

RAIMONDIA, A NEW GENUS OF ANNONACEAE FROM COLOMBIA.

By W. EL. SAFFORD.

While studying the Annonaceae in the United States National Herbarium the writer came upon a specimen from the interior of Colombia, collected by Prof. Henry Pittier, with peculiarities rendering it so distinct from all recognized genera of that family as to require its segregation as a new genus.

The flowers and fruit of the plant bear a superficial resemblance to those of chirimoya (*Annona cherimola* Mill.) and its allies; but the plant is monœcious, and the inner petals instead of being minute and scale-like, as in the flowers of the chirimoya, are valvate and triangular, forming a tent-like covering to the sexual organs. The most radical difference, however, which requires this plant to be set apart from all other Annonaceae is in the peculiar form of the stamens. In *Annona* and *Rollinia*, which have compound fruits (syncarpia), as well as in our own *Asimina* and many other genera of the family, the connective of the stamens is more or less expanded into a terminal head or hood-like covering above the two pollen sacs. In Professor Pittier's plant the two pollen sacs are terminal without the slightest indication of the elongation or expansion of the connective. Indeed, the stamens differ so radically from those of typical Annonaceae that one would be inclined to separate the plant from that family were it not that its other characteristics are those of the Annonaceae, namely: Two-ranked, alternate leaves without stipules, 6-petaled flowers with the petals in 2 series, and seeds with copious, ruminant albumen and minute basal embryo. In addition to these general features, the punctate, short-petioled, feather-veined, entire leaves, and the compound fleshy fruit (syncarpium) point to its alliance with the custard apples or *Annonas*.

RAIMONDIA gen. nov.

Arborescent; leaves deciduous, 2-ranked, entire, minutely punctate; flowers monœcious, nodding, closely crowded on extra-axillary branchlets often opposite a leaf or issuing from old bark; sepals 3, valvate, persistent, much smaller

than the petals, broadly ovate or triangular, cohering at the base; petals 6, hypogynous, in 2 series, coriaceous, valvate; outer petals lanceolate, concave at the base, when mature much longer than the inner; inner petals (those only of male flowers observed) ovate forming a pyramidal covering to the andræcium; receptacle (torus) hemispherical or conoid; stamens closely crowded in a broadly ovoid or conoid mass; filaments short and thick, bearing at their extremity a pair of contiguous pollen sacs, somewhat like those of the genus *Annona*, but much shorter and without the characteristic annonaceous hood-like or capitate, expanded connective above them; female flower long-peduncled (when mature); carpels numerous, coherent, closely crowded on the torus; ovules solitary; fruit oblong, resembling that of an *Annona*, formed by the consolidation of the carpels into a fleshy mass around the elongated torus as an axis; seeds enveloped when fresh by a thin membranous aril; testa thin, glabrous, impressed with shallow pits; albumen ruminant as in other *Annonaceae*, with the minute embryo embedded in its base.

Type species, *Raimondia monoica*.

The genus is named in honor of the eminent geographer and naturalist, Prof. Antonio Raimondi, in recognition of his valuable scientific work in many fields and in grateful acknowledgment of his kindly assistance to a young botanist studying the vegetation of the shores and mountains of his adopted country.¹

Raimondia monoica sp. nov.

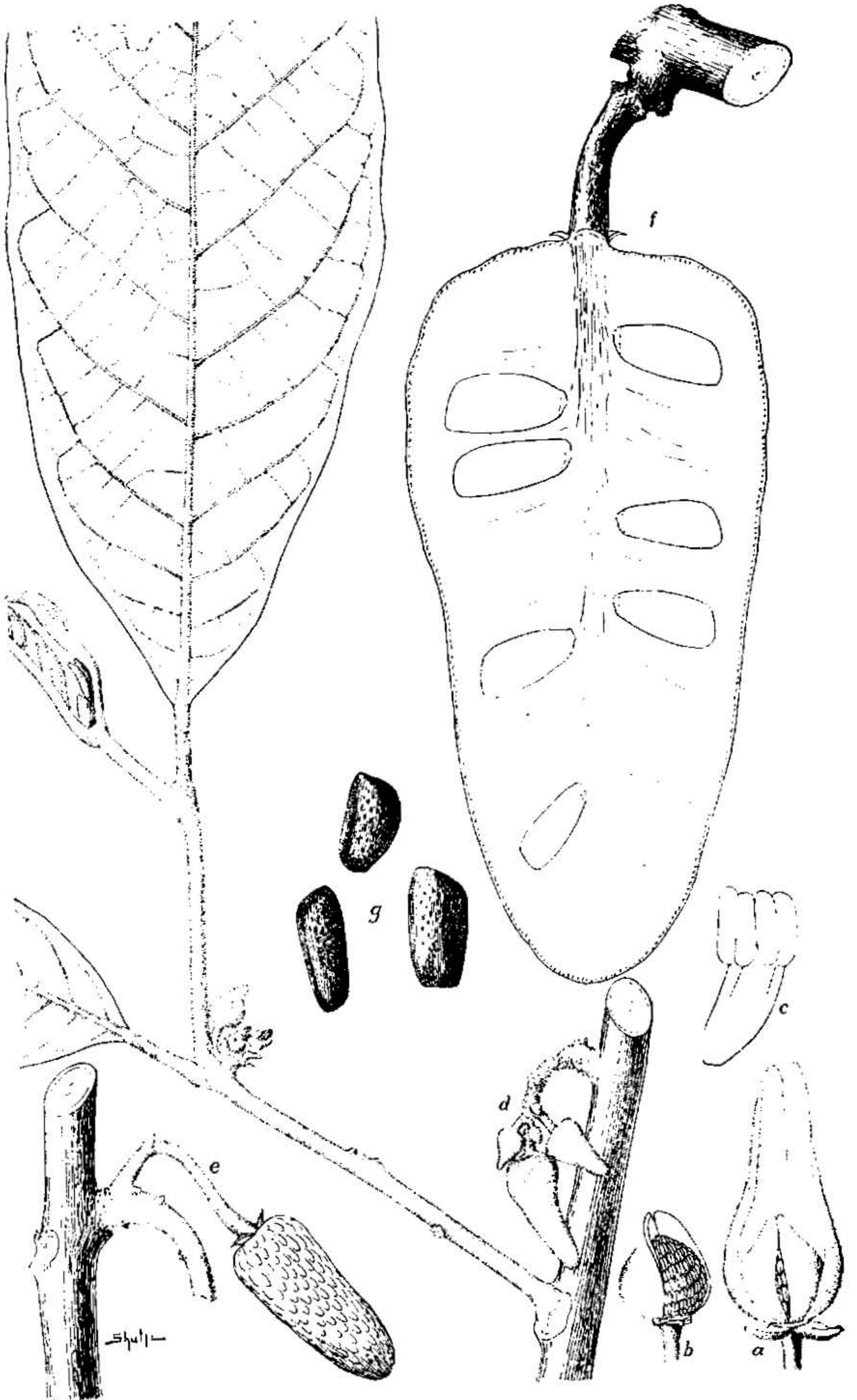
PLATES 52, 53.

A small tree with the younger parts densely ferruginous-tomentose; branches at length glabrate, terete, grayish brown; leaf blades obovate to oblanceolate, 13 to 23 cm. long and 5 to 12.5 cm. broad, membranaceous, usually acute at the base (sometimes somewhat rounded), abruptly acuminate, feather-veined, undulate, at first densely ferruginous-tomentose on both sides, at length sparsely so except along the prominent midrib and lateral veins beneath, these persistently ferruginous-tomentose; petioles with a similar indument, 10 to 15 mm. long, with a longitudinal groove above, this a continuation of the impressed channel along the midrib; inflorescence densely ferruginous-tomentose, consisting of several flowers closely crowded on short extra-axillary branchlets, these often issuing from the old wood or from a point opposite a leaf; peduncles 5 to 15 mm. long, densely ferruginous-tomentose with a broad, clasping, ovate, acuminate bracteole below the middle and one at the base; flowers monœcious, the pistillate flower issuing from the base of the flowering branchlet (in the specimens examined) and several staminate flowers occupying the remainder; calyx divisions broadly ovate or triangular, abruptly acuminate, 2.5 mm. long and 2.5 mm. broad at the base, ferruginous-pubescent; outer petals valvate, lanceolate, rounded at the apex, 15 to 20 mm. long and 7 to 8 mm. broad, with

¹ Raimondi, Antonio. Born at Milan, 1825; died at Lima, Peru, December, 1890. An eminent geographer and naturalist. He went to Peru in 1850, and spent twenty years in traveling and collecting material for his great work on the geography and natural history of the Republic. This was to have been printed at the expense of the nation, and three preliminary volumes appeared (1874, 1876, and 1880). The edition of the fourth volume was destroyed by the Chileans in 1881, and after the war the publication was interrupted; but the materials collected by Raimondi, including his valuable herbarium, are preserved by the Peruvian Geographical Society. Included in his great work, *El Peru*, are accounts of the vegetation of various parts of the Republic. He also published *Elementos de la Botánica* for the use of schools (Lima, 1857), and during the latter part of his life he was professor of botany and zoology at Lima. See Amat di San Filippo, *Stud. Biogr. Viagg. Ital.* p. 597. 1882.



RAIMONDIA MONOICA SAFFORD.



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a ferrugineous, silky pubescence on the outside; inner petals triangular, concave, rounded at the apex, 7 to 8 mm. high and 6 to 7 mm. broad at the base, forming a cone-like covering over the sexual organs; receptacle hemispherical or conoid in the male flower, in the female flower elongating at length into a linear axis, the carpels radiating around this at right angles; male flowers without vestiges of carpels; stamens very numerous, the pollen sacs terminal contiguous, oval, dehiscing on the back by a median longitudinal slit; filament stout and fleshy; female flowers with very numerous one-ovuled carpels closely crowded and cohering, forming an oblong gynœcium, this developing into a glabrous, thin-skinned compound fruit about 10 cm. long and 5 cm. in diameter, shaped somewhat like an ear of maize, depressed at the base, and rounded at the apex, borne on a peduncle 2 to 2.5 cm. long; seeds oblong-obovate, flattened laterally and usually obliquely truncate at the apex, sharp-edged, enveloped when fresh in a thin membranous aril as in the genus *Annona* and surrounded by scant pulp; testa chestnut-colored, thin and brittle, with the surface glabrous and shining but punctate with shallow pits, rough on the inner surface to conform with the grooves of the endosperm, this ruminant as in other Annonaceae and with the minute embryo embedded in its base.

The staminate flowers shrivel up and fall off after having performed their function, and the peduncles of the pistillate flower elongate and thicken as the fruit matures. The large obovate, membranaceous, undulate leaves with their short petioles, somewhat resemble those of *Annona purpurea*. The branches, however, are not conspicuously covered with lenticels, as in many Annonaceae, though these are present in the grayish brown bark of the older branches.

Type in the United States National Herbarium, nos. 531655 and 531656, collected from the same tree, at the Alto de Primicias, near Jambaló, Rio Palo basin, Tierra Adentro, Cordillera Central of Colombia, altitude 2,600 meters, latitude about 2° 25' north, February 5, 1906, by Prof. Henry Pittier (no. 1456). Only a single tree was observed.

EXPLANATION OF PLATES 52, 53.—Plate 52, leaf and fruit. Reproduced from a field photograph taken by C. B. Doyle. Natural size. Plate 53, details of inflorescence and fruit. *a*, Male flower from which one outer petal has been removed, showing the three inner valvate petals covering the andrœcium; *b*, male flower from which the calyx, outer petals, and one inner petal have been removed, showing the andrœcium; *c*, stamen composed of thick fleshy filament and a pair of pollen sacs, seen from the outside or back; *d*, inflorescence from the base of which a female flower has been broken; *e*, young fruit with persistent calyx; *f*, mature fruit: cross-section showing the seeds inclosed in their membranous arils; *g*, seeds with aril removed showing the glossy, glabrous testa. *a*, *b*, Scale about 2; *c*, scale 20; *d*, *e*, *f*, *g*, natural size. Drawings by J. M. Shull.