
- Livistona australis*—several fruiting specimens in the Jardin Botanique where becoming naturalized in the *Mape* forest, a few fruiting specimens elsewhere.
- Livistona rotundifolia*—one fruiting specimen in the Jardin Botanique, a few fruiting specimens elsewhere, becoming popular among Tahitians for use when young as a pot plant.
- Livistona saribus*—several fruiting specimens in the Jardin Botanique where becoming naturalized in the *Mape* forest, a few fruiting specimens elsewhere.
- Metroxylon warburgii*—a few young plants in the Jardin Botanique grown from seed collected when a tree flowered and fruited 1976–1978, a few young trees.
- Nypa fruticans*—many large fruiting specimens in the brackish water ponds in the Jardin Botanique, none seen elsewhere.
- Oncosperma tigillarum*—five magnificent clumps of fruiting specimens and naturalized seedlings located across the road from the Jardin Botanique, none seen elsewhere.
- Pelagodoxa henryana*—at least 15 fruiting specimens in Tahiti, 12 at the Jardin Botanique or adjacent areas across the road; not all produce viable seeds; becoming popular with Tahitians.
- Phoenicophorium borsigianum*—one 25' tall fruiting specimen at the Jardin Botanique, none seen elsewhere.
- Phoenix dactylifera*—none at the Jardin Botanique; three mature specimens, one fruiting, in Paea outside of Papeete.
- Pritchardia* sp.—two fruiting specimens of this handsome palm at the Jardin Botanique; one seen elsewhere, originally thought to be *P. vuylstekeana* but the late Dr. H. E. Moore, Jr., after studying material sent to him in 1979, indicated it has a closer affinity with *P. maideniana* which was described and known only from a cultivated specimen in the Sydney Botanic Gardens, Australia.
- Ptychosperma elegans*—several fruiting specimens in the Jardin Botanique; a few elsewhere, naturalized in Jardin Botanique and adjacent areas across the road.
- Ptychosperma macarthurii*—several fruiting specimens in the Jardin Botanique; very few elsewhere, naturalized in Jardin Botanique and adjacent areas across the road.
- Rhapis excelsa*—one mature clump in Jardin Botanique, rare elsewhere in Tahiti.



*Roystonea regia*—one fruiting specimen at Jardin Botanique, several fruiting specimens elsewhere.

*Sabal* sp.—fruiting specimens of an undetermined *Sabal* at several localities, none at Jardin Botanique.

*Socratea durissima*—a few seedlings in Jardin Botanique and elsewhere; in January, 1981, the only fruiting specimen in all of Tahiti, a handsome tree located in the Jardin Botanique, for no apparent reason fell over and had to be cut and removed.

*Thrinax* sp.—one fruiting specimen in Jardin Botanique, a few fruiting specimens elsewhere.

*Veitchia merrillii*—one fruiting specimen at Jardin Botanique, rare elsewhere.

## Acknowledgments

Much of the biographical information of Harrison Smith was obtained from Barrau and O'Reilly (1972), news clipping from the *Boston Herald* obituary for Smith, and the 50th and 55th Class of 1895 Reports from Harvard University. Additional information was obtained from Mrs. Edward John Spies, Christina Spies, and Marianne Spies Hodel, wife, daughter, and granddaughter respectively, of Edward Spies, Smith's close friend. Michel Guerin, Director of the Jardin Botanique, contributed palm information and some historical data on Smith. All the above deserve sincere thanks.

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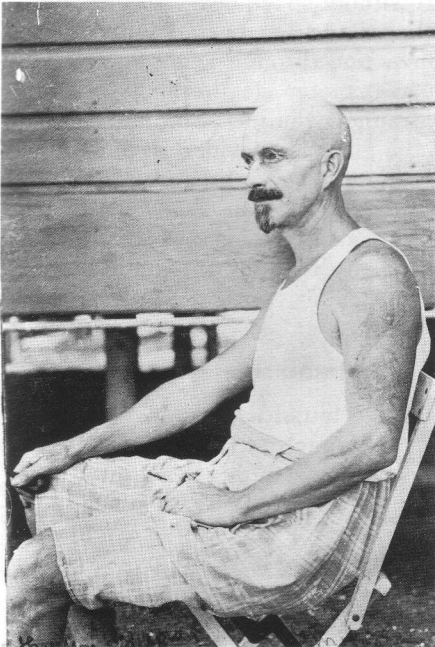


Fig. 9. Harrison Smith, ca. 1930.