

A New Species of *Ptychosperma* (Palmae) from New Britain

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New Britain is the largest island of the Bismarck Archipelago, which lies just to the east of the large island of New Guinea. The Bismarck Archipelago is part of the nation of Papua New Guinea, which includes the eastern half of New Guinea, and several other adjacent island chains. New Britain is a rugged, mountainous island of over 14,000 square miles, with peaks up to 7,500 feet in elevation. Although the two islands are separated by only 75 miles, the palm flora of New Britain is quite distinct from that of New Guinea, having more similarities with that of the Solomon Islands.

Botanical exploration, and particularly exploration for palms, in the Bismarck Archipelago has lagged behind that of the mainland part of Papua New Guinea, and only a handful of endemic species have been described from the region (Essig 1986). Collections that have been made there, however, including a number by forestry botanists based at LAE, several anthropologists, and by myself, give promise of many other undescribed species, particularly in the subtribes *Ptychospermatinae*, *Arecinae*, and *Iquanurinae*. Most of these specimens are not complete enough to be formally described and further collections are needed. One species, however, is fairly well known, and has even been cultivated, in Papua New Guinea and apparently also overseas. It is described

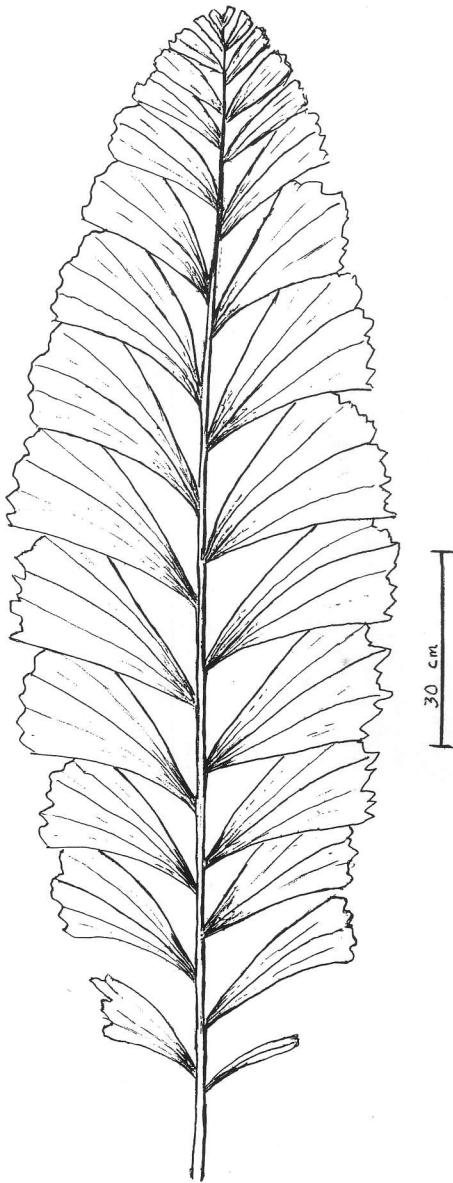
here, and named for E. E. Henty, one of the foremost resident botanists in New Guinea for the past 30 years, and one of the discoverers of this species.

Ptychosperma hentyi occurs in lowland areas of eastern New Britain, and was first collected by Henty and David Frodin in 1966. It was apparently introduced into cultivation at that time, because two specimens established at the National Botanic Gardens in LAE (Fig. 1) match the type collection very well. Apparently seed was also sent overseas, either from the original collection, or from the progeny at LAE, because I have recently received leaf fragments and photographs of a specimen growing in a botanical garden in South Africa which appears to belong to this species. The specimens at LAE were already flowering and fruiting during my stay there in 1971-72.

The new species is very distinctive, with graceful, pendulous or "weeping" fronds and broadly cuneate leaflets with convex praemorse tips. The pinnae diminish markedly in size toward the tip and the apical pair are each only about 2-5 cm long (Fig. 2). These leaves are unlike any others known in *Ptychosperma*, in which pinnae are concave or notched at the tips, and not so reduced at the end of the frond. Also, the marked, weeping habit, in which the leaves curve gracefully into a downward-orientation, is otherwise unknown in

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- 1. Photograph of one of the specimens of *Ptychosperma hentyi* growing at the National Botanic Gardens in Lae, Papua New Guinea in 1972 (reprinted from *Principes* 16(4):p. 125, 1972).





2. *Ptychosperma hentyi*: drawing of the leaf, based on the type specimen.

Ptychosperma. The foliage does resemble that of some species of *Drymophloeus* in which the pinnae are broadly cuneate with convex apices. Also, the peduncles are somewhat more elongate than is typical for

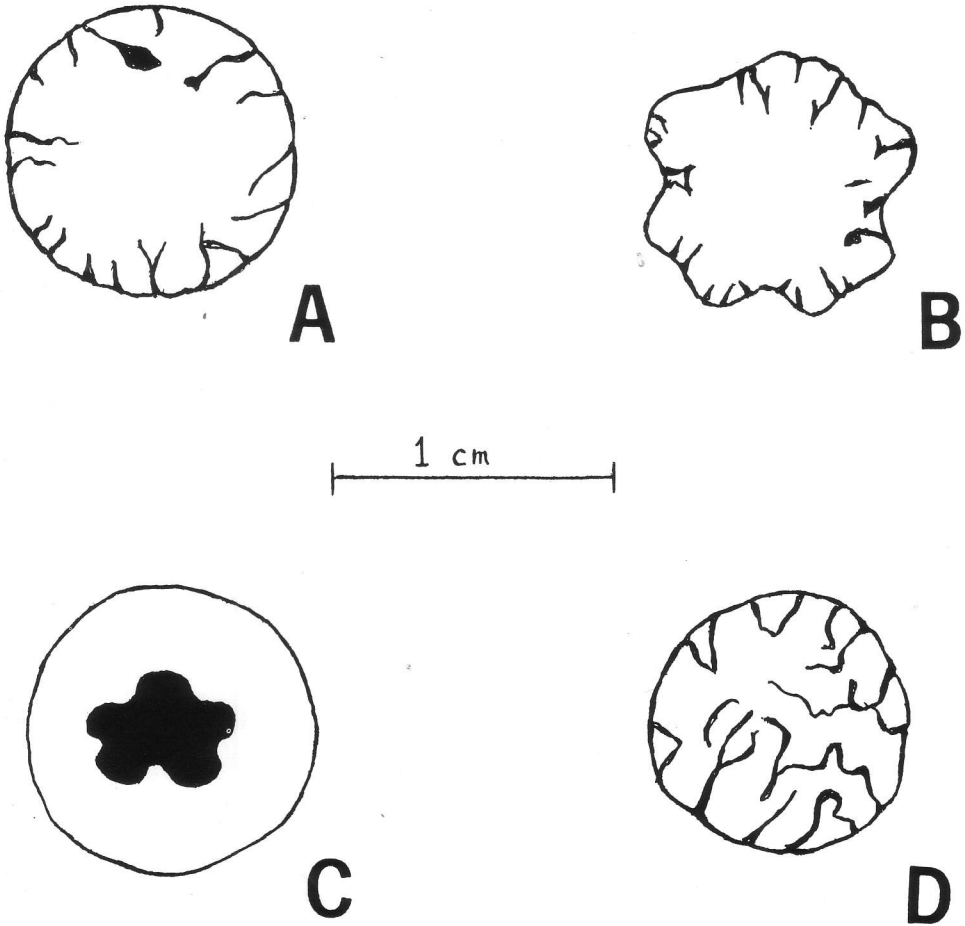
Ptychosperma, and therefore more like those of *Drymophloeus*, and the seeds are nearly terete in cross-section (Fig. 3). Finally, the pistillode of the male flower is short and inconspicuous, unlike the elongate, nectar-bearing structure found in most species of the genus (Fig. 4, also see Essig 1973). In this respect it is like *Drymophloeus*, *Brassiophoenix*, and *Ptychosperma* subgenus *Ponapea*.

Because of these characteristics, I first annotated several specimens belonging to this species as "*Drymophloeus* sp.," even though there was a hint of 5 lobes on the seed, a characteristic of *Ptychosperma*, *Ptychococcus*, and *Brassiophoenix*. From a cursory examination, the pericarp anatomy of this species appears to be typical of *Ptychosperma*, and not like that of *Drymophloeus*. Flowers and fruits are, apart from the characters mentioned, essentially like those in typical species of *Ptychosperma*.

Because of the apparent mix of characters, I wondered if this species might be a primitive intermediate between *Drymophloeus* and *Ptychosperma*. However, later examination of immature fruits revealed a clear-cut 5-lobed structure in the developing seed (Fig. 3), and this convinced me that the new species was in fact a specialized, not a primitive, member of the genus *Ptychosperma*. The tereteness of the seed in this species is secondary and due to the swelling of the endosperm during development.

Hay (1984) was also misled and used a specimen of *Ptychosperma hentyi* to illustrate the genus *Drymophloeus* in his volume on the palms of New Guinea (his Plate 105). Ironically, he used another specimen, one with a more clearly lobed seed, but probably belonging to the same species (see note on variant specimens below) to illustrate the genus *Ptychosperma* (his Plate 117).

Ptychosperma hentyi is a unique and attractive species worthy of widespread cultivation. It may already be growing in



3. *Ptychosperma hentyi*: drawings of seeds in cross-section, A. *Henty & Frodin NGF 27237* (type); B. *Hay 72*; C. *Essig LAE 55197*, immature seed; D. mature seed from *Essig LAE 55197*.

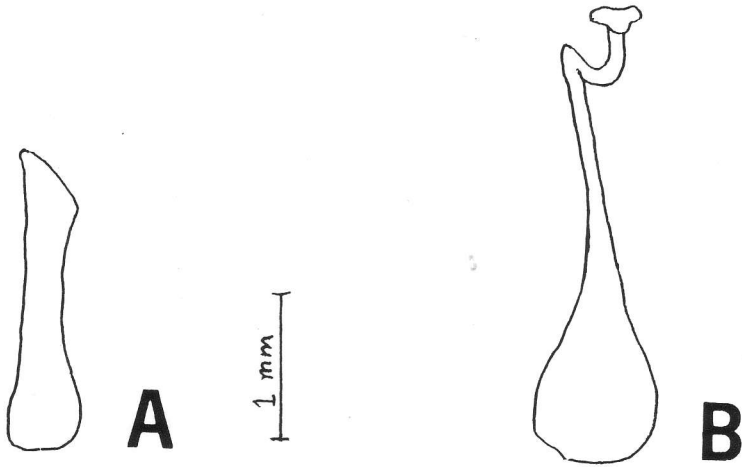
a number of places, if the South African example is any indication, and now with its identity established it should be further distributed.

***Ptychosperma hentyi* Essig sp. nov.**

Palma mediocris, solitaria, frondibus pendulis, pinnis late cuneatis, apicibus praemorsis, convexis, floribus masculis pistillodio inconspicuo; fructus subglobosus; semen leviter 5-lobatum, endospermio ruminato. Typus: Papua New Guinea, East New Britain Province, Kandrian Subprov-

ince, along west side of Pulie River, alt. 100 ft., forest on rising ground, red soil over limestone, 16 March 1966, *Henty & Frodin NGF 27237* (Holotypus LAE; isotypus BH).

A solitary, slender palm to 8 (-10) m in height; stem 6-8 cm diam. Leaves about 10 (-13) in the crown, pendulous, with tips hanging vertically, crownshaft prominent; leaf sheath ca. 45 (-75) cm long, petiole 15-21 cm long, blade 160 (-240) cm long, leaf axis with moderate coating of dark scales; pinnae ca. 12-14 (-21) on each side of the rachis, evenly spaced,



4. Drawings of the pistillode: A. *Ptychosperma hentyi*, Essig LAE 55197; B. *Ptychosperma schefferi*, Essig LAE 55077, for comparison of pistillode typical of the genus.

largest in mid-rachis, diminishing markedly toward the apex; central pinnae broadly cuneate, irregularly praemorse and convex at the tip, longest in the mid-region, ca. 37 (-54) cm long, to 30 cm broad at the apex; apical pinnae 2-5 (-8) cm long, 1-3 cm wide at the tip; pinnae sometimes with scattered ramenta along ribs on the lower surface. Inflorescence to 75 cm long, branching to two orders, peduncle 12 (-17) cm long, with first peduncular bract somewhat exceeding the prophyll in bud; second peduncular bract prominent, triangular-linear, to 9 cm long; rachillae weakly flexuous, 11-20 cm long in fruit, ca. 1.5 mm thick in the lower part when dry, bearing 15-22 triads and diads; inflorescence parts sparsely black-scaly. Staminate flowers ovoid, 6-7 (-10) mm long; petals strongly lined when dry from the prominent, unbranched fibrous bundles within; stamens 25-30, dorsifixed with dark connective; pistillode inconspicuous, ca. 2 mm long, not swollen at the base, pointed and lacking a stigmatic enlargement at the tip; pistillate flower buds ca. 3 mm in diameter during staminate anthesis. Fruit red, nearly globose, 13 mm in diameter (to elongate-ellipsoidal, 23 × 12-13 mm);

fruiting perianth to 6 mm high, with 1-2 linear staminodes; seed nearly terete (to strongly 5-lobed) with strongly (to moderately) ruminant endosperm. Vernacular names: none recorded.

Distribution: Eastern New Britain, in the Kandrian, Rabaul and Pomio subdistricts at low elevations. Type specimen growing on "red soil over limestone."

Specimens Examined: PAPUA NEW GUINEA. West New Britain Province: Kandrian Subprovince, along west side of Pulie River, alt. 100 ft., forest on rising ground, red soil over limestone, 16 March 1966, *Henty & Frodin NGF 27237* (LAE holotype, BH isotype); East New Britain Province: Pomio Subprovince, regrowth near Sali Village, at sea level, 16 October 1968, *Millar NGF 40558* (LAE, BH); Rabaul Subprovince, lowland rain forest at Powell Harbour, alt. 30 m, 28 June 1972, *Foreman LAE 52171* (LAE, BH).

Cultivated Specimen: PAPUA NEW GUINEA. Morobe Province: Lae, National Botanic Gardens, alt. 100 ft., location #196 on Essig-Leach map, 13 April 1972, *Essig LAE 55197* (LAE, BH).

Variant Specimen: PAPUA NEW GUINEA. East New Britain Province: Open

Bay Timber Company logging area, alt. 50 m, 13 July 1978, *Hay 72* (USF).

This last specimen, collected by Alistair Hay at Open Bay in East New Britain agrees with the above specimens in general respects, but varies significantly in others. Parenthetical measurements in the species description are derived largely from this specimen. Fruits are substantially larger (to 23 mm long), and elongate-ellipsoidal rather than subglobose. Seeds are clearly 5-lobed, while the typical specimens have nearly terete seeds, sometimes with no hint of lobing. Other dimensions are also somewhat more robust, including those of the staminate flowers (10 mm long vs. 6–7 mm), and the leaves (21 pinnae/side vs. 12–14). Whether this specimen represents another variety or subspecies, or merely an individual variant, remains to be seen as further collections are made in the area.

Acknowledgments

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the initial observation of this species in cultivation at Lae. I thank also Alistair Hay for sending one of his specimens to me, and I apologize to him if my annotations on the specimens at LAE mislead him. I thank the staff of the Division of Botany in Lae for sending specimens, and the staff of the L. H. Bailey Hortorium, Cornell University, for their hospitality while studying their herbarium.

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Conservation of Colombian Palms

The endangerment of Colombian palms is the subject of a survey currently being done by Rodrigo G. Bernal, of Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá. With the joint support of World Wildlife Fund and The International Palm Society, three expeditions have been planned to critical areas in that country, where palms have been found in the past, many of them described as new species, but which have never been collected again. These expeditions will be the cornerstone for our knowledge of the conservation status of Colombian palms, and for the understanding of the species themselves. This work is essential for a long-term treatment of the *Palmae* for *Flora de Colombia* being carried out by Rodrigo G. Bernal and Gloria Galeano-Garcés, as well as for several generic revisions currently in course.