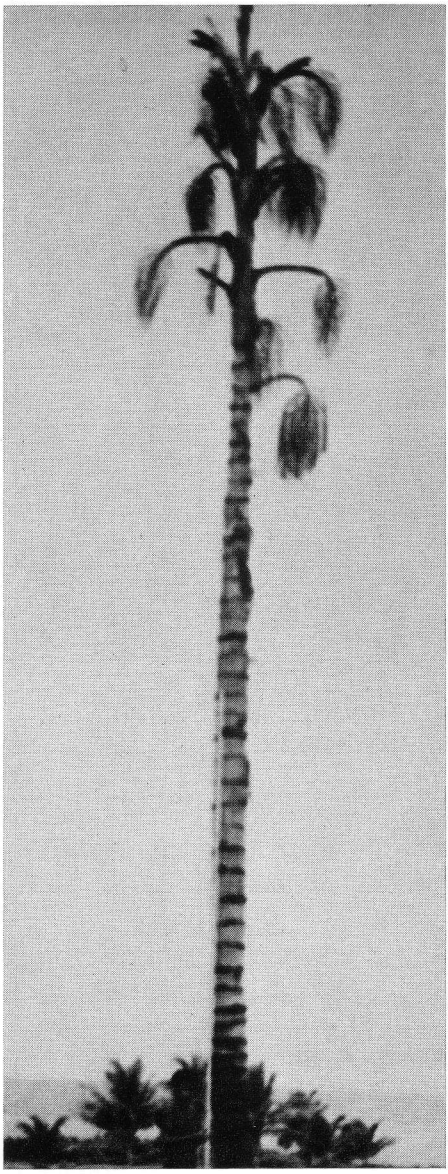
Arenga Listeri (Palmae)

R. B. KURTZ

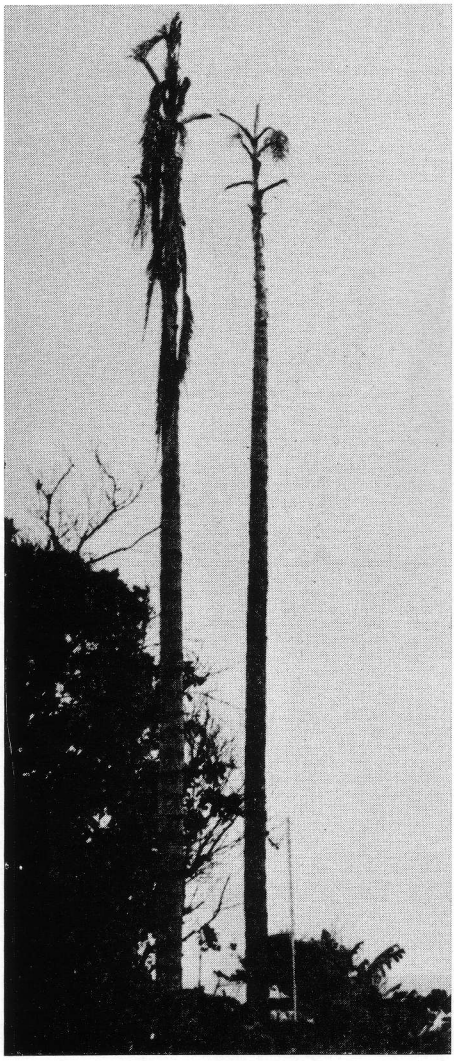
The accompanying photographs of *Arenga Listeri* Beccari were taken by Mr. D. A. Powell of Christmas Island. Christmas Island is an isolated island reaching up to a thousand feet above the Indian Ocean, with inaccessible cliffs all around the edge. It never was inhabited by man, although only 220 miles from the southwestern tip of densely populated Java. It is only 12 miles long and nine miles wide, but when first made accessible in 1886 was covered with gigantic tropical trees 100 to 170 feet high and luxuriant vegetation which has partly disappeared in consequence of phosphate rock mining. Christmas Island belongs to Western Australia and the phosphate is shipped to Australia.

A species of *Arenga* quite distinct from all others is endemic to this small, isolated island. This palm grows on weathered basalt, so that exposures of basalt may be distinguishable at long distances by the great size of the *Arenga Listeri* growing on them. According to Ridley (1906), "It is common all over the island but chiefly on the upper terraces. When the tree has fruited, all the leaves fall off and the dead or dying stem with the inflorescences persisting has a most curious appearance." This habit of fruiting on a tall stem 30 to 70 feet in height, devoid of any but the top leaves, is unique amongst arengas.

Unique also amongst arengas is the small size of the fruit (½ inch) for such a large palm. These small red ellipsoids



1. *Arenga Listeri* at an elevation of 100 ft. on the northeast side of Christmas Island. This individual is bearing fruit and perhaps flowers. A sixteen-foot staff gives scale to the picture. Photo by D. A. Powell



2. Two individuals at an elevation of 85 feet on the northeast side of Christmas Island. Both plants lack foliage; the one on the right bears fruit. A sixteen-foot staff is held for scale. Photo by D. A. Powell.

are smaller than the fruit of *A. microcarpa* which are ⅝ inch red spheres. Unusual also is the solitary trunk, a habit shared only with *A. pinnata*. The other *Arenga* species are cespitose or clustered. The two Javan species, *A. pinnata* and *A. obtusifolia*, have much larger fruit (2–2½ inches). This suggests a closer relationship of *A. Listeri* to the New Guinea or Australian small-fruited types (*A. microcarpa*). Competition with the giant rainforest canopy trees of Christmas Island may have been responsible for the development of a tall trunk up to 70 feet high. The fruit is more like that of a small *Arenga* (*Didymosperma*) *porphyrocarpa*, being elliptic, pink and juicy, with three seeds. Hemsley originally named the species *Didymosperma* sp. in 1890, and it was given its present name by Beccari in 1891.

References

Andrews, Charles. 1900. Monograph of Christmas Island.

Beccari, O. in D. Oliver. 1891. Hooker's Icones Plantarum 20: *pl. 1985.*

Hemsley, W. B. 1890. Journal of the Linnaean Society, Botany 25: 359.

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Appendix

Extracts from a letter of D. A. Powell to R. B. Kurtz dated April 27, 1970.

"There is not a great deal I can tell you about the palm, my observations are casual and are not backed by any long term research. The palm itself is fairly wide-spread, favouring areas where basaltic flows are weathering down to form a soil profile. In fact twice I have located basalt dykes by using this botanical marker as a guide. Palms that appear to grow in localities other than on basaltic material are isolated and are generally on a drainage pattern or down hill from the parent group. In which case it is reasonable to assume that the seed has been dispersed by rain-water run off or with gravity assistance. In both cases the dispersal has been in such a manner to also assume that the trace elements that the palm requires and obviously finds in weathering volcanics, will no doubt migrate in a similar way. The

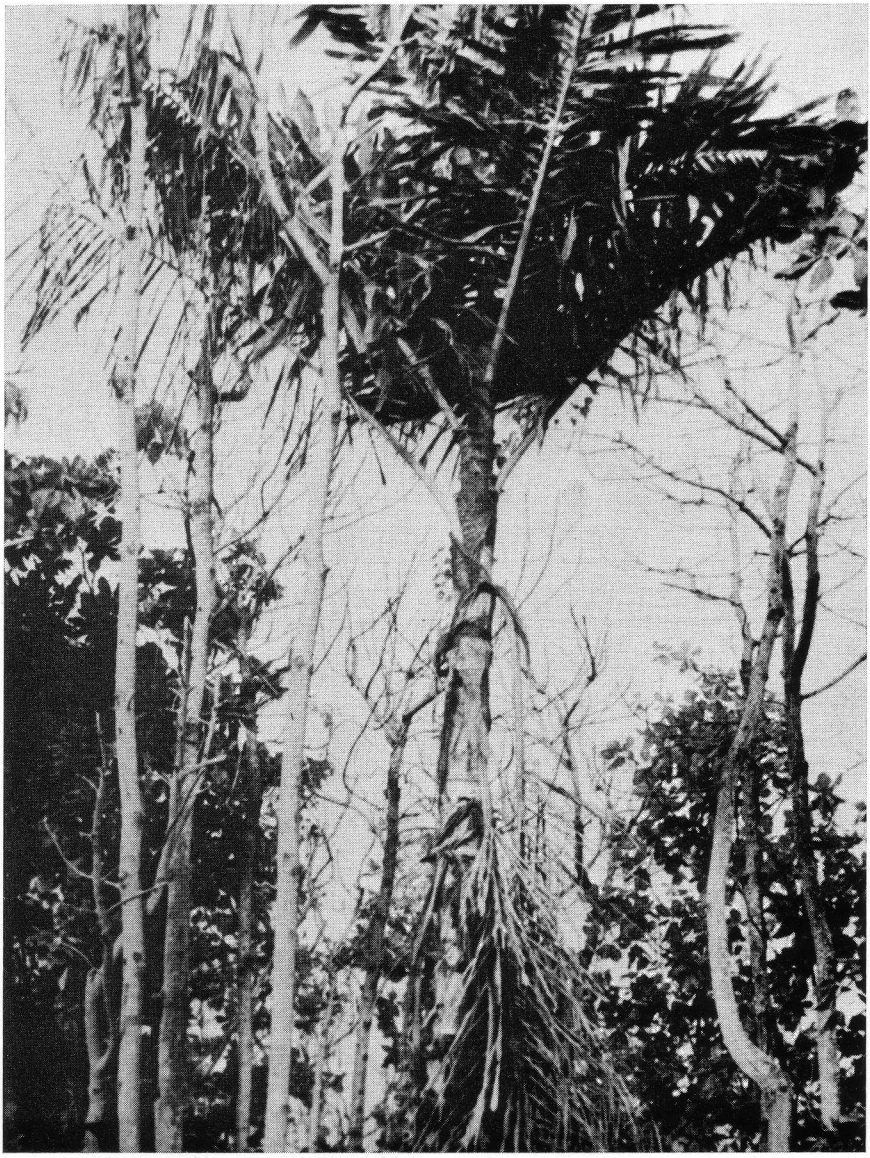
3. An individual of *Arenga Listeri* in typical rainforest on the southern plateau of Christmas Island, elevation 500 ft. The vine on the trunk is *Hoya Aldrichii*. Photo by D. A. Powell.

rainfall varies from sixty (60) to a hundred and twenty (120) inches over a year, six (6) to eight (8) inches often occurring in one day. Run-off after one days deluge could carry sufficient minerals to propagate one or two palms but only on a pre-determined geological pattern.

"Where there is a fresh (geological) basalt exposure so that there is rock and

4. A young individual of *Arenga Listeri* in the northern terrace section of Christmas Island at an altitude of 450 feet. Photo by D. A. Powell.

soil together 'in situ' then the palm successfully competes with the secondary growth normally found in rain-forests. In its early stages, due to the spread of foliage it chokes out any minor competitor and will then grow to form the sub or lower canopy at a height of about forty feet. The main canopy standing between a height of eighty to one hundred feet is comprised in the main of *Eugenia gigan-*



5. *Arenga Listeri* approximately 30 feet in height with foliage intact, still protected by light secondary growth on northeastern side of Christmas Island, altitude 85 ft. Photo by D. A. Powell

tea, Planchonella nitida, Hernandia ovigera, Didymocheton amooroides, and *Tristiropsis nativitatis.* In the northeastern section of the island only, to a height of three hundred and fifty feet, two types of tree are competing against the *Arenga*; they are the *Calophyllum inophyllum* and *Ochrocarpos ovalifolius.* Both favour volcanic soil, both rely initially on the sea to disperse their seed. I

would regard them as recent arrivals and would say that there is very little chance of them spreading due to the Miocene limestone present above the four hundred foot contour.

"In areas where the main canopy has been removed, exposing the crown of the *Arenga* to the wind and possibly strong sunlight, it will begin to lose its foliage. To the casual observer it appears dead, but despite its stark appearance it continues to flower and fruit for seven or eight years, possibly longer. I have seen palms, thirty feet in height, denuded of all foliage, produce a series of inflorescences, the lowest being at a height of ten feet from the ground.

"There is no endemic population on the island; our labour force is mainly Chinese recruited from Singapore, consequently any natural lore, botanical or otherwise is lacking. The only use made of the palm is to cut it into sections as a means to attract the robber crab (*Birgus latro*) which they use as bait when fishing.

"When the fruit of the palm is ripe it attracts these large land crabs and they gather beneath the tree scavenging for the berry. After what was on the ground has been eaten, one or two crabs will eventually climb the palm and try to eat the fruit direct from the branch. To what extent they are successful is debatable, for there appears to be a constant stream of falling fruit, which would indicate that the actual crab doing the plucking is not getting much reward for his labour. Beneath, I have on occasions counted over one hundred crabs, so that when the crab eventually climbs down there is very little remaining."

WHAT'S IN A NAME?

Dypsis (díp sis) apparently comes from an inflected form (*dyps-*) of the Greek verb *dyptein* (to dip or dive) though neither Noronha, who first used the name without an accompanying description, nor Martius, who first provided a description, gave an origin for the name. Wittstein (*Etymologisch-botanisches Handwörterbuch*, 1852) suggests a meaning that does not make particular sense and it is perhaps best simply to note the meaning as "obscure."

Iguanura (ig oo a néw ra) was used by Blume for the palm genus based on *Iguanura leucocarpa* because the inflorescence, beset with scales, resembled the tail of some amphibia belonging to the genus *Iguanura* (nomen novii hujusce Generis. . . ob aliquam spadicis squamis obsessi cum cauda quorundam Amphibiorum, quae ad Genus Iguanuram pertinent, similitudinem, ei inditum est—*Rumphia* 2:106. 1843).

Lytocaryum (lie toe ká ree um) was derived from the Greek *lyton* (Latin *solutum*, loosened) and *caryon* (Latin *nucleus*, nut or kernel of a nut) because the fruit coat splits when mature exposing the bony endocarp which contains the seed.

Solfia (sól fee a), a genus described from Samoan palms, honors Wilhelm Solf (1862–1936), onetime governor of German Samoa (1900).