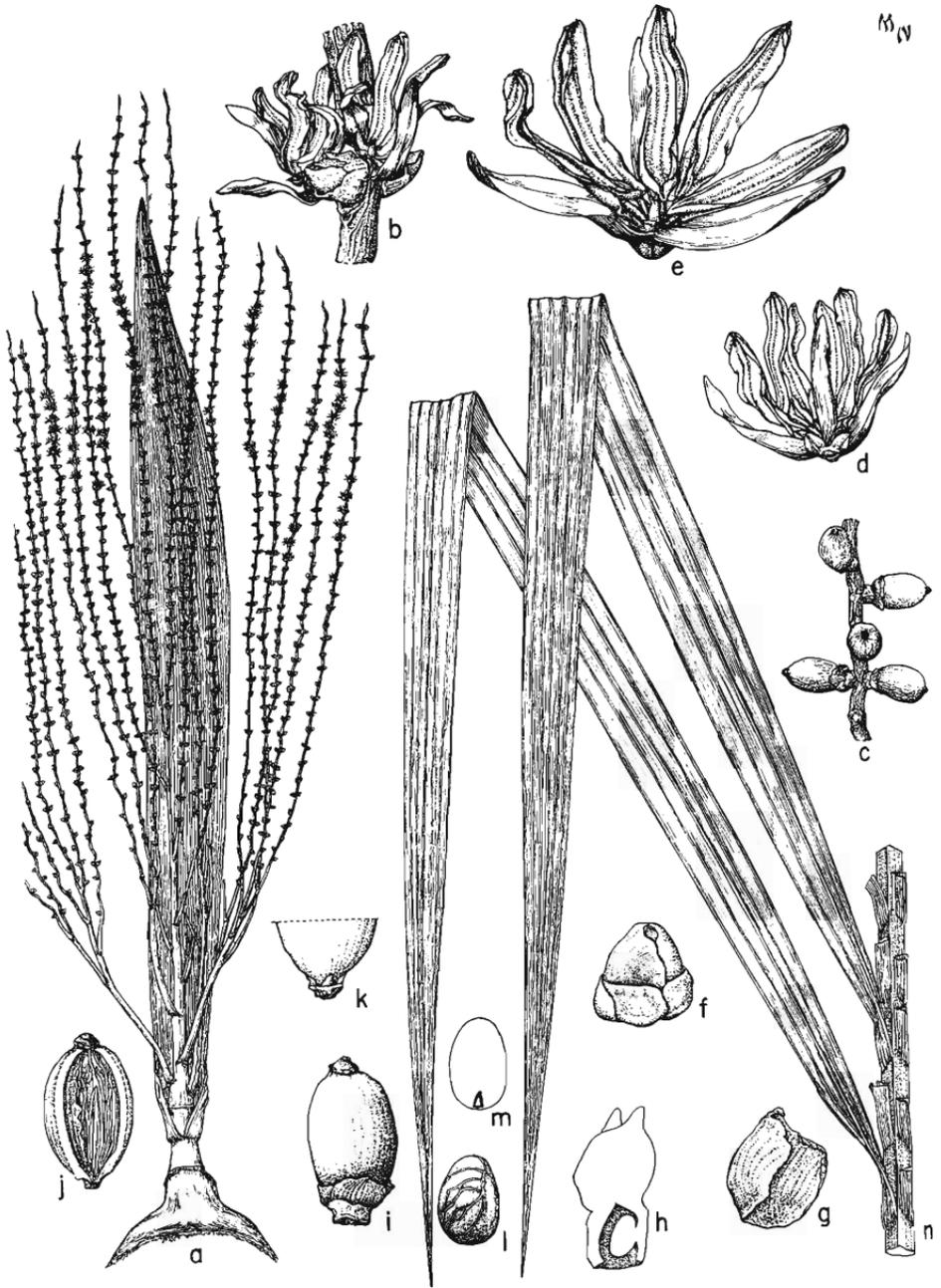


† *Gulubia palauensis*, (Becc.) comb. nov. Fig. 135.

*Gulubiopsis palauensis*, Becc. in Engler Bot. Jahrb. lix, 11-13, fig. 133 (1924).

Tree 18 or more m. tall, trunk 15 cm. thick, wood hard externally but more or less pithy in center, leaf-scars 15 cm. apart near base, closer together upward, almost contiguous near top; panicles occupying 3 nodes immediately below the well-developed crownshaft: leaf about 175 cm. long, stiffly ascending, sheath 57 cm. long, woolly-lepidote externally, closed, with a V-shaped sinus 12 cm. deep opposite the petiole, edges slightly irregular but not fibrous; petiole 18.5 cm. long, almost flat on top, shallowly convex below; rachis about 100 cm. long, strongly and minutely lepidote with dark brown scales with whitish woolly-fimbriate margin; pinnæ long-attenuate at apex, usually frayed, about 35 on a side, alternate, the several at the base crowded together, generally pointing forward, inserted at a narrowly acute angle, the apical to 23 cm. long, 1.2 cm. wide, median 55 cm. long, 2.2 cm. wide, basal 49 cm. long, 1.4 cm. wide; nervature not very prominent, nerves of four orders, the finest occurring singly occasionally between those of the next order; lower surface punctulate, papillose, dots dark brown, arranged along the nerves, midnerve with light brown densely white-woolly scales 3.5 mm. long, mostly attached basally: inflorescence about 55-60 (-80) cm. long; peduncle compressed, about 3 cm. long to first bract; inner bract inserted 12-13 mm. above outer, outer bract compressed, ancipitous, 49 cm. long, 5.2 cm. wide when dry, inner bract acuminate, compressed with edges rounded, 48 cm. long, 4.2 cm. wide; third incomplete bract 12 mm. above second, about 8.5 cm. long, about 1 cm. wide, strap-shaped; ramification beginning about 5 mm. above third bract, lowest branches two to three times branched, upper generally simple, primary rachis to ultimate division 15-16 cm. long above uppermost bract, individual rachillæ up to 32 (-40) cm. long, slightly undulate, thickening to 2 mm. in fruit, triads of flowers regularly decussate, opposite or subopposite, 3-9 mm. apart, continuing evenly distributed to tip of rachilla: staminate flowers white (when fresh), sepals minute ovate triangular scales 0.75 mm. long, petals elongate, lanceolate, slightly acuminate, 3.5-4 mm. long, 0.75-1 mm. wide, somewhat falcate at tips, stamens 6, filaments short, thick, roughly conical, slightly under 1 mm. long, anthers linear-oblong, tips slightly exerted beyond petals, somewhat twisted, basifixed, introrse, 4-4.5 mm. long, cells prolonged (slightly beyond connective), base unevenly auriculate, connective narrow, pistillode narrowly conical, produced slightly toward apex, apex very slightly trifid or "tripapillate," about equalling filaments; pistillate flowers 2.5 mm. long, conical in bud, sepals at anthesis 1.5 mm. long, rounded, free, imbricate in fruit, 1.4 mm. long, appressed into a short cylindrical cup, very slightly constricted in the middle and very slightly flaring above, petals broad and rounded with somewhat umbonate tips, free, very slightly imbricate at tips, strongly imbricate below, at length appressed against fruit, 3 mm. long, black, staminodia 2-3, minute, ovate, 0.4 mm. long, in fruit ovate with narrowed black acute tips, 0.6 mm. long, ovary apparently globose-ovoid, with a slightly produced conical tip, actually only the lower third is proper ovary, the larger upper part a greatly thickened "style" of very firm tissue, the conical projection on top probably stigmatic, ovule pendu-



135. *GULUBIA PALAUENSIS*. a, panicle, staminate flowers mostly fallen,  $\times 1/4$ ; b, portion of rachilla with staminate and pistillate flowers  $\times 3$ ; c, portion of fruiting rachilla  $\times 1$ ; d, staminate flower  $\times 3$ ; e, staminate flower with pistillode exposed  $\times 4$ ; f, pistillate flower not fully expanded  $\times 4$ ; g, petal  $\times 7$ ; h, pistil in vertical section  $\times 10$ ; i, fruit  $\times 2$ ; j, fruit with exocarp and portion of mesocarp removed to show fibers  $\times 2$ ; k, staminodes in fruit  $\times 3$ ; l, seed  $\times 2$ ; m, seed in vertical section  $\times 2$ ; n, portion of leaf  $\times 1/3$ .

lous, attached laterally along upper half or two-thirds of locule: fruit borne at right angles to rachis, ellipsoid, 9-10 mm. long, 4.5-5.5 mm. diameter, smooth when fresh, when dry gray, minutely mamillate, minutely longitudinally irregularly ribbed when dry, with terminal projecting indurate styler portion persisting as a rounded black button-like umbo with an irregular scar in the center, exocarp thin but distinct, mesocarp thin, with one layer of closely spaced flattened fibers extending the length of the fruit, endocarp indurate elastic; seed oblong-ellipsoid, rounded at ends, 4 mm. wide, 6-6.5 mm. long, attachment linear along the length of one side, vascular strands about 4 mm. diameter, 4 on each side, descending from the raphe, appearing as whitish stripes from the white raphe back and downward to form a slight network just above and back of the circular micropyle, endosperm hard, smooth.

Endemic to Palau.

Palau Islands: Koror, in collis calcareis, *Tuyama*, August 26, 1939 (TI, 7 sheets); Koror, August 1932, *Kanehira 1904* (FU); Koror, on elevated coral rock, April 1, 1938, *Kanehira & Hatusima 4561* (FU, 2 sheets); Auloptagel I., December 1952, *Gressitt 45* (US); Urukthapel I. east end, April 2, 1950, *Fosberg 32491* (US, BH, BISH); Almezu I., August 26, 1937, *Hosokawa 9067* (A); [Kasioru, 11 April 1936, *Takamatsu 1492* fide Burret. Korror, *Ledermann 14149*, type, not seen.] Collections cited as this species, *Kanehira 114*, *1942*, and *3442*, by Kanehira, in Journ. Dept. Agr. Kyushu Imp. Univ. iv, 284 are Pinanga. Native names: "Bugelangererals" acc. Ledermann fide Beccari; "Subiia" acc. Palauan informant Alkong (*Fosberg 32491*). The name "Akaboek" given by Kanehira (Enum. 284, 1935) probably applies to Pinanga, as the specimens cited with it belong there.

This species normally forms a conspicuous element in the forests of the high limestone islands and of the limestone portions of volcanic islands such as Korror and Babeldaob. Although not confined to the ridges it shows up especially against the sky along the high ridges of these rugged islands. While formerly abundant its continued existence is now seriously threatened. During the war most of the trees on islands close to Korror or where the Japanese maintained military posts were cut and the terminal buds used as cabbages for food by the soldiers. Then, after 1950, the remaining trees on all except some of the more isolated islands were attacked by the coconut rhinoceros beetle, *Oryctes*, to which they seem to be very susceptible. The adult beetle bores into the terminal bud. It is quite conceivable that the species will become extinct in the very near future unless the distance to certain of the more outlying islands proves too much for the beetle to cross. It is hoped that measures now being taken to control this coconut pest will be successful in time to save this elegant palm from complete disappearance.