

maturity; endosperm homogeneous, thinly penetrated by a narrow lateral postament; eophyll linear, plicate, undivided.

Distribution: confined to three limestone hills—Bukit Takun, Bukit Anak Takun, and Batu Caves, all in Selangor, Malaya, near Kuala Lumpur.

Some doubt still exists concerning the nature of the sexuality of the inflorescence of *Maxburretia rupicola*. Furtado (1941) found unisexual inflorescences. Whitmore (1971) records hermaphrodite and staminate inflorescences on separate plants. Uhl (1977) found that the so-called hermaphrodite flowers of Whitmore's description contained small empty anther cells with no pollen. Furthermore no hermaphrodite flowers have been found in the present study.

2. *Maxburretia gracilis* (Burret) Dransfield, *comb. nov.*

Symphyogyne gracilis Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 317. 1941.

Liberbaileya gracilis (Burret) Burret & Potztal, Willdenowia 1: 530. 1956;

Whitmore, Principes 14: 97. 1970, Palms of Malaya 67. 1973.

Liberbaileya lankawiensis Furtado, Gard. Bull. Straits Settlements 11: 238. 1941.

Holotype: *Henderson 29134* (SING); isotype (K).

Clustering, monoecious, pleonanthic fan palm, spreading by short basal suckers to form clumps of up to 4 stems; stems to 7 m tall at maturity, to 8 cm in diam. without sheaths, to 15 cm in diam. including the sheaths, base of stem free of leaf sheaths, grey-brown, densely ringed with leaf-sheath scars, uppermost 1-2 m of stem clothed with persistent leaf sheaths.

Leaf sheath, when young, erect and partially sheathing, composed of about 15 broad laminate fibers to 6 mm wide, joined at the tips opposite the petiole into a tonguelike mass, in age rotting, the laminate fibers becoming free and expanded at the base, but remaining connate at the tonguelike tip, which remains upward-pointing (see Plate 8 in Whitmore 1970); petiole up to 70 cm long, 5 mm wide, more or less semiterete, unarmed; lamina more or less orbicular, with a radius of 25-40 cm, grey-green above, somewhat paler beneath with scattered pale brown dots, deeply divided into 25-30 single-fold leaflets with shortly bifid tips, the lowermost undivided for 5-12 cm; leaflets to 1.5 cm broad; adaxial hastula to 5 mm high, abaxial hastula obscure.

Inflorescences axillary, solitary, arching out of the crown of leaves; peduncle to 70 cm long, terminating in a system of rachillae, branching to 2 orders, flowering masses somewhat reflexed; prophyll and first 1-3 peduncular bracts tubular, empty, to 15 cm long, 1 cm wide, longitudinally striate, upper bracts to 1 cm long, narrowly acute, subtending branches and rachillae; rachillae minutely puberulous when young, to 12 cm long, usually less, bearing groups of 1-3 flowers subdistichously.

Flowers hermaphrodite, ca. 2.0 mm long, 1.5 mm wide; sepals 3, distinct, imbricate, 1 mm long, ca. 1.25 mm wide, ovate, with bluntly triangular tip and slight abaxial keel; petals 3, joined very shortly below, otherwise free, ca. 1.5 mm long, 1.2 mm wide, broadly ovate, somewhat cucullate; androecium of 6 stamens joined by their filaments into a thick, conspicuous tube ca. 2.5 mm long, basally minutely epipetalous, apically with minute free filaments each bearing

an anther ca. 0.6 mm long, the antesealous anthers slightly above the antepetalous, all anthers held inwards in bud, obscuring the carpels; carpels 3, distinct, ca. 1 mm high, each tipped with a glabrous triangular style, otherwise densely silky-hairy; ovule bitegmic, anatropous to hemianatropous. For floral anatomy see Uhl (1978).

Young fruit grey, densely covered with silky hairs, mature fruit unknown.

Distribution: confined to a small area of limestone on Pulau Dayang Bunting in the Langkawi Islands off the northwestern coast of peninsular Malaya near the Thai border.

Furtado (1941) records the presence of unisexual and hermaphrodite flowers in this species. Whitmore (1971) found only hermaphrodite flowers in both herbarium and fresh specimens. Uhl (1978) similarly has found hermaphrodite flowers only.

3. *Maxburretia furtadoana* Dransfield, sp. nov. (Fig. 1-6).

Maxburretia rupicola sensu Dransfield not Ridl., Principes 15: 9. 1971.

M. rupicolae affinis sed tubo staminalis in flore masculo evoluta et vagina folii ita expansa ut verticilla partialis spinarum longarum efficitur differt.

Holotype: *Dransfield 2349* (K).

Clustering, dioecious, pleonanthic fan palm, spreading by basal suckers to produce clumps of up to 10 or more stems; stems to 3 m tall at maturity, rarely to 5 m, 5 cm in diam.; base of stem free of leaf sheaths, pale brown, with close vertical cracking and leaf sheath scars, upper 1-2 m or more of stem clothed with long-persisting leaf sheaths, the combined diameter 12-15 cm.

Leaf sheath, when young, erect, sheathing, composed of 15 or more hard, coarse, woody fibers to 3 mm wide, the outer fibers softly brown-hairy, in age rotting and expanding to form an open network of dirty brown fibers, the free ends spiny, sticking out from the skin, thus producing a dense spiny covering to the stem; petiole to 50 cm long, in exposed plants shorter, rarely not more than 30 cm, in trunkless juveniles longer, sometimes up to 70 cm, unarmed, oval in cross section except at the base where semicircular, 4 × 3 mm in diam., pale yellowish-green; lamina rounded in general outline, largely held stiffly in one plane, to 75 cm in diam., largest radius along midline, ca. 50 cm from insertion to tip of apical leaflet, lamina divided into 25-30 single-fold leaflets, in upper part of leaf divided to half the radius, the divisions decreasing in length towards the outer edges of the lamina, where divided to $\frac{1}{10}$ of the radius, leaflets further divided at the apex to 1-5 cm, to 1.5 cm wide, upper surface pale green, more or less glabrous, marked with prominent longitudinal veins, transverse veins obscure, and lower surface covered with thin white wax, abaxial ribs yellowish, bearing chaffy brown hairs; abaxial hastula absent or minutely present as a thin flange ca. 3 mm in height, petiole scarcely continuing into the lamina, adaxial hastula present, triangular, flattened, erose, black-edged, with chaffy grey-brown hairs.

Inflorescences unisexual, axillary, arching out of the leaf axils: staminate