

Coccothrinax crinita is not a difficult palm to grow. The seeds germinate readily. After the first few leaves have been produced, a full sun situation is preferred, although the palm will tol-

erate shade at any stage of growth. While it shows no soil preference, a loose, well drained medium suits it best. Although slow growing, the species is well worth planting as a unique palm.

New Caledonia For Palms

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When Captain Cook discovered New Caledonia in 1774 he was evidently more impressed with the native pines than with the palms. He named the island New Caledonia because the pines reminded him of Scotland. Probably Captain Cook saw only the coconut palms and not the beautiful palms that lured me there, as these grow deep in the forests where they are not visible from the sea.

In January of 1962 I spent ten days in New Caledonia in a quest for palms. For several reasons they seemed to promise more to a palm collector from Southern California than would the palms from other places in the tropics. The islands south of New Caledonia had already been a source of palms for Southern California. From Lord Howe Island had come the howeias. From Norfolk Island and from New Zealand had come their respective species of *Rhopalostylis*. These palms have done well in the coastal belt of Southern California since their introduction a half century ago. It seemed reasonable to hope that New Caledonia palms from the mountain regions, some of which exceed 5000 feet in elevation, would be able to withstand the frosts of Southern California.

Except for being French and in the South Pacific New Caledonia is not like Tahiti. Languorous, glamorous Tahiti is verdure-covered in many shades of green. Its natives are light-skinned Poly-

nesians. Papeete, the capital, is a small town. Tahiti is a well-advertised tourist attraction with accent on a life of ease. On the other hand, the green of New Caledonia is concentrated only in its dark forests and eastern coastal areas which contrast sharply with rolling areas of niauoli or of low brush. Its natives are dark-skinned Melanesians with thick, woolly hair that is often dyed a reddish brown. Nouméa is a small city of 20,000 population. Accent is on a life of industry. Mining is the principal activity, with important nickel, chrome and cobalt deposits. Until recently few tourists, except New Zealanders, visited New Caledonia.

Life in Nouméa is pleasant, and is as French as that in France. There are a number of excellent restaurants and a splendid beach for swimming. Long loaves of French bread are delivered like newspapers.

New Caledonia does not have the intensely tropical climate of lands that are near the equator. Except for somewhat more humidity its climate is much like that of the Hawaiian Islands. New Caledonia lies in the South Pacific in latitudes from 20° 8' to 22° 25', about the same distance below the equator that the Hawaiian Islands are above it in the North Pacific. Not counting New Zealand, New Caledonia is the largest island in the South Pacific. It is 250 miles long with an average width of 30 miles. A *chaîne centrale* forms its back-



22. The jeep on a good road through shrub growth in nitrogen-deficient laterite soil.

bone and separates a wet east coast from the relatively dry west coast.

The distinctive flora of New Caledonia has been an attraction to botanists for the last century. Their interest, however, was mainly taxonomic, and they paid scant attention to collecting and sending away live plants or seeds. As an illustration, in the palm collection of the Botanic Garden in Sydney, the nearest port of call to Nouméa, there is only one species of a New Caledonian palm, *Chambeyronia macrocarpa*.

New Caledonia is rich in palms, with fifteen genera embracing about twenty-five species none of which is found elsewhere. Only three or four species have so far been introduced to other countries, in a few instances, and mostly to European conservatories during the last century.

The flora of New Caledonia is unique and largely endemic. It is rich in green plants of ornamental foliage, such as

ferns, araliads (more than 100 species), araucarias, and palms. Most of these plants grow in the forests that cover many parts of the island. Outside of the forests much of New Caledonia presents a barren aspect with a low shrub-like growth. The most characteristic plant is the *niauoli*, a paperbark relative of the eucalyptus, a much-branched tree that grows by the millions over large areas. Other extensive parts of the island have an impoverished laterite soil on which strange-looking brush-like plants manage to exist. These are worthless to a plant collector, as they would not survive away from their peculiar native environment.

Fortunately, for the success of my trip, I had become acquainted, through a correspondence of several years, with Lucien Lavoix, a prominent merchant of Nouméa, and an ardent plantsman. He is the owner of a remarkable property in a mountain forest on Mt. Koghi



23. Palms with half-ripe fruit in a mountain ravine. The rosette of leaves at the right is the crown of an araliad.

that rises back of the city. Without his enthusiastic help my efforts to see the palms of New Caledonia would not have amounted to much because I arrived unprepared for rough forays into the dense forest or the bush, or *brousse*.

Lucien Lavoix has cut five miles of roads through his three hundred acres of mountain forest, and has built a delightful resort home from which one may look down upon great expanses of the island and the Coral Sea. The terrain is very rough, steep, and covered with trees, palms, and ferns — a paradise for lovers of green foliage plants. Except for the many introduced exotics that

have been planted along the edge of the roads, there are no bright flowering plants. Some large Kauri pines were taken out for timber years ago. Otherwise, the forest is virgin. Access to the plants would be most difficult without the new roads. The forest is so lush that photography of single specimens is difficult. For example, the giant angiopteris ferns that grow in colonies interweave their twenty foot long fronds to create a criss-cross maze.

I made in all four trips out of Nouméa to collect palms, going north, east, and south to forests with such fascinating names as La Forêt des Eléc-

triques, de la Rivière Bleue, du Plein de Lac, du Mois de Mai, du Col'd'amieu, de la Table Unio, et des Sources. On two trips Lucien Lavoix was my chauffeur and guide; on the other two Luc Chevalier, director of the Musée de la Nouvelle Calédonie. The jeep we used was a two-seated war surplus vehicle, formerly used by an American general. It ran well, but the roads were either rough, or we were going fast, and I always had to hold on to the windshield with one hand and a pipe rail at the edge of the seat with the other to keep from being thrown out. There were no doors, and the roof leaked.

We usually visited two or three forests on a single trip. On certain areas in the island the forests run together for great distances. On the south section of the island the forests were of about two or three hundred acres, extending up from the plain on the sheltered slope of a mountain. We would drive to the edge, enter the forest, and explore for species of palms that we had not already found in other forests. If the palms and flora in general seemed the same as we had seen, we would leave and go to another forest.

There are no snakes in New Caledonia, making it possible to walk boldly through waist-high grass when occasionally it formed the forest floor.

This exploration took place in the middle of January, which was the middle of summer there. I had planned the trip with the expectation of finding ripe seeds at this season. I should have gone in March, because the seeds of the palms and the beautiful araliads were only half-ripe. I would recommend March to a seed-collector; November for the taxonomist seeking fresh flowers. At best, such exploration is tiring and difficult. I heard later that shortly after I left, Nouméa had steady, unseasonably heavy

rains which lasted for two months, and by mid-September all seeds had disappeared.

Identification of the palms that we found was not easy as the keys that I had were based mostly on mature seeds. These keys are in the *Journal d'Agriculture Tropicale et de Botanique Appliquée* 8: 57-64, 1961, as part of a valuable article on Les Palmiers de la Nouvelle-Calédonie, by A. Guillaumin of Le Jardin des Plantes of Paris.

The commonest palm is *Kentiopsis olivaeformis*, a slender, graceful palm with a green trunk about three inches in diameter. We saw hundreds of them, mostly growing in sheltered ravines. The ones in fruit were the tall ones, twenty to thirty feet in height. The lower ones, with fully developed trunks and crowns of leaves had no fruit. They were the trees that we could reach. I finally figured out that the lower specimens were more sheltered, and received insufficient light to induce them to flower. The tall trees in full sun alone received the light required to develop flowers.

I collected and shipped out quantities of half-ripe seeds, as I had found that good germination can sometimes be had with palm seeds that are allowed to harden somewhat by drying before they are sown. Except in a few instances, however, no success in germination was had by the recipients of these seeds.

We saw the two palms in which the new leaves are crimson, *Chambeyronia Hookeri* Becc. and *Actinokentia divaricata* Dammer. My host, Lavoix, assured me that the crimson color is a beautiful and striking contrast to the green of the palms and the surrounding forest. I had to take his word for it, as in no specimen did I see a young leaf unfolding. In *Chambeyronia* the leaves and petioles have a faint brownish cast that



24. *Chambeyronia Hookeri* in New Caledonia.

suggests a red that has faded to green. Mrs. Arthur Langlois of Nassau wrote recently that the young leaves of plants of *Chambeyronia macrocarpa* that she saw growing in the Jardim Botânico in Rio de Janeiro were beautifully red.

We saw three species of *Basselinia* of which ten endemic species have been described. These palms have trunks about two inches in diameter. One species that produces multiple trunks should be of great horticultural merit. It has an attractive silhouette, with a crown-shaft that is orange-brown flecked with short dark stripes. The foliage is of a clean-cut, hard texture. This leathery hardness of the leaves and petioles indicates that the palm may be slow-growing, and perhaps more tolerant to frost than palms of the other genera.

I probably saw other species of palms besides those that I have named, but I could not identify them. There is a

general similarity in many of the species of pinnate palms seen a short distance away. Some of the species are found in sections of the island that I did not visit. To see some would require organizing a small expedition to spend two or three nights on the trail.

All of the palms of New Caledonia are pinnate with the exception of the enigmatic *Pritchardiopsis Jennencyi* Becc. According to Guillaumin's article, this palm was introduced to the conservatories of Europe by Sander in 1898. Guillaumin has not been able to find it in Europe, which is not surprising, nor was he able to find it when botanizing in New Caledonia.

Our editor, Dr. Harold E. Moore, Jr., had especially charged me with the task of finding this palm, and I did what I could for him. The palm was reported to have been found at the Bay of Prony by Jeanneney in 1892. With Luc Che-

valier as my guide, we headed southeast from Nouméa for the Bay of Prony. We drove a hundred miles or so into a remote and unfrequented country. There is a road between Nouméa and Prony, but there is no vehicular intercourse between the two places. Perhaps one car a month goes into the area back of Prony—that of a man to visit hydrographic stations. In case of a breakdown one would have to walk out. The road was very bad. The way was eerie in the region of the strange shrubs struggling for life in the red laterite soil.

We carefully searched two forests back of Prony for the fan palm. A heavy rain storm caught us and we were drenched for hours. The roof of the jeep was a sieve. Finally, we ignored the wet, and went trudging through the wet grass of the forest floors. Fortunately the rain was warm, except on the return journey to Nouméa, when we felt the wind.

We found no trace of a fan palm. Chevalier conjectured that it might be in one place, if at all, and that is at an elevation of about 1500 feet between two small peaks at the top of a small mountain that arises from the Bay of Prony. To go there would require arrangements to camp out and we were not prepared to do so. Chevalier did assure me that he and Lucien Lavoix would search this area subsequently in an effort to determine whether or not this palm exists. In September I met Lucien Lavoix in Honolulu. We spent several days together during which we had the opportunity to discuss this palm in more detail. He is of the opinion that there is no species of fan palm endemic to New Caledonia. His contention is based on the following:

The settlement of Prony began before Nouméa, in 1850. There is a good harbor and water, and there was timber.



25. *Basselinia Pancheri* in a forest of New Caledonia.

Approximately between 1880 and 1900 Prony was a prison for French convicts, both criminal and political. Today Prony exists only as a port from which to ship iron ore to a smelter in Australia. Contact with the outside world is by sea. Many years ago, in all probability, a fan palm and other plants, may have been introduced to the settlement of Prony. In 1892 Jeanneney found a fan palm there and assumed that the species was native and described it as a *Licuala*. (Beccari later called it *Pritchardiopsis*.) This plant, or plants, in the ensuing seventy years may have disappeared. On the other hand, it may be living in another part of the world where it is native and where it may be known by another name.

A case in point is *Cycas neocaledonica* found only in the settlement of Prony or its environs. It was first thought to be an endemic species of *Cycas*. It is now considered to be *Cycas circinalis*,



26. *Basselinia Pancheri*, detail of crown.

a species introduced many years ago.

Incidentally, the French seed firm of Vilmorin-Andrieux et Cie., of Paris, sent me seeds of *Cycas neocaledonica* about twenty-five years ago. The mature plants that I grew from these seed closely resemble *Cycas Thouarsii* from Madagascar.

In Guillaumin's article are listed as valid genera the following palms of which ten species are in *Basselinia*; two each in *Chambeyronia* and *Cyphokentia*, the others being "monospécifique", and all endemic except *Cocos*: *Pritchardiopsis*, *Cocos*, *Veitchia*, *Rhynchocarpa* [correct name: *Burretiokentia*], *Actinokentia*, *Chambeyronia*, *Kentiopsis*, *Cy-*

phophoenix, *Campecarpus*, *Cyphosperma*, *Cyphokentia*, *Basselinia*, *Dolichokentia*, *Brongniartikentia*, *Clinosperma*.

Other species may eventually be found in the mountainous regions in the north section of the island.

In spite of having timed my visit to New Caledonia about two months too early for seed-harvesting, and having largely failed to get any seeds, my good friends there have assured me that a never-ending supply of palm seed, as well as pictures of the native palms, will be forthcoming, now that they know how eagerly their palms are sought by palm lovers.