

*Avicennia bicolor* Standl., sp. nov.

Tree or shrub, the young branchlets glabrous; petioles very stout, 4 to 15 mm. long; leaf blades broadly elliptic to elliptic-ovate or oval-ovate 7 to 13 cm. long, 3.5 to 7 cm. wide, rounded or obtuse at apex, obtuse at base and usually abruptly short-decurrent, glabrous and lustrous above, with prominent venation, beneath densely covered with a minute whitish tomentum; flowers spicate, opposite, the rachis elongate and the pairs of flowers distant 5 to 8 mm. from each other, the spikes numerous, forming lax panicles 5 to 17 cm. long; branches of the panicles minutely tomentose; bracts and bractlets rounded, obtuse, tomentulose; corolla 4 mm. long, the tube glabrous, the lobes obovate, subtruncate at apex, sericeous outside, glabrous within; style nearly obsolete.

Type in the U. S. National Herbarium, no. 715142, collected in mangrove swamp at Aguadulce, Province of Coelá, Panama, December 5, 1911, by H. Pittier (no. 4968). The following additional specimens have been examined:

SALVADOR: Coast of Departamento de Ahuachapán, *Padilla* 333.

PANAMA: Punta Paitilla, *Heriberto* 206.

It seems remarkable that a form so distinct as this should not have been named long ago, but it may well be that it is of somewhat rare occurrence, although the specimens cited indicate that it has a rather wide range. *Avicennia bicolor* is related to the South American *A. tomentosa* Jacq. (which has been reported from various parts of Mexico and Central America, and even from Florida, although probably erroneously), but differs in its large, broad leaves and, more conspicuously, in the distinct form of the inflorescence. In *A. tomentosa* the flowers are few and the inflorescence is short and congested.

Dr. Padilla reports that in Salvador this species is known by the vernacular name of "mangle negro."

BOTANY.—*New species of Urticaceae from Colombia.*<sup>1</sup> ELLSWORTH  
P. KILLIP, U. S. National Museum.

While on a recent expedition to Colombia for the U. S. National Museum, the Gray Herbarium, the New York Botanical Garden, and the Philadelphia Academy of Sciences, Dr. Francis W. Pennell and myself gave particular attention to the family Urticaceae, collecting about 70 numbers of this group. Most of the species here proposed as new are based upon material collected on this expedition, which clearly are not referable to any of the species contained in the comprehensive monograph of Urticaceae by Weddell,<sup>2</sup> or to the comparatively small number described since the publication of that work. Several other specimens collected on this expedition probably constitute new species, but in the absence of authenticated material they have not been included in the present paper.

<sup>1</sup> Published by permission of the Secretary of the Smithsonian Institution.

<sup>2</sup> In DC. Prodr. 16<sup>1</sup>: 32-235. 1869.

The genus *Pilea*, to which most of the following plants belong, contains over 200 species, the greater part of them occurring in the tropics of the New World. Weddell divides the genus into three main groups, *Integrifoliae*, *Heterophyllae*, and *Dentatae*. The last consists of two sections, containing those species that are glabrous, with either long or short peduncles, and those that are pubescent, with either long or short peduncles. This method of classification is followed here.

***Pilea filicina* Killip., sp. nov.**

Plants frutescent, scandent (?), apparently dioecious, pinnately branched (branches divaricate, 10 to 20 cm. long), glabrous throughout. Stems and branches slightly angulate, faintly winged on the angles. Stipules minute, early deciduous. Leaves of a pair dissimilar and unequal, the larger ovate-orbicular, 10 to 13 mm. long, 6 to 7 mm. wide, abruptly tapering at base, sessile or subsessile, crenate at apex (2 teeth to a side, the apical tooth blunt, 2 mm. wide), otherwise entire, penninerved (4 to 6 nerves to a side, one of the pairs often conspicuous, extending to the lower of the teeth), the smaller leaves broadly orbicular, 4 to 5 mm. long, 5 to 6 mm. wide, sessile, entire or slightly undulate at apex, triplinerved; both kinds of leaves dark green (nearly black when dry) and faintly marked with linear cystoliths (especially near margin) on upper surface, paler and copiously covered with minute punctiform cystoliths beneath. Pistillate heads subglobose, minute, 1 to 1.5 mm. wide, 3 or 4-flowered, sessile or very short-petioled; perianth divisions unequal, the middle 0.8 mm. long, the lateral 0.3 mm. long; achenes broadly ovate, 1 mm. long, 0.8 mm. wide.

Type in the U. S. National Herbarium, no. 1,124,280, collected at Paime, Department of Cundinamarca, Colombia, in 1921, by Brother Ariste-Joseph (no. A927).

The venation, markings, and coloration of the leaves of this species indicate a relationship with *P. dendrophila* Miq., but the much smaller leaves, the larger kind being much rounder, and its habit of growth and branching clearly show that it is distinct. From *P. trichosanthes* Wedd., to which also it is allied, it is distinguishable by its more orbicular, nearly sessile, longer leaves which are only faintly marked with cystoliths, and by its more abundant, divaricate branches.

***Pilea hazeni* Killip, sp. nov.**

Climbing herb, monoecious (?), glabrous throughout. Stripules ovate-orbicular, 4 mm. long, cordate at base, chartaceous, light brown. Leaves dark green above, bearing fusiform and linear cystoliths, light green beneath with more conspicuous fusiform cystoliths, 3-nerved to upper third of blade; leaves of a pair unequal and dissimilar, the larger ovate-lanceolate, 3 to 4.5 cm. long, 1.5 to 2 cm. wide, short-acuminate at apex, rounded, subcordate, or subcuneate at base, crenate-serrate (teeth averaging 9 to a side), their petioles 1 to 2 cm. long, the smaller leaves nearly orbicular in general outline, 1 to 1.8 cm. long, 1.5 to 2 cm. wide, abruptly acute at apex, rounded or subtruncate at base, crenate-serrate (teeth averaging 6 to a side), their petioles 5 to 7 mm. long. Staminate heads not seen. Pistillate heads cymose, borne in two's or three's in the axils of the upper leaves, the cymes 3 to 4 mm. wide, the peduncles 4 to 5 mm. long; achenes ovate.

Type in the U. S. National Herbarium, no. 1,140,920, collected in the forest along the Río Santa Rita, near Salento, Department of Caldas, Colombia, altitude 1,600 to 1,800 meters, August 26, 1922, by E. P. Killip and T. E. Hazen (no. 10121).

Killip & Hazen no. 9007, collected at essentially the same locality, is also of this species.

*Pilea hazeni* clearly should be placed in the section *Heterophyllae*, though it differs greatly from any of the described species of that group.

***Pilea puracensis* Killip, sp. nov.**

Erect herbs, 30 to 40 cm. high, glabrous throughout. Stipules triangular-ovate, 3 mm. long. Petioles angulate, those of a pair unequal, the longer 3.5 to 5 cm. long, the shorter 2.5 to 4.5 cm. long. Leaf blades elliptic or elliptic-lanceolate, 10 to 15 cm. long, 3.5 to 6.5 cm. wide, acuminate at apex, rounded or subauriculate at base, closely crenate-serrulate to base (serrulations about 1 mm. long), 3-nerved to apex, penniveined along nerves, faintly covered on both surfaces with punctiform and linear cystoliths. Staminate inflorescence subdichotomously branched, 3 to 6 cm. long, the flowers borne in few-flowered clusters at the ends of the branches. Pistillate inflorescence of sessile, paniculately branched cymes, much shorter than the petioles; perianth-segments unequal, the middle oblong, 0.7 mm. long, the lateral orbicular, 0.2 mm. long; achenes ovate, 1 mm. long.

Type in the U. S. National Herbarium, no. 1,140,081, collected in the forest at "Canaan," on the slopes of Mt. Puracé, Department of El Cauca, Colombia, altitude 3,100 to 3,300 meters, June 13, 1922, by F. W. Pennell and E. P. Killip (no. 6673).

Closely related to *P. pteropodon* Wedd., this species is distinguished by smaller leaves and smaller pistillate heads, and by the fact that its leaves do not taper into winged petioles. The foliage and general aspect of the plant suggest *P. quichensis* Donn. Smith, of Guatemala, but the staminate inflorescence is much longer and the leaves are more finely toothed.

***Pilea ornatifolia* Killip, sp. nov.**

Plants dioecious, glabrous throughout, erect or decumbent, the branches lax. Stem succulent, geniculate at the middle of the internodes, reddish brown, without cystoliths. Stipules ovate, 2 mm. long. Leaf blades ovate, acute at apex, obliquely cordate at base, sharply serrate from base to apex, 3-nerved, (lateral nerves reaching the apex), dark green with punctiform cystoliths above, paler with conspicuous linear cystoliths beneath, penni-veined along each nerve, the veins black; leaves of a pair similar but unequal, the larger 4.5 to 5.5 cm. long, 1.5 to 2.5 cm. broad, their petioles 1 to 1.5 cm. long, the smaller 2.5 to 3.5 cm. long, 1 to 1.5 cm. broad, their petioles 2 to 3 mm. long. Staminate heads globose, about 6 mm. in diameter, densely flowered, borne on slender peduncles 2 to 2.5 cm. long; perianth violet-tinged, its lobes 0.5 mm. long. Pistillate heads 4 to 8-flowered, in short axillary cymes, borne on peduncles 4 mm. long; perianth segments subequal, about 1.2 mm. long; achenes broadly ovate, 1.5 mm. long.

Type in the U. S. National Herbarium, no. 1,140,933, collected in an open gulch in the forest on Cerro Tatamá, Department of Caldas, Colombia, altitude 3,200 to 3,400 meters, September 8 to 10, 1922, by F. W. Pennell (no. 10476).

*Pilea ornatifolia* is allied to *P. flexuosa* Wedd., the principal points of difference being smaller and proportionately narrower leaves of *P. ornatifolia*, with distinctly cordate bases and inconspicuous cystoliths on the upper surfaces, shorter petioles, the much shorter lobes of the staminate flowers, and the shorter segments of the perianth of the pistillate flowers.

***Pilea pennellii* Killip, sp. nov.**

Plants monoecious, slender, branching near the base, 25 to 30 cm. high, glabrous throughout. Stipules triangular, barely 1 mm. long, acute. Petioles 5 to 8 mm. long, those of a pair slightly unequal. Leaf blades narrowly ovate-oblong, 2 to 3 cm. long, 0.8 to 1.5 cm. wide, acuminate at apex, tapering at base, minutely serrulate (teeth acute, imbricate, often cartilaginous at margin), 3-nerved (lateral nerves reaching to the upper quarter of the blade), light green on both surfaces, above copiously covered with punctiform and very minute linear cystoliths, beneath punctate with dark ocellae but almost destitute of cystoliths. Staminate heads globose, 5 to 6 mm. in diameter, purplish white, borne on slender peduncles 3 cm. long, the perianth lobes barely 0.1 mm. long. Pistillate flowers in closely flowered cymes, subsessile or with peduncles up to 3 mm. long, the segments unequal, the middle 0.7 mm. long, the lateral 0.4 mm.; achenes ovate, 0.5 mm. long.

Type in the U. S. National Herbarium, no. 1,140,923, collected in a forest along the Río San Rafael, below Cerro Tatamá Department of Caldas, Colombia, altitude 2,200 to 2,500 meters, September 7 to 11, 1922, by F. W. Pennell (no. 10326).

This species apparently is nearest *P. flexuosa* Wedd., differing in its smaller, closely serrulate leaves, and in its cystoliths. The light green aspect of the plant suggests *P. cuprea* Krause, but in that species the pistillate heads as well as the staminate are long-peduncled.

***Pilea rhombifolia* Killip, sp. nov.**

Plants 20 to 30 cm. high, glabrous throughout. Stipules ovate, 2 to 3 mm. long. Petioles 0.5 to 1.5 cm. long. Leaves of a node similar in shape, subequal in size, rhombic or broadly ovate, 2 to 4.5 cm. long, 1.5 to 3 cm. wide, short-acuminate at apex, cuneate or subrotund at base, crenate-serrate above the base (6 to 7 teeth on a side), 3-nerved (nerves reaching to upper third of blade), subcoriaceous, dark green, slightly lustrous above, silvery-white beneath, copiously covered on upper surface with linear and fusiform cystoliths on lower surface confined mainly to the nerves. Pistillate head in cymes 1 cm. wide or less, the peduncles 0.5 to 1 cm. long; schenes ovate, 1 mm. long.

Type in the U. S. National Herbarium, no. 533,540, collected near Santa Marta, Colombia, altitude 1,750 meters, by H. H. Smith (no. 1446). A specimen of this collection is also in the herbarium of the Academy of Natural Sciences, Philadelphia.

This species is allied to *P. sessiflora* Wedd. and *P. radicans* Wedd., differing from the former in its relatively broader leaves with larger teeth and more abundant cystoliths, and from the latter in its larger, thicker leaves and erect habit.

***Pilea purpurea* Killip, sp. nov.**

Stems erect, 40 to 60 cm. high, angulate, glabrous below, slightly pubescent above. Petioles 1.5 to 3 cm. long, ferruginous-tomentose, becoming glabrate.

Leaf blades ovate or oblong, 8 to 12 cm. long, 4 to 5 cm. wide, acuminate (acumen 1 cm. long), rounded at base, finely serrate (teeth obtuse), 3-nerved to apex (nerves depressed on upper surface, with numerous pairs of parallel secondary nerves along each primary nerve), the upper surface dark green, glabrous, bearing faint linear cystoliths, the lower surface paler, densely tomentulous on the nerves and veins, destitute of cystoliths but conspicuously punctate between the veins. Staminate cymes up to 15 cm. long, borne in pairs in the axils of the upper leaves, profusely dichotomous, the peduncles and branches densely tomentulous; bracts unusually large for the genus, white; calyx globose, 1 mm. in diameter, white proximally, dark purple distally, its lobes minute. Pistillate cymes subsessile in the axils of the lower leaves, shorter than the petioles; middle segment of perianth obovate, 1.5 mm. long, the lateral segments broadly ovate, 1 mm. long; achenes broadly ovate, 2 mm. long, the margin thickened.

Type in the U. S. National Herbarium, no. 1,140,930, collected in a moist forest along the Río San Rafael, below Cerro Tatamá, Department of Caldas, Colombia, altitude 2,600 to 2,800 meters, September 7 to 11, 1922, by F. W. Pennell (no. 10380).

This is allied to *P. hirsuta* Wedd., differing chiefly in its larger staminate and smaller pistillate inflorescences, in the prominent bracts subtending the staminate flowers, and in the closer serrations of the leaves.

#### *Pilea tatamensis* Killip, sp. nov.

Plants dioecious. Stem. repent, at length erect, simple or branching toward the summit, hirsute throughout. Stipules ovate-lanceolate, 7 to 9 mm. long. Leaf blades flat or often slightly rugose, sharply serrate (teeth 2 mm. long), triplinerved (lateral nerves originating 3 to 4 mm. above base and extending to upper third of blade), the upper surface dark green, glabrous, bearing (except along nerves and veins) minute linear cystoliths, beneath paler, densely appressed-hirsute on the nerves and veins, sparsely hirsute elsewhere, the cystoliths fewer and less conspicuous than on upper surface; leaves of a pair unequal and slightly dissimilar, the larger ovate or elliptic-ovate, 3 to 6 cm. long, 2 to 2.5 cm. wide, acute at apex, obliquely cuneate at base, the smaller ovate, 2 to 3 cm. long, 1 to 1.5 cm. wide, rounded or subacute at apex, rounded or subcuneate and oblique at base. Staminate heads globose, 1 cm. in diameter, pilosulous, densely flowered, the peduncles 1 to 1.5 cm. long, hirsute; calyx lobes filiform, 2 to 2.5 mm. long. Pistillate heads cymose, 1 to 1.5 cm. broad, glabrescent, the peduncles longer than the petioles; achenes ovate, 1 mm. long.

Type in the U. S. National Herbarium, no. 1,140,928, collected in moist forest along the Río San Rafael, below Cerro Tatamá, Department of Caldas, Colombia, altitude 2,600 to 2,800 meters, September 7 to 11, 1922, by F. W. Pennell (no. 10378; staminate plants). The pistillate plants are represented by Pennell 10375 (U. S. Nat. Herb. 1,140,925).

In habit and general aspect this plant resembles *P. fallax* Wedd. It is differentiated by larger leaves with two well-marked lateral nerves, by the arrangement of the cystoliths, by longer peduncles, and by the more elongate lobes of the staminate flowers. Since the leaves at a node are not conspicuously unequal, the species should probably be referred to the section containing the long-peduncled pubescent species. The globose staminate heads suggest



***Boehmeria arbuscula* Killip, sp. nov.**

Small tree, 3 to 4 meters high, monoecious; young branches angulate, slightly corky, closely appressed-pubescent. Stipules narrowly linear-lanceolate, 3 mm. long. Petioles 2 to 7 mm. long, appressed-pubescent. Leaf blades elliptic-ovate or slightly oblong (the alternate leaves unequal, the larger 1.5 to 3 cm. long, 0.8 to 1.5 cm. wide, the smaller 0.4 to 0.8 cm. long, 0.2 to 0.4 cm. wide), acuminate at apex, cuneate at base, 3-nerved (the lateral nerves extending to the upper third of blade), sharply serrulate, the upper surface dark green, plane or often rugulose, strigillose, with short stiff pellucid hairs, the under surface paler, appressed hirtellous, especially on nerves and veins. Flowers in compact axillary androgynous or unisexual clusters 3 to 4 mm. in diameter. Staminate flowers depressed-globose, 7 mm. wide, strigillose without. Pistillate flowers narrowly lanceolate, about 1.4 mm. long, densely hirsute without; style 0.8 mm. long, hirsute at apex.

Type in the U. S. National Herbarium, no. 1,140,085, collected in thicket near Coconuco, Department of El Cauca Colombia, altitude 2,300 meters, June 17, 1922, by E. P. Killip (no. 6831).

This is probably allied to *B. excelsa* Wedd., a tree known only from Juan Fernández. That species, however, has much larger leaves, hoary white beneath, and larger flower clusters, and much longer styles.

***Phenax grossecrenatus* Killip, sp. nov.**

Shrub, 2 to 2.5 meters high; branches sparsely hirsute, at length glabrate. Stipules ovate-lanceolate, 4 to 5 mm. long. Petioles slender, 2 to 5 cm. long, glabrous or sparingly pubescent. Leaves ovate or ovate-lanceolate, 6 to 12 cm. long, 3 to 6 cm. wide, acute at apex, rounded or subcuneate at base, coarsely crenate (teeth 5 to 7 mm. broad, rounded, 10 to 14 on each side), 3-nerved to the upper third of blade, above glabrous except on the tomentulous nerves, beneath minutely pubescent. Flowers in compact axillary androgynous clusters. Staminate flowers few, the lobes 0.5 mm. long. Style 3 to 4 mm. long, minutely pubescent with hooked hairs. Achene ovate, 1 mm. long, sparsely pubescent.

Type in the U. S. National Herbarium, no. 1,140,083, collected at edge of forest, near "Canaan," on the slopes of Mt. Puracé, Department of El Cauca, Colombia, altitude 3,200 meters, June 13, 1922, by F. W. Pennell and E. P. Killip (no. 6680).

Allied to *P. laxiflorus* Wedd., of Peru, this species differs in having larger, longer-petioled leaves, longer stipules, and larger androgynous flower clusters.