

BOTANY.—*Papualthia Mariannae*, a new species of *Annonaceae* from the island of Guam. WILLIAM EDWIN SAFFORD, Bureau of Plant Industry.

Among the unidentified trees growing on the island of Guam mentioned by Don Felipe de la Corte¹ was one called by the natives *paipay*, the wood of which is used in the construction of small buildings and for handles of garden tools. I saw no specimen of this tree during my residence on the island; but I afterwards obtained herbarium specimens, including leaves and flowers, from Mr. H. L. W. Costenoble, and very recently I received specimens of its fruit from the venerable Monsignor José Palomo, for many years priest of Agaña, to whom I am indebted for many favors. The tree in question proved to belong to the *Annonaceae* and to the recently described genus *Papualthia*, which is characterized by leaves somewhat asymmetrical at the base and by shortly peduncled or sessile, 6-petaled flowers, with the petals in two series, valvate and connivent, the inner petals slightly smaller than the outer or nearly equal to them in size; stamens indefinite; carpels indefinite to 3; ovules many to 2; and carpidia subglobose.²

This genus shows an affinity in its vegetative characters and flowers to certain species which King has placed in the genus *Popowia*, and also to several Malaysian species of *Polyalthia*, especially to the 2-ovuled group to which *P. subcordata* Bl., *P. macrorhyncha* Miq., and *P. celebica* Miq. belong. All of these have a tendency to asymmetrical leaves. Their petals are polyalthoid, but show a tendency toward shortening and to the connivence of the inner series, forming a transition from the true *Polyalthias* to the present genus, as pointed out by Diels.

***Papualthia Mariannae* Safford. sp. nov.**

An irregularly branching tree, its very young ultimate branchlets clothed with ferruginous silky solitary hairs, soon becoming glabrate, the older ones grayish, slender, bearing numerous minute

¹ Felipe de la Corte, *Memoria descriptiva e historica de las Islas Marianas*. Madrid, 1875.

² See *Papualthia* Diels n. gen. Engler's Bot. Jahrb. 49: 138. 1912.



Fig. 1. *Papualthia Marianne* Safford

whitish lenticels. Leaves alternate, 2-ranked, entire, short-petioled, rounded and usually asymmetrical at the base, the uppermost ones lanceolate, acute or acuminate, the lower ones near the base of the branches usually smaller and broader, often ovate and obtuse, the blades glabrous and glossy above with impressed midrib, and glabrate beneath except near the base of the midrib which usually bears a few scant hairs. Flowers small, subglobose or broadly conical in bud; peduncles solitary subterminal on small branchlets, 1-flowered, short and thick, bearing two broad clasping bracteoles, which together with the peduncle

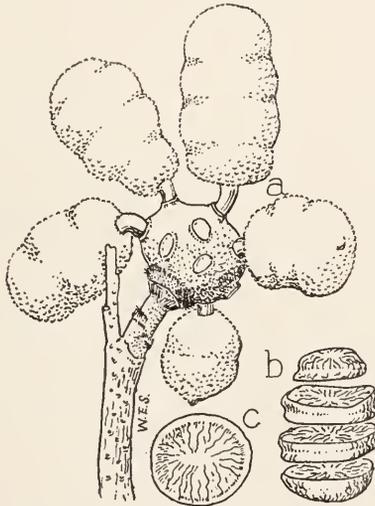


Fig 2. Fruit and seeds of *P. Marianna*

itself and the outer surface of the calyx are thickly covered with ferruginous hairs; calyx 3-parted, the lobes broadly triangular; outer petals valvate, thick and coriaceous, broadly ovate, acute, appressed hirtellous on the outer surface, clothed with fine tomentum within; inner petals somewhat smaller, similar in shape and valvate like the outer ones, slightly clawed at the base, covered with fine dense tomentum. Receptacle (torus) convex or hemispherical, covered with fine stiff reddish hairs and bearing a large number of cuneate stamens closely crowded together, their

broadened connectives forming a continuous covering above the pollen sacs while the flowers are still immature; lower stamens shorter and relatively broader than the upper, subtriangular, the pollen sacs similar to those of other *Annonas*, adnate to the back of the broad filament and opening extrorsely by a longitudinal slit; the expanded connectives glabrous; carpels about 12, distinct, forming a cluster in the center of the mass of stamens, densely covered with appressed rufous hairs, and terminating in a short truncated stigma; fruit consisting of 8 to 12 shortly stipitate carpidia, globose to oblong, ovoid, or obovoid in shape, containing 1 to 4 seeds, granular on the surface, rounded or obtusely apiculate at the apex, and more or less constricted between the seeds; seeds of 1-seeded carpidia subglobose, those of 2-seeded carpidia hemispheroid, the inner ones of 3-seeded and 4-seeded carpidia discoid, with the circumference marked with a shallow groove, somewhat like that of a pulley, and the surface wrinkled, indicating the enclosed ruminant endosperm; mature torus spheroid borne on a short thick peduncle, its base bearing the remains of minute short stiff hairs and stamen scars.

Type material: In the United States National Herbarium no. 653784. Leaves and flowers collected on the Island of Guam, the southernmost of the Marianne Islands, on the Pago Road, east side of the island, by H. L. W. Costenoble, June, 1906 (Herb. W. E. Safford no. 1180). Fruit from the same locality received from Rev. José Palomo, September, 1912.

The thin, smooth, glossy leaves, are only slightly asymmetrical at the base. The petioles, which are hairy at first but at length become glabrate, are 4 mm. long, the blades of the larger leaves are 10 cm. long and 3.5 cm. broad, with 12 fine but distinctly marked lateral nerves on each side the midrib, more or less anastomosing before reaching the margin, with reticulating veins between them. The small cone-shaped flower-buds, which resemble those of *Annona glabra* in shape, are 8 mm. long and 7 mm. broad; the outer petals 8 mm. long and 5.6 mm. broad, and the inner ones 7.5 mm. long and 4.5 mm. broad. The lowermost stamens are 1.3 mm. long with the dilated connective 1 mm. broad, the upper stamens are 2.3 mm. long with the connective of the same

width as the lower ones. The carpels are about 2.3 mm. long and 1 mm. broad, and the stigmas, which are somewhat flattened and constricted at the base are about 0.5 mm. square. The mature carpidia owe the variation in their shape to the abortion or imperfect development of one or more of their ovules. Those with a single seed and globose in shape are about 1 cm. in diameter; the largest containing 3 to 4 seeds are 22 to 25 mm. long and 10 to 13 mm. in diameter.

Papualthia Mariannae is named in honor of Maria Anna of Austria, wife of Philip III of Spain; the patron and protector of the natives of Guam, for whom the Marianne Islands were named.

EXPLANATION OF FIGURES

Fig. 1. *Papualthia Mariannae* from type material, showing branches and leaves and a single flower natural size. *a*, flower with one outer petal removed, showing the 3 inner valvate petals covering the genital parts, with a few stamens visible between the somewhat unguiculate bases; *b*, subterminal flower, showing the two bracteoles on the peduncles; *c*, short stamen from the base of the androecium, *d*, longer stamens from the upper or inner part of the androecium, ventral and dorsal views, showing the two pollen sacs dehiscing by a longitudinal slit and capped by the transversely expanded connective; *e*, carpel, clothed with appressed hairs and terminating in a short broad truncated stigma. *a*, *b*, scale about 2.5; *c*, *d*, *e*, scale 10.

Fig. 2. The fruit of *Papualthia Mariannae*. *a*, spheroid torus bearing 5 carpidia and marked with scars made by the pedicels of fallen carpidia; *b*, seeds from a 4-seeded carpidium; *c*, discoid seed seen from above; all natural size.