

NEW *PANDANUS* SPECIES FROM NEW GUINEA AND BOUGAINVILLE ISLAND

By H. ST. JOHN*

Abstract

Pandanus bowersae sp. nov., sectio *Australibrassia*, family Pandanaceae, from the Kaugel Valley, Western Highlands, North-east New Guinea, and *P. schoddei* sp. nov., sectio *Lophostigma*, from Bougainville Island, Solomon Islands, are described and illustrated. Both descriptions are based on morphological characters.

Pandanus bowersae sp. nov. (sect. *Australibrassia*)

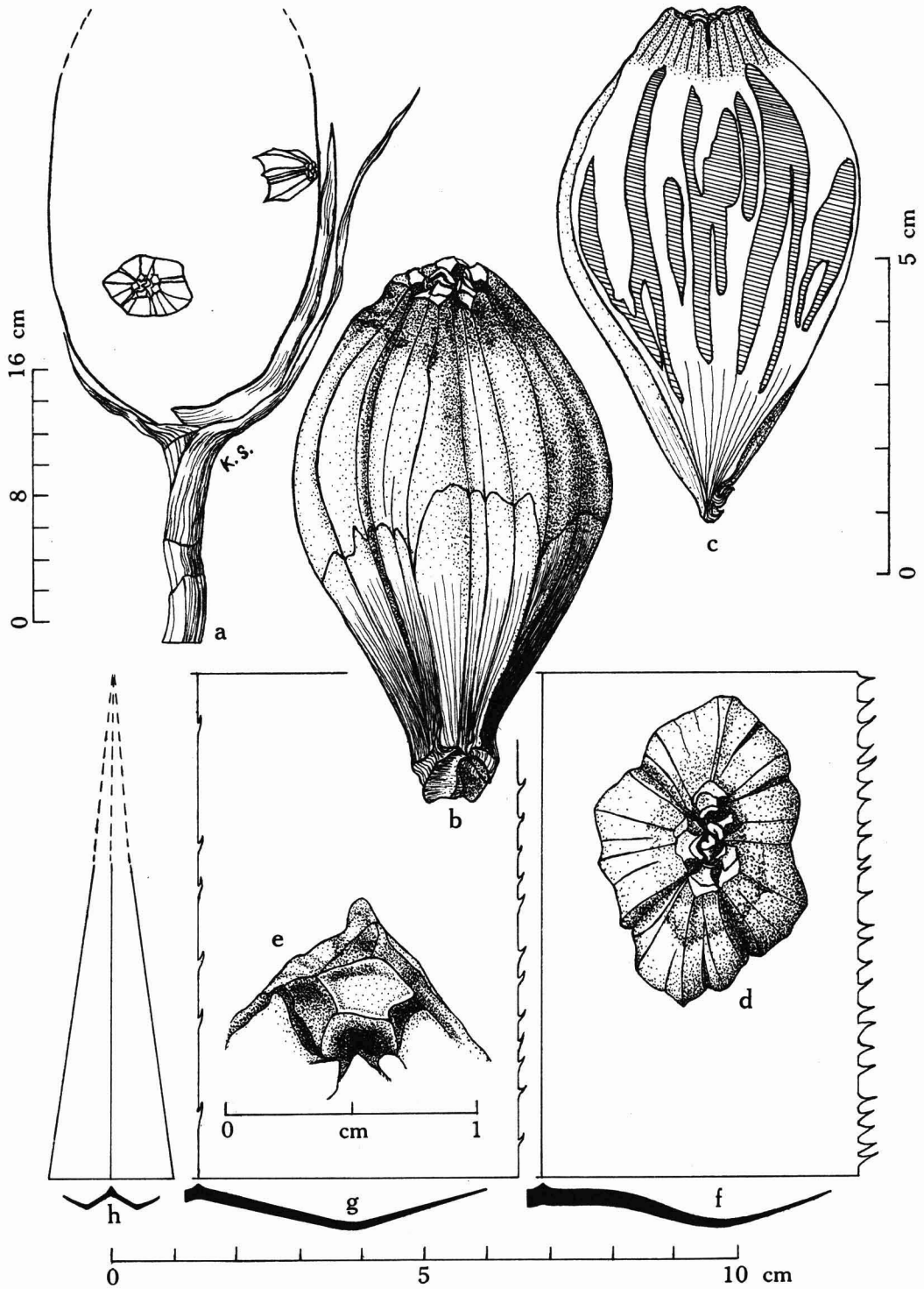
Fig. 1

Nom. Vern. "malaye" (Kakoli lang.).

Diagnosis Holotypi.—Arbor est, ramis paucis adscendentibus proxima apicem, foliis 1.8 (+0.1–0.2?) m longis proxima basem 10 cm latis in medio 10.2 cm latis coriaceis supra obscure viridibus lucidis infra pallide lutei-viridibus U-sulcatis 2-plicatis in sectione mediali cum 87 nervis secundariis parallelis in quoque dimidio nervis tertiis reticula breviter oblonga formantibus eis in lateribus ambis ad basem conspicuis et ad apicem evidentis, lamina late ligulata sed ad apicem subabrupte deminuenti (apex deest); infructescentia cum syncarpio solitario, pedunculo 25+ cm longo 22 mm diametro 3-laterato cum bracteis pluribus caducis, bracteis apicalibus 30–45 cm longis 4 cm latis lanceolatis chartaceis coloratis deciduis, syncarpio 17 cm diametro 22+ cm longo licet ellipsoideo cum phalangibus in lineis subspiralibus, phalangibus 7.2–7.7 cm longis 4.6–6 cm latis 3.2–4.2 cm crassis obovoideis osseosis 4–6-angulosis et carpellis marginalibus omnibus cum angulis secundariis pluribus parte $\frac{1}{2}$ supera libera et conspicue lucida sublaevi sed punctata, suturis lateralibus latis et profundis et ad basem extensis apicibus et stigmatibus in regione apicali elliptico concavo 13–21 mm diametro congregatis, carpellis 5–9 paene omnino connatis apicibus truncatis et cum areola terminali concava et in omnibus vel marginalibus tantum stigmatibus in latere proximali centripetalibus sed in phalangibus maximis carpellis centralibus cum stigmatibus solum obliquis, sinibus centralibus apicalibus 1–3 mm profundis anguste V-formatis, stigmatibus 2–3.5 mm latis cordati-reniformibus brunneis papillosis, endocarpio supramediali 6 cm longo ligulis angustis longitudinalibus osseosis brunneis formato lateribus lateralibus 0.5 mm crassis intra corrugatis luteis lucidis, cavis seminalibus cylindricis et endocarpio paene aequalibus sed parte seminifera 15–18 mm longa et in parte $\frac{1}{4}$ infera, mesocarpio apicali 8–10 mm longo solido parenchymatoso et fibroso, mesocarpio basali 1–1.5 cm longo fibroso et carnoso.

Diagnosis of Holotype.—Tree, apparently 8 m or more in height, with a few ascending branches near the top. Leaves 1.8 (+0.1–0.2?) m long, 10 cm wide near the base, 10.2 cm wide near the middle, coriaceous, above dark green, shining, below

* B.P. Bishop Museum, Honolulu, Hawaii, 96818, U.S.A.

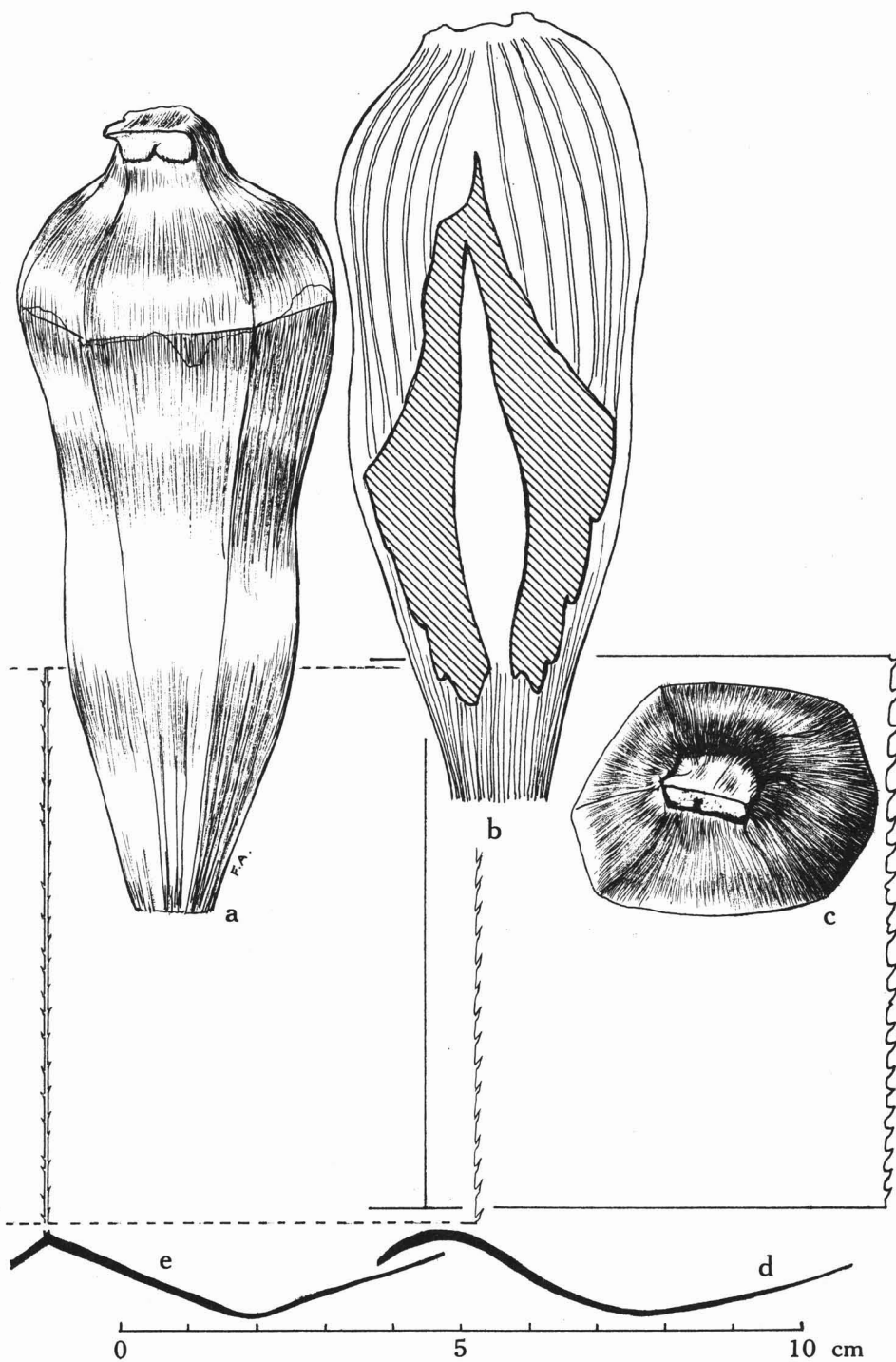


pale yellowish green, U-sulcate, 2-pleated, at midsection with 87 parallel secondary veins in each half, the tertiary cross veins forming short oblong meshes, these conspicuous on both sides near the base, and visible below near the apex, blade broad ligulate, narrowing rather shortly towards the apex (the tip lost), the base not collected; the margins near the base with prickles 2.2–4 mm long, 2–7 mm apart, with the base conic and the tip subulate, straight and divergent or curved or geniculate ascending, brown, shining, at midsection the prickles of one margin 1.8–2.2 mm long, 3–10 mm apart, arcuate thick subulate, compressed, strongly ascending, polished brown, shining, those of the other margin 1.2–1.8 mm long, 4–8 mm apart, straight slender weak subulate, brown, shining, appressed ascending; the midrib below unarmed almost to the middle. Infructescence bearing a solitary syncarp; peduncle more than 25 cm long, 22 mm in diameter, 3-sided, with several caducous bracts; apical bracts 30–45 cm long, 4 cm wide, lanceolate, chartaceous, coloured, largely disintegrated by fruiting time; syncarp 17 cm in diameter, more than 22 cm long, apparently ellipsoid, bearing the phalanges in slightly spiralling upward rows; phalanges 7.2–7.7 cm long, 4.6–6 cm wide, 3.2–4.2 cm thick, obovoid, bony, 4–6-angled, and each marginal carpel with several lower secondary angles, upper half free and the surface very shiny, rather smooth but punctate, lateral sinuses wide and deep, running to the base, apices and stigmas congregated in an elliptic concave apical area 13–21 mm across; carpels 5–9, almost wholly united, their apices truncate and the tip with a deeply concave platform, with stigmas centripetal at least on all the marginal ones and vertical on the inner face of the apex, in large many-celled phalanges the central carpels with stigmas merely oblique; central apical sinuses 1–3 mm deep, narrowly V-shaped; stigmas 2–3.5 mm wide, cordate-reniform, brown, papillose; endocarp supramedian, 6 cm long, occupying most of the interior of the phalange, formed of narrow longitudinal strips, bony, brownish, the lateral seed walls 0.5 mm thick, within shining, yellowish, corrugated; the seed cavities cylindric and nearly as long as the endocarp, but the seminiferous part in the lowest quarter and 15–18 mm long; apical mesocarp 8–10 mm long, a firm continuous tissue of parenchyma and fibres, basal mesocarp 1–1.5 cm long, fibrous and fleshy.

Holotypus.—North-east New Guinea: Western Highlands District: Kebaka, upper Kaugel Valley, 7000 ft alt., v. 1963, *Nancy Bowers* 201 (BISH).

Discussion.—*P. bowersae* is a member of the section *Australibrassia*, as is its closest relative, *P. isan* St. John, of Telefomin, West Sepik District, North-east New Guinea, a species with the phalanges 9.4–9.7 cm long, 4.8–5 cm wide, elliptic, lateral sinuses 0–1; stigmas 4–4.5 mm wide, horizontal; endocarp lateral walls 5–7 mm thick; basal mesocarp 20–27 mm long; leaf at middle 12.4 cm wide with 106 parallel secondary veins in each half, the margins from 16–18 cm above the base with prickles 1.5–3 mm long, 3–7 mm apart, subulate, compressed, salient, mostly dark reddish brown. *P. bowersae* has the phalanges 7.2–7.7 cm long, 4.6–6 cm wide, obovoid, lateral sinuses all present, wide and deep, running to the base; stigmas 2–3.5 mm wide,

Fig. 1.—*Pandanus bowersae* sp. nov., from holotype. *a*, Infructescence, $\times \frac{1}{4}$; *b*, phalange, lateral view, $\times 1$; *c*, phalange, longitudinal median section, $\times 1$; *d*, phalange, apical view, $\times 1$; *e*, carpel apex with stigma, oblique view, $\times 4$; *f*, half of leaf base, lower side, $\times 1$; *g*, half of leaf middle, lower side, $\times 1$; *h*, leaf apex, lower side, $\times 1$.



vertical; endocarp lateral walls 0.5 mm thick; basal mesocarp 10–15 mm long; leaf at middle 10 cm wide, with 87 parallel secondary veins in each half, the margins near the base with prickles 2.2–4 mm long, 2–7 mm apart, the base conic, the tip subulate, straight and divergent or curved or geniculate ascending, brown, shining.

The species is named for the collector, Professor Nancy Bowers, of Duke University, who made intensive studies of the economic species of *Pandanus* used by the natives in the Kaugel Valley.

***Pandanus schoddei* sp. nov. (sect. *Lophostigma*)**

Fig. 2

Diagnosis Holotypi.—Arbor 12 m alta multi-ramosa est, radicibus suffulcientibus pallide brunneis, trunco griseibrunneo noduloso, foliis fere 3 m longis ($2.72 + ? 0.2-0.25$ m) proxima basem 19 cm latis in medio 12.6 cm latis coriaceis U-sulcatis 2-plicatis in sectione mediali cum 123 nervis secundariis parallelis in dimidio quoque nervis tertiis obscuris, lamina ligulati-gladiata ex basi sensim ad apicem deminuenti (apice interito) basi inermi pallida, ex 47 cm marginibus cum dentibus 1.3–2 mm longis 3–6 mm separatis eis inferis late ovatis compressis divergentibus cum apicibus subulatis minutis illis sequentibus oblique conicis adscendentibus stramineis cum apicibus subulatis brunneis et cum alteris simulantibus paucis minimis interspersis, midnervo infra per 109 cm basalibus inermi, in sectione mediali marginibus cum aculeis 1–1.5 mm longis 2–5 mm separatis subarcuatis crasse subulatis adscendentibus stramineis cum apicibus brunneis sensim majoribus minoribus alternantibus, midnervo vicinali infra cum aculeis 0.3–0.5 mm longis 1–3 mm separatis arcuatis crasse subulatis compressis adscendentibus stramineis in 2 seriebus in lateribus oppositis midnervi, drupis 10.5–11.7 cm longis 4.2–5.3 cm latis 3.3–4.3 cm crassis cuneiformibus 4–6-angulosis lateribus inferis planis parte $\frac{1}{5}$ supera libera rotundati-pyramidali 4–6-angulosa laevi lucida apice truncato duro subconcavo fere horizontali, stigmatibus 11–12 mm lato in latere infra apicem sito reniformi truncato brunneo papilloso, endocarpio in parte $\frac{1}{3}$ infera et 7.5 cm longo osseoso brunneo anguste rhomboideo apice lanceoloideo lateribus lateralibus 11–12 mm crassis intra obscure brunneis laevibus lucidis, semine 27 mm longo ellipsoideo, mesocarpio apicali cum fibris longitudinalibus fortibus et parenchyma, mesocarpio basali 16–18 mm longo fibroso et carnoso.

Diagnosis of Holotype.—Tree 12 m tall, many-branched; prop roots pale brown; trunk grey-brown, nodulose. Leaves about 3 m long ($2.72 + ? 0.2-0.25$ m), 19 cm wide near the base, 12.6 cm wide at the middle, coriaceous, U-sulcate, 2-pleated, at midsection with 123 parallel secondary veins in each half, the tertiary veins obscure, the blade ligulate-sword-shaped, tapering gradually from base towards tip (the apex lost), the base unarmed, pale; the margins from 47 cm above the base with teeth 1.3–2 mm long, 3–6 mm apart, the lowest ones broad ovate, compressed, diverging, with minute subulate apiculations, the following ones obliquely conic, subulate tipped, ascending, stramineous, brown tipped, with interspersed a few much smaller but similar ones, at midsection with prickles 1–1.5 mm long, 2–5 mm apart, subarcuate

Fig. 2.—*Pandanus schoddei* sp. nov., from holotype. *a*, Phalange, lateral view, $\times 1$; *b*, phalange, longitudinal median section, $\times 1$; *c*, phalange, apical view, $\times 1$; *d*, half of leaf base, lower side, $\times 1$; *e*, half of leaf middle, lower side, $\times 1$.

stout subulate, ascending, stramineous, brown tipped, perceptibly large and small alternating; the midrib below unarmed for 109 cm above the base, at midsection with prickles 0.3–0.5 mm long, 1–3 mm apart, arcuate, thick subulate, compressed, ascending, stramineous, in 2 rows on opposite sides of the midrib, parallel with the blade surface. Drupes 10.5–11.7 cm long, 4.2–5.3 cm wide, 3.3–4.3 cm thick, cuneiform, 4–6-angled, lower sides flat, upper $\frac{1}{5}$ free, rounded pyramidal, 4–6-angled, smooth, shining, the apex truncate, hard, slightly concave, nearly horizontal; stigma 11–12 mm wide, vertical on a slope below the apex, reniform, truncate, brown, papillose; endocarp in lower third part, 7.5 cm long, bony, brown, narrowly rhomboidal, the apex lanceoloid, lateral walls 11–12 mm thick, within dark brown, smooth, shining; apical mesocarp of strong longitudinal fibres and parenchyma, basal mesocarp 16–18 mm long, fibrous and fleshy. Seed 27 mm long, ellipsoid.

Holotypus.—Solomon Islands: Bougainville Island: S. rim of Lake Loloru crater, c. 20 miles N. of Buin, stunted cloud forest, 5000 ft alt., 26.viii.1964, L. Craven & R. Schodde 347 (L). Isotype (CANB).

Discussion.—*P. schoddei* is a member of the section *Lophostigma*, as is its closest relative, *P. viscidus* (Brongn.) Solms of New Caledonia, a species with the drupes 5–6 cm long, 8–9 mm wide, narrowly prismatic; stigma 1.8–2.2 mm wide; endocarp 27 mm long with lateral walls 2–2.7 mm thick; tree 6–7 m tall; leaves 7.4–7.7 cm wide at the middle with 71–72 parallel secondary veins in each half. *P. schoddei* has the drupes 10.5–11.7 cm long, 4.2–5.3 cm wide, cuneiform; stigma 11–12 mm wide; endocarp 75 mm long with lateral walls 11–12 mm thick; tree 12 m tall; leaves 12.6 cm wide at the middle with 123 parallel secondary veins in each half.

The new epithet is chosen to honour one of the collectors, Dr. Richard Schodde, formerly of the CSIRO Division of Land Research, presently with the CSIRO Division of Wildlife Research.