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PHYSICS.—*A simple substitute for a cathetometer.*¹ J. B. FERGUSON, New York City.

A cathetometer is often used, especially by investigators of problems involving gases, when a pressure reading is desired with an accuracy of 0.1 mm. or better. This instrument is, however, very cumbersome and also expensive. It may be replaced to advantage by a "micrometer depth gauge," which is an inexpensive² machinists' tool of small size capable of giving readings with an accuracy of 0.01 mm. or 0.0005 inch.

These gauges usually consist of a vertical rod, with a sliding head mounted perpendicular to the rod and provided with a micrometer or a vernier. The head has a polished surface about $\frac{1}{2}$ inch (13 mm.) in width, which is sufficient to enable one to make an accurate setting by sighting across it against a mercury meniscus.

To illustrate the possibilities of such an instrument, one was set up in a retort stand with the head opposite the two surfaces of mercury in a partly-filled U-tube, and various observers determined by it the position of one mercury meniscus. Readings were made first with the gauge in front and then behind the U-tube. The results are given in table 1. This instrument was graduated in inches, but instruments graduated in millimeters are also obtainable.

¹ Received April 6, 1920.

² A four-inch instrument would cost not over ten dollars.

TABLE I

LEVEL READINGS ON MERCURY MENISCUS, MADE BY DIFFERENT OBSERVERS

Observer	Reading inches	Position of gauge
A	0.631	In front of tube
	0.6315	In front of tube
B	0.6335	In front of tube
	0.6335	In front of tube
C	0.626	In front of tube
	0.624	In front of tube
A	0.3229	Behind tube
	0.321	Behind tube
B	0.325	Behind tube
	0.324	Behind tube
C	0.3234	Behind tube
D	0.315	Behind tube
	0.315	Behind tube
	0.314	Behind tube
E	0.3209	Behind tube
	0.319	Behind tube
	0.319	Behind tube

The different observers apparently did not all set alike, but each was able to repeat his own measurements with sufficient precision so that each could have measured a pressure difference to ± 0.001 inch or about ± 0.02 mm.

The above-mentioned use is but one of the many to which such a useful little instrument can be put and no doubt specially shaped heads could be obtained for particular purposes if desired.

BOTANY.—*Revision of the true mahoganies (Swietenia)*. S. F. BLAKE, Bureau of Plant Industry.¹

The genus *Swietenia*, from which the true mahogany of commerce is derived, was described by Jacquin² in 1760. His single species, *Swietenia mahagoni*, was based on a reference to plate 81 of the second volume of Catesby's *Natural History of Carolina*. This plate is also the basis of Linnaeus' *Cedrela mahagoni*,³

¹ Received March 12, 1920.

² Enum. Pl. Carib. 4: 1760.

³ Syst. ed. 10. 940. 1759.

the first binominal name given to the mahogany. Catesby⁴ gives a fairly good plate showing the fruit and leaves of the mahogany, with a figure of some withered flowers, and describes its manner of growth in the Bahamas.

About 1836 a second species, *S. humilis*, was added to the genus by Zuccarini,⁵ described from specimens collected in Tehuantepec, Oaxaca, by Karwinski. For many years this species has remained comparatively little known. Recently, however, Harms⁶ has referred to *S. humilis* a species grown in the Botanic Garden at Victoria, Camerun, West Africa, from seeds collected by Preuss near San Julian, El Salvador, on June 9, 1900. Preuss,⁷ in his book on Central and South America, mentions in several places a mahogany which he calls *Swietenia bijuga*, a name never used by any other author (except as cited by Harms from Preuss' book), and not defined by Preuss. Under this name he refers not only to the species from El Salvador, discussed by Harms, but also to a mahogany from Venezuela, which is presumably the species recently described by Pittier⁸ as *S. candollei*. Harms describes the species grown in Camerun as having leaflets 10 to 12 cm. long, 4 to 5 cm. wide, thus much larger than those of Zuccarini's original *S. humilis*, but he does not consider the plant botanically distinct. Specimens from Chiapas, collected by Seler (no. 1921), from Guerrero, collected by Langlassé (no. 132), and from Michoacan, collected by Endlich (no. 1335), are also referred to *S. humilis* by Harms. None of this material has been examined by the present writer, but it is clear from Harms' description of the Camerun material that it at least belongs to the species described below as *S. cirrhata*.

A third species, *Swietenia macrophylla*, was described and figured by King⁹ in 1886, on the basis of trees grown in the Botanic Garden at Calcutta from seed supposed to be from

⁴ Nat. Hist. Carol. 2: 81. Pl. 81. 1743.

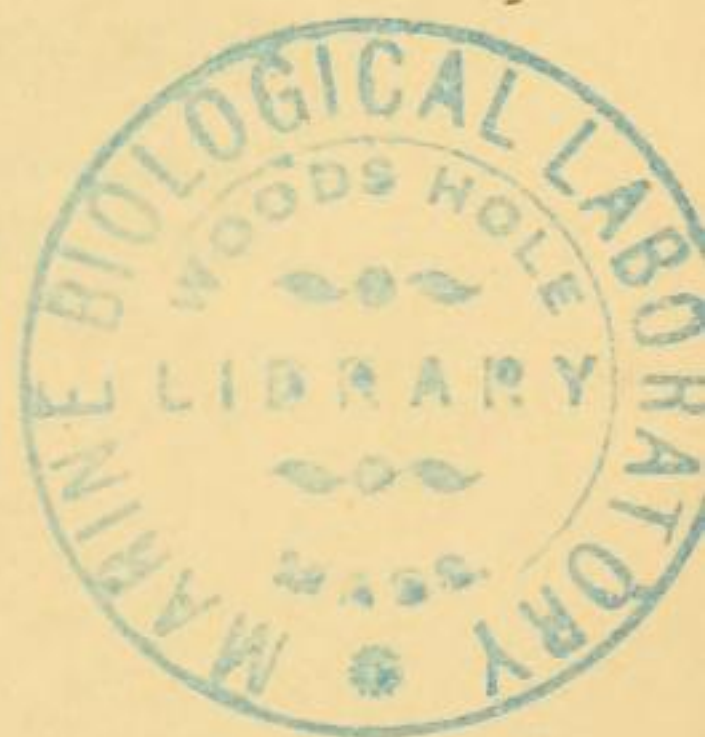
⁵ Abh. Akad. Muench. 2: 355. Pl. 7. 1835-36.

⁶ Rep. Sp. Nov. Fedde 12: 210-211. 1913.

⁷ Exped. Centr. u. Suedamer. 112, 432, 433, 440, 442. 1901.

⁸ Journ. Wash. Acad. Sci. 10: 33. 1920.

⁹ Hook. Ic. 16: pl. 1550. 1886.



Honduras. It is now known in the wild state from Tabasco and Campeche to eastern Guatemala and Honduras, and is evidently the only species of the genus on the eastern coast of Central America.

Swietenia candollei, recently described by Pittier,¹⁰ is presumably the only species of *Swietenia* native in Venezuela. It is easily distinguished from *S. mahagoni* by its much longer leaflets and larger flowers, and from *S. macrophylla* by its longer petiolules and obtuse capsules.

A fifth species, not hitherto described, is represented in the National Herbarium by fine flowering material collected in Michoacan by Nelson, and by foliage material collected in Sinaloa and Oaxaca. This species has the sessile leaflets which distinguish *S. humilis* from all other *Swietenias* hitherto described, but these are much larger than in that species and are provided with a very long twisted cusp formed by the excurrent midvein. To it evidently belong the specimens mentioned by Harms as grown at the Botanic Garden of Victoria in Camerun, from seeds collected by Preuss in El Salvador.

An interesting account of the history of the three species of mahogany previously recognized has been published by R. A. Rolfe in a recent number of the Kew Bulletin,¹¹ with references to illustrations and to much of the literature relating to the subject.

The distribution of the five species of *Swietenia* now known may be summarized as follows: *Swietenia mahagoni* is the only species known from the West Indies, Bermuda, and the Bahamas, as well as the keys of southern Florida. It has been introduced into Trinidad, Venezuela, and the Hawaiian Islands, and is recorded by Casimir DeCandolle from Peru, but the latter record is certainly very questionable. *Swietenia candollei* is a native of Venezuela. *Swietenia macrophylla* is the mahogany of the eastern coast of Central America, from Tabasco to Honduras,

¹⁰ Journ. Wash. Acad. Sci. 10: 33. 1920.

¹¹ Kew Bull. 1919: 201-207. 1919.

and is also cultivated in botanic gardens at Trinidad, Buitenzorg, and Calcutta. *Swietenia cirrhata* is known in the wild condition from Sinaloa, Michoacan, Oaxaca, and El Salvador, and has been introduced into cultivation in the Botanic Garden at Victoria in Camerun. *Swietenia humilis* is known as a wild species from the coast of Guerrero, Oaxaca, and northwestern Guatemala. The distribution of these species, so far as it is now definitely known, is shown on the accompanying map. It remains to determine the identity of the mahoganies growing between Honduras and Colombia, and also that of the mahogany recorded from Peru as *S. mahagoni* in DeCandolle's monograph, at a time when only two species of the genus were known from America.

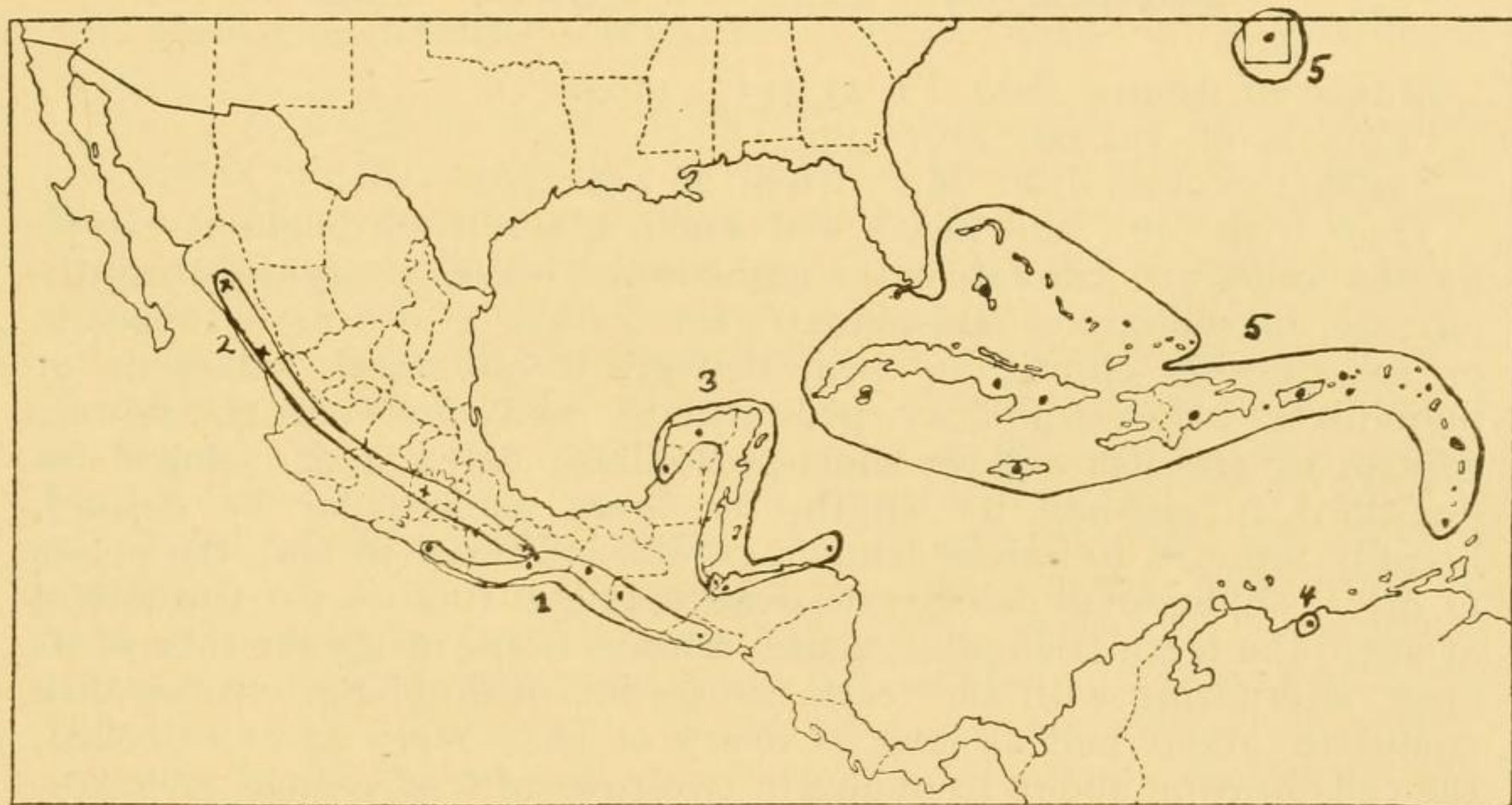


Fig. 1.—Map showing range of the species of *Swietenia*. 1, *S. humilis*; 2, *S. cirrhata*; 3, *S. macrophylla*; 4, *S. candollei*; 5, *S. mahagoni*.

(NOTE.—The southernmost locality shown on the map in the range of No. 1, *S. humilis*, belongs properly to No. 2, *S. cirrhata*.)

As is well known, the name mahogany is applied in the trade not only to the wood furnished by various species of *Swietenia* but also to similar woods derived from a considerable number of other trees, in some cases belonging to widely separated families. In fact, the bulk of the "mahogany" annually brought to market

is derived from other trees than *Swietenia*. Of the true mahoganies, belonging to the genus *Swietenia*, *S. macrophylla* is probably the one of most importance at the present time. This species grows on the Atlantic coast of Central America from Tabasco to Honduras and for an undetermined distance southward, and is shipped from Belize, Puerto Barrios, and various other points. *S. mahagoni*, of much importance in early days, is probably now marketed in less quantity than *S. macrophylla*. The species of western Mexico, *S. cirrhata* and *S. humilis*, are at present little utilized, and the same is true of the Venezuelan species, *S. candollei*.

Swietenia Jacq. Enum. Pl. Carib. 4. 1760.

Mahagoni Adans. Fam. Pl. 2: 343. 1763.

"*Roia* Scop. Introd. 226. 1777."

Suiten Stokes, Bot. Mat. Med. 2: 436, 479. 1812.

Trees with hard and heavy red wood, glabrous throughout except for the sometimes ciliolate calyx and corolla; leaves alternate, abruptly pinnate, or sometimes odd-pinnate, the leaflets 2 to 6 pairs, opposite or subopposite, elliptic to oval, strongly inequilateral, subsessile or petiolulate; panicles axillary, pedunculate, many-flowered, the flowers whitish or greenish yellow, short-pedicellate; calyx (4 or) 5-lobed for one-third to one-half its length, the lobes semicircular or deltoid, broadly rounded to barely acutish; corolla imbricate in bud, the petals (4 or) 5, oblong-oval or obovate-oval; staminal tube (8 to) 10-toothed at apex, the teeth triangular, acute; anthers borne inside the tube at its apex, alternating with the teeth, subsessile, oval-oblong, obtuse; disk crenulate, about half as long as ovary or less; ovary (4 or) 5-celled, the cells bearing about 12 ovules in two rows of 6 or 7 each; style columnar, about as long as ovary or slightly longer; stigma discoid, thickened, crenulate, about as broad as ovary; capsule ovoid, rounded or umbonate at apex, septicidally dehiscing from the base or apex, with thick woody exocarp and much thinner leathery endocarp, the valves and seeds eventually deciduous leaving the persistent pentagonal narrowly 5-winged receptacle; seeds imbricate, about 12 in each cell, with more or less quadrangular body and much longer slightly broader wing thickened on the chalazal margin; embryo transverse, with broad, flat, oily cotyledons and minute radicle, and scanty albumen.

Type species *Swietenia mahagoni* Jacq.

KEY TO SPECIES

Leaflets subsessile; seeds light brown.

Leaflets 5 to 9 cm. long, 0.8 to 3 cm. wide 1. *S. humilis*.

Leaflets 8.5 to 14 cm. long, 3 to 5 cm. wide 2. *S. cirrhata*.

Leaflets distinctly petioluled; seeds dark chestnut-brown.

Petals and sepals ciliolate; leaflets 6 to 18 cm. long; capsule 9 to 15 cm. long; seeds 7.5 to 10 cm. long.

Petiolules 1.5 to 7 mm. long; capsule umbonate at apex

3. *S. macrophylla*.

Petiolules 6 to 12 mm. long; capsule obtuse . . . 4. *S. candollei*.

Petals and sepals not ciliolate; leaflets 3.5 to 7.5 cm. long;

capsule 4.5 to 7 cm. long; seeds 2 to 4 cm. long . 5. *S. mahagoni*.

1. ***Swietenia humilis*** Zucc. Abh. Acad. Muench. 2: 355. Pl. 7. 1835-36.

Tree 7 to 10 meters high, about 6 dm. in diameter, with dense head; branchlets gray; leaves with 2 to 5 pairs of leaflets; petiole 3.5 to 5 cm. long, the rachis 1.5 to 7 cm. long; leaflets 5 to 9 cm. long, 0.8 to 3 cm. wide, elliptic-lanceolate to elliptic-ovate, attenuate at apex and provided with a flattish cusp 3 to 7 mm. long, cuneate to rounded at base, subsessile, prominulous-reticulate both sides, somewhat paler green beneath; panicles pyramidal, 4 to 12.5 cm. long (including the 2.5 to 5.5 cm. long peduncle); pedicels 0.5 to 3 mm. long; calyx 1 mm. long, 5-lobed about to middle, the lobes deltoid, obtuse to acutish, papillose-ciliolate; petals obovate-oval, emarginate at the broadly rounded apex, ciliolate throughout, 5 mm. long, 2.8 mm. wide; staminal tube glabrous, the teeth lance-ovate, acute; disk crenate, papillose, about two-fifths as long as ovary; style shorter and stigma narrower than the ovary; fruit 15 to 20 cm. long, 10 to 12 cm. thick, ovoid, obtusely umbonate at apex; seeds about 10 in each cell, light brown, 6 to 9 cm. long, 2 to 2.5 cm. wide.

TYPE LOCALITY: Dry sunny places near Tehuantepec, Oaxaca, Mexico, altitude about 300 meters. Type collected by Karwinski.

SPECIMENS EXAMINED:

GUERRERO: Acapulco, 1894-95, *Palmer* 405.

OAXACA: Taretan, 1883, *Dugès* (Gray Herb.). Chivela, April 26, 1910, *Orcutt* 3190. Tonameca, altitude 25 meters, November 9, 1917, *Reko* 3549.

CHIAPAS: Between Santa Catarina and Santa Lucia, December, 1906, *Collins* (photog. of leaves and fruit).

GUATEMALA: Near Nenton, Huehuetenango, altitude 915 to 1220 meters, December, 1895, *Nelson* 3533.

The description of the floral details, which differs in some minor features from that of Zuccarini, has been that drawn up from the sheet in the Gray Herbarium collected in Oaxaca by Dugès, which was originally recorded in the Botanical Gazette.¹² Prof. Dugès gives the native name as "cobano." The species is easily distinguished by its comparatively small and attenuate subsessile leaflets.

Solereider¹³ has made a careful microscopical examination of seeds of this species purchased of a drug-dealer in the Puebla market, and said to be very poisonous. Solereider finds that what had previously been described as albumen is in reality a part of the cotyledons. He finds, however, that a small amount of true albumen is present in the seeds.

Rose¹⁴ states that the seeds of a Swietenia, referred to this species with some doubt, were sold by Indian peddlers near Acaponeta, Tepic, and were made into a tea which was taken for pains in the chest. The native name was given as "flor de venodillo (venadillo)."

2. *Swietenia cirrhata* Blake, sp. nov.

Tree; branchlets grayish brown, lenticellate; leaves with 3 to 6 pairs of leaflets; petiole 3 to 7.5 cm. long, the rachis 9 to 20 cm. long, terminated by a cusp 2 to 7 mm. long; leaflets 8.5 to 14 cm. long, 3 to 5 cm. wide, subopposite below, opposite above, obliquely ovate or elliptic-ovate, acuminate, tipped by a filiform twisted cusp 3 to 13 mm. long, acute to rounded at base, subsessile, pergamentaceous to subcoriaceous, pale green, glaucescent especially beneath, prominulous-reticulate on both sides, with 9 to 10 pairs of lateral veins; panicle 23 cm. long (including the 8 cm. long peduncle), 15 cm. wide; pedicels 1.5 to 2 mm. long; calyx 0.8 to 1 mm. long, 5-lobed to middle, the lobes broadly deltoid or suborbicular, broadly rounded, ciliolate; petals 5, oval-oblong, rounded, erose-ciliolate throughout, 4.8 mm. long, 2.8 mm. wide; staminal tube glabrous, 3.8 mm. long, the 10 teeth triangular-ovate, acutish; disk crenulate, papillose, half as long as ovary; pistil 4.5 mm. long; style about a quarter longer than ovary; seeds light brown, similar to those of *S. humilis*.

Type in the U. S. National Herbarium, no. 399294, collected at La Salada, Michoacan, Mexico, March 15 to 22, 1903, by E. W. Nelson (no. 6925).

¹² Bot. Gaz. 10: 430. 1885.

¹³ Archiv. Pharm. 229: 249-258. Pl. 1891.

¹⁴ Contr. U. S. Nat. Herb. 5: 229. 1899.

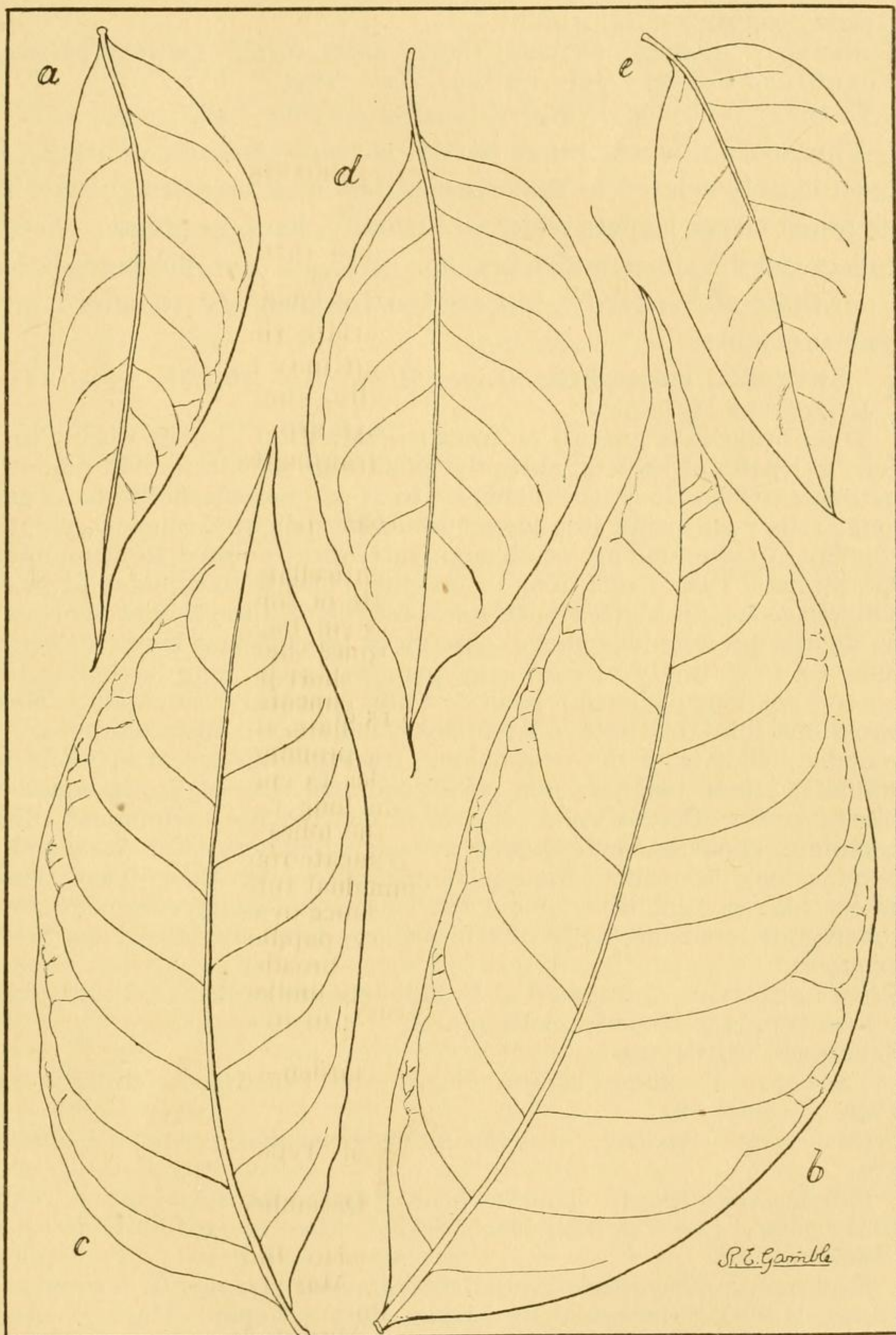


Fig. 2.—*Swietenia* leaflets, natural size. *a*, *S. humilis* Zucc. (drawn from Reko 3459); *b*, *S. cirrhata* Blake (Nelson 6925); *c*, *S. macrophylla* King (Blake 7866); *d*, *S. candollei* Pittier (Pittier 5789); *e*, *S. mahagoni* Jacq. (Ricksecker 247).

OTHER SPECIMENS EXAMINED:

SINALOA: Lodiago, October, 1891, *Palmer* 1616. On road between Rosario and Colomas, July 13, 1897, *Rose* 3186.

OAXACA: Chicapa, February 17, 1904, *Goldman* 738.

This species, whose range partly overlaps that of *S. humilis*, is most closely related to that species, but may be distinguished by its much larger leaflets which are usually, long cuspidate. Seeds collected by Palmer under his no. 1616 are not distinguishable from those of *S. humilis*, but are too fragmentary to afford any measurements.

3. *Swietenia macrophylla* King, Hook. Ic. 16: Pl. 1550. 1886.

HONDURAS MAHOGANY.

Tree; branchlets grayish or fuscous, lenticellate; leaves with 3 to 5 (or "6") pairs of leaflets, abruptly pinnate or sometimes odd-pinnate; petiole 4 to 8 cm. long, the rachis 4.5 to 15 cm. long; leaflets 6 to 18 cm. long, 2 to 7 cm. wide (the lowest sometimes slightly smaller), elliptic to elliptic-ovate, oblong, or oblong-ovate, short-pointed to acuminate, the terminal cusp 2 mm. long or obscure, cuneate to rounded at base, subcoriaceous, deep green both sides, reticulate, the veinlets impressed or slightly prominulous above, obscure or prominulous beneath; petioles 1.5 to 4 (rarely 7) mm. long; panicles 13 cm. long (including the 4.5 to 7 cm. long peduncle); pedicels 2 mm. long; calyx sinuately 5-lobed about one-third its length, 0.8 mm. long, the lobes semicircular, broadly rounded, ciliolate; petals oval-oblong, truncate-rounded at apex, finely ciliolate, 4 mm. long, 2.2 mm. wide; staminal tube glabrous, equaling pistil, shorter than corolla, the teeth lance-ovate, acuminate; disk crenulate, about one-half as long as ovary, papillose; style once and a half as long as ovary; stigma crenulate, broader than ovary; fruit 15 cm. long, 7.5 cm. thick, ovoid, subacutely umbonate, rufous-fuscous, tuberculate; seeds deep chestnut-brown, 7.5 to 10 cm. long, 2 cm. wide or more.

TYPE LOCALITY: Cultivated at Botanic Garden, Calcutta, India, from seed supposed to be from Honduras.

SPECIMENS EXAMINED:

TABASCO: Common in the vicinity of Tepetitan, February 14, 1888, *Rovirosa* 181.

CAMPECHE: Apazote, near Yohaltun, December 31, 1900, *Goldman* 571.

GUATEMALA: Santo Tomás, near Puerto Barrios, June 4, 1919, *Blake* 7866. Las Playitas, Dept. Izabal, May 12, 1919, *Whitford & Stadtmiller* 48.

HONDURAS: Clearings, Swan Islands, April 7, 1913, *G. Nelson* 125 (Gray Herb.). Hacienda El Limón, Dept. Copán, May 7, 1919, *Whitford & Stadtmiller* 27.

CULTIVATED: Botanic Garden, Belize, British Honduras, December, 1905, *Kellerman* 5747. Panama Agricultural Experiment Station,

Groth. Botanic Garden, Port of Spain, Trinidad, December, 1913,
Mell. Botanic Garden, Buitenzorg, Java, 1903 ("e Calcutta").

The genus *Swietenia* has generally been described as having abruptly pinnate leaves. Many of the leaves of the writer's no. 7866, however, are odd-pinnate, with the unpaired terminal leaflet smaller and somewhat less asymmetric than the next pair, and borne on a prolongation of the rachis about 2 cm. long. A few of the specimens of *S. mahagoni* show similar leaves.

Specimens with leaves and fragmentary fruits in the Gray Herbarium, collected on low hills in the valley of the Rio Negro, Guaguaqui, Boyacá, Colombia, July 14, 1917, by H. N. Whitford & J. Pinzon (no. 10), and recorded by Macbride¹⁵ as *S. macrophylla*, probably belong to this species but are too incomplete to be satisfactorily determined. The local names are given by Whitford as "cedro caoba" and "cedro mondi." Material in the Kew Herbarium, said to have been collected by Antoine at Cartagena, Colombia, has been referred to this species by Rolfe in his recent paper on the genus.

4. ***Swietenia candollei*** Pittier, Journ. Wash. Acad. Sci. 10: 33. 1920.

VENEZUELA MAHOGANY.

Tree up to 40 meters high; branchlets gray, lenticellate, those of the year fuscous green, glaucous; leaves with 3 to 5 pairs of leaflets; petiole 6 to 9.5 cm. long, the rachis 5.5 to 20 cm. long; leaflets 6.5 to 13 cm. long, 2.5 to 4.5 cm. wide (the lowest pair sometimes only 5 cm. long), oval or oval-ovate to oblong-elliptic, short-acuminate and usually falcate at apex, with a flat or slightly twisted cusp 3 mm. long or less, cuneate to rounded at base, prominulous-reticulate on both sides, paler green beneath; petiolules slender, 6 to 12 mm. long; panicles axillary, 9 to 18 cm. long (including the 5 to 8 cm. long peduncle), 3 to 6 cm. wide, loose; pedicels 2 to 4 mm. long; calyx 1 mm. long, 5-lobed for about one-third its length, the lobes semicircular, broadly rounded, finely erose-ciliolate; petals yellowish white, 4.5 to "6.5" mm. long, 3.3 mm. wide, oval-oblong, broadly rounded, unequally and broadly cuneate at base, finely erose-ciliolate throughout; staminal tube 3.8 mm. long, glabrous, its teeth triangular-ovate, acuminate; disk crenulate, papillose, nearly half as long as ovary; pistil 3.5 mm. long; ovary 5-celled, the ovules in two rows of 6 or 7 in each cell; style columnar, slightly shorter than ovary; stigma large, barely crenulate, slightly broader than ovary; fruit 9 to 14 cm. long, 6 or 9 cm. thick, ovoid, obtuse, dehiscing usually from the apex; seeds deep chestnut brown to ferruginous, 9 to 9.5 cm. long, 2.5 to 3 cm. wide.

¹⁵ Contr. Gray Herb. N. S. 56: 54. 1918.

TYPE LOCALITY: La Trinidad de Maracay, Venezuela.

SPECIMENS EXAMINED:

VENEZUELA: La Trinidad de Maracay, altitude 440 meters, State of Aragua, January 31, 1913, *Pittier* 5789 (type).

Distinguished from *S. mahagoni* by its larger leaflets, longer petiolules, larger flowers, and larger fruits and seeds; from *S. macrophylla* by its mostly smaller, paler, and thinner leaflets, and longer and more slender petiolules.

5. **Swietenia mahagoni** Jacq. Enum. Pl. Carib. 20. 1760. WEST INDIAN MAHOGANY.

Cedrela mahagoni L. Syst. ed. 10. 940. 1759.

Cedrus mahogani Mill. Gard. Dict. ed. 8. no. 2. 1768.

Swietenia mahogoni Desr.; Lam. Encycl. 3: 678. 1791.

"*Swietenia fabrilis* Salisb. Prodr. 317. 1796."

Suitenia acutifolia Stokes, Bot. Mat. Med. 2: 479. 1812.

Swietenia mahogani C. DC. Mon. Phan. 1: 730. 1878.

Tree; branchlets gray or fuscous brown, lenticellate; leaves abruptly pinnate, with 2 to 6 pairs of leaflets, or rarely odd-pinnate; petiole 3 to 6.5 cm. long, the rachis 2 to 14 cm. long; leaflets 3.5 to 6 (rarely 7.5) cm. long, 1.3 to 2.5 (rarely 3.3) cm. wide, elliptic to ovate, acute to acuminate, with a terminal cusp 3 mm. long or less, cuneate to rounded at base, papery or chartaceous, prominulous-reticulate on both sides, paler green beneath; petiolules slender, 2 to 7 mm. long; panicles 4 to 8 cm. long (including the 2 to 4 cm. long peduncle); pedicels 2 to 4 mm. long; calyx 0.8 to 1 mm. long, 5-lobed about one-third its length, the lobes semicircular, broadly rounded, erose, glabrous; petals yellowish, 2.5 to 3 mm. long, obovate-oblong, broadly rounded, glabrous; staminal tube glabrous, its teeth deltoid, acutish; disk about one-third as long as ovary; style as long as ovary; stigma narrower than ovary; fruit ovoid, broadly rounded at apex, 4.5 to 7 cm. long, 3 to 5 cm. thick, grayish brown, verrucose, dehiscing from the base or from both ends;¹⁶ seeds 2 to 4 cm. long, 1 to 1.3 cm. wide, deep chestnut-brown.

TYPE LOCALITY: Bahama Islands.

SPECIMENS EXAMINED:

FLORIDA: Lignum Vitae Key, 1877, *Garber*; 1892, *Simpson* 485. Coral soil, Umbrella Key, *Curtiss* 411.

BERMUDA: Flatts Village, 1905, *Harshberger*.

BAHAMA ISLANDS: Crow Hill, Andros Island, 1910, *Small & Carter* 8743. Nassau, Providence Island, 1913.

CUBA: Without locality, *Wright* 1153. Cayo Sabinal, Camagüey, 1909, *Shafer* 1105. La Gloria, Camagüey, 1909, *Shafer* 370. Cayo Coco, Camagüey, 1909, *Shafer* 2723. South of Holguin, Oriente, 1909, *Shafer* 1342.

¹⁶ See ROLFE, Kew Bull. 1919: 203. 1919.

ISLE OF PINES: Ensenada de Siguanea, 1916, *Britton, Wilson, & Selby* 14529.

JAMAICA: Berwich Hill, altitude 765 meters, 1899, *Harris* 7710. Papine, near Hope, altitude 240 meters, 1909, *Harris* 10821.

SANTO DOMINGO: 1871, *Wright, Parry & Brummel*. Lopez, 1887, *Eggers* 1836. Barahona, 1910, *Fuertes* 223. Azua, 1913, *Rose, Fitch, & Russell* 4082.

ST. THOMAS: 1881, *Eggers*.

ST. CROIX: Bassin yard, 1896, *Ricksecker* 247.

ANTIGUA: 1913, *Rose, Fitch, & Russell* 3313.

MARTINIQUE: 1881, *Duss* 1497.

GRENADA: 1905, *Broadway*.

CULTIVATED: Little River, Florida, *Ricker* 4066, *Tidestrom* 4178. Near Ponce, Porto Rico, 1886, *Sintenis* 4939. Botanical Garden, Port of Spain, Trinidad, 1913, *Mell*. Gamboa, near Caracas, Venezuela, 1918, *Pittier* 7947 (introduced from Santo Domingo). Oahu, Hawaiian Islands, 1911, *Curran* 115.

Although the first binomial given to this species was *Cedrela mahagoni* L., the parenthetical authority cannot be used for the name *Swietenia mahagoni* Jacq., since Jacquin makes no direct reference to the earlier name of Linnaeus.

Descourtilz¹⁷ states that the bark of *S. mahagoni* is used as a tonic and astringent in the West Indies, and that it is often substituted for that of quinine, without, however, possessing the virtues of the latter. He also says: "C'est Lid'Oubouheri des hommes caraïbes, and Liacaïcachi des femmes." Solereder¹⁸ states that a purgative known as "karapatoel" is extracted from the seeds.

Among some fruits of this species collected from a planted tree near Caracas, Venezuela, by Mr. Pittier, is one which has only four valves and four rows of seeds, and which must have come from a tetramerous flower. I have seen no other evidence in the genus of deviation from the pentamerous type. De Candolle,¹⁹ however, describes the flowers as 4-or 5-merous.

¹⁷ Fl. Med. Ant. "2: 125. 1822;" ed. II. 2: 125. Pl. 99. 1833.

¹⁸ Archiv. Pharm. 229: 256, footnote. 1891.

¹⁹ Prodr. I: 625. 1824.