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Beddome, R.H.  
**Flora** Sylvatica for Southern India  
(Title page missing)





*Polyalthia cerasoides*. (Dunn.)

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the Indian Botanic Garden, Calcutta.

POLYALTHIA CERAEOIDES. (Nat. ord. Anonuea.)

POLYALTHIA. (BL) *£?<. Pi, page 25.—QES. CHAR.* Sapilt 3, fr« or oonnate bslojr, valuta or "lightly unbrkate in activation: pataU 6  
w.nal or sub-wiunl, wajvate iu 3 serins in ;esti\*ation, orata or linear ; atamans numaroua linear or oune«ta<sub>r</sub> connaetire dilated, and tUckonod beyond tita  
<<«l», «rpala numawm. Stigou oblon? or (apiUta, OTUI«3 on\* or two luiullr ereci; trjtt-o»rpal« sttpiUte oc oblong I Boedcd—tarwt or ilinbt.

POLYALTHIA, OERISOIDES. (Dm) Leaves oblong or lanceolate acute, pubescent beneath : flower bearing ahoota almost  
abortice lateral leafless; peduncles solitary, terminal, with oaa or twt) brictaai at their base ; calycine lobes nearly as long m the corol:  
patala aqual oval oblong thick ; curpeb globose dark rad, siie of a cherry, oo 8talk3 nearly twice their length.—*D. C. prod. i. p. 93,*  
*Guadalupe cerasoides*.—*W. A. prod. p. 10.* *Urada caraaoides*.—*Roxb. Pl. Ind. ii. p. 666.*

A itr.iijAj handmi '.<\*\*\* of ma limit »in, tiinhr ahUith <t\*-i aloti-yrxuitd ani of wui-irtibli oalm, tn>ich uttd in Iht Central Pro  
ir'inces and in the Bombay Frsniiitaij—it i\* wsd it wrpvdry wi for nava<sup>1</sup>, parpoitt, xitek a.% boa', matt\* and small span, but apparently i-Mt  
known in. XddrJt, ft U eownoA in dry forais nmr fuis foal of all the iuiMitins on tkt ,sn»isni std\* oj tht Madras Pmiiftncy, in tht SaUm  
hi-titt,thtNdlay Mtdlayi, Myiort, O.-iua etti4 the Qodamy forutt—U fiiinnia t\*efto( vtonttis, ami the fitvert are fragrant and of a grssnitk  
color, ft A\*« never i/tt inn cultivated or planttd. JnthtQodautry fartttit it known by th\* ntwiet of Dudugu and CMkaJ>tidugv, {Tdigoo  
and in the Boinbwj Pretidmcy it i\* calidd foom, (Mai.)



GOVINDO DEL.

*Calophyllum latum*. (Roiddomi.)

DUMPHY, LITH.

*Calophyllum*



CALOPHYLLUM (Nat. ord. Guttiferae.)

**CALOPHYLLUM** (Linn.) G. n. J. f. ji. 175.—GEN. CHAB. FIGITCTJ often polygamous, perianth eompeFeder 4-12, rep&J\* and petals imbricat-  
ed in 2-3 series, atameus mjncrogg free or scarcely eoBnato at tlic *lustv* \ filnrocnia i-bort filiform, anthem rr\*ct tivate or oblong 2 calkd dchiBctng longitudi-  
ually; ovwy 1 c«Ued, style longish sUgraa peltate, ovula 1 erect, 6mpe indebiiceut. TI « B witi IHTEI (-nrDithMI iriuh nunwrooR traniTerae para))\*! *nervea*.

**CALOPHYLLUM ELATUM**. (Bedd.) Young shoots, panicles and outer sepals ferruginous, leaves elliptic acuminate  
attenuated at the base, very shining, petioles about 1 inch long, panicles terminal \*n& from the tipper usile large many flowered ->M  
sepals 4, two outer ones sub-rotund Email, two inner petnloid ; petals 4 ; fruit *ovoid* pointed about the size of a thrush's egg,

A vtry large straight (rev vith nvmerOKs longitudinal cratkt down the bark, groict abvndtmty in mott of the mm'tt ghat fortU or thoitu,  
in our Wsttrn coast from Cunara down to Cape Ccmorin, and in inmiVnr forettt en the lever Pvhtgt, Anomafht, Coorg, Mytort and the  
Sinymallayt—it i\* -never found in dry deciduoKt jorntt—it yields the pooniftr of cemmerce and it h/iovn ly tl>t -namt oj Povn ur Feotfc HI  
Malabar, Siri Poorte in Sovt/i Cunarti. and Pongoo in tie Jvtrnud'ayt—truxitaiuk of thete trees hove lately been dtttretytd by ff,e axt of Cofv  
planters in, Malabar, Coorg and Travantor\* ; targe quantities stiU remain but chiefly in wry iwicretsille pieces, in the ghat forttti vf South  
Canarn they are felled by the ForM Department uñd floated rfowfl rtwi to Me nott depGtt. bin the demand for the tirttle dott «O( t&iii great,  
though many years ago a single fine tpar has fetched as mveh a\* ifXA H\*. The wood it scarcely Incun. except at a spar, tt.ongh it is orcutu.7ially  
itod for building and bridgwork by planters—if it rtdith, conrte grained lvt ornarnrvial. The trte liafneterbtitt planted ond irculd not tustesd  
except in the moist fortttt on the movntawt at an elttatvñ of ifiOO to 4,(\*«.' feel ; it flitters in January and Ptivatg, and the rtttd falls tarhj  
in, the rain\* and germinates freely in the dens\* shade of the sltofa for&U.

This trte via\* for tome **ytan** wppoied (o be the *Culop/tyltem*, (Mtfw/cfWH t>f Roxburgh^ tthich it from the Prince of Woltt' hlaid.



*Ptilonotus Indicum* (Bodd.)

GOVERNMENT OF INDIA  
*Ptilonotus*

J. COMPTON LITH.

### PCECILONEURON INDIOUM. (Nat. ord. Ternstramiaoea.)

PCECILONEURON. (Bedd.) *Gen. PL* p. 981.—GEIST. CHAR. Sepals 5 equal imbricate, petals 5 contorted, stamens numerous (about 20) on a tube surrounding the ovary which is either inconspicuous and entire or *more* or less prominent and 5 cleft, so that the stamens are sub-pentadelphous: anthers linear erect affixed by their base, ovary 2 celled, styles 2 subulate, ovules 2 in each cell, erect. Fruit? trees with opposite coriaceous shining leaves\* with close parallel venation and minutely reticulated.

PCECILONEURON INDISUM. (Bedd.) Leaves ovate-oblong with a bag acumlaatioa glabrous, panicles terminal, many flowered, flowers yellowish white, calyx peduncles and pedicles slightly puberulous. *Bedd. in Journl, Linn. Soc. 7III* 267 to 17.

*A good sized tree, common in the ghat forests of South Gtnara and Malabar up to an elevation of 4,000 feet—it is never found except in the thola forests ; in South Canara it is well known to the natives under the wxme of Kirbally (Can.), but thoiijh I have seen the tree on the Sis\* parah ghat and elsewhere in Malabar, it seem unknown to the natives. The timber appears to be of considerable valm, but is almost unknown at present—it is very hard and is used for Rice-powders in South Ccwyw-# fiomn in Mwch mi April*





**SHOREA KOBUSTA. (Nat. ord. Dipterocarpea.)**

SHOREA. (Roxb.) *Gen. Pl.* p. 193.—GEN. CHAR. Calyx tube very short adnate to the torus, not increasing in fruit, divisions ovate or lanceolate imbricate wing-like and all or 3 only enlarged in fruit, connivent over the fruit at the base. Stamens numerous or 15, anthers ovate or oblong, rarely linear, connectivum subulato-cuspidate, cells obtuse or rarely cuspidate, valves equal or the exterior valve a little larger—ovary 3 celled, cell 2 ovuled, style subulate, entire or 3 toothed at the apex, fruit coriaceous indehiscent; 1 seeded—seed ovoid, cotyledons thick fleshy unequal. Trees bearing resin! glabrous or tomentose stipules persistent or deciduous, leaves entire or repand panicles axillary or terminal.

SHOREA KOBUSTA. (Roxb.) Leaves short petioled cordato-oblong, 6-10 inches long by 4-6 inches broad, stipules falcate, panicles terminal and axillary, stamens numerous, stigma 3 toothed. *Roxb. Fl. Ind. p. ii. 615.*

*An immense timber tree, abundant in the Godavery forests, the Gumsoor and Russelcondah forests, and in Bengal (the Terai, Parasnath and Assam) and in Burmah ? but not known in the Smith of the Madras Presidency. In some of the Sal tracts in Gumsoor it grown almost to the exclusion of every ether tree and the natural forests often have the appearance of plantations—it flowers in March and April, and the seeds often commence germinating before they leave the parent tree early in the rains and eventually come up very thickly in the forests. The tree grows very straight and tall and sometimes reaches 10 or 12 feet in girth. The seed has a vitality of such short duration that all attempts to grow it in the South have failed, though it was attempted several successive seasons—it is also rapidly bored by insects. The timber is one of the most valuable in India for Engineering purposes and is largely used in Gun Carriage Manufactories and for many other purposes, such as housebuilding and ship-building, but warps in plank—it lasts an immense time underground or under water and is almost unequalled for sleepers, and seems quite proof against white ants; it is close grained, heavy and hard, of a light brown color—the bark is employed by tanners and yields an abundance of resin or dammer which is used as a substitute for pitch, and burnt by the natives as incense, and an aromatic oil is procured from the resin by dry distillation. It is called Sal, and Salwa in Gumsoor and Googul in the Godavery forests. I am not sure that the Birmese tree called Eingg-yiu is the same species.*



*Thorea humbagua* (Roxb.)

**SHOREA. TUMBAGAIA. (Nat. ord. Dipterocarpe®.)**

For Gen. Char, see under "Shorea Robust\*."

**SHOREA TUMBAGAIA. (Roxb.)** Leaves long petioled, ovate cordate, 2 to 4 inches long by 2-3 inches broad, petioles 1 to 2 inches long, panicles terminal, stamens about 100 with bearded anthers. *Roth. FL Ind. ii. 617—Wight's In. t 27.*

*I have only met with this tree in the hill forests of Caddapah and North Arcot ; it is a large tree yielding a valuable timber, and is well known in those districts under the name of Thamba: it is largely used in house building and for rafters, doorframes and posts, and is exported to Madras—a dammar exudes from the trunk. The Kong of Travancore is not this tree, but belongs to the allied genus Kopea.*



Spencer del.

*Shorea laccifera*, (wa.)

Chomley Scul.

**SHOREA LACCIFERA: (Nat. ord. Dipterocarpea.)**

For Gen. Char, see under "Shorea Robusta."

**SHOREA LACCIFERA.** (W. A.) Glabrous, leaves coriaceous oblong obtuse or emarginate and often emarginate at the base 3-5 inches long by 2 to 2½ inches broad: panicles numerous from the axils of the fallen leaves, branches and pedicels glabrous, calyx in flower glabrous; stamens 15, anther-bristle very long. *W. A. prod. p. 84. under Yaticar-Wighfo Ic t. 164.*

*A large tree, very abundant in the hill forests of Cuddapah and North Arcot, and also found in the Mudumullay forests, Anamallays, Wynaad, Mysore, Sc In the Cuddapah and North Arcot districts it is well known, under the name of J&ll&ri (Tel), but the tree does not appear to be generally known in the other localities; its timber is very useful for house building, pannels of doors and various other purposes, and has a ready sale in the Cuddapah district, and U largely imported into Madras. A species of Lao is procured from the tree.*



*Hoopla parviflora* (Budd.)

GOVINDO, DEL.

J. SAMPSON, LITH.

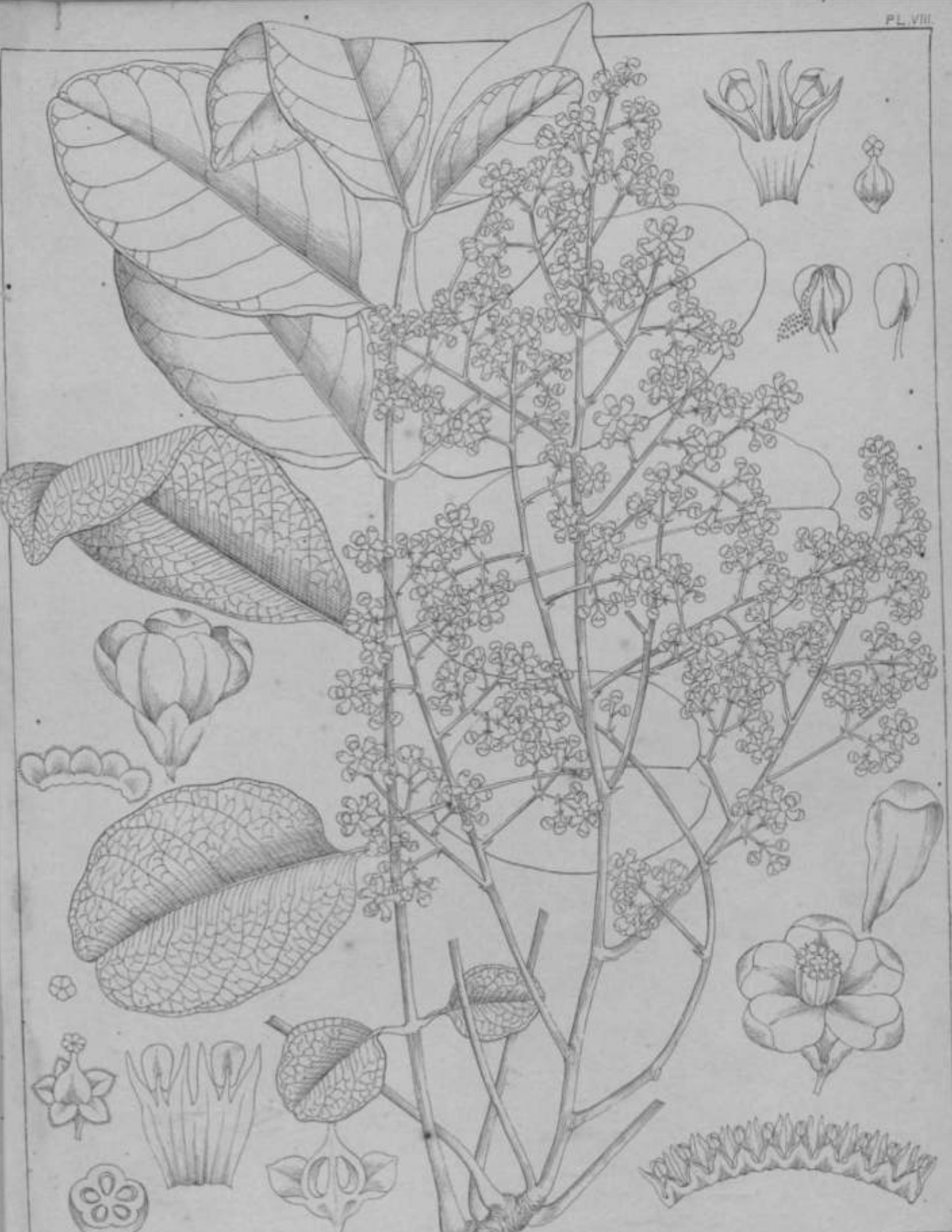
HOPEA PARVIFLORA. (Nat. ord. Dipsacales.)

HOPEA. (Roib.) *Gen. Pip.* 193. r-GEN. CHAR. Calyx tube very short adnate to the torus not increasing in fruit, divisions short obtuse often membranaceous on the margin imbricate, 2 enlarging in fruit large and wing-like erect, the rest small, all connivent over the fruit at the base. Stamens 15 rarely 10, anthers ovate, connectivum subulato-cuspidate, cells obtuse equal valved. Ovary 3 celled, cell 2 ovuled, style short terete or 3-angled. Fruit indehiscent, 1 seeded, seed ovoid, cotyledons thick fleshy unequal. Tree yielding resin, glabrous or tomentose, stipules small deciduous, or imbricate, leaves entire coriaceous—tree rarely called *Skorta*.

HOPEA. PARVIFLORA. (Bedd.) Petioles panicles and calyx hairy, leaves short petioled glabrous ovate to oblong furnished with glands in the axils of the veins beneath, 2 to 2½ inches long by 1 to 1½ broad, flowers secund subsessile numerous very minute, sweet scented, stamens 15 alternately single and in pairs, stigma 3 cleft.

*A large handsome tree, common in both the moist and dry forests in Malabar and South Canara, up to an elevation of 3,500 feet. The wood is hardly known commercially as yet, but it is much valued by the Natives in South Canara, and I believe it will be of great value for gun carriage purposes, and I have forwarded specimens to Madras and Bombay—it will also answer well for sleepers. In Malabar it is called Iruhogam, and in South Canara Kiral Boghi on the ghats and Tirpu in the plains; in the latter district it is much valued for temple building purposes.*





*Strychnos nuxvomica* (L.) Pers.

GRANDJEAN DEL.

DEBART. LITH.

### SOYMIDA FEBRIFUGA. (Nat, ord. Meliaceae.)

SOYMIDA. (A. Jusa.) *Gen. Pl* p. 33S.— GEN<sup>n</sup>. CHAR. Sepals 5 short imbricate, petals 5 spreading unguiculate contorted, stamen tube short, capuliform 10 lobed, lobes 2 toothed, anthers sessile between the teeth, disk ring-like, ovary ovoid 5 celled, style short attenuated, stigma dilated 5 sided ovules numerous in the cells in 2 series pendulous, capsule woody 5 celled 5 valved, dehiscing at the apex septifragal, the thin woody sarcocarp on each valve becoming detached from the endocarp and both from the persistent axis that is 5 angled by the dissipiments, seeds pendulous from the top of the axis imbricated in each cell, flat expanding on all sides but particularly upward? (with the hilum at the extremity) and downwards into a wing; embryo nearly straight, cotyledon? 2 auricled at the apex, radicle conical pointing upwards, concealed between the auricles of the cotyledons, leaves abruptly pinnate, leaflets opposite 3-6 pair, oval-oblong obtuse, panicles large terminal or in the axils of the uppermost leaves. \*

SOYMIDA FEBRIFUGA, (Juss.) *Roxb. FL Ind.* ii. p. 398—prod, p. 122.

*A tree of considerable size, not uncommon in the forests of Palghat, Cuddapah, Gumsoor, Mysore and elsewhere in the Madras Presidency and in the Central Provinces, Bombay and Bengal It yields a valuable dull red colored wood that U highly prized by the natives for building purposes and is very durable and strong, but though well adapted for all indoor work, it is apt to split on exposure to the sun. The bark is used as a febrifuge—it is known by the names of Sohn or Rohn in Bengal, Soomi in Teligoo and Shem in Tamil, and is the red cedar of European\*. Mr. Broughton says that the substance to which the bark owes its bitter taste has the properties of a resin and is of a yellowish white color when pure—it is sparingly soluble in water, but is insoluble if the water contains acids; it is soluble in alcohol, ether and benzol, but these liquids do not completely separate it from foreign substances—it contains no nitrogen.*



GOVINDO, DEL.

*Chickrassia tabulari*, (Jbf.)

BURPHY, LITH.

**CHICKRASSIA TABULARIS. (Nat. ord. Meliace».)**

**CHICKRASSIA** (Ad, dJ Juss.) *Gen. Pl.* p. 339. -GEN. CHAR. Calyx short cupular 4-5 toothed, petals 4-5 erect contorted. Stamen tube cylindrical 10 crenated the crenatures each bearing 1 anther, anthera ovate exserted erect, disk none, ovary oblong shortly stipulate 3 celled attenuated Into a style, stigma capitate, ovules numerous in 2 series, capsule ovoid woody 3 celled septically 3 valved at the apex, valves 2 lamellate and separating from the 3 winged axis, seeds numerous imbricated in a double series horizontally across each cell, flat expanding downwards (at the opposite extremity of the hilum) into a wing, cotyledons orbicular not auricled, radicle superior cylindrical oblong oblique exserted applied to the edge of the cotyledons at their top—leaves abruptly pinnated, leaflets opposite and alternate acuminate, panicles terminal. \*

**CHICKRASSIA TABULARIS. (Juss.)** Leaves alternate, abruptly pinnate 6-18 inches long, leaflets 5-10 pair subopposite or alternate shortly petioled, obliquely ovato-oblong, unequal sided obtusely acuminate quite entire and increasing in size towards the apex of the leaf, hairy in the axils of the nerves beneath, stipules none, panicles terminal erect, flowers numerous rather large of a dirty white or cream color. *W. A. prod.* 123.—Swietenia Chickrassia. *Roxb. FL prod.* ii. 398—*Wight III.*

*A tree of large size, often 8 to 10 feet in girth with a thick straight trunk 60 or 80 feet to 1st bough and rust colored deeply cracked bark; found though sparingly in most of the hill forests of the Madras Presidency both in shola and deciduous forests, and in Mysore, Bombay and the Eastern parts of Bengal: it is the true Chittagong of commerce and is called Aglay or Agal in some parts of our Presidency, Madagari Vembu in others, Q&nti Md'le in Salem, and in Bengal Ohickram. The wood is of a light color and prettily veined and close in the grain, and is much used for furniture; it has a cedar-like smell and is one of the woods known at bustard cedars to Europeans. No attempt at cultivating this tree on any large scale has yet been made, but specimens are met with in Botanical Gardens; in Ceylon it is known under the name of Hoolanghik-gass, and its timber used in the interior of the palace of one of the Kandyan kings is known to have lasted some hundreds of years.*



*Cedrela toona*  
(Roxb.)

*Spencer, del.*

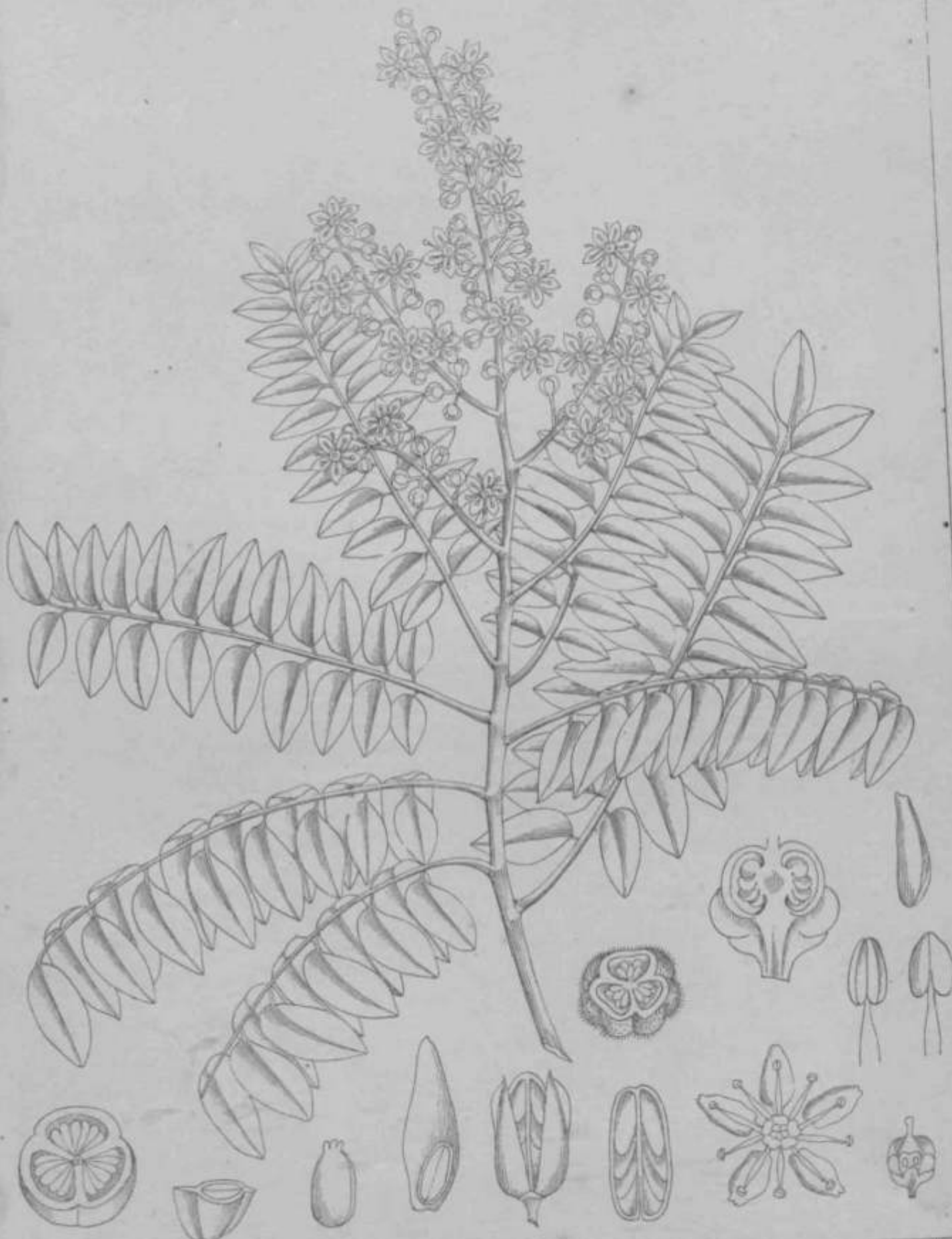
*Dumortier, Lith.*

### CEDRELA TOONA, (Nat. ord. Meliaceae.)

CEDRELA. (Linn.) *Gen. Pl.* p. 339.—GEN. CHAR. Calyx short 5 partite, petals 5 erect keeled inside on the middle, imbricate or contorted or valvate at the base, disk adnate with the stalk glandular 5 ribbed concrete between the ribs with the interposed plaits of the petals, 4-6 lobed at the apex. Stamens 4-6 inserted on the apex of the disk sometimes alternate with as many staminodes, filaments subulate, anthers oblong or cordate attached by their base a little above the base, at first introrse at length versatile; ovary on the top of the disk, ovoid 5 celled attenuated into a style, stigma dilated, ovaries 8-12 in each cell in 2 series, pendulous, capsule coriaceous or membranaceous 5 celled, 5 valved dehiscing from the apex, septifragal, valves 2 lamellate separating from the axis which is 5 angled, seeds pendulous compressed imbricate produced downwards into a wing, albumen sparse fleshy, cotyledons sub-foliaceous radicle short superior exerted. Tall trees, leaves unequally pinnated, leaflets opposite or nearly so, many paired, unequal sided, panicles terminal flowers small.

CEDRELA TOONA. (Roxb.) Leaves abruptly pinnate, leaflets from 6 to 12 pair, ovato-lanceolate, acuminate, 2J to 5 inches long 1J to 1f broad, slightly undulated on the margin, quite entire or slightly and distinctly toothed glabrous, panicles drooping, petals ciliated, staminodes none; ovary with a very short stalk and 8 ovules in each cell, capsule oblong. *Roxb. Fl. Ind.* i. 635.—*W.A. prod* p. 124.—*W. Ic.* 1.161.

*A large tree with an erect trunk and light grey smooth bark found in almost all the forests of the Madras Presidency, Bombay, Mysore, Bengal and Birmah—it ascends the mountains to an elevation of about 4000 feet, confines itself generally to the dry deciduous tracts of forest, but it sometimes met with in sholas. It is the white cedar of Europeans, and is often but erroneously called the Chittagongwood; it is known by the name of Toon in Bengal, Suït and Mâli in the Salem district, Kal Kilingi on the slopes of the Nilgiris, and Sandani Vembu in Tinnevely. It is often employed as an avenue tree and is much planted for this purpose in some parts of the Salem district. It grows very readily from seed, and the Forest Department have now a considerable plantation of it on the Shevaroy's near Salem. The timber is well known, it is of a light rose color, strong, tolerably light and close-grained, and is much used for furniture and cabinet purposes and also for building. In Assam admirable boats are made from it. The tree flowers in April and May—its flowers are very fragrant and are used in Mysore for dyeing a red color called Gulinari[: the seeds ripen towards the end of the rains: the bark is a powerful astringent and is useful in cases of fever, diarrhoea and dysentery, and the natives apply it when powdered externally in the treatment of ulcers. Nees, von Esenbeck has published an account of the analysis of the bark which indicated the existence of a resinous astringent matter, a brown astringent gum and a gummy brown extractive matter resembling ulmine. The tree is called Thitka-do in Birmah—it is curiously quite absent from Ceylon,*



COMPTON DEL.

*Chlorocylon Swietenia* (D.C.)

J. DUNN LITH.

### CHLOBOXYLON SWIETENIA. (Nat. ord. Meliaceae.)

CHLOROXYLON. (D.C.) *Gen. Pl. p. 340.*—GEN, CHAR. Calyx short 5 parted, petals 5 patent unquiculate imbricate, disk thick 10 lobed pubescent, stamens 10 inserted into the sinuses of the disk, filaments subulate alternately longer, anthers cordate apiculate versatile, ovary pubescent half immersed in the disk depressed 3 lobed 3 celled style short, stigma obscurely 3 lobed, ovules 8 in each cell fixed to the axis ascending, capsule oblong coriaceous 3 celled, 3 valved dehiscent from the apex septifragal, seeds 4-6 in each cell ascending, extending upwards (in an opposite direction from the hilum) into a wing; embryo exalbuminous, cotyledons plano-convex, radicle short. A tree with abruptly pinnate leaves.

CHLOROXYLON SWIETENIA. (D.C.) Leaflets alternate or nearly opposite pale colored small from 10 to 20 pair, semi-cordate oblong unequal sided furnished with minute pellucid dots, flowers in terminal or axillary panicles. *W.A. prod. p. 123.* Swietenia chloroxylon. *Roxb. Fl. Ind. ii. 400. W. III*

*This is the well known Satinwood tree. It is common throughout the Madras Presidency, Mysore and in Ceylon, and is sparingly found in Bombay—it is generally found about the foot of hills and rarely ascends the slopes above a thousand feet or so. The wood is close grained and yellow, very hard and durable and excellent for turning, and is much used for furniture and picture frames as it takes a beautiful polish; it is however very liable to warp and split if not well seasoned in the shade. It stands well under water and is used for various purposes in the Gun Carriage Manufactory. It is much cut away in the Madras Presidency, as it is highly prized by the natives for ploughs, axil trees, oil presses, &c. hut especially the former, so that fine trees are rarely met with except in out-of-the-way places (such as the Collegal forests.) I have met with it 8 feet in girth, but it is found much larger in Ceylon. A cubic foot weighs about 56lbs, It is called Biilu in Teligoo, Burns or Purush in Tamil, Bheyroo (Oorea), in Gumsoor, Dhoura in Hindustani, Vdee mara in Tinnevely, Bitlu and Iluldd in Bombay, Buruta gass in Ceylon. It flowers in the hot season and ripens its seeds in the rains. I do not know of any attempts to plant it.—The tree yields a wood oil. The natives apply the leaves to wounds. " Flower Satin" is obtained from the root in Ceylon.*





## MELIA COMPOSITA. (Willd.-Nat. order Meliaceae.)

**M**ELIA. (Linn.) *Gen. PL* p. 332.—GEN CHAR. Calyx 5-6, partite, lobes imbricate, petals as many as calyx lobes, spreading contorted in »sti ration. Stamens 10-12 monadelphous anthers included within the slightly dilated 10-12 fid-mouth of the cylindrical tube, ovary 3-6 celled, style slender, stigma capitate, ovules 2 in each cell superposed, fruit drupaceous with a 1-5 celled bony putamen—trees, leaves alternate 2-3 pinnate (or simply pinnate), panicles ample axillary usually collected towards the ends of the branches.

**ME LI A COMPOSIT.** (Willd.) Young shoots petioles and panicles very mealy, leaves bi-tripinnate alternate 12 to 18 inches long, pinnae about 3 pair, leaflets 3-7 pair to each pinnae, ovate acuminate crenulated glabrous 2 to 3 inches long, panicles axillary scarcely half the length of the leaves, flowers numerous small whitish inodorous, calyx and petJfc mealy, stigma large with a 5 pointed apex, drupe ovate the size of a large olive, smooth and yellowish green when ripe.—*W. A. prod.* p. 117.—*Melia robusta. Roxb.Fl, Ind. ii. p. 397.*—*M. superba. Roxb. I c. p. 396.*

*A very large and most handsome tree with a smooth dark brown bark. Common in Malabar, Wynaad/Coorg, Mysore, and South Canara and other parts of our Presidency. It is known to natives by the name of Mallay Vemboo which is applied also to Melia Jzadarach, and its timber «\* •ften used by planters for building purposes; it may however be said to be scarcely known in our Presidency, and as a quick growing tree of great ornament it is very desirable it should be introduced to Madras and elsewhere for avenues and ornamental planting—it seeds well and grows readily from seeds. Seeds sent by Dr. Berry many years ago from Malabar to the Calcutta Botanical Gardens produced in 7 years trees of a height of 46 feet and a circumference ofU inches 4 feet from the ground. It is common in Ceylon and is known by the native name of Lunu Middld, and Mr. Ferguson oftJiat Island says the timber is very light and cedar-like and in use for outriggers of boats and for ceilings, and that it is said white-ants will not attack it.*



Swindon, del.

*Melia Azadirach* (Linn.)

Dunphy, Lith.

## MELIA AZADIRACHTA. (Nat. ord. Meliaceae.)

For Gen. Char, see under "M. composita."<sup>11</sup>

**MELIA AZADIRACHTA.** (L.) Leaves simply pinnate, leaflets ovate lanceolate, unequal sided, acuminate serrated, pinnules axillary, flowers small white, fruit purple size of an olive, 1-celled 1-seeded. *Roxb. Ft. Ind.* ii. 394 ;—*Aria bepou, Eheede Mai.* 4 to 52. *Azadirachta Indica, Ad. de Juss.*;—*W. A. Prod.* p. 118.

*This has been separated from the genus Melia under the name of Azadirachta by Ad. de Juss. on account of its 1-celled, 1-seeded nut. Hook and Bentham, however, unite the 2 genera.*

*Called in Hindoostani the Nim, by which name the tree is well known throughout India. It is an ornamental tree, and is very much planted in avenues and topes; it is common throughout India, Birmih, and Ceylon, generally in a planted state, though occasionally in the forests; it grows well in almost any soil in the plains, and occasionally attains a very large girth. It is called Veyyam in Tamil, Fepd or Yepd in Telugoo, Kohombain Ceylon, and is the Margosa tree of Europeans. The wood is very like mahogany, beautifully mottled, hard and heavy; it is much used for cart wheels and ordinary building purposes, and old trees yield a first-rate furniture wood which is well adapted for ship-building; it is much used in Bengal in the manufacture of idols, as it is so bitter that no insect will attack it. The bark is very bitter and is used as a substitute for Quinine, the leaves beaten into a pulp are externally applied with great efficacy in case of pustular eruptions in rheumatism, and for bruises, and sprains, and the leaves are said to be useful in keeping away the boring worm from books: the dried leaves are often, added to common, poultices by the natives, and are said to act in preventing glandular tumours from coming to maturity. The fruit yields an acrid bitter oil, which is exported from the Madras Presidency; it is said to have valuable antispasmodic properties, and is anthelmintic and stimulant. It is used by the natives as a remedy in leprosy and as a liniment for rheumatic affections; it is obtained by boiling or expression, is of a deep yellow color, and is used for burning in lamps. The bark yields a gum which is said to be a stimulant. A toddy, called Veyyam Khalloo, is obtained from young trees.*



Cavendish, del.

*Melia azadirachta* (Linn.)

Dunphy, Lith.

MELIA AZEDABACH. (Nat. ord. Meliaceae.)

For Gen. Char, see under "M. composite."

MELIA AZEDABACH. (L.) Leaves deciduous 1-2 feet long, bipinnate glabrous, leaflets about 5 obliquely lanceolate, or ovate-lanceolate to elliptical acute or acuminate, serrate inciso-serrate or entire, petals nearly glabrous, fruit with a 5-celled putamen or by abortion with fewer cells. W. A. *Prod. p.* 117 ;—D. C. I 621;—Roxb. *FL Ind.* ii. 395.

*A handsome tree, attaining a height of about 40 feet and a qu'ck grower; it produces its sweet-scented lilac-like flowers in the hot season. It is found sparingly as a planted tree throughout the Madras Presidency, Bengal, Mysore, Bombay, &c, but rarely if ever met with in the jungles ; it is a very ornamental tree and deserving of more attention. It is wild in China and in Africa, and has been naturalized in the South of Europe; the wood of older trees is handsomely marked, rather durable and in use for furniture ; it is often called Bastard Cedar, and is apt to warp and split; the tree is called Mallay Vembu in Tamil, Taraku vepd in Telugoo, and in English is known as the Persian Lilac ;-the seeds are often strung as beads, and a valuable oil is produced from them ; the root is nauseous and bitter, and in use as an anthelmintic.*



Swartz, det.

*Anogonissus latifolia* (Roxb.)

Dumphy, Lith.

ANOGBISSTJ8 LATEPOMUS. (Nat. ord Combretaceæ.)

ANOGEISSUS. (Wall.) *Gen. Pl.* p. 687.

Flowers densely aggregated <sup>OD</sup> <sup>oceanian</sup> receptacle, calyx tube compressed. 2 winged at the base, attenuated and much produced beyond. <sup>7</sup> resembling a pedicel to the limb limb campanulate or urceolate 5 fol deciduous. Limbs valvate, petals 0. stamens 10 in 2 series, filaments filiform <sup>Alata</sup> exserted. <sup>7</sup> filled, style <sup>rum</sup>, thickened at the base villosa, stigma simple, ovules 2 pendulous from the apex of the cell. Fr <sup>terminating in a long beak (the perisperm calyx tube) 1-seeded.</sup> Seed ovoid, cotyledons convolute, trees or <sup>shrub</sup> <sup>erous</sup>, leaves alternate petiolate entire without glands or obscurely glandular at the base, flowers small yellowish, capitell axillary.

**A** ISSUS LATIFOLIUS. (Roxb.) A lofty tree, 30 to 40 feet to the first branch, and up to 8 or 9 feet in circumference, bark h of a whitish color, branches numerous, spreading, forming a large high head, leaves alternate without glands elliptical or obovate <sup>obl.</sup> <sup>M</sup> or emarginate glabrous from 1 to 4 inches long and from 1 to 2 broad, peduncles axillary bearing several ramifications and <sup>porting</sup> . little globular head <sup>rfHmrl|relLow</sup> flowers. *Wall. L. n.* 4015 <sup>2r</sup> *Encarpus latifolius, Roxb. Pl. Ind. ii.* 442.

This is a very valuable <sup>about the Madras Presidency, Mysore, Bombay, Bengal and Ceylon, and attains a</sup> <sup>and ascends the mountains</sup> <sup>Vellore, Mysore and Voch.</sup> <sup>it, Dhodu in Coora, Dhura and Dhari in</sup> <sup>it is much used in a</sup> <sup>ing and in ship building, and is one o</sup> <sup>best woods for poles and axle-trees of carts, and is much used</sup> <sup>by the natives for agricultural implements. If left in the forests exposed to weather the wood rapidly deteri</sup> <sup>and white an</sup> <sup>the dark colored heart and is anything but durable.</sup> <sup>specimens in Botanical</sup> <sup>Gardens, there have been no attempts at planting this tree. The leaves are used by tanners. A gum exals</sup> <sup>(at Dhari in good) in Central India, and sold in the b.</sup> <sup>ran.</sup> **Hi-:** which is collected (at





Windsor, del.

*Anogeissus acuminata* (Roob.)

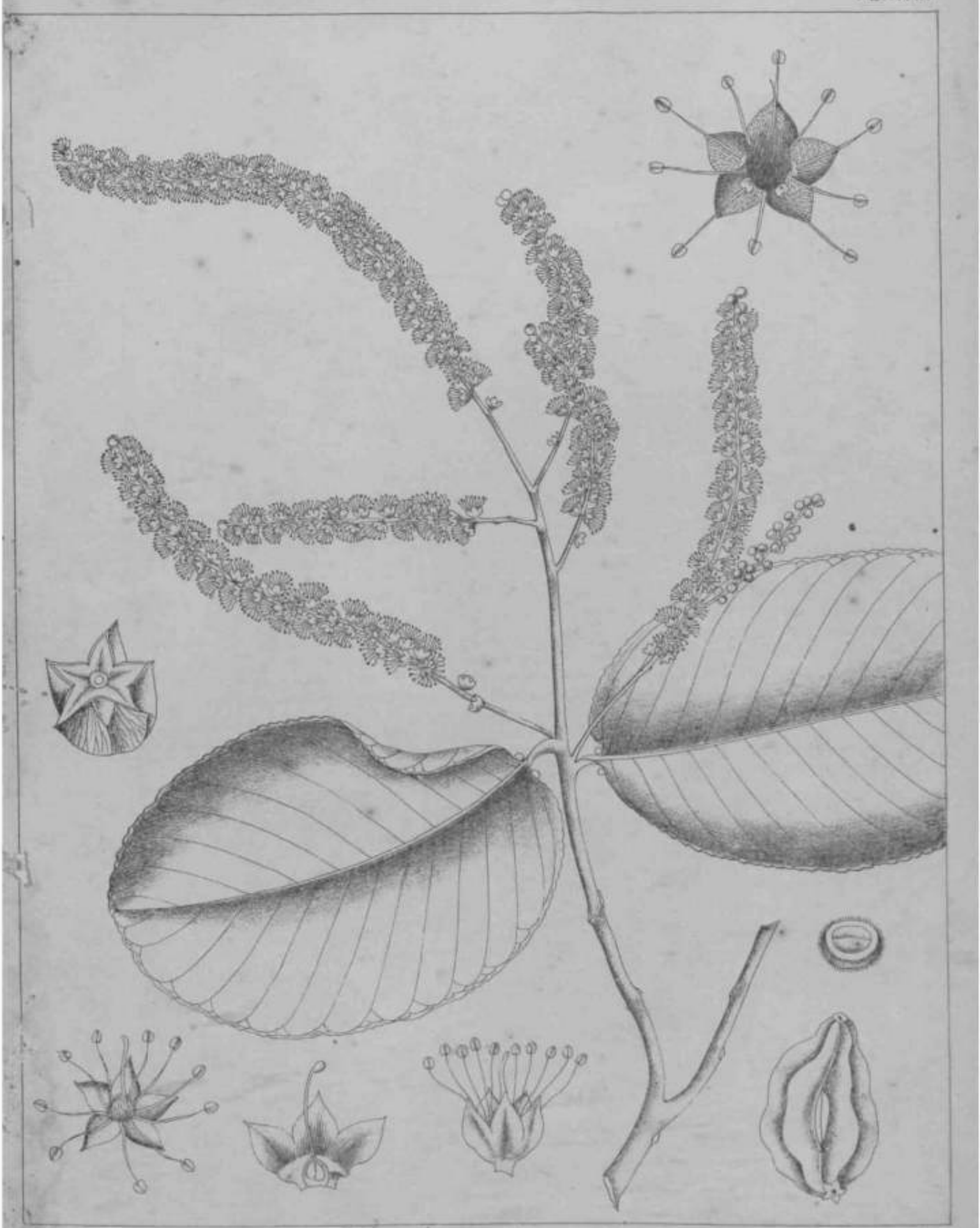
Dunlop, Litho

ANOGEISSUS ACUMINATUS. (Nat. ord. Combretaceae.)

For Gen. Char: see under "A. latifolius."

ANOGEISSUS ACUMINATUS. (Roxb.) A lofty tree, but trunk seldom straight, up to 8 feet in girth, bark ash-colored, branches very numerous, spreading with their extremities pendulous (like the Weeping Willow) the whole forming a most beautiful large regular top, leaves short petioled alternate without glands oval or oblong-lanceolate pointed entire, when young downy when old smooth, about 2 to 3½ inches long and 1 to ½ inch broad, peduncles axillary single simple with one head of flowers or occasionally with a second branch. *Wall L. n. 4014*;—*Conocarpus acuminatus, Roxb. Fl. Ind. il 443.*

*A valuable and very ornamental tree, abundant in the Northern Circars, particularly in the Gumsur country (in the plains); but I have never observed it wild elsewhere in our Presidency. It is known by the Telugoo name of Parichman. Dr. Braniis has found it in Birnwh, where it is called Tooug. Its timber much resembles the preceding species, and has a purple heartwood ; it is much used for building purposes, but will not stand exposure to water. The tree grows very well at Madras (there is a splendid specimen in the compound of the house known as the Collectors at Sydapett), and I have lately given some attention to raising it from seed, but all the plants at present are very young. It is certainly one of the most ornamental trees in our Presidency, and I hope ere long it will be largely planted ; it is growing in the Calcutta Botanical Gardens.*



## TERMINALIA TOMENTOSA. (Nat. ord. Combretaceae.)

TERMINALIA. (L.) *Qen. PL p. 685.*— QEN. CHAR. Flowera hermaphrodite or polygamo-dioecious, calyx tube ovoid or cylindrical, constricted above the ovary, limb deciduous urceolate or campanulate 5 dentate or 5 fid, lobes valvate, petals 0. stamens 10 in 2 series alternately larger filaments subulate or filiform exerted, anthers small didymous. Ovary 1-celled style subulate, often thickened and villous at the base, stigma simple ovules 2, rarely 3, pendulous from the apex of the cell, fruit ovoid, angled, compressed or 2-5 winged 1-seeded, sarcocarp generally thin or rarely fleshy, putamen coriaceous or bony seed almond-like, testa membranaceous, cotyledons convolute. Trees or erect shrubs, leaves alternate or rarely opposite or sub-opposite, often crowded towards the apex of the branches, with glands on both sides at the base or on the midrib, or glandless, flowers spiked sessile small, green or white, rarely colored, bisexual in the lower part of the spike, male in the upper.

TERMINALIA TOMENTOSA. (Roxb.) A very large timber tree, often 70 or 80 feet to the first bough, and up to 12 feet in girth; bark deeply cracked (or in one variety without any cracks), branches spreading, leaves sub-opposite short petioled oval, with a cordate (often unequal) base, to oblong or narrow-oblong obtuse or emarginate or slightly acute at the apex, entire or crenulated glabrous on both sides or more or less downy especially when young, up to 6 inches long by 4 broad, glands several on the midrib below generally near the base sessile or rarely stalked, panicles terminal or from the upper axils composed of a few simple long cylindrical spikes, flowers sessile crowded of a dull yellow color generally hermaphrodite below and male above, sometimes all hermaphrodite, calyx glabrous or hoary, sometimes with 5 or 6 glands in the hair round the base of the style, fruit enlarged into 5-7 equal longitudinal wings glabrous or rarely hoary. *W. A. Prod.* p. 314;—*ltxb. FL Ind. n. pp.* 438, 439 and 440;—*Terminalia crenulata*, *glabra*, *tomentosa*, and *coriacea*, *W. A.*; *Terminalia ahita*, *Ainslie*; *Pen tap tera glabra* and *tomentosa*, *Roxb.*; *Pentaptera coriacea*, *Roxb.* *Pentaptera crenulata*, *Roxb.*

*This is one of our most useful timber trees; it is common throughout the Madras Presidency up to an elevation of 3,000 or 3,500 feet, and grows to a very large size and very straight on the Anamallays, and very fine on the Nullaymallays (Kurnool), where the timber is highly prized, and more in use than any other; it is also common in Mysore, Bengal, Bombay, and Ceylon. It is called Sdj in Hindustani, Sdhajo in Oorea, Karra Marda in Tamil, Maddee and Nalla Maddee in Telugoo, Matti in Canarese, and Koombook in Ceylon. The Terminalia glabra of Kozb. only differs in being more glabrous and having the bark nearly smooth, but the pubescence varies much, and I cannot look upon the two trees as distinct species. It is distinguished by the Telingees as Telia Maddee. The Bunipu of the South Canara forests (probably Pentaptera crenulata, ftoibj) is also, I believe, only a variety of the same species, or at least closely allied; it differs in having very long stalked glands, an inch long on the midrib below, often up as far as the centre of the leaf; the tree does not, however, differ otherwise*

*Wood, dark-colored very hard, heavy, and strong, used in house building, and for boats and canoes, solid wheels of carts, furniture, and many other purposes. The ashes from its burnt bark produce a kind of chunam which is eaten by the natives with betel leaf; the bark is astringent, and used for dyeing Hack and for tanning. This tree has been introduced into several of our plantations.*



Swinden, del.

*Terminalia catappa* (Linn.)

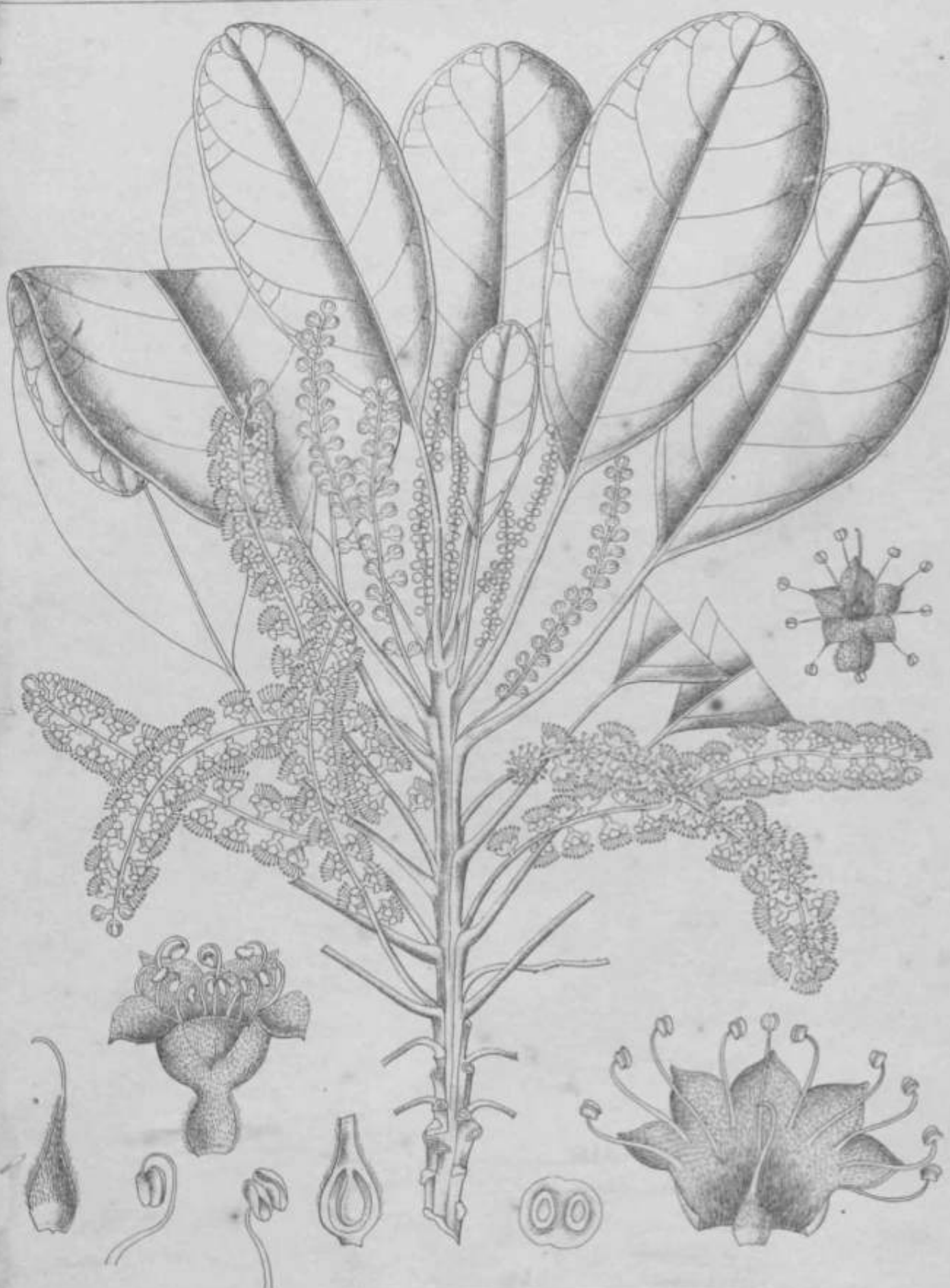
Dunphy, Lith.

**TERMINALIA CATAPPA. (Nat. ord. Combretace\*.)**

For Gen. Char, see under "T. tomentosa."

**TERMINALIA CATAPPA.** (Willd.) A large tree, branches horizontal verticelled, bark smooth, of a dull olive color whilst young, leaves about the extremities of the branches glabrous subsessile obovate crenate and attenuated, but at the same time slightly cordate at the base ; a little repand with a large depressed gland beneath on each side of the midrib near the base, from 6 to 12 lines long, racemes axillary solitary simple shorter than the leaves, flowers numerous, small dull whitish, male most numerous above the female, bracts minute deciduous, drupe oval compressed smooth with elevated navicular margins, convex on both sides, yellowish when ripe, nut oblong with a rough surface. *Xoxb. FL Ind.* ii. 430 ;—*W. A. Prod. fl.* 313 ;—*Adamararo, Rheede Mai* iv. t 3, 4.

*A highly ornamental tree much planted throughout the Presidency, and met with in some of our forests, but doubtful if indigenous ; it is in flower and fruit throughout the year ; it is called the Indian Almond tree by Europeans, in Hindustani, Badam or Junglibadam, and in Maluuu,\* Nat vadam. It makes a good avenue tree, and is well worthy of extended cultivation, The wood is light but tolerably durable and is used for various purposes, and the levers of Pakottahs are often made of it; the kernels of the nuts are eaten and are very palatable; the oil expressed from the seeds is very like Almond oil, and the oil cake is used to feed pigs; the bark and leaves yield a black pigment with which the natives color their teeth and make into Indian ink ; the juice of the leaves and milk of the nut are used medicinally; the tussa silk-worms feed on the leaves.*



Cavindoe, del.

*Terminalia kolerica* (Knox.)

Dumphy, Lith.

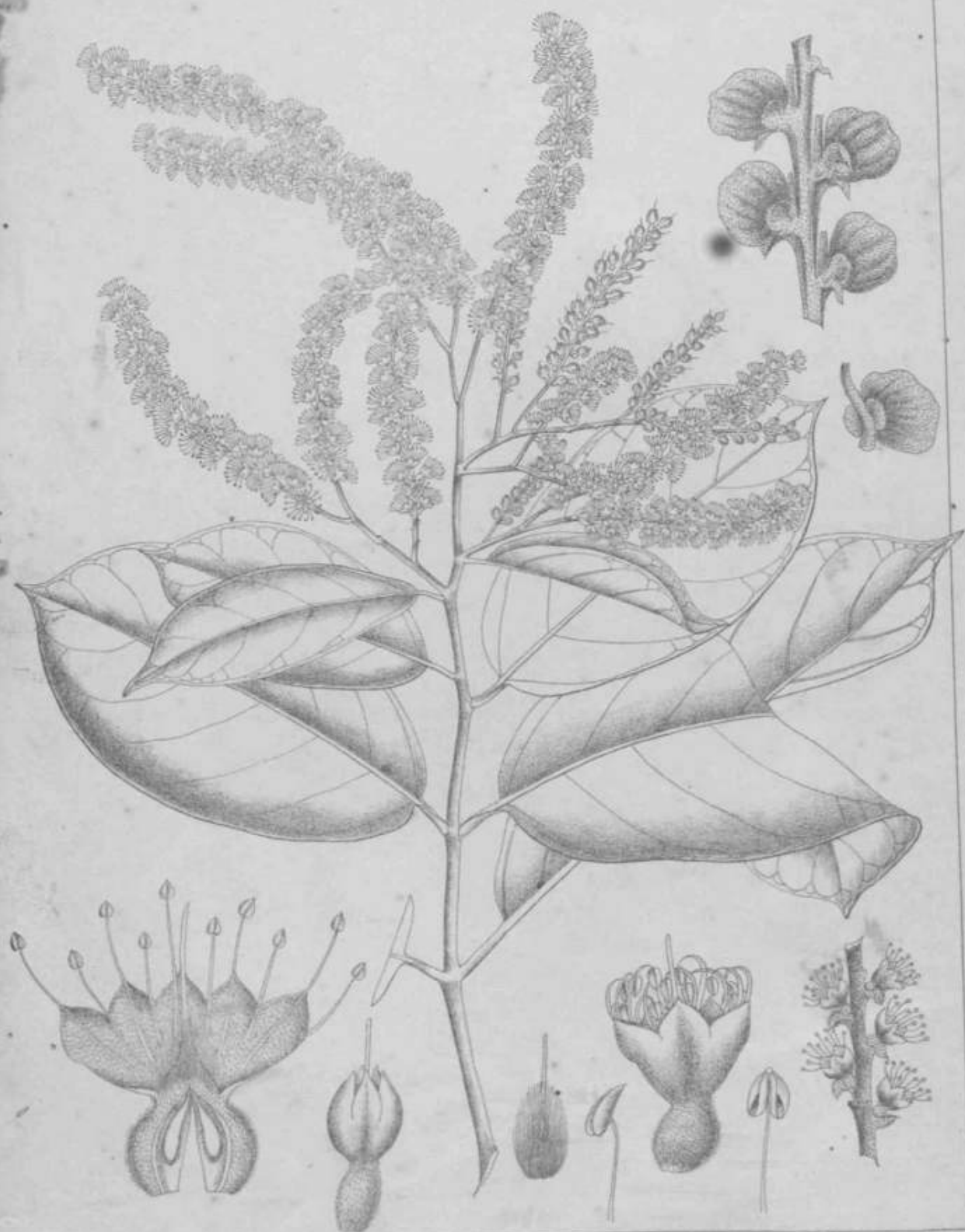
TEEMINALIA BELERICA. (Nat. ord. Oombretaceae.)

For Gen. Char, see under "Terminalia fomentosa."

TERMINALIA BELERICA. (Roxb.) A very large tree, with an erect trunk and large spreading head, flowering in the hot season, leaves crowded about the extremities of the branches, long petioled, oval to obovate obtuse or shortly acuminate, quite entire glabrous above and generally also beneath, to 7 inches long by 2½ broad, with 2 opposite glands on the upper side of the apex of the petiole and sometimes near the base, spikes axillary solitary simple erect almost the length of the leaves, flowers small dirty-grey fctid, the male towards the apex of the spike and shortly pedicellate with a glandular disk at the bottom of the calyx, hermaphrodite below and sessile, drupe obovate obscurely 5-angled, the size of a nutmeg, fleshy, covered with grey silky down. *Roxb. FL Ind. ii. p. 313.*

*This fine large tree is common throughout the Madras Presidency, Bengal, Bombay, Birmah and Ceylon; it is universally known in the Presidency by the name Thani, which is both Tamil and Telugu, in South Canara it is called Santi, in Bengal Bahera, in Bombay Bherda, in Birmah Titseim, and in Ceylon Bulu. The wood is white and rather soft, but much used in some parts of the Presidency, and said to be tolerably durable; it answers well for packing-cases and coffee boxes, and catamarans and grain measures, are made from it, and in Malabar and South Canara the tree is sometimes hollowed out for canoes; the kernels of the fruit are eaten by the natives, and also used medicinally; the fruit is used in dyeing and tanning, and the leaves also for the latter purpose; the dried fruit is said to be astringent and laxative (as the JSgle fruit); an oil is expressed from the seed, which is used for strengthening the hair, and a gum issues from wounds in the bark. The tree has been introduced into the Calcutta Botanical Gardens.*





TERMINALIA PANICULATA. (Nat. ord. Combretaceae)

For Gen. Char. see under "Terminalia incana."

**TERMINALIA PANICULATA.** (Rash.) A fine large Umbel tree, branches diverging, leaves nearly opposite oblong linear-oblong with a narrow to broad cordate base, acute or obtuse at the tip, entire, coriaceous, rugose above glabrous or rarely pubescent, with 2 sessile bicolor glands beneath near the base, axillary terminal forming a compound panicle, fruit with 10 urceoli and two small wings. W. A. Pi-od. p. 315;—Pentaploca paniculate, Roxb. Fl. Ind. i. 442,

A valuable timber tree common in most of the forests on the mountain ridges of the Madras Presidency, to an elevation of 2,000 or 3,000 feet, and also found in Bombay and Bengal, called Marv in South Canara, Poo Marv and Pillah Marv in the Anamalai and Malabar, Dr. Roemer gives Pi Kariai as the Tamil name, and Iftmeeti at Teluchoo, but Javanese call it (A any one who knew either of these names. It is often called the Javanese name, the name given to Terminalia tomentosa; it is known by the name of Katrijul in the South Celebes, where it is common along the foot of the Ghat. The timber is very good, but not equal to that of Terminalia tomentosa; it is much valued for being kept water-tight. The bark contains tannin. The tree is not found in Ceylon, nor is it recorded from Birmah; the tree is common in the Batavia Garden in Calcutta, where seedling attained a height of 20 feet with a circumference of 18 inches (introduced into our plantation) at Neltumbur, and grows well from seed.



v

f

Carrière del.

*Perocarpus maculatum* (Poeb.) ffi

Scamporr, T. I.

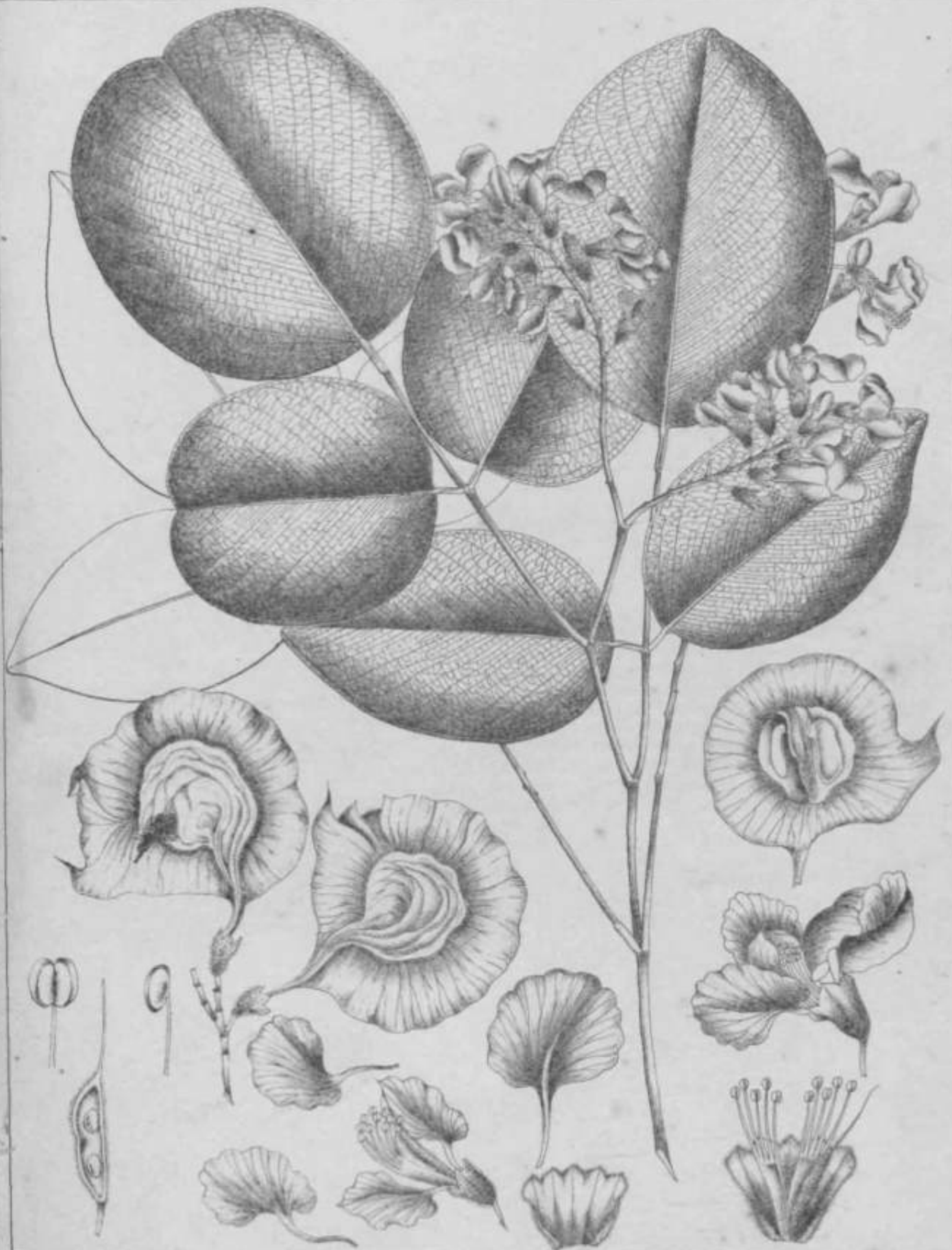
**PTEROCARPUS MARSUPIUM.** (Nat. ord. ^ ^ , t M m ^ ^ ^ ^ ^ )

**PTEROCARPUS** (Linn.) Sw. *Fl.* p. 347. — Calyx turbinate-complanate, acute at the base, often incurved 5-toothed sub-bilobate. Corolla papilionaceous veillinae orbicular or broadly ovate; wings obliquely obovate or oblong, basal petals distinct or slightly cohering, stamens 10 all connate into one sheath or equally diadelphous 5-5 or unequally diadelphous 2-1, anthers versatile, ovary stalked or sessile 3-6 angled, style filiform slightly incurved, stigma small terminal, legume compressed indehiscent orbicular or ovate more or less oblique or bilobate, style lateral or rarely terminal, surrounded by a wing, usually not when rugose in the middle where the seed is lodged, seeds 1-2 separated by hard partitions oblong or subreniform, radicle short incurved; in rounded trees, leaves alternate unequally pinnated, leaflets alternate or irregularly opposite multiplicate, flowers yellow in axillary or terminal racemes or panicles.

ARPUS IPTI : A : res, trunk erect very high, but not often straight; bark under-cut  
 S s 5 £ S s S s K : anches spreading horizontal, numerous, leaves alternate  
 3-5 : b to : m, above : and

long by 2-3 broad, raceme, simple or peeled axillary or terminal, *lo<sup>nylTTZlm</sup>* *IF<sup>yk</sup>* ^ ^ ^  
 «Utt<sup>ing</sup> into e<sup>ualdivi</sup>io<sup>is</sup> of «each<sup>delphous</sup>) legume stip<sup>itate</sup> obliquely *n* ^ *l T Z l l* ^ *T* \* \* " " ^  
 ous widg style lateral. *Roxb. Ft. Ind. Hi.* 234; - *W. A. Prod.* 266. surrounded by a waved veined membranace.  
 timber tree, abundant throughout th, *UnJ<sub>2</sub>*. *residence* and in *Mysore, Bengal,*  
 it is often very poor and straggly, *Burghina*

dark color > d a)ld<sup>red</sup>. *L<sup>d</sup>* ^ *£ J E J J J 2* ^ *J J* «« " \* «\* TM\* in Bombay, and  
 some parts of our Presidency forests  
 is given and a yellow resin which  
 un given, a reddish 9. Mmi «\* \* \* \*  
 youni. m A, bark, uhuh U knom «Kino or Drago, C, blood, and i, largely exported from JfJaZ



Comandor, etc.

*Pterocarpus pantalinus* (Linné)

Dumort. LJK

PTEROCARPUS SANTALINUS. (Nat. ord. Leguminos\*.)

For Gen. Char, see under "Pterocarpus marsupium."

NUS. A small tree, leaves alternate, unequally plumate 6-8 inches long, leaflets always 3, broadly ovate to orbicular deeply emarginate or retuse at the apex, sub-ovate or rounded at base, 3 inches long by 2 1/2 broad, young parts and under surface of the leaves slightly sericeous, panicles terminal or axillary, calyx slightly pubescent, stamens isadelphous (2-5) legume surrounded by a wing (as in the genus) uniform, style lateral. *Roob. Fl. Ind. iii. 234.*

This is the famous red Sanders tree of commerce; it differs from the (Vengay) Pterocarpus mangani (which it much resembles in flower and fruit) by always having 3 instead of 5-7 leaflets. It was thus described correctly by Dr. Roxburgh, but subsequent authorities have described it erroneously as having 5-7 leaflets. It is abundant on the low hills about the Oudupah and North Arcot forests, and the southern part of the Karnool district, and I have seen a few trees in the Godavery forests. I have never met with it elsewhere in our Presidency, and it is not I believe found anywhere else in India; it is known by the native names of Chandam and Chandam. The wood is of a fine red color and beautifully striated, very hard and heavy, and takes a fine polish; it is much used and highly prized by the natives for building purposes and for turnery in Madras and the districts in which it grows; it is also largely exported from Madras.

... T ^ ^ ""p^TMTM "ft" VMS old, and is 18 feet 6 inL high, JZLSchZinJrT' ... V T ""\* \*"" \*"" <"  
... as with the 800 Rupee,, i. e., twenty logs at 10 Rupees each; the roots and Jmp\Zd Z... d... T... ^... \*... \*... \*... fulected 1... \*... <<  
the coverlets. The roots are often bought and sold by thousands by the coverlets.



Swindon del.

*Pterocarpus Indicus* (Willd.)

Dunphy. Lith.

**PTEROCARPUS INDICUS. (Nat. ord. Leguminos®.)**

•For Gen. Char, see under "Pterocarpaceae."

**PTEROCARPUS INDICUS.** (Wald.) A tree of considerable size, trunk straight, bark tolerably smooth ash-colored, leaves alternate unequally pinnate 6-15 inches long, leaflets 7-9 (rarely more) ovate acuminate firm and polished on both sides, alternate short petioled from 2 to 4 inches long by 1 to 2 broad, racemes axillary at the apex of the branchlets and forming a terminal panicle flowers numerous yellow fragrant, stamens 10 monadelphous at length isadelphous (5-5) (the vexillum-stamen rarely free) legume stipitate obliquely suborbicular style lateral, seeds 1-2. *Roxb. FL Lid.* iii. 233 ; -*Willd. El. Sp.* iii. 901 - *Pterocarpaceae dalbergioides, Roxb. W. Ind.* iii. 236 ; - *Pterocarpus Wallichii* and *P. dalbergioides*, *Wight and Arn. Prod.* p. 267.—(*Pterocarpus floribundus, Lour.* and *P. obtusatus, Mig. Fl. Ned. Ind. I p.* 136, both probably belong to this species.)

*A very handsome tree, said to be indigenous to Southern India, but I have never met with it wild ; it is cultivated in gardens and is well adapted for cultivation; it is common in Birma, where it is called Pedowk, and in the Andamans, where it is known as red wood ; it is also found in Malacca, Penang, Sumatra, Java, Philippine Islands, and in South Okinawa. It yields a valuable red-colored beautiful timber which is much used in the Gunpowder Manufactories in Madras and Bengal. Dr. Brandis says that the wood is prized above all others in Birma for cart wheels; the trees are felled green and split up into short plank, 3 feet 6 inch, long by 2 feet wide and 9 inches thick; three of these pieces make one wheel, and a pair are sold in the forests from 12 to 25 Rs.*

*The wood is used for furniture, and by the Burmese for musical instruments; it weighs about 60 lbs, the cubic foot.*





Cominos, del.

*Dalbergia latifolia* (Roosb.)

Dunlop, lith.

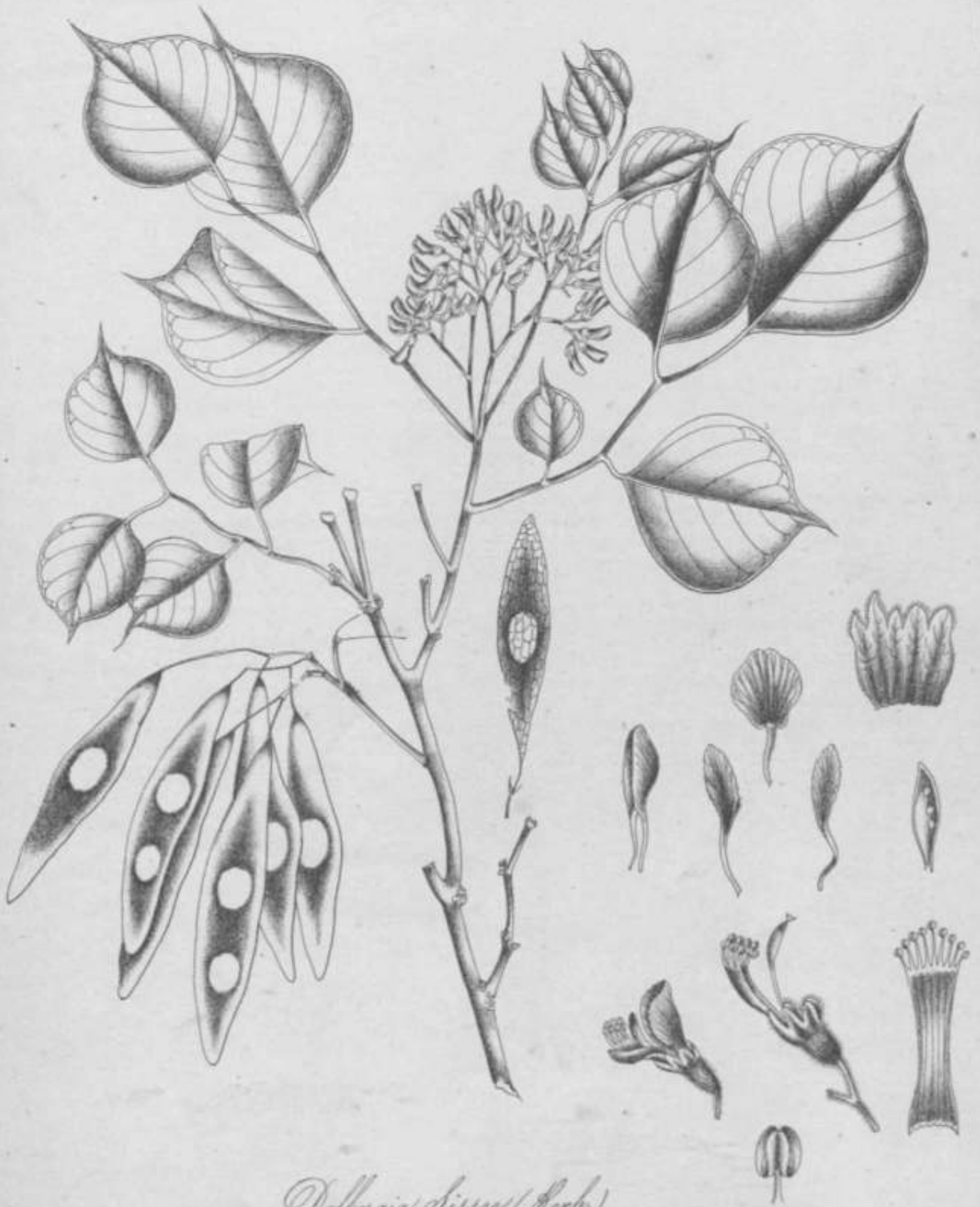
**DALBERGIA LATIFOLIA.** (Nat. ord. Leguminosae; Sub-ord. Papilionaceae; Tribe Dalbergieae.)

**DALBERGIA.** (L. f. Suppl. 52.) *Gen. Pl.* 544.-GEN. CHAR. Calyx campanulate 5-toothed, the 2 superior teeth broader, vexillum ovate or orbicular, wings oblong free, keel petals free or connate above, stamens 10 all connate into one length or the vexillum stamen free 9 and 1 or unequal 5-5, anthers small erect didymous, the cells opening at the top or rarely longitudinally, ovary stalked, few ovuled, style incurved small, stigma small terminal, legume oblong or linear thin flat and indehiscent, often wrinkled and thickened about the seed 1 or rarely 2-4, large thin and flat in the centre of the pod. Trees or woody climbers, leaves alternate pinnate, the leaflets alternate with a terminal odd one (very rarely 1 foliate), flowers small in dichotomous cymes or irregular panicles.

**DALBERGIA LATIFOLIA,** (Roxb.) A very large timber tree, trunk erect though rarely straight, rising to a great height and of very large girth, branches spreading, very numerous, forming a large shady head, leaves alternate pinnate with an odd one 6-9 inches long, leaflets 3-7 generally 5 alternate, the exterior ones largest and roundish, emarginate, a little waved above, smooth, covered with a little whitish down beneath, at length glabrous, about 2 inches long and the same broad, petioles round smooth  $\frac{1}{2}$  to  $\frac{1}{4}$  an inch long, panicles axillary terminal glabrous or minutely hoary, flowers small white on short slender pedicels, calyx segments oblong more or less obtuse, petals unguiculate, stamens 9 unequal, style subulate, stigma small, nearly as long as the ovary, ovary stalked, 3-7 ovuled, legume stalked, oblong lanceolate usually 1 seeded. *Roxb. Fl. Ind.* iii. 221, and *Dalbergia emarginata*, *L. c. p.* 224; -W. A. *Prod.* p. 264.

*This is the well-known blackwood or rosewood tree, it is found throughout the Madras Presidency, Mysore, Coorg, Bombay, Central India, and parts of Bengal, Sikkim, and in the Andaman Islands; it grows to a very large size on the mountains, particularly on the western side of our Presidency, and I have measured trees considerably over 20 feet in girth; it is generally known in our western forests by the Tamil name Kete, and on the eastern side by the Telugu names Jitegee and Yerugudu, and in Mysore and South Canara by the Canarese names Biti and Thoddgatti and in Bengal it is called Sit Sat. It is not found in Ceylon, nor I believe in Birma. It ascends the mountains to nearly 4,000 feet, and grows equally well in the dry deciduous forests with teak, and in the moist evergreen sholas, and is often associated with bamboo. The timber none of the most valuable in India, and generally fetches a higher price than teak; it is very heavy, strong, fibrous, close grained and durable; it differs much in color but is generally pinkish black; it admits of a very fine polish and is our best furniture wood, and extensively used for gun-carriage purposes. It grows readily from seed but of very slow growth, particularly when young. In the Forest Department have had a plantation, which has failed for several years in South Canara and Malabar, but the plant, as well as the seedlings are generally to be met with about Coffee Estates in our western forests; the tree flowers in March and April.*

*The Dalbergia sissoides (Quercus), common about the forests of the Coimbatore district, Palghat, the Anamallay, Madura and Kanneo, is a smaller tree than that of D. latifolia. The wood is generally of a reddish color, and the tree flowers in the winter (J\*), instead of the hot weather; it is always distinguished by the Palghat name the Heruputa. The D. latifolia being called Kete (Dr. Wight proposes these native names). I cannot however distinguish the two trees botanically; the flowers of the sissoides are said to be rather larger and the leaves narrower, but these differences are not constant, and the same drawing might answer for either tree: I cannot therefore look upon sissoides as more than a variety of latifolia.*



*Dalbergia sissoo* (Kacab.)

DALBERUIA yiSSOO. (Nat. ord. Leguminosae.)

For Gen. Char. see under "Dalbergia latifolia."

DALBKKGIA SISSOO. (ttusU.) Trunk jjei.or.vtly moro or lot eroolad, liigk nud vf (jrwt ibiokuau, brashes numerous si<r\*ading, Wk OB young trees saL-Oulowd ittiJ pretty umuutli, whui old deeply cwcke\*) ud very tLick ; yonng elioota do way, leaves filtefuiutu pinnate, lwiliuta ulteruaU 3-5 orbivulur or olaeordato with a short suddeii nsMuimtfoot, stiglitty wavcJ on Ibo margiu ; wlieu young jjuWcout, wlicu old glnbroua uai sbiiiiiig 1 to 3 iucbcu D.II;II way, tbe iuferior OUM smaller; petioles round waved, stipules kneodate oaducoua ; paindss nxillnry comi>scd bf several short subseciui J Bptkoa, flows BrtwaaBs BIUO ydlovriaL white, briicta •null cukicons, colyx [ubeacont campanulato, segments oblong, two uppar ones obtuse, three lover acute wilitliu centre oue lougeat, curol as in the gutia ; auuiciis nine, oil united iuto ft sheath open .on Uio upper eidio; style Img included iu the aheath with the pubescent uvnly at Ibo a[m on a levd with tbs Utttion, Btigma krgo glaudular, liiguine stalked 2-2J inches long linmr-lnowlate membnuiaewnu, 1 8 eodod, seeds compresacd reufurm. Aw6. «. l>rf, iii. 223 ;— W. A. Prod, p, 264.

A vtrg Aati^nv »u of coim-ierable ft\*, w(A a (rim\* «p M Jtar/tf i« i w \* f « « a\*w«fa«l « (A«jA»i« c/ O««MJ /Wiu and "(\*A« ft« (J(Aa ilimulayai wh«f« it it comvio\* vt riw-btdi. but ascends to OX devotion o/4,500 fat; it is cultivated and tjanlcdui an avenue trees in the Ma &U PtetMrncy, and \*i it grow rapidly in etotoH (M\* toil, ii\* exUwhd mUivotiw it d&irabU. Tk\* wood to laterally liy/U and remarkably strong, i. color a Ugkl with brown witz darker colored teim, it yields ship teUdm in Seagal their crooked timher end hua, and it HKd/or gun cat rUtgtk and mail cam and fvrniinre; ii it calltUSmoo, JMh and SMtfum in HindoMtani, and is wiiwrwHj hiowi l, Q»jo\ o, hngrots, readily frum hnt, low\* at the kngimwi, of the hoi vxathr, and nfwbl it\* send tovank the end of ike year, and it Kid to ««ain matrUg Wi atom 8Uport, him a .peifcgravitg of 721, aCg\* bar 22:inchaqwr, only bnUKith 1401 Ik(i\* i r\*M)W»» "nU arti ttdom if ever attack h: q cubic foot w<jA Wlb\* green, and 48 lbt. dry; tkt wp(<w of rtf l >vmd are ofamal, bang ammknd uteratives.



Windsor, Del.

*Hardwickia binata* (Humb.)

Samuel Dale

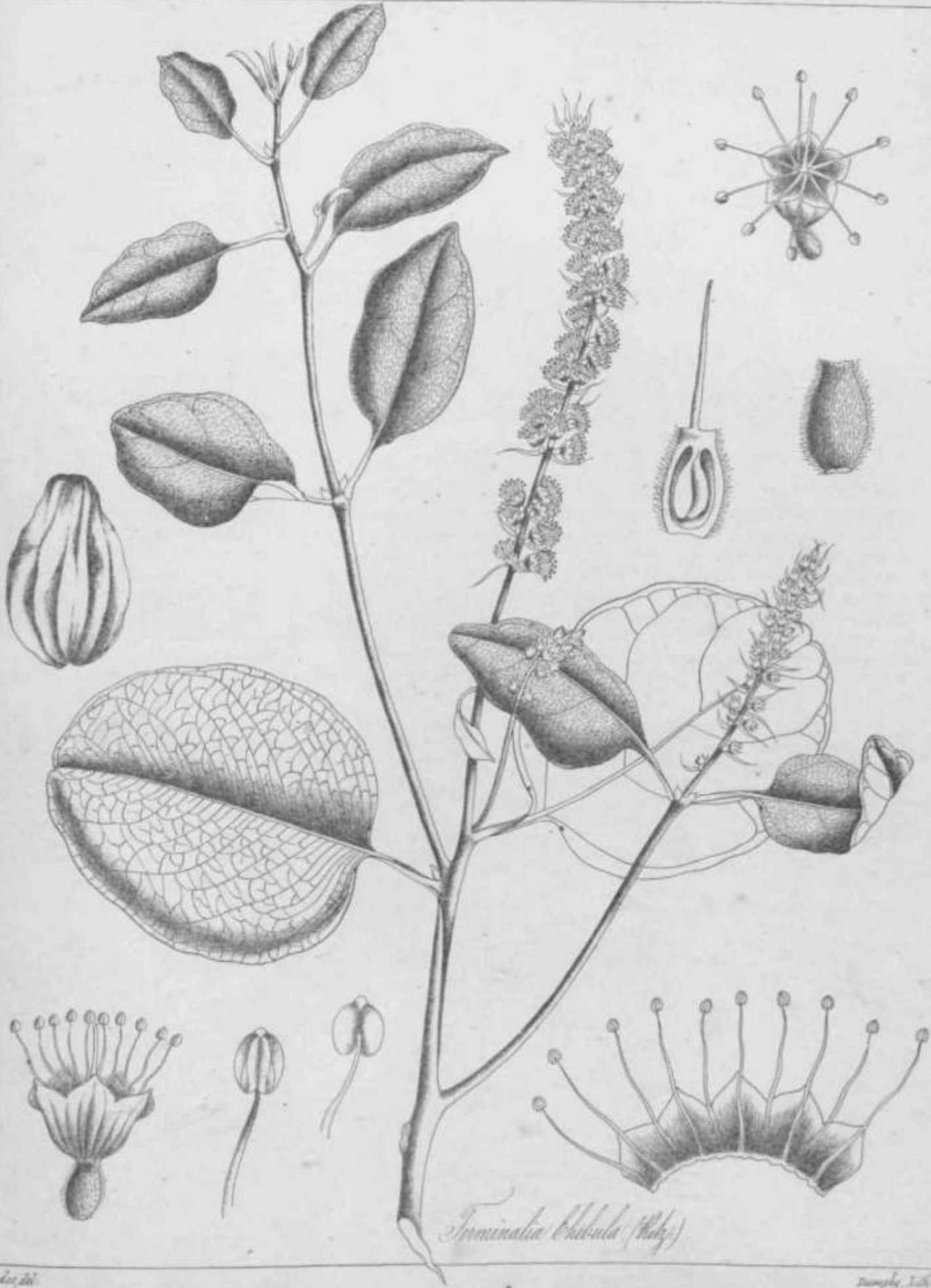
**HARDWICKIA BINATA.** (Nat. ord. Leguminosae; Sub-order Cressalpinica); Tribe Cynomotreae.)

**HARDWICKIA.** (Roxb.) *Gen. Pl.* p. 586.—**GEN. CHAR.** Calycine segments 3-5 petaloid, orbicular or ovate subequal, very much imbricated, scarcely cohering at the base or forming any tube; corol none, stamens 6-10 distinct inserted into the bottom of the calyx, alternately shorter, anthers small, cells dehiscing longitudinally, ovary sessile free, ovules 2 on the ventral suture close to the apex, style filiform with a large peltate stigma, or slightly winged with a small stigma, legume (in *H. binata*) lanceolate cuneate, compressed, 2-valved opening at the apex, 1-seeded, seed pendulous in the apex of the legume obovate thin and somewhat membranaceous on the one edge, albumen none, cotyledons thinly carnose, radicle short erect. Trees unarmed, leaves abruptly pinnate 1-3 pair coriaceous, flowers small, racemes axillary paniced, bracts minute.

**HARDWICKIA BINATA.** (Roxb.) An elegant tree, trunk tolerably straight, bark deeply cracked, branches spreading, leaves alternate petioled, petioles  $\frac{1}{2}$  to 1 inch long, leaflets 1 pair opposite sessile with a bristle between them, between semi-cordate and reniform, obtuse, entire very smooth on both sides, 3-6 veined at the base, 1 to 2½ inches long, by about half that in breadth, when young tinged with red, stipules small cordate caducous: panicles terminal and from the exterior axils, flowers pedicelled scattered small, bracts minute caducous, calyx somewhat hoary on the outside often dotted, yellowish within, filaments generally 10, rarely 6-8, anthers with or without an acute point between the lobes, style filiform, stigma large peltate, legume lanceolate 2 to 3 inches long, 2-valved striated lengthways, opening at the apex, seed solitary in the apex of the legume. *Roxb. Fl. Ind.* ii. p. 423.

*The head-quarters of this valuable tree are the forests on both banks of the Cauvery north of Cauverypoorum, both in the Salem, and Coimbatore districts, where it often grows almost to the exclusion of all other trees; it is also abundant on the slopes of the Balarangams, near Collegal and at Ilasanoor and Guzzlehutty, on the Cuddapah and Arcot hills, and the southern parts of the Nally Mallays, and it is also found in the Mysore District on the Circar Mountains, in the Godavery forests and in the Bombay Presidency. It is naturally of straight growth, but cattle being terrified of its leaves, it is pollarded to a frightful extent wherever it grows. It is heart-rending to see the damage done in the Cauvery forests'. It is very generally known by its Tamil name " Achd," but is often called Karachi in the Salem district and Kdt udagu in some parts; its Teligoo name is Mr Yepi, and it is called Kamrd in Canarese; its timber is of a reddish color, very hard, stony, and heavy, and of excellent quality; it is a first rate building and engineering timber, but is not utilized nearly as much as it might be; its bark yields a strong fibre much used by the natives in some parts. It grows from the level of the plains up to about 3,500 feet elevation; it is easily raised from seed, and is cultivated in the Botanical Gardens at Calcutta.*

*A second supposed species of this genus (Uardwickia pinnata) was discovered many years ago on the Travancore hills, but I have not as yet been fortunate enough to find it; it has quite similar flowers, but 3 pair of leaflets, and the legume being unknown, it is not certain whether it belongs to this genus.*



*Ternstroemia chinensis* (Hbky)

Swartz, Bot.

Dumphy, Bot.

TERMINALIA CHEBULA. (Nat. ord. Combretaceae.)

For Gen. Char. see under "Terminalia tomentosa."

TERMINALIA CHEBULA. (Hetz.) A large tree, trunk rarely straight, bark ash-colored and cracked; branches numerous trailing their extremities drooping and downy when young, leaves sub-opposite, shortly petioled ovate or oblong acute or obtuse at the apex, 1 or cordate at the base, entire when young clothed especially above with silky hairs, at length glabrous and furnished with one gland on each side of the base of the leaves and occasionally on the apex of the petiole; stipules none; spikes terminal or axillary, often paniced; flowers numerous small dull white, fetid, all hermaphrodite, bracts solitary downy, umbelate 1-flowered, calyx bowl-shaped toothed hairy, particularly on the inside, with five very hairy glands at the bottom surrounding the base of the style; filaments ten alternately a little shorter or equal in length, twice the length of the calyx, anthers small oval; ovary hairy 1-celled, with two ovules, attached to the top of the cell, style rather shorter than the stamens; stigma acute, drupe oval about 1/2 inches long and about 1 inch in diameter, smooth of a pale greenish yellow very obscurely 5-angled, 1-celled pulp hard and yellowish, nut oblong thick and very hard with a rough surface and obscurely 5-furrowed, seed solitary lanceolate. A. « Ft. Ind. u. p. 433, -Ret.: obs. v. p. 31. Melanoxylum chebula, Goerl. ;—Melanoxylum cadika-maram, Koen.

The large tree is found all over the forests of the Afadras Presidency, and is sometimes planted; it is also found in Mysore, Bengal, Birmah and Ceylon; it is used for building purposes; the heart wood is yellowish and soft, but it is cross-grained and difficult to work. In Birmah yokes and canoes are made of it. The leaves when scarce folded are perforated by an insect, and its eggs deposited in the folds, which become enlarged into hollow glands of various shapes and sizes up to 1 inch in diameter; they are powerfully astringent, and make as good ink as oak galls; they also yield mixed with alum a good durable yellow dye. The fruit is an article of commerce for the large quantity of tannin it contains. The fruit and gall nuts are both used medicinally by the natives.





Cavanilles, del.

*Terminalia Arjuna* (Roxb.)

Dunlop, lith.

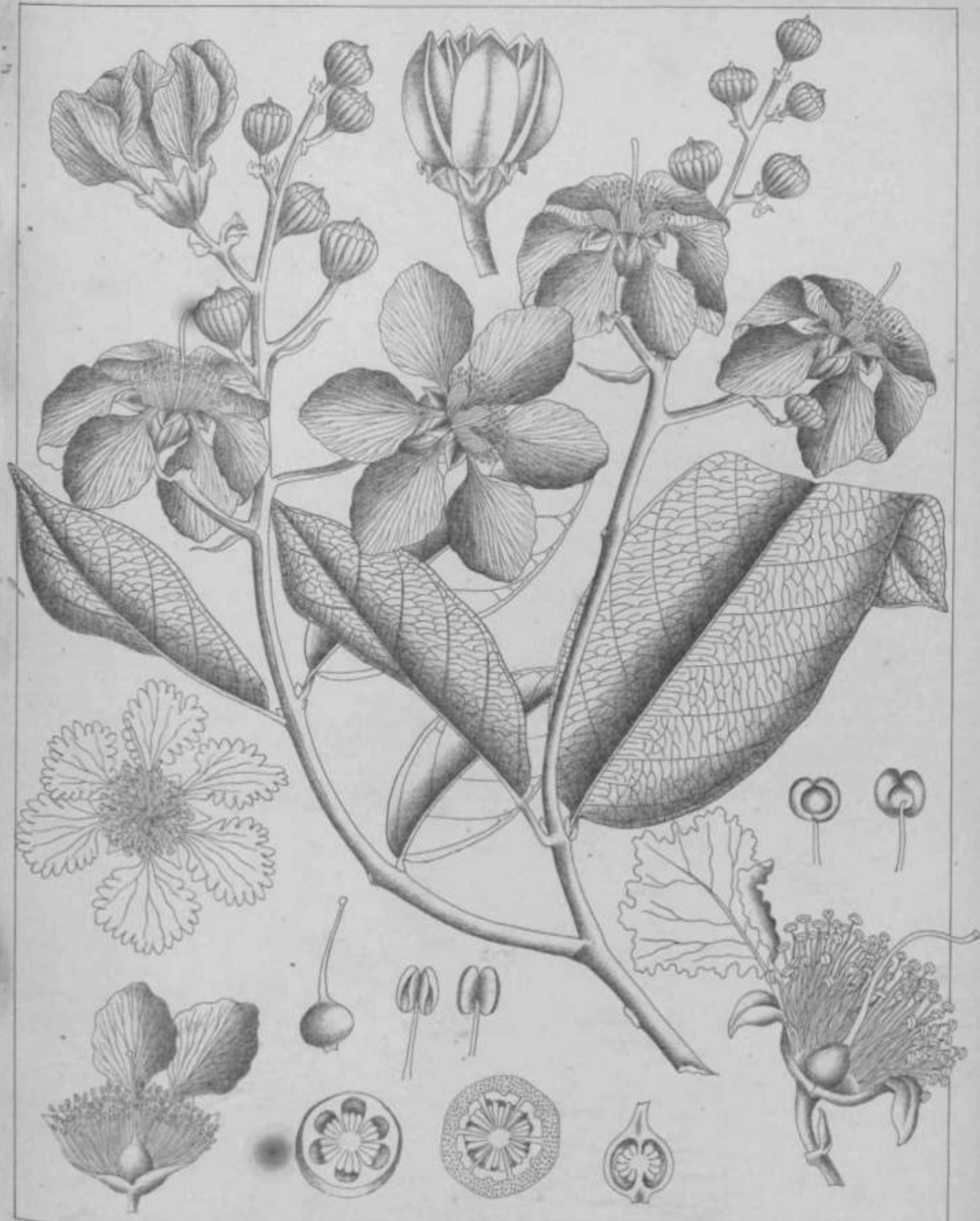
## TERMINALIA ARJUNA. (Nat. ord. Combretaceae.)

Cor Gen. Char, see under "Terminalia tomentosa."

TERMINALIA ARJUNA. (Roxb.) A very large tree, bark smooth whitish or green, leaves sub-opposite linear-oblong, with an unequal obtuse or cordate base smooth on both sides, crenulate on the margin, acute or retuse at the apex, 6-9 inches long by 1 to 2 broad, furnished with two sessile glands at the base of the leaf just above the petiole, generally only visible when looking at the underside, but sometimes visible above; petioles up to half an inch long, spikes terminal paniced, calyx very hairy inside round the ovary and furnished with some sessile glands, stamens ten, the five opposite the sinuses inserted on the calyx above the base, the five opposite the teeth inserted at the base, style subulate stigma small, drupe ovate thick with five very hard thick rigid longitudinal wings and with the apex produced into a furrowed truncated point—*Pentaptera Arjuna* and *P. angustifolia*, *Roxb. Fl. Ind.* ii. p. 437 and 438 ;—*Terminalia Berryi*, *W. A. Prod.* 314.

*I cannot distinguish between Terminalia Arjuna and Berryi: the description and figure here given are taken from specimens collected in Tinnevely.*

*A gigantic tree common throughout the Madras Presidency, growing near the banks of rivers, up to an elevation of 3,500 or 4,000 feet; it is largely planted as an avenue tree, particularly in the Tinnevely district, where it attains an immense girth and is often furnished with very large buttresses. It is also found in Bengal, Bombay and Birmah; it is called Koha and Jamla in Hindocstani, and Veldd Mardd and Veldd ntatti in Tamil, and Arjoon in Bombay, and is generally called the White Mattiby Europeans. The wood is used for building and various purposes, and boats are often made from it; it is inferior to the Terminalia tomentosa, but a valuable timber; it flowers in April and May, and the seeds ripen towards the close of the rains.*



Leitch del.

*Lagrochemia Regina* (Roch.)

Dunphy, Fitch sc.

## LAGERSTR^MIA BEGINS (Nat. ord. Lythrariese.)

LAGERSTRiEMIA. (Liun.) *Gen. PL* p. 783.—GEN. CHAR. Calyx tube turbinato-companulate, lobes six ovate acute, petals six inserted into the jaws of the calyx unguiculate wavy and curled; stamens indefinite inserted into the bottom of the calyx, filaments filiform much exerted equal or six exterior longer, anthers versatile didymous or oblong recurved, ovary sessile included in the tube of the calyx 3-6 celled, style filiform flexuose, stigma capitellate, ovules very numerous, capsule surrounded below by the persistent calyx oblong thickly coriaceous smooth 3-6 celled ioculicidally 3-6 valved ; seed oblong compressed imbricated expanded into a membranaceous wing, ascending or horizontal, trees or shrubs, branches quadrangular opposite or vertuelled, leaves quite entire opposite or the upper ones alternate, panicles axillary or terminal.

LAGERSTR/EMIA REGINJE. (Roxb.) A good sized tree, leaves oblong glabrous 5-6 inches long by 2J broad, panicles large terminal calyx tomentose, longitudinally furrowed and plaited, flowers very large rose-purple, petals orbicular waved shortly ~~pubescent~~, stamens all about equal, capsules about \ inches long 6-celled. *Roxb. Fl. Ind.* ii. p. 505.

*This very ornamental tree is common in the western forests of the Madras Presidency, most abundant about the foot of the tiisparah rjiui and of the Wynad and South Canara ghats ; it does not often ascend above an elevation of 2,000/«f. It is also found in Bengal', Bombay, Birmah and Ceylon ; it is called Kadali in Tamil, Jarool in Hindoostani, Challdin Canarese, Adamba\* in Mafayalum, Taman in Mahratta (Concan),Pyimma in Birmah, and Mooroota in Ceylon. It is largely planted as an ornamental tree on the western coast, and in Madras. Gardens and elsewhere. The timber is reddish or sometimes nearly white, tough and very durable under water, though it soon decays underground; it is much used by the natives for building purposes and in boat making ; in the Madras Gun Carriage Manufactory it is used for light and heavy field cheeks, felloes and cart naves, framing and boards of wagons, Umbers, and platform carts, and ammunition box boards. In Birmah Dr. Brandis s '!' it is more in use than any other timber except Teak, and is prized for fittings of boat\*, huUs of canoes, house posts, planking beams, scantling Jor roofs, carts, and other purposes. In Ceylon it is used Jor ċasks and various other purposes. Its root, bark, leaves, and flowers are used ~~medicinally~~ *adiċ 3107f.L.u tho ,atw\*\***



Coville, del

*Lagerströmia microcarpa* (Wight.)

Dunlop, lith

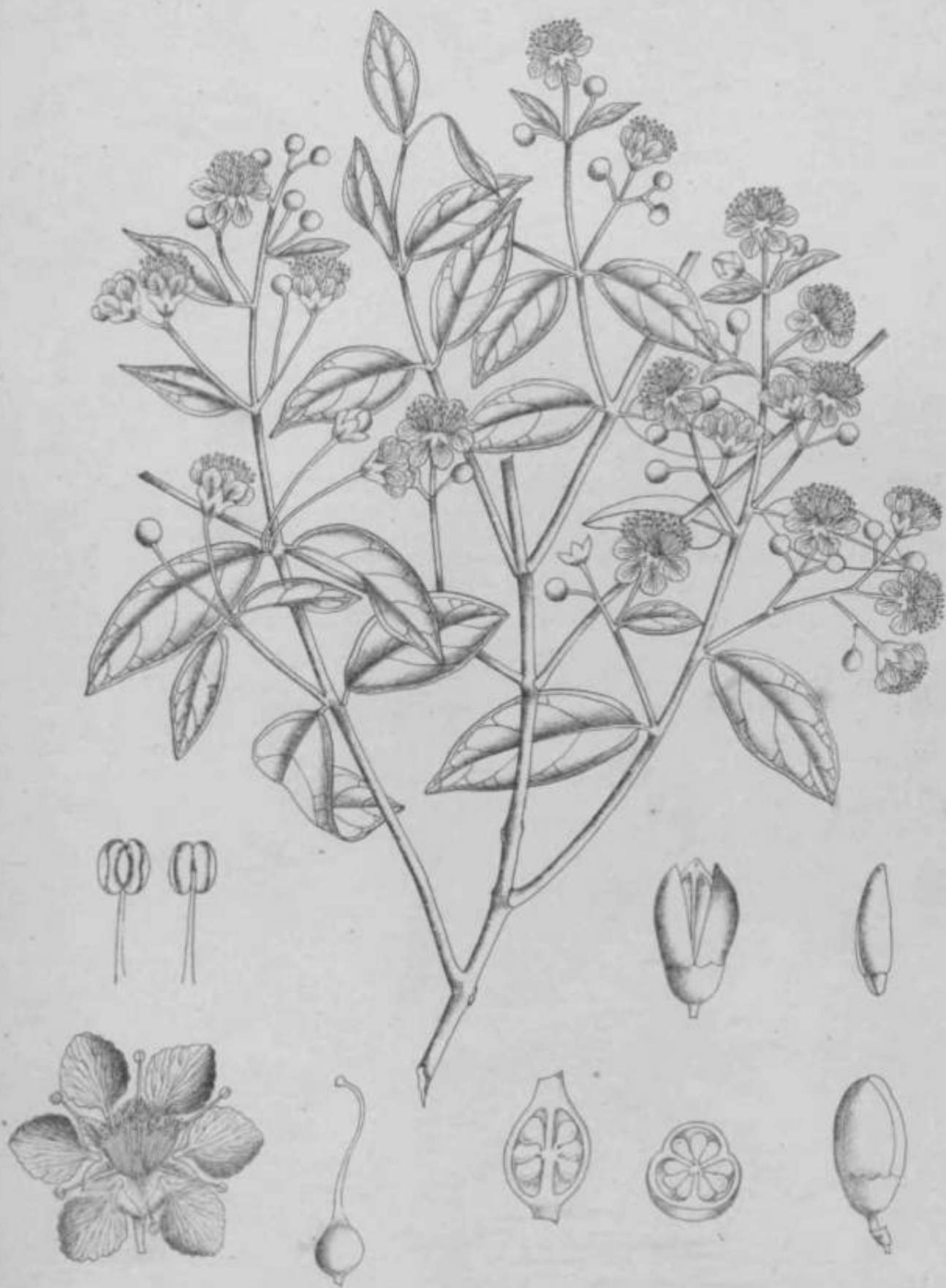
LAGEESTRJEMIA MICEOCAEPA. (Nat. ord. Lythraiese.)

For Gen. Char, see under "L. Begin\*."

L A O E K S <sup>TM</sup> MXCROCABPA. (Wight.) A <sup>£</sup> \* \* ^ ^ ^ ^ ^ ^ ^ ^ ^ ^  
 thin flakes, leaves elliptic to ovate, often attenuated or acute > \*\* £ £ + £ ^ f ^ an iuoh ^ p aille8 axillary and  
 beneath, and often very finely downy, 3J to 4 inches long by 2 inches broad<sup>p</sup> s . - ide with minute hoary pubescence,  
 terminal, glabrous or hoary with minute pubescence, flowers very numerous white, calyx whit. outs  
 or subglabrous, six outer stamens longer than the others, capsule scarcely J an inch long. Wght *Icones. pi. 109.*

*parviflora* Benth., from which it differs in the numerous punctated leaves and minute  
 capsule, which it not much larger than a pea; the minute downy pubescence on the  
 distinction in *L. parviflora*, is however ofun present in this species.

forests of the Madras Presidency, but not met with on the eastern side; it is  
 A very handsome tree, abundant in all the <sup>TMTM\*f</sup> <sup>of minAndiin</sup> Canarese, and Veveyla in Tamil; it flowers in the hot  
 universally known by it, Tamil name of Ventek, and u called <sup>Bo ^ ^ J, ^</sup> Zuch ringed: the wood is Ught-colored, straightbred, and  
 mather, and Us seed ripens in the rains. Young saplings have ^ r a . £ doekya rds; if left in the forests exposed it very soon rots, a-, ut  
 tlastic; it is very much used for building purposes flooring rafters, Ac, and also in aocKyara, j j  
 is rapidly attached by white ants. It make\* capital coffee cam.



LAGERSTREMIUM PAKVIFLORA. (Nat. ord. Lythraceae.)

For *ült. Cliir.* »\*Q uula: '• L. Reginum."

**LAGERSTREMIUM PAKVIFLORA.** (Roxl.) A Urge tree, bark whitish, leaves oblong oval or ovate acute or obtuse, sometimes minutely downy, glabrous above, 12 inches long by 1 inch broad, peduncles glabrous axillary and long or longer than the twigs, 3-6 flowered toward the apex, flowers white smooth, ovary subglobous not furrowed; petals shortly lobed six outer longer than the others, capsule oblong a little more than an inch long, very woody. *Uk. eu. Boom, 34. Colled. Roxb. Fl. Ind. ii. 5.*

A *valdiomt tret, vtry common in the districts of Cirwi and on the Malabar Coast (Kurnool District), but also met with (though not in the Prudency, at least in the Settoor fomm, 'ourul the Uoin Beitga', Bombay, and Birmah, called Chitiangi Tligoo, Xaneh and Balmal M Bombay, and BdtU, Dhaw or Dh&u in the Bijtiorforatt, Ttambetay in Birmah where it is whitish or brown, elotv-grained, straight, jointed and elastic; it is much used for rafting, beams and rafters, and for boat timber, plough, wheel, and in Java it is used for request for buggie shaft.*





Swartz, Bot.

*Lagerhemia lanceolata* (Willd.)

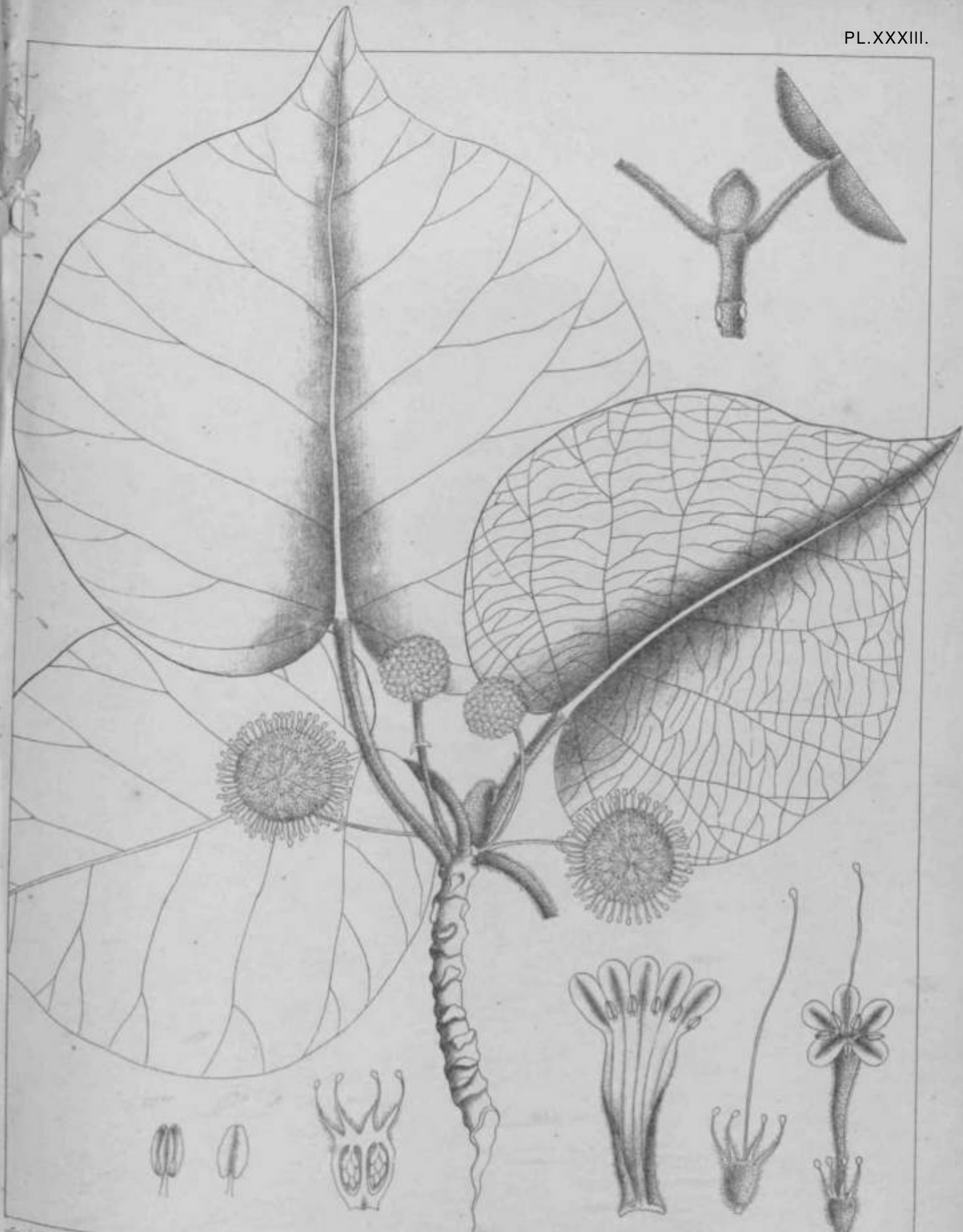
Engelm., Lith.

LAGERSTR3BMIA LANCEOLATA. (Nat. ord. Lythrariea.)

For Gtn, Char, ue under " L- Regina."

LAGERSTR^MIA LANCEOLATA A smaU tree, leaves oblongo-lauceolate, or elliptic to ovate with a cordate base, smooth on botk sides butpale and glaucous beneath, 2J \* « ^ , ^ ^ white# to iMger than i« L. microcarpa and glabrous, aslbug t or longer than the Laves, few flowered at j ^ ^ ' ' ^ ^ » L > ^ n a > ^ inches long, very hard, 4-celled. parviflora, six outer stamens much longer thau the others, capuale as large » u u 6  
Wall. LUt. 2120.

> -J -«rf fMinA in Mysore and at Courtcdlum, and cultivated in the Lai  
A mall ornamental tree, common in the Bombay Pmkney, artijvu\* J in the north of gf (hf Bmbajf PretidenCY,  
Bagh garden at Bmgalore. I do not know th» timber, but it u probably Mi it\* cozener,  
it it callèd Soitutia, in the ituth Bondara.



Swinden, del.

*Nauclea cordifolia* (Roxb.)

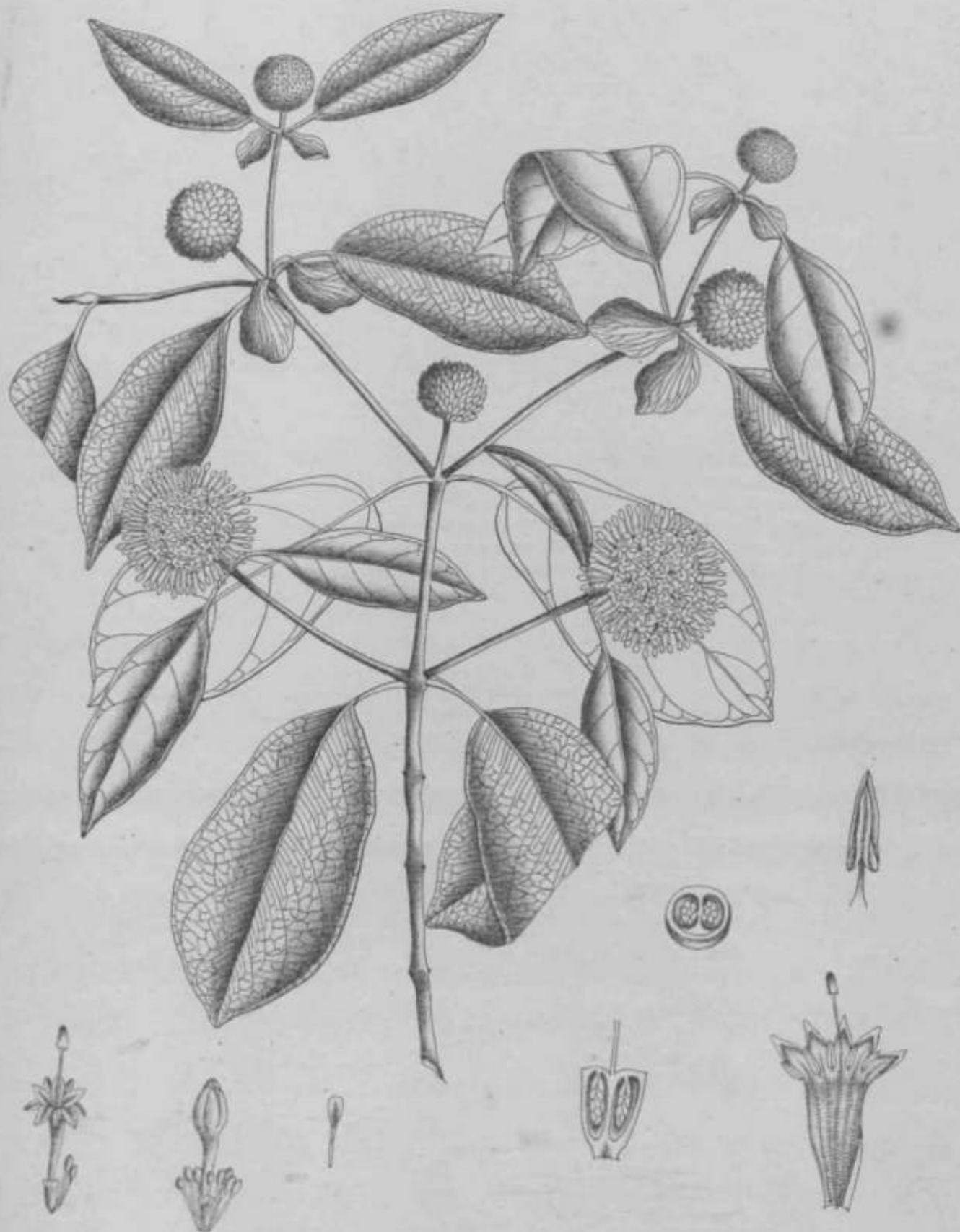
Dunlop, del.

**NAUCLEA CORDIFOLIA. (Nat. ord. Rubiaceae.)**

• rtilo wifch^UC|LKA# (Liou'» ~ GEN, CIAR. iriowe» oapikfc "ssUeupou aglobobe receptacle, calyx tube oblong, limb either short or truncated or 5  
 rnoti ud i Jcrtar tbaU tLJ10beS of COro1, St\_vle filiform plotruded, Bti«ma oblu116 or ovate terminal undivided, ovary cells two, placenta fixed near the  
 \*x of u .6 H V)CUdU1oU\*J Cap.gules 2,,elled se8site U poUa r'ec»Pt^dc uut tapering gradually at the base, seeds several imbricated, winged, or with agland at  
 i atUuhcJ to au oblung placenta that is uduate to the dissepiment, embryo inverted in fleshy albumen, unarmed trees, leaves onnosifc\*  
 i'c, stipules d«ciihuu< ffwoiws or vert[ca].

**NAUCLEA CULIUFOLIA. (Uoxb.)** A very large tree, truuk often with buttresses, tolerably straight, bark brownish  
 and cracked, branches very numerous, horizontal, forming a very large shady head, leaves opposite petioled, broad cordate pointed  
 U i ^ UboVe Protty 6mootil> dowuv ^demeath particularly when young, beautifully reticulated with small veins 4-12 inches each  
 w i ^ UboVe Protty 6mootil> dowuv ^demeath particularly when young, beautifully reticulated with small veins 4-12 inches each  
 \*\*y> i>etiolctt round a little downy 2-3 inches long, stipules oval caducous, peduncles 1-4 together, axillary round downy 1 to 3 inches  
 j& jointed about two-thirds of the way up and there bearing two small scariose roundish deciduous bracts, calyx segments davat  
 PU tsecut, cor>1 pubescent, lubes spreading, anthers slightly protruded, style long, stigma shortly clavate. *Roxb. FL Lia'ta 514.*

<\*ndC All\*mmetl\*\*f\*f tolerably common in most of the forests in the Madras Presidency, also in Mysore, Bengal, Bombay, Birrmh  
 Una -1?10H, Called Du(u)gu and I««PH kadambe in Tilygoo, Ualdce in Hindvslanee, Manja Kadambe in Tamil, Ahnow in South Canara  
 -\*au, in Birimah, and Kolong in Ceylon. The wood is close grained, smooth, fibred, light yellow in color, and is much used for building purposes  
 P Muiff,dc., furniture chests, gun stocks, comb\*, £c. It will not stand wt. Dr. R xbvrgH says it answers exceedingly well for furnituře • f  
 > overt in June, and the seed ripens at the end of the rains.



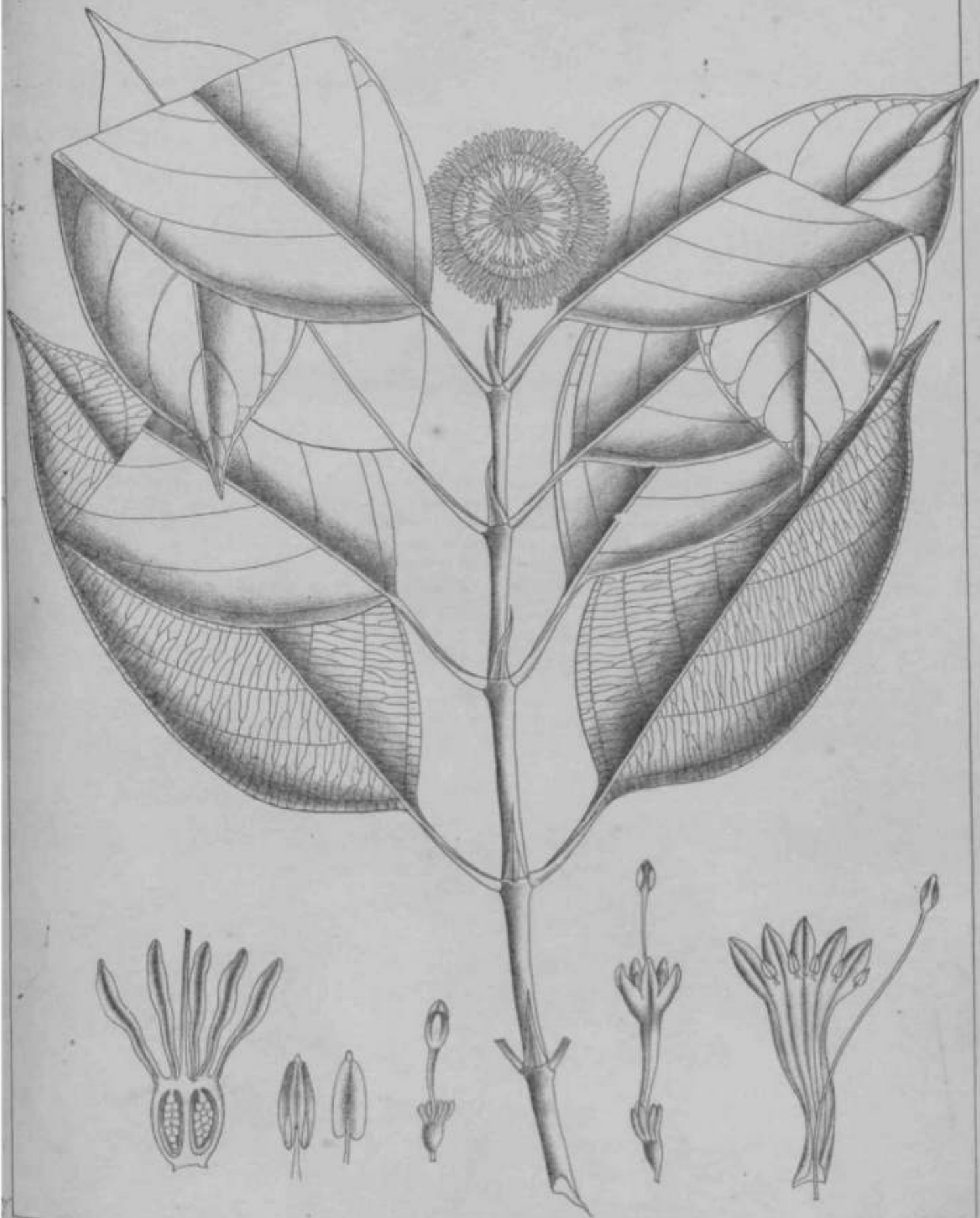
*Nauclea parvifolia* (Koenig)

NAUCLEA PARVIFOLIA. (Nat. ord. Rubiace\*.)

For Gen. Char, see under "N. cordifolia."

NAUCLEA PAEVIFOLIA. (Roxb.) A large tree, trunk straight, bark brownish gray and crooked, peeling off in irregular patches, branches opposite numerous spreading, forming a large oval shady head; leaves opposite petioled ovate or oval or obovate, obtuse or with a short blunt point, entire, glabrous, except in the axils of the nerves beneath, 2-3 inches long by 1 to 1½ broad, stipules large oval or oblong glutinous caducous, peduncles ternate, the opposite pair often passing into floriferous shoots bearing a pair of small deciduous leaves and jointed near the apex, intermediate or terminal peduncle short usually not jointed, limb of the calyx very short and almost truncated, corol light yellow, tube widening upwards, lobes pointed spreading, anthers pointed shortly protruding, style long, stigma narrow oblong calyptriform, capsules containing two cocci splitting at the inner angle. *Roxb. FL Ind.* i. 513 ;—*Nauclea parviflora*, *Pen. Syn.* i. p. 750;—*Nauclea Orientals*, *Linn*, (*partim*).

*This useful tree is common in almost every forest tract throughout the Madras Presidency, and is found in Mysore, Bengal, Bombay, Birmah and Ceylon ; it is called Buta Kadambe in Tamil, Nir Kadambe in Teligoo, Congoo and Hedu in Canarese, Keim and Kaugei in Hindustance, Kadam in Bombay, and Hteim in Birmah. Its wood is light chesnut colored, firm, close-grained, and much in use for building, yu\* stocks, and various other purposes ; it requires to be kept dry as it soon rots if exposed to wet The leaves are used as fodder.*



Wardlaw del.

*Nauclea cordata* (Rost.)

Dunlop, Lith.

NAUCLEA CADAMBA. (Nat. ord. Rubiacero.)

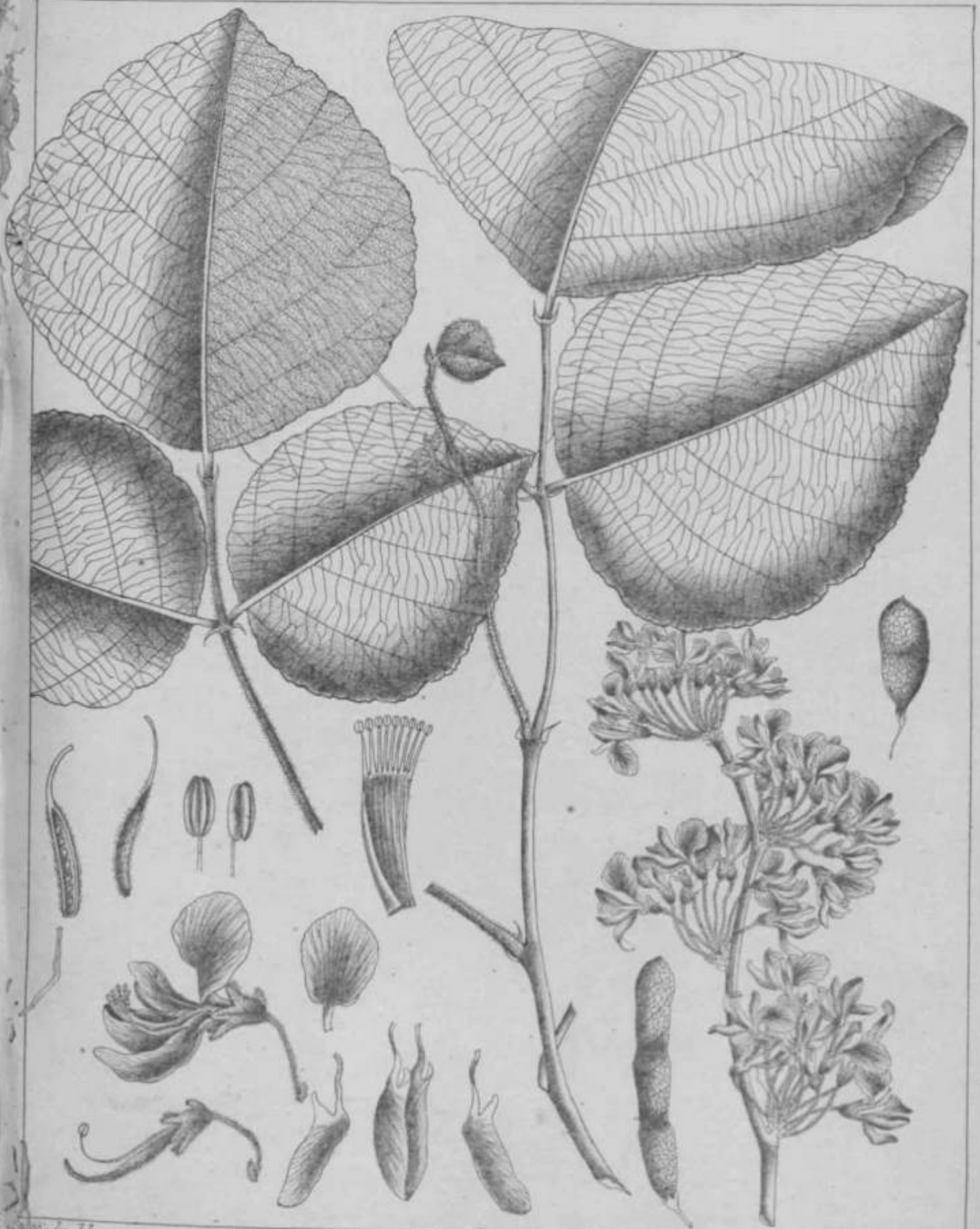
For Gen. Char, see under "K. coidifolia."

NAUCLEA. CADAMBA. (Ro&b.) A large tree, trunk erect, perfectly straight, bark smooth dark grey, branches numerous horizontal, leaves petioled ovate to oval, smooth entire 5 to 10 inches long, 2-3 inches broad, petioles smooth about 1½ inch long, stipules triangular with a long gradual acumination, peduncles solitary terminal, jointed about half way up, and there furnished with caducous bracts, flowers fragrant in a large orange colored head, with the white clubbed stigmas projecting, calyx with the division spathulate, sometimes two of them shorter than the others, lobes of the corol not recurved, style much elongated, stigma oblong, capsules 4-sided tapering from the apex to the base, near the top it is composed of four distinct hard cells, the lower two-thirds being only 2-celled, seeds numerous very small angular brown colored. *Roxb. FL Ind. i. p. 512;—Nauclea Orientalis, Linn, (parUrn).*

*This handsome tree is common in Bengal, Birmah and Ceylon, and if I am not mistaken in the species, also in the Wynad and Malabar on river banks. The drawing and description are taken entirely from Bengal specimens, as the Malabar tree may be N. purpurea Roxb., if that is distinct from Cadambe; it is called Kadam in Bengal (an universal name for different species of this genus), Hulambe in Ceylon, and Maookadoon in Birmah / the wood is yellow, and is used for building and various other purposes. Dr. Brandt's says it is loose grained, but recommended for furniture.*

*Nauclea elliptica Dalz., from A. and S. Canara, is an allied species, and there are several other species in Bengal and Birmah, some of which it is hoped may be figured in future numbers of this work.*





*Argemone salbergoides* (Nutt.)

Dumphy, Tuck.

Windsor, Ill.

**OUGEINIA DALBERGIOIDES.** (Nat. ord. Leguminosae; Sub-order Papilionaceae; Tribe Hedysareae.)

**OUGEINIA.** (Benth.) *Oen. PL p.* 518.—GEN. CHAR. Calyx sub-bilabiate, the upper division oblong bicarinate, the under one three-parted; disk fleshy at the bottom of the tube; vexillum suborbicular, shortly unguiculate exappendiculate, wings obliquely oblong, keel slightly incurved obtuse about equal to the wings, stamens 10 monadelphous 9 and 1 anthers uniform, ovary sessile many ovuled, style incurved subulate, stigma capitate terminal, legume elongate plane, articulations 1-2 or more oblong, slightly reticulate, scarcely dehiscent, seed compressed reniform. A tree leaves pinnately trifoliate, leaflets large, stipulate, stipules free deciduous, flowers white or rose, in short racemes, bracts small squamiform, bracteoles below the calyx minute persistent.

**OUGEINIA DALBERGIOIDES.** (Benth.) A good sized tree, trunk tolerably straight, crowned with numerous spreading branches and branchlets, bark dark brown deeply cracked, leaves alternate petioled trifoliate, up to 12 inches long, leaflets the exterior one nearly round with an obtuse point about 7 inches long and 6 broad, the lower pair obliquely ovate-cordate obtuse pointed, 4 inches long, 3 broad, margins of all scalloped and much waved, firm in texture smooth above, a little villous beneath, racemes axillary and terminal, rarely compound; pedicels slender, colored villous, 1-flowered, bracts subreniform small villous caducous, bracteoles small, none at the base of the calyx persistent, flowers numerous rather small white or pale rose fragrant, calyx villous sub-bilabiate as in the genus, corolla as in the genus, anthers oblong, affixed by the middle of their back, all uniform; legume linear oblong, obtuse veined articulated, slightly villous, seeds 1-3.—*Dalbergia oujeinensis*, *Boz. Fl. Ind.* iii. 221.

*is a very valuable timber tree, found in the Oodavery forests, Jubbulpore, Nagpore, and in different parts of the Bengal (up to 4,000 feet) and Bombay Presidencies, but not observed anywhere to the south. It is cultivated in the Calcutta Botanical Gardens, and in 14 years attained a height of 35 feet. The wood is hard, strong, and very tough, heavy, and close-grained, and not unlike Sissoo, but handsome. It is much used for building, ploughs, wheels, carriage poles, and various other purposes, and it makes very handsome furniture.*

*In the North Concan forests a kind of Guttu resin is extracted from the bark, which is used by the natives in bowel complaints. It is called TULO, Motku in the Oodavery forests, Tewas at Jubbulpore and Oude, Sandan and Sanan in Bignou forests, and Tunnus in Bombay.*



Andrieux del.

*Milinsea volubilis* (Dunal.)

Rampho, Lith.

### MILIUSA VELTJTINA. (Nat. ord. Anonacere.)

MILIUSA. (Leach.) *Gen. Pl. p. 147.*— GEN. CHAR. Flowers diocious or hermaphrodite; sepals 3, minute; petals 6, exterior 3 minute, equalling the sepals, interior 3 much larger slightly coriaceous, estivation valvate; stamens indefinite, loosely imbricated and inserted on a cylindrical torus surrounding the ovaries; anthers extrorse oval subdidymous 2-celled, connectivum scarcely apiculate; ovaries numerous linear-oblong, style oblong; ovulei 1-2 rarely more, inserted on to the ventral suture. Trees or shrubs—(*Hyalostemma*, Wall),

MILIUSA. VELUTINA. (Dunal.) A tree, branches densely tomentose, leaves ovate or oblong cordate at the base acute or obtuse at the apex, velvety-tomentose on both sides, 3-6 inches long, If to 4 broad, petiole 2-3 lines long; peduncles short, pedicels 3-6 elongate, slender, densely tomentose ebracteate 2-4 inches long, flowers hermaphrodite densely tomentose, interior petals broadly ovate, 4 to 1/2 inch long, densely tomentose outside, within subglabrous and blackish, ovaries downy 2 ovuled, carpels purplish-black puberulous about 1/2 an inch long on very short pedicels; seeds 1-2,—*H.f. et T. FL Ind. p. 151*;—*Uvaria velutina. Dunal Anon. 91*;—*U. villosa. Rozb. FL Ind. ii, p. 664.*

*I have only met with the tree in the Qodavery forests and on the Circar mountains; it is also found in Bengal and Hahar, at the foot of the Himalayas, and in Birmah; it yields a strong, yellow wood, which is said not to warp; unseasoned it weighs 62 to 65 to\*, the cubic foot, and 50 lbs. when seasoned, and its specific gravity is '800. In the Qodavery Districts the natives use it for house building and make cawars of it, and in Birmah it is used for poles of carts, harrows, yokes, spear-shafts and oars; it is called Pedda Chilka dudagu in Teligoo, and Thabookyee in Birmesc; it is cultivated in the Botanical Gardens in Calcutta,*



Windsor del.

*Sigalthea longifolia* (Wall.)

Dunphy Lith.

POLVALTHIA LONGIFOLIA. (Nat ord. Anonacem)

FOLYALTHIA. (Blame.) *Got. Pl.* p. 35.—GES. CUAU. Sepali 3, ftea or concuw brlow, valnte or uliglity imbricate in activation . petal\* C, equal or luh-oqual, toivita in 2 series in awt'.ration ovato or liwar ; it m n u iadefmiU linear or cuoeittr, connective dilated and thickened beyond the cell\* ; carpsta indefinite, ltigma oblong or capitate, QTUIM 1-2 iwally erect, fruit carpsto lUpiUto gbbon or oblong, 1 M#dod ; UM» or thrubt. Sower\* •uliUry or faoicled oiillnrj or ejlrn-aiUUry,

POLYALTHIA LONGIFOLIA, (WalL) A good si»d treo, up to 50 fiwt iu lwtgbt and G foot in\*girth, leave\* liueax l&uccolftG acuminate waved on tUo margin glitbrn? •Jiiniitg 4 to 6 inches long by I to 1^ broad on petioles about £ inch long ; podim. ths long and slender, fascicled nlong tbo nhort lateral leaflfts ahoots ; floworu greenish yellow , potaU equal, narrow tanwoktu otuminato utidukted -, fruit oblong *ex* ovoid, 1 seeded, purple wien ripe. Guattctia longifolia. *Jl. A. Prod.* p. 10 ;— *Wai'. L. n.* 6,442, Uvaria loDgifolia. *Roxb. Fl. Ind.* ii, p. JG4 ;—Unoua longifolin. *Dunal. Dc. Prod.* I, p 90.

*This (i at/try KOUUIHHM tree of erwl growth and yielding « good Macfo. Ii it txtoHtiatty planted „t Madr<u and tttmpfore in tl. Presidenti CM an avauu fr« and for tonanitnlat purpoti\*. I hava nectr mat wM it mid, but it U toad by Dr. Wight to bt iadignotu m 7 und & i> alto wiW in tAe norktrn part of Cryto". T!<c timber it teUton vtvd; it it whitish, yellow hi color, light and wry Arittu, tolerably eio\*t snw' ntngndntct, and Wittgfa M f« 4f tbi- tit tufe/iwl </«« mucuMhrf, anol 3V Hw.«Ae»»«woHerf;oniiiHtp«i/Scjmt% ij-SfIS ; El it I for mab/ rfrMrn ct/lindrt. Th» tfejifowsn in February, id tfit ««A n>«i nit Me rrtin\*, yndths frmit it taint by bird\* ; it is nailed Dtodbm in Hind n-tunii, tmd Attothie in Tamil.*





Cominos, del.

*Spaccopetalum tomentosum* (Hook. fil. et Thoms.)

Dumphy, lith.

SACCOPETALUM TOMENTOSUM. (Nat. ord. AuonacesB.)

SACCOPETALUM. (Beuett.) *Gen. Pl.* 1, p. 151.—GEN. CHAR. Sepals 3, small, petals 6, the 3 exterior about the size of the sepals, the 3 interior much larger, cohering together at the margins at length free, saccate at the base; torus subglobose; stamens indefinite in many series; anthers laxly imbricate, subsessile 2-celled; ovaries numerous, ovules in 2 series, 6 or more. Deciduous trees with the flowers appearing before the foliage or with the young leaves.

SACCOPETALUM TOMENTOSUM. (H. f. et T.) A good sized tree, branches rugulose, young ones fulvo-tomentose, leaves oval or ovato-oblong acute pubescent on both sides, rotundate or cordate at the base, thinly coriaceous opaque pale beneath 4-6 inches long 2.3 broad, petioles  $\frac{1}{2}$  inch long; peduncles 1-2 lines long leaf-opposed 1-2 flowered, pedicels 2-3 inches long slender; sepals linear-oblong 2 lines long; exterior petals longer than the sepals linear, interior petals oblong obtuse puberulous on the outside tomentose within, 2-1 inch long, torus densely villous; ovaries 4-7 ovuled; carpels 5-15 subglobose 1 inch long, fulvo-tomentose on pedicels about  $\frac{1}{2}$  inch long, seeds 3-4 nestling in pulp. *H. J. et T. Ft. Ind.* 1, p. 152;—*Uvaria tomentosa. Roxb.* ii, p. 66?;—*W. A. Prod. I, page 5.*

*A tall, handsome tree of very straight growth, not uncommon about the foot of the Ghats on the western side of the Madras Presidency, and also found in the Conem, Bahar, Orissa and Nepal. Nothing is known of the timber*





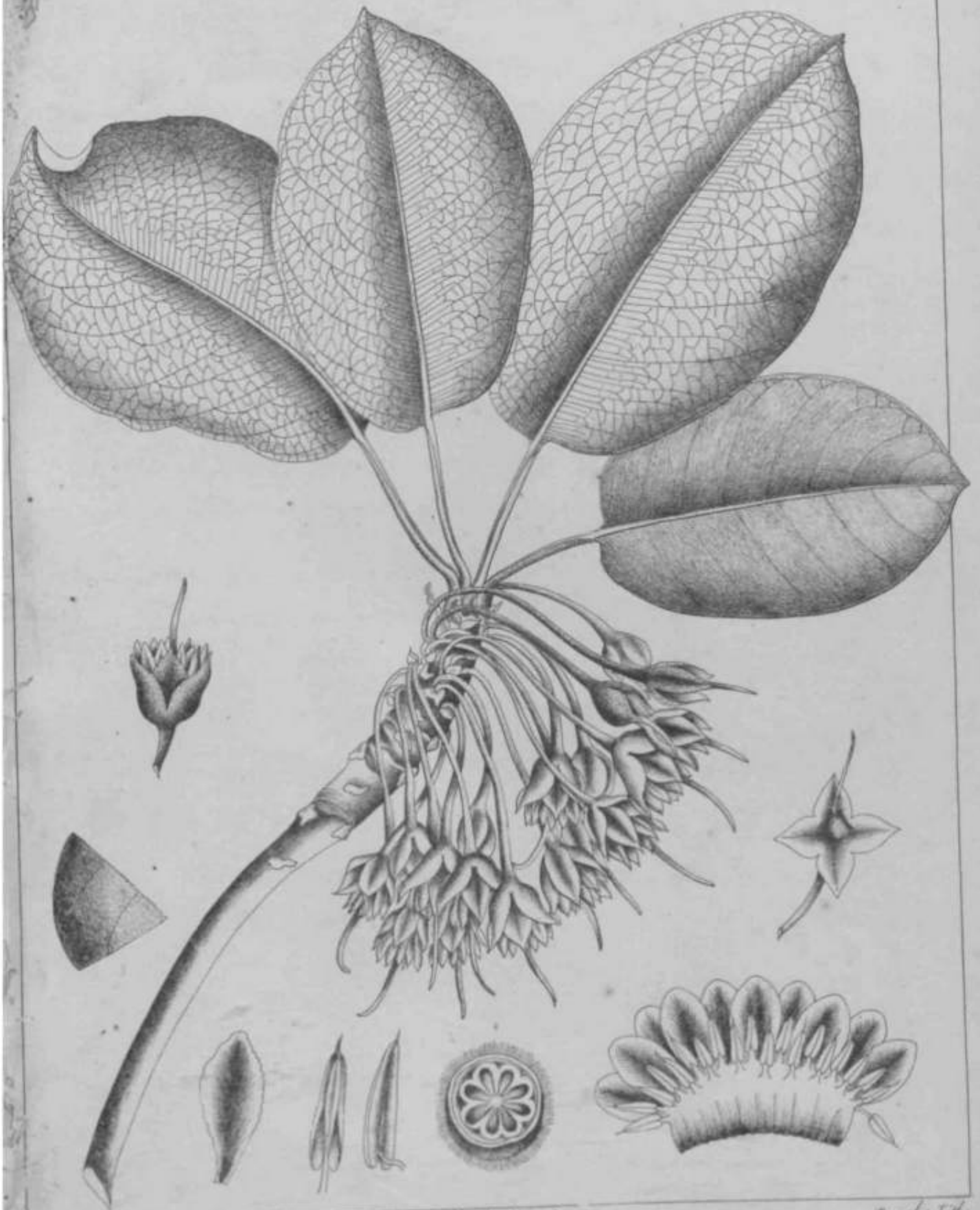
MIMUSOPS ELKNUI (Nat. orJ. Sapotwwe.)

MIMUSOPS. (Linn.) *Bot. Oen. IV. p. 741.*—GEN. CHAR. Calyx 6-8 parted, divisions in two series; corol hypogynous subrotate, divisions many in two series, 6-16 in the outer, entire or divided spreading, and 6-10 in the inner entire, erect; stamens inserted on to the bottom of the tube of the corol, 6 or 8 fertile alternate with as many sterile ones, anthers sagittate extrorse 2 celled dehiscing longitudinally; ovary 2 celled, ovules solitary in the cells attached to the middle or the lower end of the axis, style subulate, stigma acute; berry by abortion 1-2 seeded, embryo erect, cotyledons large radicle cylindrical inferior.

MIMUSOPS ELENOI. (Willd.) A good tree, trunk erect, bark pretty smooth, baches uuiwmu spreading, forming I Lbick bawd, leareB alternate abort patioled oblong pointed waved color, 3-4 inches lgngbj 1-1J broad, itipules «mail lanceolate concave rusty caducous, cles axillary flowered, fl<sub>0w8ra</sub> ubile fragrant, cftlyx 6 leaved in a double series, divisions lanceola corol very abort, the 16 exterior segment\* spmdmg, tin 8 interior generally con all are lanceolate and often jagged at the aptx, Bimmw 8 hrtila alternate with as many sterile hairy filaments. Inch arc Bbarp pointed o<sub>rjt</sub>gg«i at the w fruit e<sub>n</sub>l «noctb  
 ?flowuh and edible. AGX«. \* • — - • " "

?\*art, and <t!> ta t« C'tfcw «W«WMM. C\*K'O>% ana \* " \* 73 w 89 ,ft(i ^ hie jooU and 61 (6\*, whm wuoned ; ftf v>cyfe JFW'. - \* 4  
 « « ffirrt P/ «7 ^«. T\*. tf-fc\* " «\* « « r r j S , 3 l ito,, o,, d MI\*, « ^ poi«A. l( « »\*d < \* Ao«« MIA'v, carl «t^f< and for

B«npali, AbNjri in ifoto#<i'i«, MoonmAl « P^T " °\* r(tf ^ ^ fA\* , «.J, y»M anat«\*t«fcw«/"oW, «AwA t\* w\*dby p&vUtri; tkt bark\*, distil an odoriferous water from them and use them for ga root and fruit are used medicinally by the natives.



*Bassia latifolia* (Willd.)

Ramsey, Lith.

Ward, del.

BASSU LATIFOLIA. (Nat. ord. Sajwlaom.)

JUSSU (tiimt.) S*i*L Ge\*. PL p 711.—OEM CHAR. C. Jjl l-(I partml <li>«» in 3 wrlei, oW liypoRjo.ni«»\*[•• *malte, liml i i l l p«W* Pfict pUmcai inwrtod on to the in\*M« nr the tabs twice or ttiriwM msuiy a>th> ilirisloni of tho COIOI fn 13 ««ri«, BMMHU wry ibort, anlhtr\* oittori. or introrse, erect «ubM|itt«« 3«l!<sd deMtrfng inagftulimlly ; ovary 6-8 wllsd, OTOIM ioitUry in th» «lt» owl of ptaduloui. \*tj!< timpla ujwrfri. Htgra\* »c,ite undi Tidtd, berry i-S adtoJ, Kcdi «llt«y U tho «llt, embryo oxdbuminoui, ootylddou O«hy. Tre», INTO ilh-rnata ootirr, pedunotw miliwj omi flowered.

BASSIA LATIFOLIA. (WUM.) A good awed tree, trunk straight but short, oov«r«l with Riuuatli **ub-ootond** bark, branches numerous, tho lowar ones spreading horiiontalJy, loavw alternato iwtiolcd crowded about the e\*tr«miti« of the brancho. oblong rigid smooth nbovo, soinowhat **whltfah below, If tiuhm** long, 2-4 broad, potiolos rouud. **tbont an iooh long**, atipul«s «nbuUt« do win • flowers imrAoroua crowded from the extremities of tbo branchleta on podunclos about uno inch long, at all tiraw bent down- **vttidi** c(Jyx 4 leaved, corol limb 7-14 purted, ovary boiry 6-8 celled with oue seed in ewb cult attached to tbe upper part of the u k , berry the Bizo of a in U »PP»<sup>c</sup> I "W\* I,4' TMJ rllrel<sub>y</sub> mo1\* /Eozi\_ ^ 7nd1 m P< 526,

TOtl frM U Mitt a'l ow tA\* PraUiwy. and in Bengal, Bondiay, and Mytort, but mwt often in a cyuti vuttU Hal\* than v,td ,u\*<sup>ains</sup> ah», <,ia of 50 feet and a girth of 12fi ,t do»t not iuctnd to anj/grtai Mtvution; the timbr it hard, ttrong ami durable, not entity wirktd, dvir. even graised and of a reddish brown color. A cubic foot unseasoned might 77 to SOO>t, and00 Qt. when seasons di, is sp« fchigras y 1 >50. It is used for the naves wheels /,.....1,,, and (Mil «\*Ki"» «/!"\*»« w»""wi am\* /« culture and vants; it is soon attacked by white ants. The tree is col- •\*» • ^ B{HdulHntli Kit Ulipi in Tamil, and Ippi m TU«JM ; itfionrt in Ik\* hot won, and thtjlew «re tmt tasted and are eaten many T of an a large quantity of oil, wh is expressed, and retains at M- sistens y the poorer classes in lamps, for the adulteration of ghee, and for frying cakes, and is used for making soap.

Transferred to the R I Libr-iry from  
the K... Garden, Calcutta.



*Bassia longifolia* (Linn.)

Dunphy, Lith.

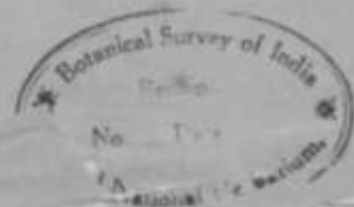
Cramer, bot.

SSIA LONGIFOLIA. (Nat. ord. Sapotaceae.)

For 'Bot. Char. see under "Mimifolia."

BA SSIA LONGIFOLIA. (Jtiin.f A gouii *khari* tree, trunk pretty s-raight but **short**, linncliM numerous dividing and spreading, furmitg n ulimiy [icaj, young shoots downy ; IcaVM crowded, about the ends of the bra rich lets lanceolrto entire i 4 7 inches long by 11! hroarl, petiole\* 1-2inclws long round slightly filloufl, atipnlc-s eiisi/orm downy wy early wducoun, pee eroT, led roun I tlit 'wt t-f tins jounq eh-ota 2-3 in-bes long drouying 1 flowered ; c>lyi Jivisigus 4 iicute, curol lube |w calyx gibbous thick ami flcilty, limb 8-10 clstf segmentB sublanccolate, iiiiibera 16-20 in 2 rowg, ono abovo tho otlmt uttoebet' inside of iho tube, filunanti acarectly tiny, ovary (i 8 cflitd «.th one ov: ta iu oach cell alUcbeJ to ueiriiry Iho lop til lbs \* iia twtctt M long is the curol, B>gna miar,U, cJiitracUid ; bar:y oblong, :<vie of > plum, riiloiu |iiiljy vthm ripe yollowis-tt. / Ind. li. p. 523.

Th 11« a common tree throughout the Midrm Pnuittemy, Ifytort, Bombay, iitngal and Cetlon, bat not found at any grtat «?»\*KK is very much cultivated in top • and thirvhtre on aeeoux of it\* Ol. It attains to 50 feet in height and a maximum girth of about 0 flmt, th is heavy, close and straight-grai i«d, MtrjF./-ible and durabl, v woely in/er ro Teakin-sr. length, and of a yellowish brown color. Aek< wasmmed weights 70 to 75 lbs. and when «mumtl 00 ffi\*. I[# j> «ife gravity is 060; it is val .lid/ ^or \*eirf» o/ J tips and for planking Aijftiw . tint and nato ^noi tretmilt, it it UJO iifi( tn lAs eorufriiclion er\* earfj ichen gnat ttrengtk it rt.quittJ and I«r furniters, and in C bridle\*. Th<> oil prud from th\* ripe /mil it mnily (Aej^ww natimatmp-cil, and for cooking purpoitt, and al& are madtofit, alto ui#i mtieinnfy, Thi gummy jwiet whith abound-' I the bark ,md young ft nil i\* alto vud meHitinaly at artka lenw\* and hark oil it v\*#i »n making nap in India, a Lid tin thanufiKttr\* of eandtfi in England. It\* price i\* about 31 Id. per tuauud, Th» trta fUnt hoi viather and thftotttri nrt diitd in lh« »un and rootled and tattn by the poorer c'auet. thy art a\*»> taton by sximah a«t birds ex allied w oia from South Coasra (banks of riv'), akirK it tailed X<lni>, in thwratlrr it it intrme.ivitt teunn thi\* tptciei tm d ell.



Sample List



Windsor, del.

*Passia elliptica* (Dale)

Windsor, del.

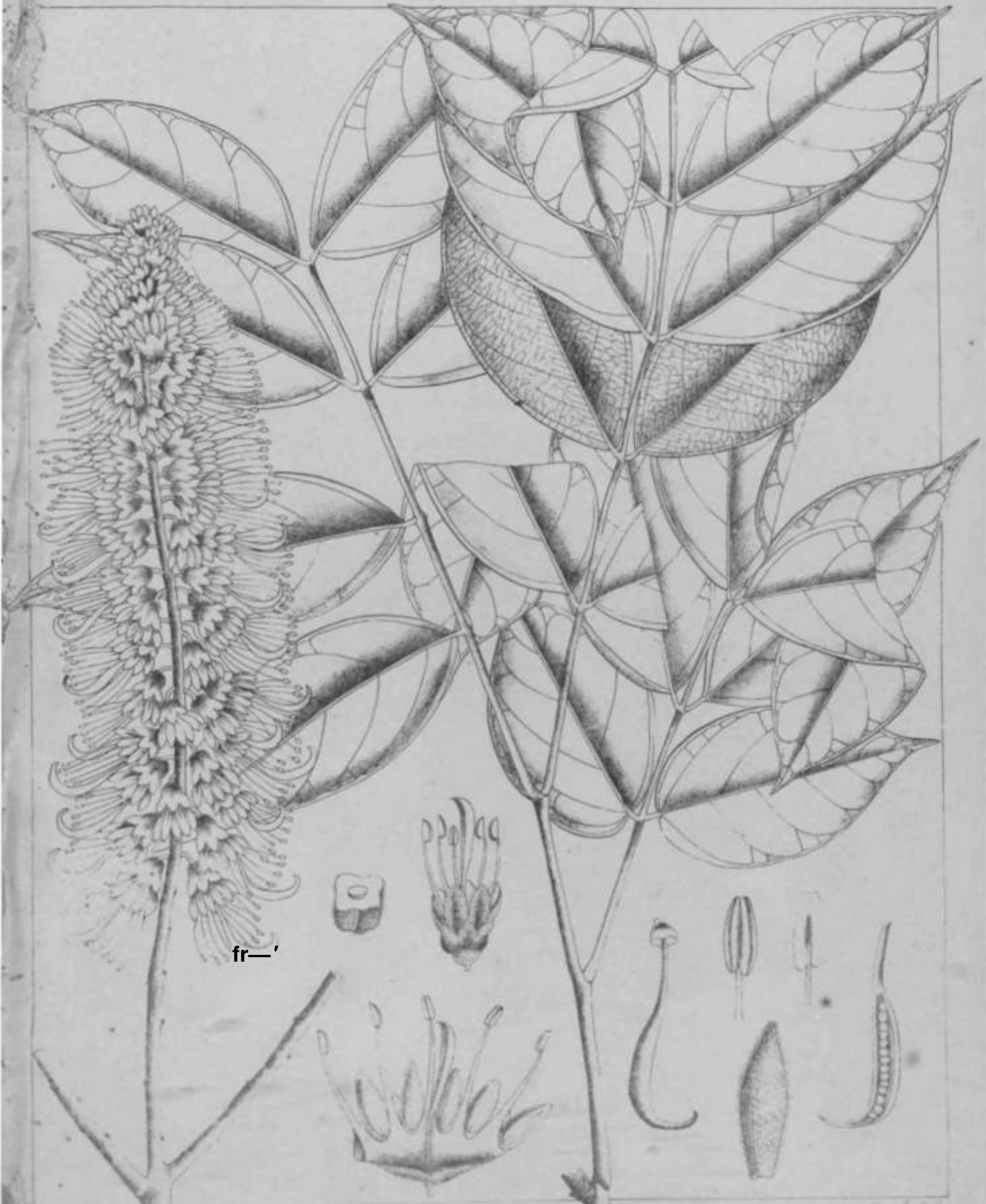
**JBASSIA ELLIPTICA. (Nat. ord. Sapotacera.)**

For Gen. Char, see under " *Bosnia latifolia*."

**BASSIA ELLIPTICA.** (Dalzell.) A very large tree, bark rusty, leaves fascicled at the ends of the branches, somewhat coriaceous dark green above, paler beneath, entire long petioled oblong obovate tapering at the base, terminated in a sudden and blunt acumination, venation indistinct above but marked beneath, peduncles axillary 1-3, 34 times longer than the petiole, in fruit erect ; calyx 6-parted, in 2 series, 3 outer divisions broader and larger than the 3 inner and more leathery; corol 5-6 cleft contorted in aestivation deciduous, hairy on the inside of the tube at the insertion of the stamens; stamens 12-18, inserted on the inside of the tube shorter than the corol sessile extrorse 2 celled, alternate in 2 rows but the apex of all the anthers reach the same level; ovary tomentose 6 celled, cells 1 ovuled, ovules attached to a basal placenta, style nearly three times as long as the ovary, stigma simple, fruit oblong, size of a large almond 1 seeded by abortion, seed erect, exalbuminous cotyledons fleshy. *Dalz. in Hort Journ. of Hort.* iii. v. 3G ; — *Isouaudra acumiata.* *Cleghorn in Memorandum on the Pauchotee or Indian gutta tree.*

*A gigantic tree, 100 feet high and up to 2 feet in girth, common in all the moist sholas of the Western Ghats of the Madras Presidency, up to 3,500 or 4,000 feet, and in similar localities on the Bombay Ghats; the timber is hard and not unlike Sdl in its grain, and takes a good polish. It is much employed by planters for building purposes, and might be used for furniture. A sort of gutta exudes from the trunk, which is known as pldd gum or Indian gutta percha. It is not of any value compared with the true gutta percha, but might be used as a birdlime or a cement, and perhaps for encasing telegraph wires. The tree is known by the native names of FAlI and Pauchotee\**





fr—'

*Acrocarpus fasciculatus* (Willd.)

Wright

**AOROCARPUS FRAXINIFOLIUS.** (Nat. ord. Leguminosae ; Sub-ord. Ccesalpiuieae ; Tribe Eucalyptieae.)

**ACUOCARPUS.** (Wight) *Gen. PL* 1, p. 568.-Calyx tube campanulate, lobes 5 short lanceolate, petals 5 narrow subequal subcoriaceous subimbricate, inserted on to the mouth of the calyx and alternate with its shorter lobes ; stamens 5 free alternate with the petals, filaments broad at the base subulate elongate, anthers oblong linear versatile, cells dehiscent longitudinally ; ovary stipitate, style free, many ovuled, style short indexed, stigma small terminal, legume unknown. An unarmed tree, leaves very large bipinnate, leaflets ovate acuminate herbaceous, racemes axillary solitary or 2-3 at the apex of the branches.—*Wight's Icones Pl.* 254.

**ACROCARPUS FRAXINIFOLIUS.** (Wight.) An immense deciduous tree, often with very large buttresses, bark light grey colored, young parts aureo-pubescent, leaves glabrous bipinnate, pinnae 3 pairs with a terminal pinna, leaflets equally pinnate 4-6 opposite pair ovate acuminate herbaceous 3-3½ inches long by ½ inch broad, racemes many flowered, flowers dull greenish red, calyx and anthers minutely aureo-pubescent on the outside.

*One of the largest and loftiest trees in our Presidency, generally of very straight growth, with large buttresses at the base. It is very general about the western forests, as I have observed it on the Tinnevely and Travancore Hills, on the Anaimalais, Nilgiris, Wynad, and in Coorg and South Canara: It ascends from the plains up to nearly 4,000 feet. I have measured a tree 27 feet in girth above the buttresses : the flowers appear in December or January with the young leaves, or when the tree is quite destitute of foliage, but I have never yet been able to procure the legume or seed. The timber is ash colored and shrinks in seasoning ; it is light and much resembles that of the Cedrela toona, and has a cedaceous smell; it is much used by the planters at Coonoor and in the Wynad for building purposes, furniture, etc., and in Coorg it is largely used for shingles. It is known to planters by the names of shingle tree, pink cedar, and red cedar, and is called Mallay kone in Tinnevely, and Kilingi by the Burghers on the Nilgiris ; it is of rapid growth, and well worthy of cultivation by the Forest Department.*



Cassia Mi

*Cassia Travancorica* (Hyll.)

Thompson, Ind.

ORMOSIA TRAVANCORICA. (Nat. ord. Leguminosae ; Sub-ord. Papilionaceae ; Tribe Sophoraceae.)

ORMOSIA. (Juki) *Gin. Pl. I, p. 558.* - O1ji c>mpaiiil>t\* 5 olaft, « Ois 2 - *per lobes often united* into oo«, •Uuiiril broad, k«d peUU not longer Ire\*, atunnnii frm, often very unequi, nod mm \*<at>tiau« withint \*nj- mltlei, .oTsry oeyviiia or neirly to, w(Ui two or fi'w ovulou ntyle raila i iovrardiat tbf top iritti s lktornl rtigroii, poJ ilillaueo 2-4 ucdid, ufMninf In two thickly eomceoiu or woody »lvu.. Modmihlii; *scarlet* i K - U M and lprb , TMly LruwrT'Ttd, the rulists very rtbort ; tecttt, Inroi plmuUi, die lcfSeU anuI]j opjwailip with t voninaiuiirl one, Howafs in tormial pa>iole«, or ritrely itt BTLJHO nueDiM in tba upper uthi.

ORMOSIA TRAVAKCONICA. (Bedd.) A tree, yonng part\* fulvo-tomentose, loovon glubrow, 414 laches lon; by 4-7 liru'n'J, lenflotB about G-6 pairs withi a terminal ano ablong to elliptic with acuU or obtuse ;oint at tin ftpex 2-fj inohes tang hy J to 2 incbus brafld, puiloles J to J au iuoh long, pmiules in tlie appor tucib thortor than the Itavat, futvo tomeotOM as is the calyx and brae tool M, mmiy UuweruJ, fflowura very aburtly psd unclad in paint a lung (heir branches, loguine very luril woody, 2-2j inches long by 1 j broad, 1\*2 seeded, seed bright scarlet.

A tiudttiff \*Utd trm.—Travaacor\* and South TinttwUy Juillt (up to 3<W0 fttt), S. CaMrtt ghats, «nct ptobabtji O'W\*%\* on Me Urn Qhatt of our Prttidiiv. The limber appean to h\* rtmnrkabl/ 'jwi, bnt Q( prttit it a (in mi unknown.



Swindoe, del.

*Adenanthera Pavonina* (Linn.)

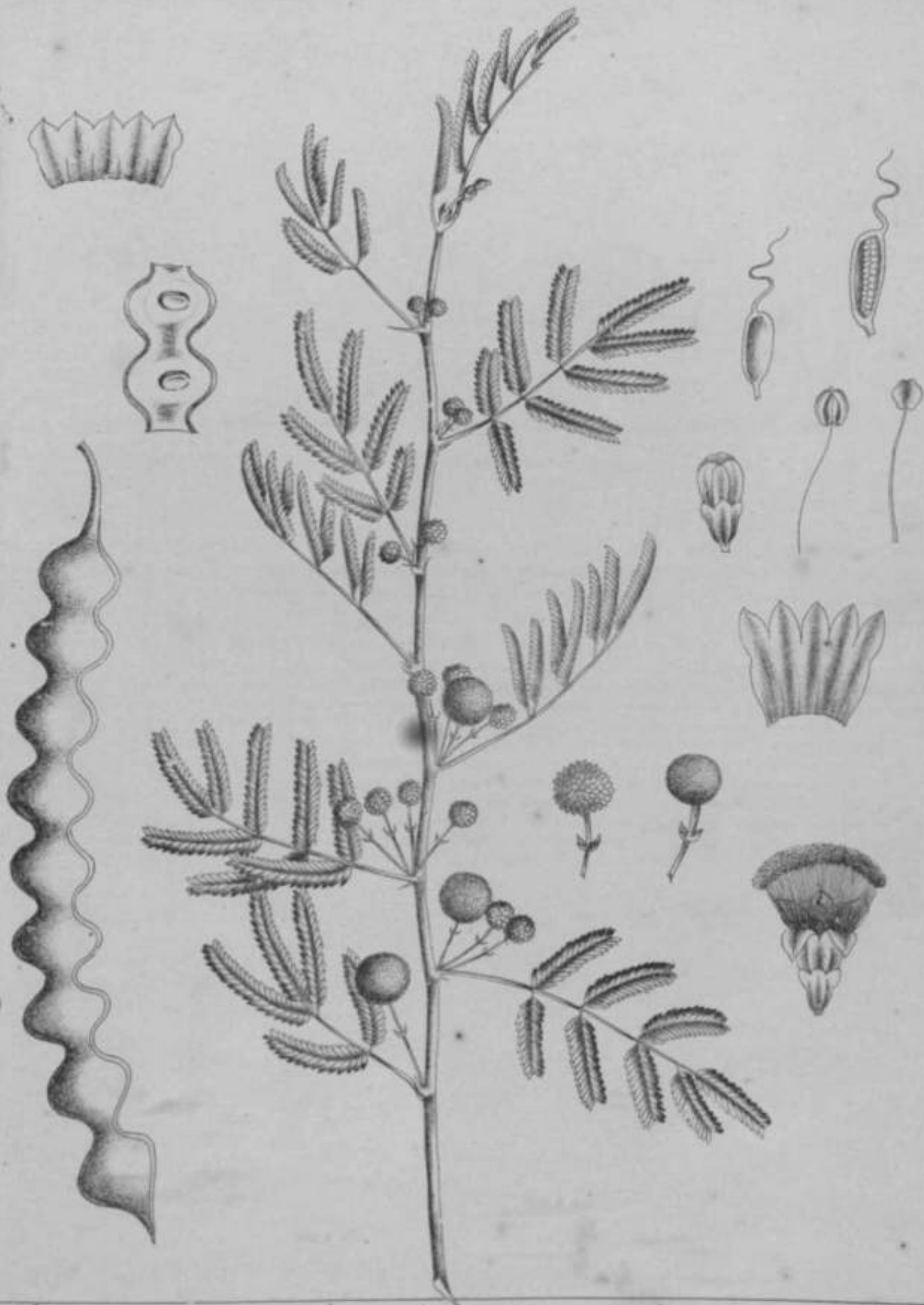
Rumph. Tich.

**ADENANTHERA PAVONINA.** Linn. (Nat. ord. Leguminosae ; Sub-ord. Mimose ; Tribe Adenanthere.)

**ADENANTUEKA.** (Linn.) *Gen. PL* 1, p. 589.—GEN. CHAR. Flowers pentamerous shortly pedicelled, calyx campanulas shortly toothed, petals cohering below the middle, or at length free, valvate, stamens 10 free scarcely exerted, anthers of the fertile flowers bearing a shortly stalked deciduous gland, ovary sessile many ovuled, style filiform, stigma small terminal legume linear often incurved or falcate compressed or swollen at the Beeds 2 valved, valves entire, generally incurved at length contorted, seeds thick and hard, testa scarlet or two colored. Trees unarmed, leaves bipinnate, leaflet! email iu many pairs, racemes elongate slender axillary or paniced at the apex of the branches, flowers white or yellowish, hermaphrodite or polygamous.

**ADENANTHERA PAVONINA.** (Linn.) A large tree, trunk erect, bark dark colored, scabrous when old, smooth wheu young, leaves alternate abruptly bipinnate 1-3 feet long, pinno opposite 4-6 pair, 4-12 inches long, leaflets alternate short petioled 4-12 pairs, oval with the margins waved smooth on both sides 1-2 inches long, petioles round smooth, colored, racemes terminal and from the upper axils solitary cylindrical about a span long, flowers numerous, small yellowish fragrant, bracts minute caducous.

*This large timber tree is said to be wild in the forests of the Northern drears and elsewhere, but I have mytelf never met with it wild. It is very common in a cultivated state, particularly in gardens at Madras, and is abundant in Birmah. The timber, when fresh cut, much resembles the red sanders, and has a pleasant smell; it is strong, but not stiff, hard, durable, tolerably close and eoen grained, and takes a good polish. When fresh it is of a beautiful red color with streaks of a darker chade, but afterwards turns purple and resembles rosewood. A cubic foot unseasoned weighs 02 lbs., and when seasoned 56 lbs.; its specific gravity is .696, it is used for house building and cabinet making purposes ; it is known to Europeans as the red wood tree, and is called dni kundmani in Tamil, Dandi gurienda in Teligoo; Manjati in Malayalim, Thorla goonj in the Bombay Presidency, Madateya in Ceylon, and y-wai gyi in Birmah. The mod yields a red dye used by Brahmins in marking their foreheads. The seeds weigh 4 grains each, and are used as weights by jewellers. A cement is made by beating them up with borax and water, and the pulp is used mi\* dicinaVy <sup>1</sup>re is ea\*Hy <sup>1</sup>TM<sup>1</sup> %\*ed, and is of rapid arovth, and has been largely planted id some of our plantations.*



Linnaeus, det.

*Acacia Arabica* (Willd.)

Ramsey, sculpsit.

ACACIA ARABICA. Willd. (Nat. ord. *hogamiao*ssa; Sul-ord. Mimosa; ; Tribe Acacioae.)

ACACIA, (Willd.) <3en. Pi. 1 p. 5W.—Carol rguUr, Wpil\* S-1 or 3 free or rntiUd ; i»U> u nunr, nujml «JraU> itt Ui« l free or united, dUmern iqd,finU« VLBUIH rrrj tiumett>u«, free or tjigllilj cuuo«!ttd «. tin scry baie, pa\* lfn«»r or obtong flat or nurij cyllndriiKl, opotiug In 3 Ta)r» arinifhi\*:-ii: . IMVM lwloe [ilnntit or in mi in ft \*[n]ju\* {Autralim) r«dao\*J ti • tlm pia dUUr-jS pjtlJt, (phfilutd.) Fhwer\* wsuxlly j\*lhv or white in globular licadtor cjliodrlcil pptcei often ji<trgamoui.

ACACIA. ARABIC A. (Willd.) Siibarbarous, &mwL, brmchos tare to glnbrom, **thouu** stijulary ^niiietuu-Ji long so molimes abort or almost wanting, loaves bipLmmte, pinna; about 5 pairs with a gland between thio first »nd lut p:urL, leiQots lfi-30 pUM glabrous; pedtdoles aggregated axiMny or forming a termiual *tucim* by the abortiou of the la»rei, Ijiiia of flowerft globruu» follow, corol & alert, ntamans uumoruni distinct ; IS^IIIUJI nt.iliccl cjinptMiail tliickiili contfActo) on l.otb Buliircs botwuon thid Hoda. WillA £>. 4, ^, 1085 ;— W. A. Fred. p. 277 ,— Mimow Arabic\*. £0»H.

ThU ii (fic KWHI, *sonu Babl tree. It is common att ovr India, antt alto inhabiU Cyl" ; but I have seen t yit it truly ••, id in the fe .ftt a/ ia\*ptmintda. Dr. Stetmii lunwvtr mntlion\* that it it truly iivii <jrn'>m th Kind. The WMt i\* C!M» groined nnd tough, ofapoia brtmenith rut toi-ir. It II ifjfl fvr haittliny /Mrpou\*. uxUt and the nam, tpoht and fillea o/wherU, plough **thntt**. tutjar-mnr. nllirt, knetd Umber\* /or tkip fc-idding, ami ninny vfttr pitr/xi\*\*, !>» <m»ited in water \* y - - ;' it from the attaek n/iuetU. Ii nutm exetUent tJiareeai, and it one of our **but** trmf- . <m»i»«f it I«TJAIM tin. the ctAfr foot, ami t»\*£f«< jmi'ity it 'SGI ; it ucalloi fl«W anJ tfo\*ar it\* **ffi** *substance, Nallé found in Tellico, and Kurreo vegues in T. Utl, TAeiree thtyhlt ia blast cettnt toil, in trAicA it yrowj wri, rapidly if irrigated, but it stands drought MU-r titan t/wtt trees. from, thwiyh i-f rouru net saf;n I'y. wit faint tvtittr. and in alaw riany toil. It unuily raitel from seed, but rats i/trn iMny tkt roott u/the ttedlihi, Tht trie it twnetimes raisttt from tuttingt; it wilt net atmtj well at any elevation MW 3,000 or 3,500/«f. f( i nut ofc» ««i O/UKJ (fr«( »iw, 4«( (nr«» n/Maml 10/erf yirfA «r^ wnhw:\* md tdth. It it WJ»J aafomtWy fut's ed in all enrfuel plantation\* in the •jtain\*. A (raMj/areHt gum i\*{troearwl from indtiont in thb-irk, which it tued at a wbdtiitUf- :r the trueGum, Arabic \ the tmk u imd mtdidnaUg, and a **oa»** a brown d>i and to « ; irtattvmt/or tanning purpota, tout« dMtvim of it mhn a jtwd tuhtUnh far twp. The pod and fcam an good fable, for slun. auaU a\*d •atllr.**





Windsor, 66

*Acacia leucophloea* (Willd.)

Dumphy, Lith.

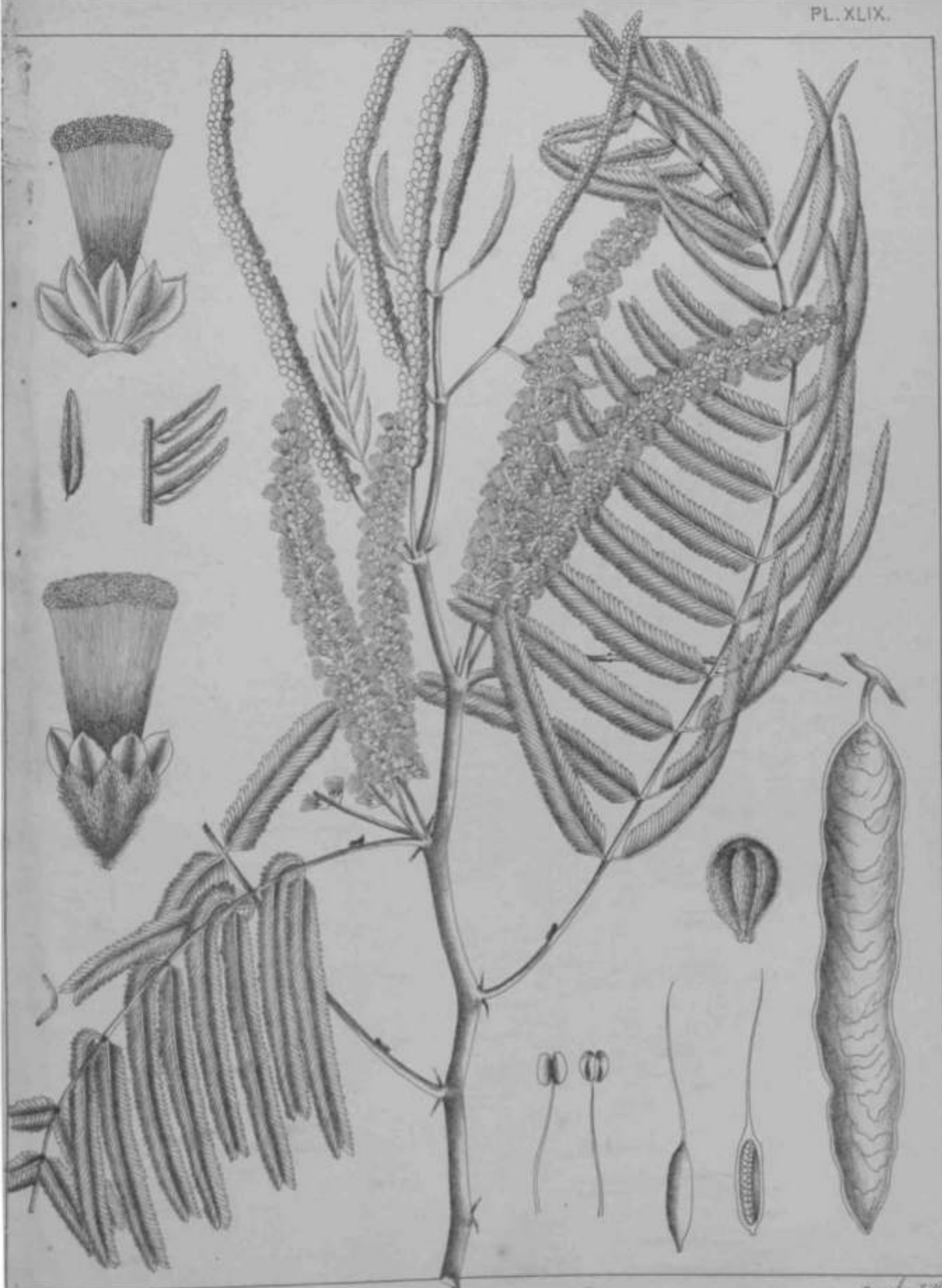
ACACIA LEUCOPHLEA. Willd. (Nat. ord. Leguminosae; Sub-ord. Mimoseae; Tribe Acacieae.)

For Gen. Char. see under *Acacia Arabica*.

ACACIA LEUCOPHLEA. (Willd.) A pod<sup>TM</sup> d l ~ «, <sup>TM</sup> » drith «lp» l «J thona, h « - Mpinnto, pi «. M! p « - .

with a gland below the first and between some large term iDd, or from the upper axU<sub>3</sub>, bnndica and pedimclM shortly toms  
cleft, stam i s numerous dis IS, I <g.» narrow lber !,, cur,d shortly tomentosa. Willd. Sp. 4, p. 1083 ;—W. A. Prod. 277 ;—  
Mintow lo«ooplil«a. ifwi. /'/. /nd. it p. 558.

TAM wAffe tori ed *Acacia* is readily distinguished by its panicled glabular inflorescence, and rti>u&ir!f\*»««•; A it a otwvnon (rtt throughout  
the same  
the  
purple  
poor. It is called F  
The bark is largely  
cor tofr.  
Bombay, and Katsudara in Ceylon,  
tough and strong, and used for fishing nets and



Wardley, del.

*Acacia catechu* (milla.)

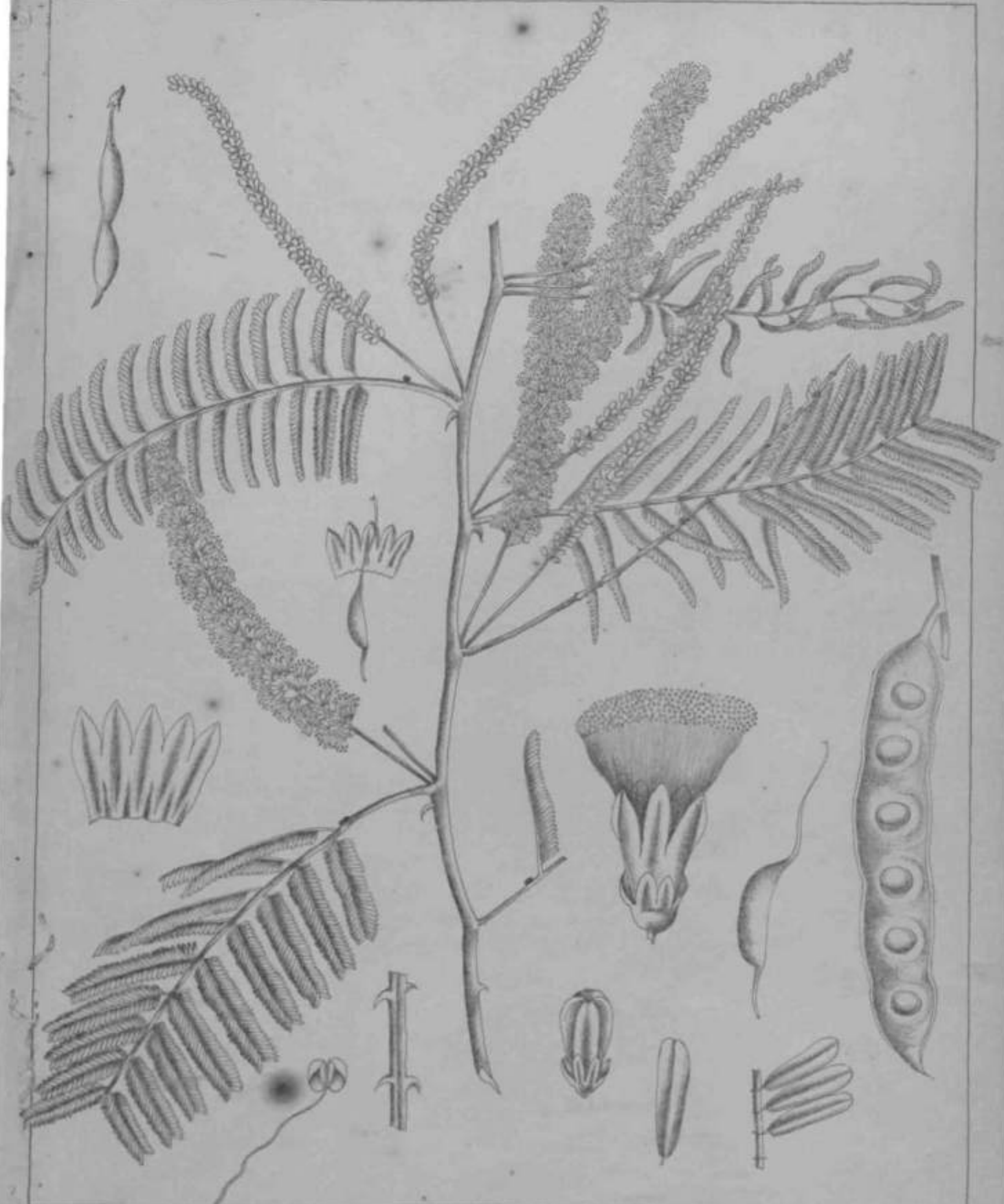
Wardley, del.

ACACIA CATECHU. (Nut. ord. Leguminosib, SuVord. *Mimosae*.)

For Clau. Ctur. to\* nnd<i- " A<id> Arii>i<.

ACACIA CATEOKU. (Wtlid.) Arboreous, branches aimed with rtipulnry tliou\* or wuictimea unarmed, young shoots petioles and peduncles more or lms pubescent, leaves In pinnated, pi now 10-30 pair, leaflets \$0 00 pair puboruluus, petiole some times and OH the under aide with a row of prickles, with one large gland below tho lowest pair of pinna; aad between the 1-7 extreme pairs, spikes niillary 1-4 aliorter than the leaves ; flowers numerous, petals united, stamens iliatinct, numerous, legume flat thin straight linear glabrous -1-8 seeded. Wind. 8p. iff. p. 1079;—IK. A. Prod. p. 272. A, polyncantia, WOU. t. c. A. ifaHlohawy D. C. I'rod. ii. 438. Mimosa catecuuoidus. Jtox. Ft. Ind. ii. p. 562. Miin>U CfttecUu, Soxb. Ft. Ind. ii. p. 5(53.

A middling tiled tree, mith a d\*rk bnnen bark, common all over India, Birnuxk and Ceyloa, atetmiüttg to cm ttoation iff 3,000 or rarely 4,000/>\*, it > n^ W<niy oHivrf W i. S'liirfru, 6M( difrtin Uing \*o0y pubtrulciu and Uitt \*ort numtrotu ptrrt\*, anJ 4W/<(J, and it ffntruttij htu a gland bttxwn the fl-7 ttttm\* pair of pinna, wAwww ift Sandra oity rA< 1-3 M^wr jwt> Aawe a ^/an J bttwn (hum. Acacia Suma of Roxburgh i\*at\*o doity allied, ij not ideitUeal with All QMSta / ( i\* «wK<f t» Hindooitant\* Kfiaifa ; and Woiha\va\ in T am it 7^A< nbtitanet of CaUcku (formerly ealUd terra japonic\*) U obtained from tht wood of thit tru and of the /twi'ia Sandra, thipi of th\* Aeartwoad are boiled in earthen pou, At tlar liquor it itraiiietl vf; and when of sufficient eoneititnee, it it poured into clay mould\* ; tfa extrect it uted in dyeinj and alto medicinally at an attringent, and externally at an aiatment for itc\ typhilu and burnt, feey good ealtchu n obtained from Birmah, and a «onti>ieruble quantity it made in South, Ciinara, chiefly from A. Sandra, and large qnaMilitt are exporttd :ron\ Bengal. One pound of Catech\* Aw 6wn fou-id to bt equal tolol&lbe, of Oak bark fur taininy puipout The timber II dark colortd ; hard mtd htary; vmeatoned it weight 86 to 90 lbt, the suite fool, and nearly 80 (bi, when teatontd, and faa a \$pteijk gravity o/123i; ft it dot? graintd and durable, mrh tmoothly and Hand\* a good paüik, and though tomewhat brtiik it much tattad vhm iirtnaih it nqxirted, U u uied for plough\*, ptttn, Ac, and in hcute bvilding and the ton\$it«etvo\* of caru; it it not attacked by whit\* anti. Tht frit JUNoert in July, and the \*Mdt riptn in the (old MMttfar. In Ceyton. it it called Hat-kifri, and an infMton of the mod ie mWA «/««!«/ ty tht tuttm at a pnrifi- of tht Hood, ami drinliug cup\* art midt of H



Smink, del.

*Acacia Sandra (Hort.)*

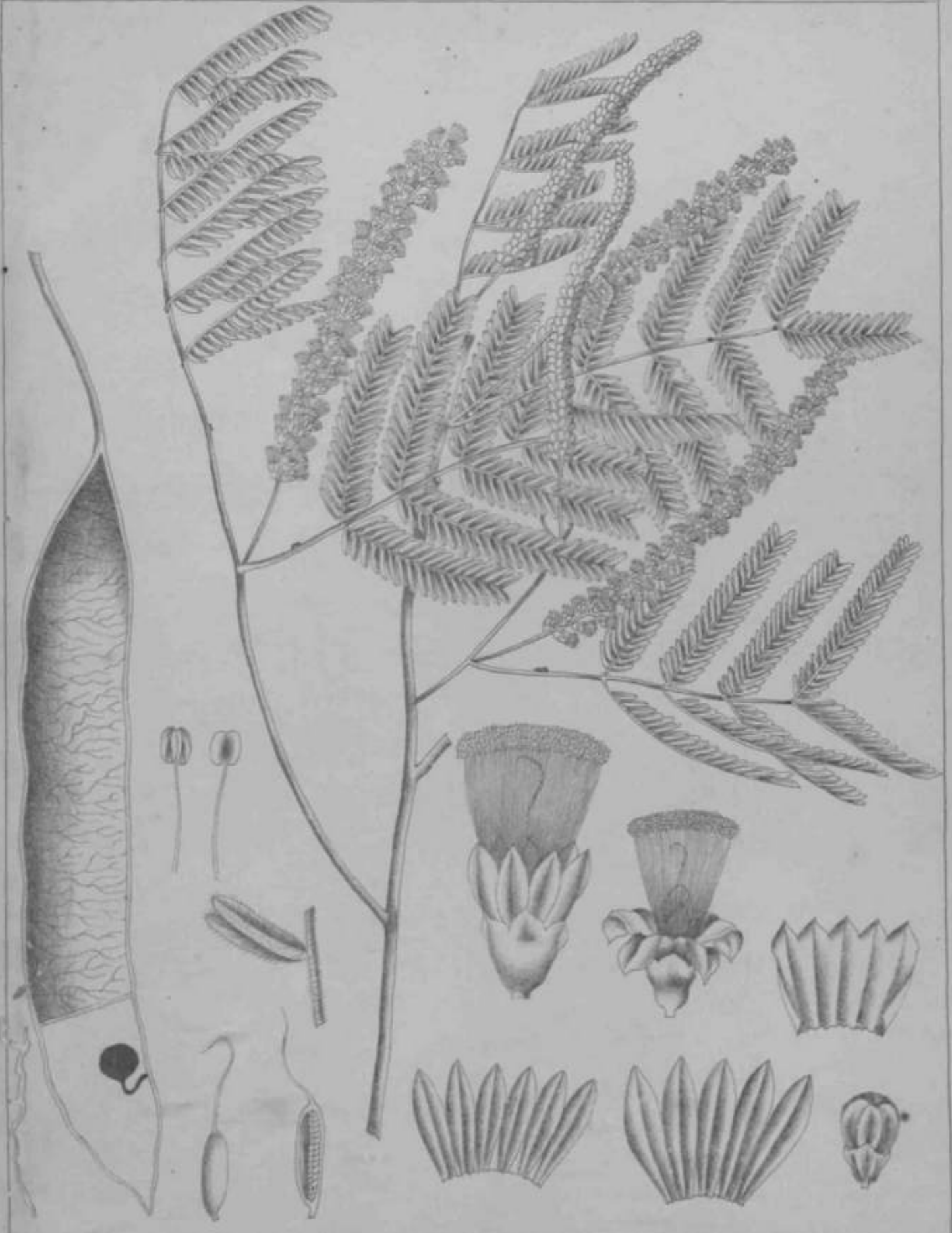
Smink, del.

ACACIA SANDRA. (Nat. ord. Leguminos®, Sub-order Mimosew.)

For Gen. Char. see under "Acacia Arabic\*."

ACACIA SANDRA. (Roxb.) A tree 20-30 feet high, bark dark brown, everywhere glabrous, branches armed with compressed decurrent recurved stipulary prickles, sometimes entirely unarmed, leaves bipinnate, pinna 15-20 pairs with a gland on the petiole below the lowest pair and between the extreme 1-3 pairs, leaflets 20-40 pair small linear obtuse spikes 1-3 together axillary peduncled shorter than the leaves, cylindrical, many flowered, corol 5 cleft, stamens very numerous distinct, legumes flat thin lanceolate few seeded; suture straight or occasionally emarginate between the seeds. *W. A. Prod.* 273. *Mimosa sandra. Roxb. Fl. Ind.* ii. 562.

*A middling sized tree common throughout the Madras Presidency, Bombay and Mysore, it is very nearly allied to A. catechu, and yield, called Sandra and Fella Sandra in Telugu, Karayala and bala in Tamil. The wood is tolerably close grained and durable; of a dark red color, veined with a darker shade of streaks, it is very heavy, weighing 80 lbs. when seasoned; its specific gravity is 1.296, it is used for building purpose, (beam and posts), for masts and duties, and is a good wood for piles and sleepers.*



Smiley, del.

*Acacia ferruginea* (Roxb.)

Smiley, lith.







Covindro deli

*Acacia Farnesiana* Willd.

W. G. & M. V.

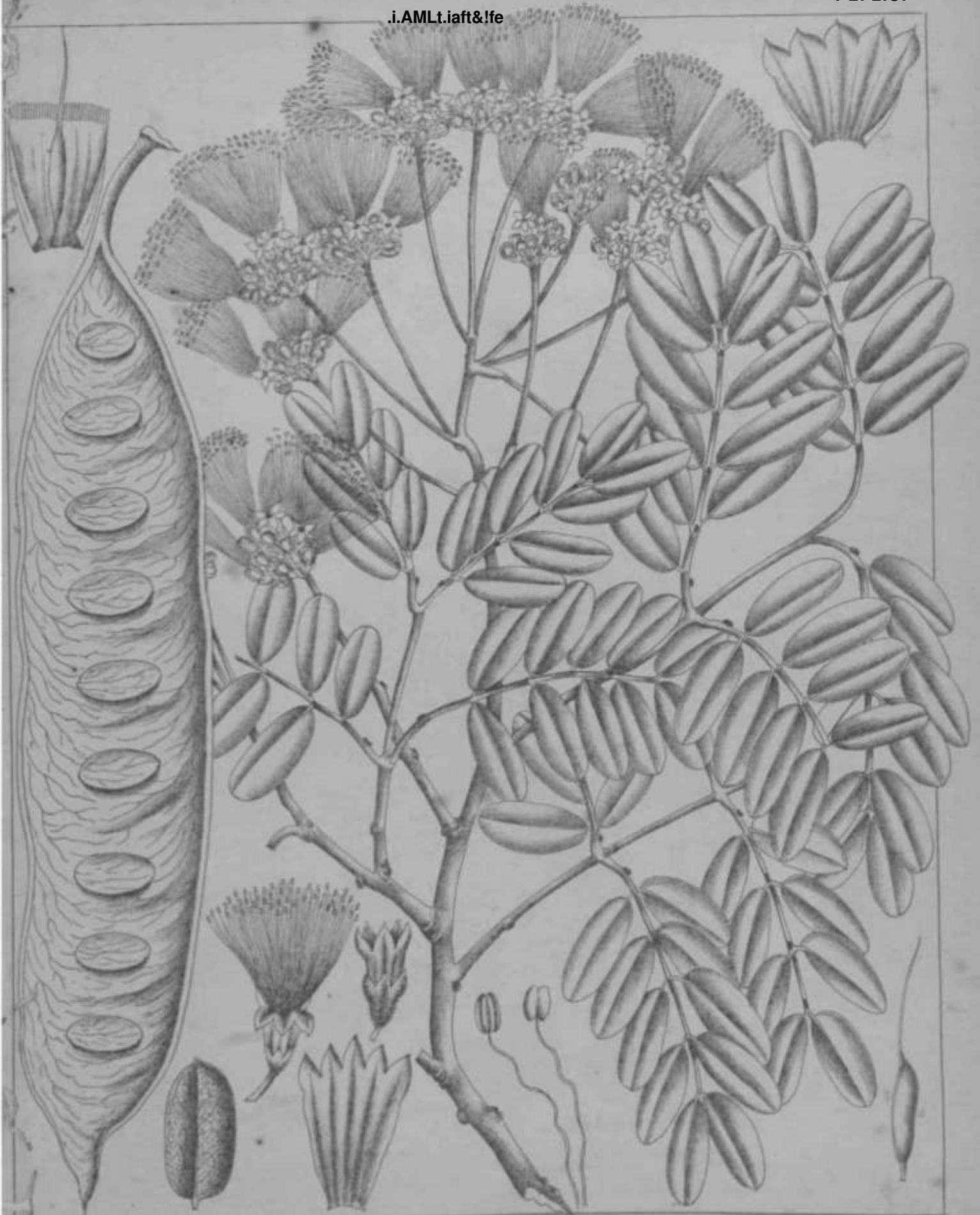
ACACIA FARNESIANA. (Nat. ord. Leguminosae, Sub-ord. Mimosa.)

For Cen., Ch., etc. see "Acacia Anjira."<sup>1</sup>

ACACIA FARNESIANA. (Willd.) A small to much branched glabrous or slightly pubescent on the petioles and peduncles bipinnate, pinnules 4-8 pair with a gland between the lower and often between the upper pair, leaflets 10-20 pairs about 2 lines long, stipules converted into slender straight thorn, very variable in length, the tree otherwise unarmed, peduncles usually 2 or 3 together in the older branches bearing a single globular heart-shaped yellow sweet smelling flower. Male and female flowers 5-toothed, calyx 5 (rarely 6) toothed, anthers very numerous. Legume cylindrical, fusiform terete, beak filled with a pithy substance in the midst of which lie a double row of seeds. - If BK \* .v. p. 1083, Mimosa Farnesiana, etc. - Fl. Ind. U. p. 557. Vahl's Farnesiana, etc. v. (1) W. p. 272.

Apparently indigenous all over the Madras Presidency, Upper Bombay, Bengal, but supposed to be of Indian origin, and to have been naturalized and run wild, it is also found in Africa and N. Australia, it is called Kusturi and Om-tile in Tdigo, Vaddava'la in Tamil, % in Canara and Iri-habal in Bombay. The wood is very hard and tough, and it is used for ship-turning, plough, &c. A considerable quantity of gum is obtained from the trunk, called 'M' gum. - W. p. 1083. - Main a good Untie properly treated, and the tree will grow up to an elevation of 5000 feet.

.i.AMLt.iaft&!fe



Forbes, del.

*Albizia Lebbek (Roxb.)*

Dumortier, lith.

ALBIZZIA LEBBEK. (Nat. ord. LugtiniinoBte, Sub-ordei- Mimoswe, Tribe Ingeso.)

**ALBIZZIA.** {Duraziini.} *Ota- Fl.* 1. p. 5i>8.—CEN. CHAU. Flowers peuUmeroua bennalbrodita M ranlf polgainow, caljx caupiinulite or tubular twitted IT rli'iilly lobati\*, oorul iifititiffilmliionn, pntsla connate to beyond the middle v>ir>te BtsratM indefinite, uualiy Hum from and long, united la • Uibo at the bur, anther\* small, tagiinc broadly linear or oblong flat, thin iniivbitecont or ownning in V vulvas, coutinuoiit\* wilhiu, vilne\* ant elude or co 11 tor toil, SL-H! uv\*te or or Uoa led, fun tula III [form. Unarmed tremor ilirubn, loavcn bi pinnate will] a gland on the petiole I\* low the Finio iiddotlwrj licwiifii somu ur ») thopiunn: ami li-allaU, flowers in gtubuUr heidi or rtrelj cylindrical epiku uitully hennathrodile, the ttameui vtnatlf white or (link, rarely ytllow, much longer than in Acacii. Tbil geaiin tiiTer» from Acacia chiefly in the ttasteif) licitig united into t tube tnttcsd of l>ring free or upsrly fire nt bh base, ami dbo in Us muoli longer itumoiit.

**AIJUZZIA IJEBBEK.** (IJ\*utli.) A large tree, trunk gencrnly sliort, bark iish-colored, young branches floxuose glabrous, [Mts1 nliuut liie ctirLi iif the bruitulilvts, Upbuute, about a span l>:ig, (liiuiat 1-1 pnir (amncLiue.s Llu lower pairs nee sumewlnt alternate) VUL Q Urge glim] a. little b^iow thu but of the. pctiule, leaflets opposite, 19 pair oval obtuse or rctusu attagga] glabrous, about an iuuli and a lialf long and Ume-foitrtiu broad, witli oftuti 1-2 small gtanda OMI Hie b.wj of tliu partial petioles mid small ones between tie leaflets, but tliuir tirt'auitit\* iind nunibtr ia always uticwtHiu, e««pt tliosu near Uiu Iwse ; |ieJunclea axillary 1-4 tngctlier. eacli baariig a globular head of shortly pedicullefJ, <vliw fragraut flowera, calyr long tubular, uetala 5 united to beyond tie calyit, stamen\* very l>ng mnm uous mox ulelplKins, legume leafy, thin flat broadly linear from G to J2 indies long by I to 2 broad, remotely 8-10 seeded indebtdeentl *Batik,\*\* Hook, Jmtrn, Bot. Hi. 87- Acacia Lobbok, Witld, ft C. Prod. U. 486L Acacin fueciosa, IFiWrf, a C. I'rod. ii. 467. Mimosa i Hrisaai A'A^ . /'•- /'••• ii. 5<4, Alburia latifolia, BoUn, Auyrn*

This tr\*s iicowmun iil tveiy p\*rt of Indi<t, a>il in Div ""A o«o! Ceylon; ti i« \*\*i(w ^noiwi KWer the name of Acacia fa or jj^Jt;,-^ qgwM i, and wt long tuppoted to (t diit'nrtuatptciat t <om leltbck, U g'ov\* to about 50 feet high, mitk a trunk vp to band I W J IS fat in girth ; it favtTi in tht hot Wlitr, and the ttdt ripm in tht raint, It it gtiwrally net/rig destitute p/tenm in it\* cotd muon, and it >«tan txttKtim but thU htud, it groat in aJwvl all toili and tUna'.um,. It it atlltd Sirit it) Uiiiduttatuo (and it gmuraUy hwiri, bff tkis name to haroptani), Dirata\* Wid I'tdda duch,7ram in TiiyoO, VAght and Kot • «J>n i\* Tamil, and Sit in liinn.: When atetud thttimher vtigk 50 lbft thttit, rarity of '800. it it hard and durahU, of a light reddti/i broicn color, w.U duiker rci,,, and it u not liable to warp or track. It Utidforqtat' ctitU of ptttrot, IWWI of BAMI, ptttlr dnt' mortar, pttt'w from\*\*, fttt'itn, part of ttal\* tnd (A\* Atarttrod mu&tt g> d'Arv •>>• A gum »vy limit\* to Oum Arabic exudet f.om tht trunk, and tht tarw and luigt are goad fo d'Y, the md it officinal, n'ietfts rnttd from J«J, a.,d U of wry rapid growth, and grow\* ffU from cutting\*, potei ttucl m tht g.ovnd rooting readily, its branches are leittle and hfer in towliUtt tspottd »the rind.



*Albizia odoratissima* (Willd.)

ALBIZZIA ODORATISSIMA. (Nat ord. Leguminos®, Sub-order Mimose®, Tribe Inge®.)

For Gen Char, see under " Albizzia Lebbek."

ALBIZZIA ODORATISSIMA. (Willd.) A large tree, unarmed, branches glabrous, leaves bipinnate, pinnae 3-4 pair with a gland on the petiole and between the uppermost pair: leaflets 10-14 pair, narrow oval obtuse oblique glabrous pale on the under side : panicle terminal and axillary, the ultimate divisions cymose or somewhat umbellate, flowers in small globose heads, corol tubular 4 cleft to the middle, stamens monadelphous, legume flat broadly linear, thin, thick-margined, about 10 seeded. *Willd, Sp. iv. p> 1063.* *Mimosa odoratissima, Roxb. Fl Ind. ii. 546.* *Acacia odoratissima, w. A. Prod. p. 275.* *A. tomatocarpa, 2). C. Prod. ii. 467.* *Mimosa marginata. Lam.*

*This is one of our most valuable jungle timbers ; it is abundant throughout the Madras Presidency, in Mysore, Bombay, Bengal, Birmahy and Ceylon, its Tamil name is Kar Vdghe ; and in Teligoo it is called Shindagu and Telsu, and in Ceylon Hoore mara ; it does not asctnd the mountains much above 3000 feet. The wood is hard, coane grained, equal to teak in strength, of a dark reddish brown or brown, color, and takes a good polish; it is much used for building and cabinet purposes, naves and felloes of wheel\*, <del>xx, its specific gravity is .736 and when seasoned it weighs 46 ft. the cubic foot\* Tke tree flowers in the hot season ; the juice of the bark is used medicinally by the natives.*



W. & A. G. & Co. del.

*Albizzia stipulata* (D. C.)

Dumortier del.

ALBIZZIA. STIPULATA, (Nat. ord, Logumiawfo, Sub.ord. Miwosere, Tube la gote.)

Fur Oca. Ojor, we uad«r "AIUZJUI Lelibtk/

ALBIZZIA STIPULATA. (D. C.) A vory lurga tree, unarmed, young shoots irregularly angled, and the petioles tomentose, leaves bipinnate with a gland on the petiole and between each of the upper pairs; leaflets 20-30 pair on each, pinnate, oblongo-linear, acute 3-5 lines long, the midrib close to the inner edge, stipules membranous, serrate, acuminate, sometimes nearly an inch long, very conspicuous, branched, but deciduous, peduncles usually about 1/2 inch long, clustered along the branches of a terminal panicle, bracts large, and each consisting of two to 20 flowers about 3 lines long, enclosed in a tubular calyx about 20, nearly an inch long, the lobes at the base, calyx much shorter than the corolla pubescent, legume 3-5 inches long, 8-10 lines broad, flat thin linear lanceolate glabrous, 11' seeded. *D. V, Prod. ii 419. Acacia stipulat. i. IF. A, Prod. 274. Mining\* stipulata. Herb. Burt. Btgh. Mimosa stipulata, Herb. Fl. Ind. li paff& 549.*

This ««iy handtomlirtt " not IHWMIH throughout the JftJnu l\*rwW«iwy, Jlyjyra, Jhmbay, l\*nnfil, liirtntt/t and Cetlon; if ascend the mountains to nearly 10,000 ft, in the Wafio eoHuiwt in (A«plaint, particularly in S. Omara, vithre it\$ timbr U much in xue. It is called Kawia ehirugu in Teligw, wtdwmcim\*\* Chiadagit; £at btge in S. C'toiara, Hat an<i Boomat/u.1 in SfraMA, a'it' C'iiia; mini in CVV/OTI. TA« (U)l\*«r w fiponjr, wwtpuet, itif, oourie grained and forotu, of a tight rMUK broaa. mlor, and it uted far l\*rpeta, nave\* of icAceli, 4.X., Ut tpcvfc gravity it -S8", <TMd it miflU 56 tU tht eniin fool mfrn ttan>fl, it\*d63 w OJ muamonni; it attaint a tiry fargt ritt, and \*titt l>t a wy rapid fnttr, <14 Dr. l(o^wjfA MattiHH 9m that h« plclitud which mnuttrd -WJ irteAw in cirtnyftrtrec at i ft« from tht gnuwU, wA«n 7 yeart oW, <t«J l>». M itW«(WM Oil\* rAM )n\*asr«( 7 l«( in fiv(A whan 17 jiar# of ogt in rAe 5tiAori>por« gardn.





Cavanis del.

*Spraca Indica* (Linn.)

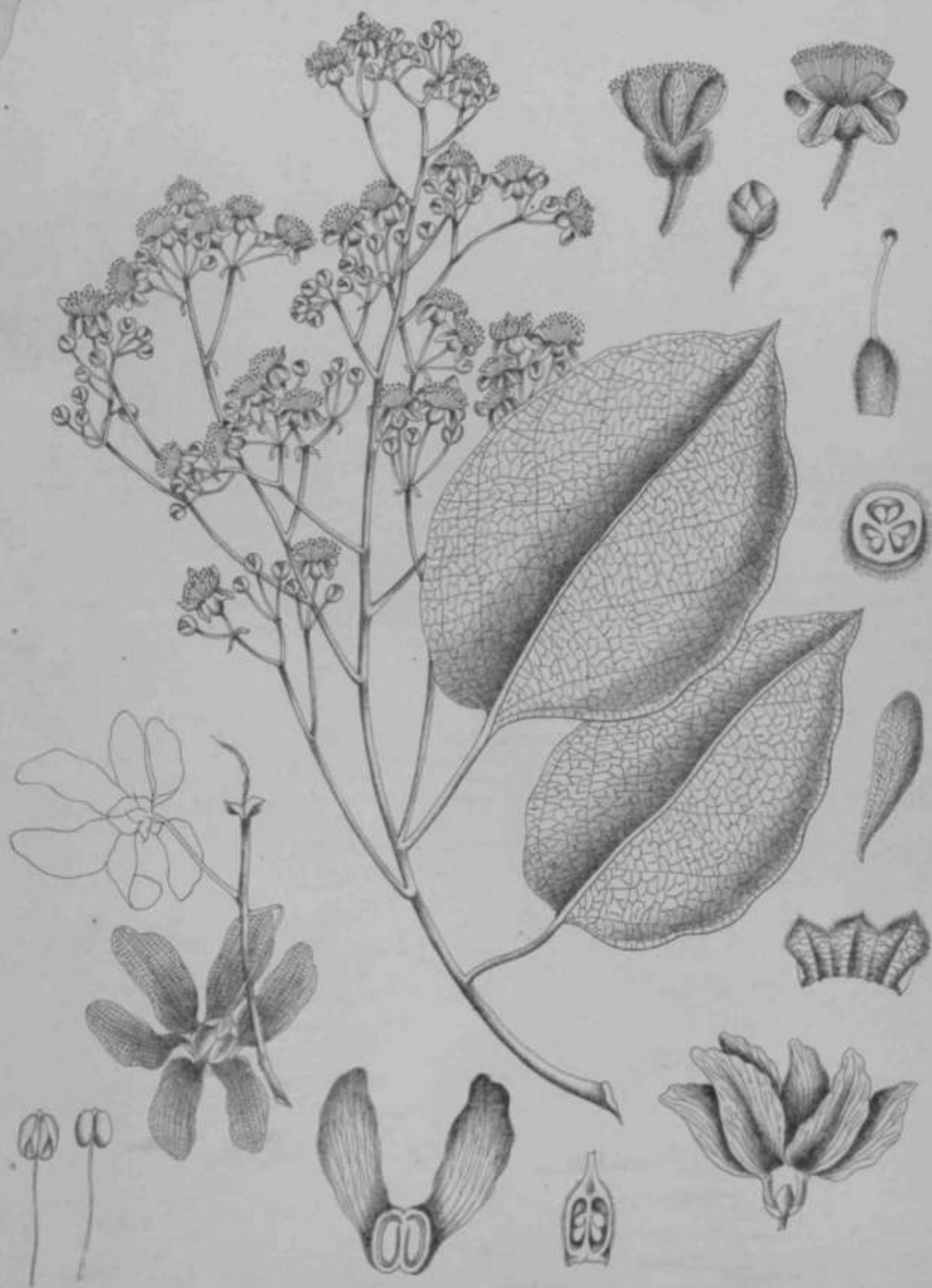
Dunlop, sculp.

SARACA INDICA. (Nat. ord. Leguminosae, Sub-ord. Csesalpinieae, Tribe Amhrsteae.)

SARACA. (Linn.) *Gen. PL* 1. 583.—QEN. CHAR. Calyx furnished at the base with 2 opposite bracteolei, tube lined with a disk elongate, segment\* 4-5 petaloid, ovate subequal imbricate, petals none, stamens 3-9 rising from the crenulated ring-like apes of the disk, free, filaments elongate, anther\* oblong, cells dehiscing longitudinally : ovary stipitate, the stalk below cohering to one side of the calyx tube free above, style aliform, stigma terminal obtuse, ovulosi 8-12, legume oblong or elongate compressed or a little turgid 2 valved 4-8 seeded, seed exarillate, albumen none Trees unarmed leaves abruptly pinnate, leaflets few paired, stipules intra-foliaceous caducous, racemes panic led. (*Jonesia. Roxb.*)

SARACA INDICA. (Linn.) A middling sized ramous tree, trunk erect though not very straight, bark dark brown, pretty smooth, branches numerous, spreading in every direction and forming an elegant and shady head, leaves alternate abruptly pinnate, sessile 10-15 inches long, when young pendulous and colored, leaflets opposite 4-6 pair, lanceolate 4-6 inches long by 1-1½ broad, smooth shining and firm in texture with the margins often a little waved, stipules intra-foliaceous, caducous, panicles short axillary and terminal Densely globular, large and crowded with flowers, bracts small cordate, flowers pretty large, when first expanding of a bright orange color, changing to red, fragrant at night, calyx funnel shaped, furnished at the base with 2 nearly opposite colored cordate bracts, tube of the calyx slightly incurved firm and fleshy, lined with a disk, divisions of the calyx 4 rarely 5, spreading petaloid ovate subequal, imbricate, one third the length of the tube, corolla none, stamens 7, rarely 8-9 rising from the crenulated ring-like apex of the disk, filaments equal free, 3 or 4 times longer than the divisions of the calyx, ovary stipitate, the stalk below cohering to one side of the calyx tube, style nearly as long as the stamens, stigma single, legume scimitar shaped turgid on the outside, reticulated 6 to 10 inches long and about 2 broad, seed 4-8 smooth. *Linn. Mant p. 98. Rhed. Mai. v.p. 59. Joueaia Asoca, Hoxb. Fl. Ind.ii. p. 218. Saraca arborescens, Burm. Ind. p. 85. t. 25./.* 2. *Saraca pinnata, Willd\* Sp. ii. p. 287.*

*This exceedingly handsome tree is indigenous up to an elevation of 3,000 feet in the forests of S. Canara, the Concan, Mysore, Gumsur, Cuttuck Eastern Bengal and Ceylon, and is cultivated in gardens at Madras and all over India ; Its bright orange flowers and pendulous colored young leaves make it very showy in flower. It is called Asok or Asok in Bmgal, Ashunkar in S. Canara, Jissoondie in the Concan and Deyl-ratmal in Ceylon ; it flowers during the hot season, and its seed ripens in the rains. I know nothing of its timber, and am not aware that it has ever been tried ; at a shade yielding ornamental tree it scarcely has an equal ; it is much better known under Roxburgh's name of Jonesia than under the old Linnaean name of Saraca, but the latter has priority and is now adopted.*



Gussone, del.

*Berula Ammonilla* (Rostk.)

Dumphy, Lith.

**BERRYA AMMONILLA. (Nat. ord. Tiliaceae.)**

**BERRYA.** (Roxb.) *Gen. PL I. p. 232.*—**GEN. CHAR.** Calyx campanulate irregularly 3-5 cleft, petals 5, naked at the base, stamens numerous free inserted on to the torus, which is not elevated, staminal tube, anthers subglobose, cells at length confluent, ovary 3 lobed, 3 celled cells 4 angled, style subulate, stigma 3 lobed, capsule subglobose 6 winged, 3 celled 3 valved loculoid, each valve furnished with 2 large oblong membranaceous reticulated horizontal villous wings, seeds 1-4 in each cell deeply covered with short rigid hairs, albumen fleshy, radicle superior, cotyledons foliaceous. A tree, leaves alternate entire 5-7 nerved, panicles terminal and axillary, flowers numerous, white. (E\*pera, *Wlld. Hexagouoetheca, Turcz.*)

**BERRYA AMMONILLA.** (Roxb.) Trunk tolerably straight, with smooth light brown bark and an extensive dense shady shade, leaves alternate petioled, cordate sometimes slightly scalloped 5-7 nerved acute smooth on both sides, 4-8 inches long, petioles rather shorter than the leaves, slender round smooth and often colored, stipules ensiform, panicles terminal and axillary large ramose bearing numerous elegant middle-sized white flowers; calyx 1 leaved downy outside, splitting irregularly into 3-5 segments permanent, petals 5 spreading linear oblong double the length of the calyx or more, filaments numerous half the length of the petals, anthers incumbent 2 lobed, ovary superior hairy ovate 3 lobed 3 celled, with 6-8 ovules in each, attached in 2 vertical rows to the axis, style short stigma 3-cleft capsule 6-winged, &c, as in the genus. *Roxb. FL Ind. ii. 639.*

*This is the tree which yields the well known Trincomalee wood; it is indigenous in Ceylon, where it is called Halmilla (hence Roxburgh's specific name Ammonilla), and is not uncommon in the Madras Presidency in a cultivated state, though I have never met with it wild; its timber is strong, tolerably light, flexible and straight grained easily worked, of a pale red color fading to light brown, and very superior for direct cohesive strength; it is used for shafts spokes of wheels and framing of carriages, handles and helms, and answers all the purposes of Ash in England; its specific gravity is 800, unseasoned it weighs 58 to 60 lbs. the cubic foot and 50 lbs. seasoned, it is largely imported into Madras from Ceylon in*



*Cuzcum brylanticum* (Gardn.)

**PYGEUM CEYLANICUM. (Nat. ord. Rosaceae, Tribe Prunee\*)**

PYGEUM. (Griseb.) *Gen. Pl. I. p. 610.*— GEN CHAR. Flowers sometimes polygamo-dioecious, calyx deciduous, tube broadly campanulate or spreading, teeth 5-6 (rarely more or none) small, petals as many, usually resembling the calyx-teeth inserted into the jaws of the tube of the calyx, stamens 12-20 inserted with the petals, filaments filiform, anthers didymous, ovary superior sessile of a single carpel attenuated into a terminal style, stigma peltate, ovaries 2, pendulous, fruit dry coriaceous or drupaceous usually as broad as or broader than long with a smooth kernel, containing a single seed, cotyledons very thick, radicle superior. Trees, leaves alternate simple entire coriaceous, stipules small very deciduous, racemes axillary or lateral solitary or fasciated, flowers small. (Polydonta, *Blunt Bijdr.* 1104. *Folystorthis*, *Bl. Fl. Jav. Prof.* VIII.)

PYGEUM CEYLANICUM. (Qairn.) A gigantic tree, leaves from elliptic, very obtuse at both ends, to sub-orbicular glabrous, when dry of a rusty brown beneath, 4-7 inches long by 2-3 broad, petioles  $\frac{1}{2}$  inch long, racemes shorter than the leaves, axillary solitary, covered with short adpressed hairs, flowers small\* petals 5 reflexed, externally hairy round the margin, drupe shortly tomentose, at length subglabrous.—*Gaert. Frut. A.* 218. *t.* 46. *Polydonta?* *Walkerii.* *Wight III.* i. 203. *Pygeum acuminata*, *Coleb. Linn. Trans XII.* 360. *t.* 18.

*This tree is common on the Anamallays, and I have also met with it on the Shevaroy and on the Pulneys and Tinnevely ranges; in the Anamallay sholas at an elevation of 4,000 feet it grows to a, % immense size and occasionally has very large buttresses, I have seen trees much' over 20 feet in girth with an enormous spreading head. Nothing is known of its timber in this Presidency, it is reddish colored and apparently adapted for cabinet purposes, and the tree has no native name; it is also found in Ceylon, where it is called Oalmora; the seed when bruised has a strong smell of prussic acid\**



### GLUTA TRAVANCORICA (Nat. ord, Anacardiaceae.)

GLUTA A (Linn.) *Qtn. Pi* 1. 421.— GEN<sup>l</sup>. CHAR. Flowers hermaphrodite, calyx spathaceous, splitting irregularly, caducous, petals 5 rarely 4-6 attached to the base of the torus spreading imbricate, torus stipitiform, stamens 4-6 equal inserted on to the torus above the petals, filaments free, ovary stipitate, depressed globose oblique 1 celled, style lateral or terminal filiform stigma simple, ovule pendulous from the funicle which rises from the base of the cell, fruit baccate pedicellate, with a rough brownish rind, seed shaped to the cell, cotyledons very large connate fleshy, radicle very small obtuse incurved. Trees, with caustic juice, leaves alternate towards the apex of the branches shortly petiolate simple oblong coriaceous, panicles axillary or terminal. (Syndesmis, *Wall, in Roxb. Pl. Ind. ii. p. 314.* Stigmara, Jack, *Mai. Misc. Ex. Hook, Comp. Bot. Mag. 1. 267.*) •

GLUTA TRAVANCORICA (Bedd.) A very large tree, leaves crowded about the apex of the branches alternate entire elliptic attenuated at both ends to obovato-elliptic, 4-6 inch long by 1J—If broad, glabrous on both sides, petioles very short dilated, panicles terminal and from the upper axils crowded caespitose with very short adpressed pubescence, calyx sub-entire or irregularly and slightly 5-toothed, splitting irregularly and early caducous, bracts ovate cymbiform, petals 5 imbricate, fruit depressed transversely oblong with a rough brownish rind, about 1 inch long and \ to 1J broad.

*Mr. Athol MacGregor, now the Collector of Malabar, first brought this tree to my notice as a valuable timber tree growing on the South Tinnevely mountains and known as the Shen kurani. It is the first species of the genus found on the continent, though about 6 species inhabit the Archipelago, its timber is reddish in color, weighs 40 lbs. the cubic foot when seasoned, has a fine grain, takes a good polish and is well suited for furniture. The tree is most abundant in the dense moist forests on the Tinnevely and Travancore chain of ghats above Paupanassum and grows to a very large size, trees having been observed up to 6 feet in girth and of immense height with a very straight stem.*





**ALBIZZIA AMARA.** (Nat. order Leguminos»; Sub-order Mimose®.)

For Gen, Char, see under «A. Lebbck."

**ALBIZZIA AMARA.** (Willd.) A tree, unarmed ; branches terete, young shoots petioles peduncles and under side of the leaflets clothed with yellowish tomentum ; leaves bipinnate, pinnae 8-10 pair with a gland on the petiole and between the last pair, leaflets 20-30 pair, when old somewhat glabrous, stipules lanceolate, peduncles solitary or aggregated long and filiform in the axils of the upper leaves and racemose from the abortion of the leaves; flowers small in globular heads, corol 5 cleft, stamens long numerous monodelphous; legumes flat thin broadly linear 3-6 seeded. *Acacia amara*, Willd. *Sp. 4.*, p. 1074;—*W. A. Prod. p. 274.* *Mimosa amara*, *Roxb. Fl. Ind. ii*, 548.

*A tolerably large tree but of low stature, very abundant throughout the Madras Presidency, Mysore and Bombay, and also inhabits the north of Ceylon. It is called NaUa renga or Nalla regoo and Narlingee in Telugu, and Woonja in Tamil; it has a maximum height of about 30 feet, with a girth seldom exceeding 5 or 6 feet. The wood is dark-brown, mottled, and very handsome, strong, fibrous, and stiff, close-grained, hard and durable, superior to Sál and Teak in transverse strength and direct cohesive power, it is much used by the natives for building purposes, beams, &c., and in the construction of carts and ploughs, and makes excellent fuel, being most extensively cut for the Locomotives in the Salem district and along the Bangalore line; the natives use the leaves for washing their hair ; the tree grows most rapidly as coppice.*



Journal del

*Mischka G. L. n. c. 1850*

Dumphy, T. H.

MICHELIA NILAORICA. (Nat. order Magnoliaw».)

MICHELIA. *Eta. Gen. Pl. 1. 19.* — GEN. CHAR. flowers hermaphrodite, sepals and petals all similar and colored, 9-many, in 3 many series subsistent, anthers linear subulate interspersed between the petals, stigma stipitate, ovaries many, styles one called 2-8-many angled, carpels arranged in a loose spike of a consistency between leathery and woody, the apex downwards, seeds several externally fleshy. Trees, with entire leaves like the Magnolia, flowers large axillary fragrant white or yellow.

33555.

MICHELIA NILAGIRICA. (Zanker.) A handsome tree with smooth bark, leaves elliptic acute, or oval obtusely acuminate or broadly obovate, glabrous above, beneath very variable in size 3-5 in. long, by 1½-2 broad, petioles ½ in. long, flowers white, sepals and petals 9-12 exterior ones lanceolate acute, spathe silky, stamens numerous shorter than the style, fructification, numerous, orange. 2-4, carpels 2-4, raised at the apex of a spike 2-3 inches in length. *Zanker Pl. Ind. t. 20; — Wight III. i. 14; Icon. t. 938. M. Palmyrensis, Wight III. T1\* V ff. I. o' lifoli\* gaw\* at Wdkori. Wight t c. 13.*

This is a very ornamental Magnolia-like tree common on the higher ranges of the Nilgiris, Palneys, &c., and on the elevated mountains in Ceylon, and occasionally met with at lower elevations in our western forests. It differs considerably in the size and shape of the leaves, and size of the perianth-leaves, and Dr. Zanker sends several species of the S. India and Ceylon forms, but they all run one into another and cannot be properly distinguished, at least more than a few. It is called Shanboogha in Tamil; the wood is strong, close and fine grained, but very hygrometrical; it is used for building purposes, and is called i, btam\*...d rafters.



*Thaspia populacea* (Cov.)

Dunlop del.

THESPESIA FOPULNEA. (Nut. arbor Malvaceae.)

THESPESIA. Corr. Gen. « L 208.—GEN. CHAR. Bractlets 2-5 small or deciduous, calyx minutely 5 dentate, rarely 5 cleft, column toothed at the apex; ovary 5-celled, each cell with a few ovules, styles club-shaped, much folded enc. from Hibiscus by its confluent stigmas, more woody capsule and obovoid compressed seeds.

**i** HESPE „ popoOtt ceo \* - 5«i - well as the petioles, pedicels with leathery entire or sinuous deciduous segments as long B or longer thnn the Milliri stalked, podnuclos iliortw tliM tl.« potolo. jnoMyi M » ou.» K 1 times exceeding tbo caljXj fthlit ro^diah deproawd .1 lightly «p.ifabped «ntil e or slight iy f. lobecJ odyx, cawl »«Hy - .«>M' "2 ^ each call o [ ^ f mit taga comprc9,c a Homily ..ear beaked 5 cells I te&hkwt or opMbg to \* ilmfc o ^ " 1 « « e to » Hibla cug populneus, L.,.... S/, 976. the hilam, roundish above, twta pul>e<nt i.ervow\*lr>te. /o^ 1 - »»•

A handsome tree when in flower and of very rapid growth; it rarely exceeds 15 or 20 feet in height, or a circumference of 6 feet; it is abundant throughout India and in Ceylon as an avenue or cultivated tree, particular near the coast, but I have never seen it in forests; it is very generally known by its Hindustani name of Pāras pipal, and is called Pāras and Pārasay in Tamil, and th\* Por in tree by Europeans, and in Ceylon its native name is Soreya. The tree grows very readily from cuttings; any large boughs stuck into the ground rooting readily, but these trees have always the heart wood very unusual, and are said to have a quarrel and ugly appearance; handsome trees are grown from seedlings, and their timber is highly prized, it is strong, straight, even grained and durable, of a pale reddish color fading to reddish brown, and is easily worked. A cubic foot unseasoned weighs 10 to 12 lbs., and seasoned 40 lbs., and the specific gravity is .784; it is much used for gun stocks and for ca. 'antDiu dixair. as is also the bark boiled in water, and the latter is given internally as an alterative.



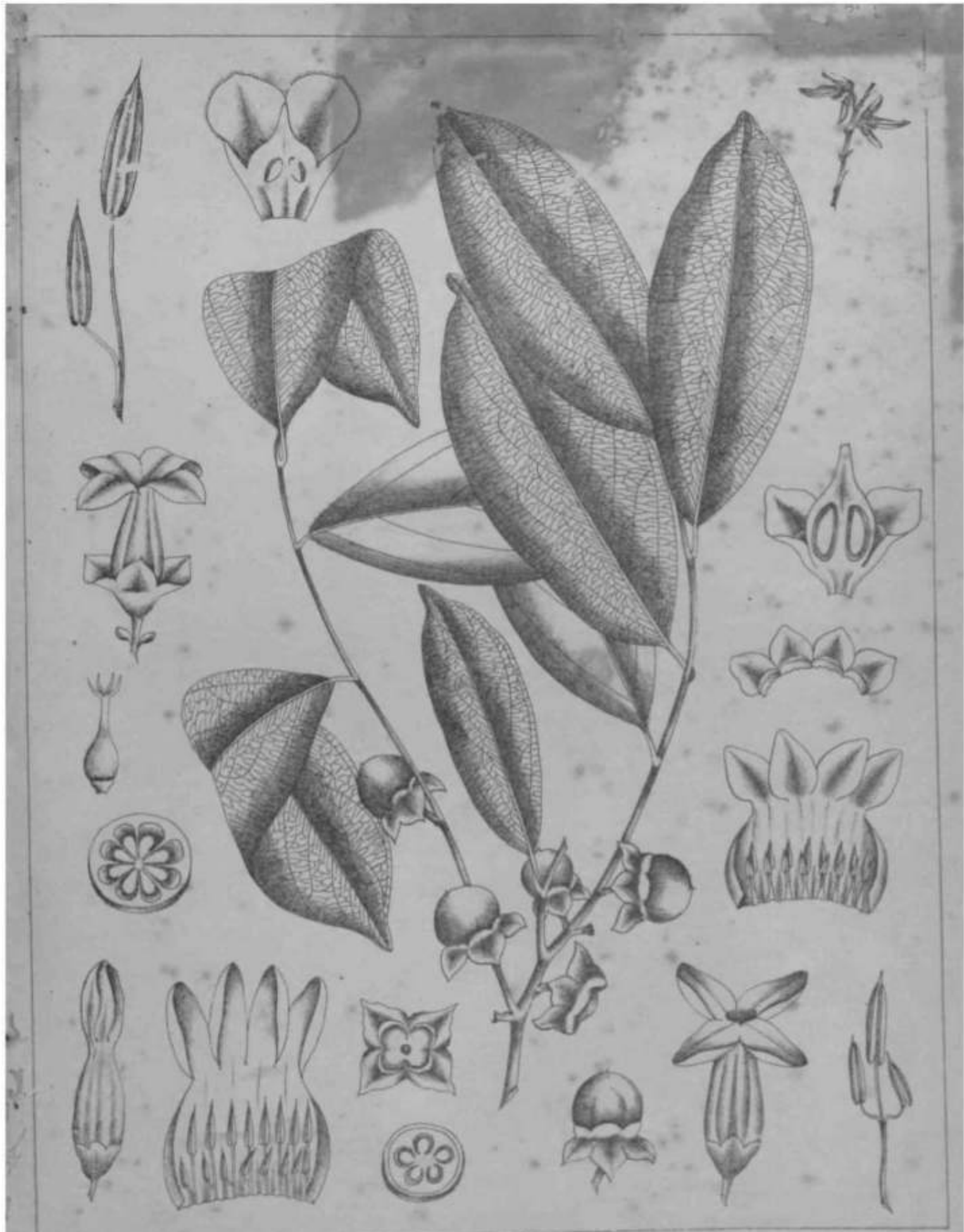
MESDA OOBOMANDELJNA. (N'at. order Guttifcre; Tribe Calophyllwe.)

**MESUA**. *!tna.* <Un. PS. 1. 176.-OKN- CHAU. Iio u m iwmuithrodile, wpulj H, petali \*, »Um<JOI Btanwuo\* fre« or cntinat at the very 1 an, *Glomata filiform*, Mithen uwct oblong) celled <I\*hudng longtndimally, vnxy a cnlod, ttyic tl'jngstc, rtijpna ptiitile, ovttl« t in ouh ctJ erect, fruit frufe lathy to nowly vo\*ly am odlod Amu UW uWiraal.-m of the dim phnrot, I v>hiU 1-4 MfM ml ttuUbtq, wti-ltiii.m thick fliahy, ntiitjf very nu 11 Trwa, &BVM nimp» wjlong lunu^UH n-rj<sup>1</sup> oltinioH rtotc, [[Uomtu] listaUli, tuwon bigu while aiUUry at termiatd fultituy.

**MESUA** C»R(JMANI>KLISA. (Wight) Lwww narrow LwceoUto ending in \* long tapering blunt point, \*)*inidg* than pale or IOtt or 1M\* glueeoui beueatk, 2J 3J tnotiM long by 1-t\$ broad, patiola\* } of nu incii long, flowers axillary and terminal tbotit 1| inch across whon fully expanded. jiwluieka aUorUr than tbt pttiolea, ir^ftt VMIM K. 117. Meson ferrea, IP. A, ProJ p. 103 (ff«(, tyn.) MMU& pulchdb, ^Aou4 t£ rrttau, a Cejlou trw, ia rery closely allied.

fAj u a very haw 'Mfiu (rt eomiMK in mott n/tkt iHOK<[ai]/or<>ii os iA< uwit<ni <id^ e/oxr Frttidncy, groici.tg with iu tongentrJf.' *spicosa, froii» icAi'-i iV EJ nily toon* « \*i •''' w w' imatltr leaivt and/loatn; it itgn,raUy knauin. by the name of A'AghA or A'dghA Oiompo, and is called *Nas* /«/ a«-i J/lay Na, if lit Tamil,unit on th'twtftllt/gha: where < fry abundant and iu timbr much i>mm;ititt allied *Nir Sang* to dj(i>7iu«A it fram i/ritta tpf'i\*i WAK/< called J I '''. -1/( A-) M\*twu hatn a \*fy tutrd littuy rtdduh <#lor\*d timber tnamu as Iron wood and park) • the hndtU nni htari\*tt timbr in India, axtmtn dUUte p#ry nucA »/<H M m, « I\*d^ turn (A\* tdg\* ofit&tir axa, i As wood is most valuable for • mgiHatrinn purpoH\*ami h largely v\*d in Ceylon, atiAl>U tptcit\* ii mueh in utt mth tin natret in Tinn\*0y, and u foattd UJIOU as ant of their bat titAtr, but iu tkt Vfnad a«d Otktr part\*, vhtre it tt alto oiU ndaail, it it not nfi'i'iwI and umi hwdty to bt knoan.





**DIOSPYROS I:I:I:V U** (Nat. order Ebenaceae.)

**DIOSPYROS.** *Dalziel, DC. Prod. viii, p. 225.* -GENT. CHAB. Flowm diarelou, *ca* y 4-6 lobed or very rarely splitting irregularly  
 feol t nT-iiUr f>mp<aiila(e or liyjk.er >t\*tit' rm mUtstlun MOTolum 4.1) *hibid*, ttunm In Itia mtl\* flmrn SS) grnaraU} about 10 flattened at the base of  
 the cupul or on the disk or partly on both, filaments 1 «iaal lCdgtl} <r Xiaj niinjui uid tuh btuiug 1-7 »ni'i«r», nniLer^ four lanceolate, very abortive,  
 stamens in the female •man O-t-S or mur» cttritii, OV\*TJ (-3 or Mtoly IS celled utiilly Oi-verc} at the lux; •iib ib\* <om\*»  
 large shr. ••••• or •••••, leaves ••••• Itemate nutry mbappodb, ilowcn miikrjr, U» fcm>le Mlituf, the maio IW(\*)IT In title slanting.

**DIOSPYROS EBENUM.** (*Retz.* < A lnr;o tree, *loaves* glnbroua atitiim; mem<sup>1</sup>, anaceous or slightlj coriaceous, oblong  
 obtuse or shortly and bluntly aoiiminate't, 2-7 inches I lon); by | to 2} braul, petiolei 2-1 lines long, male [ltd inches short pilose bracte-  
 ated about 3 Sowers t. calyx ftuiniel-ntajfed slightly >ili>se, 4 cleft at tlio upcx, ourul lan g hypocrateriform shortly 4 cleft at the apex,  
 MUmeDi 3 10 L&rtcd on the biue vt tlie corol, gouerally 2 cleft, each division becurin^ an unlliuur, mo (pi which is much lotinrJt". The  
 other, auto • Limes 3-1 clet'twith as many nuilier.i, no rudimoit nf ait omry, fotii>le if wury, oicn!y^2 fcr>€to<t<Hf mich larger than  
 in the male, deeply 4 cleft with a callous elevated, 4 lobed marginal ring round the mouth, stamens 8 with double anthers (sterile) in-  
 •rlL I Dtt to the base of the corol, Rligratu 4, OTMJ 8 tdled, al'iuieu Dot riiiuom. *DC. Prod. viii, p. 234*;—*Wright's Leays*, t. 188.

*Tkit t.tliabU tre\* it Mi* succosum in our u 'jmtCainJortU on both tidu of tit i'rttt'-Aiiicjr« <rf • n Cti/ton , fr i yields the best kind of  
 Ebony, *gus Iraig ju-b'ael- h* a penstriae slip' 'fy irtated wth tfllur- c breien, it it firry Aoavy, f(uif and even grained, and stands a high polish,  
 unseasoned it weighs 90 to 100 lb, the cubic foot and 21 lb. wood, and has a specific gravity of 1.296; it is used for inlaying and ornamental  
 turnery and sometimes for furniture, but there is not much demand for it in this Presidency. The sap wood is white, hard, close-grained and strong  
 but not durable, but is used by the natives for various purposes; it is called Nallati in the Cuddalore and Karand hill forests, where the tree is very  
 (MMH OB well known. The tree figured by me in my Annual Report for 1865-67 as *Diospyros* *...* if distinct as a  
 species, it differs however in each of the stamens in the male bearing 4-6 anthers instead of generally only 2 and the stamens in the female being  
 single (instead of double, its leaves turn very black in drying; it is called Karu mbri in the South Coovim forests, where it is very common both in  
 the heavy forests in the plains and on the ghats.

*The plate represents a fruiting branch of the female tree, a flowering twig of the male, and dissections of the flowers of both sexes.*



*Diopyros pumila* (Ham.)

Windsor del.

DIOSPYXIOS EXSCULTTA. (Nat, onto Eboæoosi.)

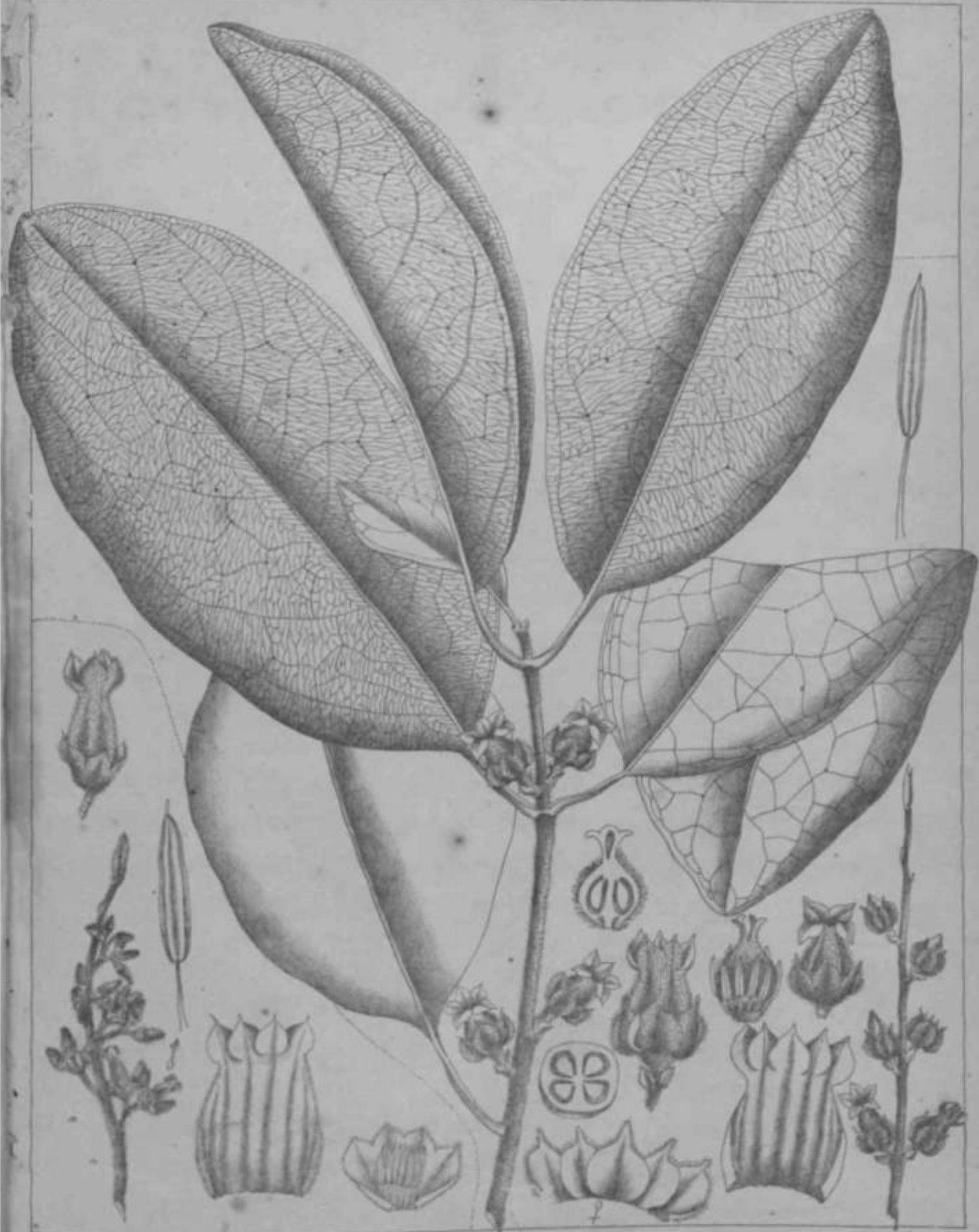
Fur OMU. CUOT. \*\*\* under " DioipjnM Elwnmn."¹

DIOSPVKOB BXSCULFEA. <H\*fe) A good ri«d trw, <d l bo yoinp p»rt. cov^d «ith nety down |«™, alternate  
male pe-

and oppos...  
ilunclaa a  
of the petioles, 3 flowered, calyx campanulate, 4-5 lobed at the apex, lobes... erect, corol  
gibbous 4-6 parted. \* \* \* \* \* very downy rounded at the apex, stamens 10-15 seated on the hairy receptacle, DO rudiment of an  
ovary, female flower solitary short pedicelled, calyx deeply 4-6 parted with the lobes reflexed at the margin outwards, corol 4-6 parted,  
divisions rounded at the apex, stamens none, ovary round hairy 4-5 celled, styles 2 each 2 cleft, fruit size of a pigeon's egg edible.  
Dt. Prod. viii, p. 223. UJofpyrat tom\*nluæ», Bot. F. Ind, ii, p. 532.

This valuable tree is not uncommon in the Cuddapah, Salem and Kurnool forests, and probably elsewhere in our Presidency, and is found  
in  
today, it grows to a considerable size and yields a valuable jet-black ebony very similar to that of ebony; in fact I doubt  
if the 2 woods could be easily distinguished; it is called Tanki in the Cuddapah district and Tambourne in the Bombay Presidency. The tree  
shows  
taltiltUx  
in the cold season, and they appear again with the flowers in the beginning of the hot weather.

a branch of the male tree in flower and a branch of the female in fruit, and diagrams of both male and female flowers.



Complan. del.

*Dasyne highkiana* (Willd.)

Dumphy Lith.

**DIOSPYROS WIGHTIANA.** (Nat. order Ebenaceae.)

For Gen. Char, see under "D. Ebenaceae."

**DIOSPYROS WIGHTIANA.** (Wall.) Arboreous, young parts and inflorescence densely velvety with golden or rust colored down, leaves alternate and opposite oblong or oval acute or obtuse or sometimes cordate at the base densely velvety beneath, less so or glabrescent above 3-7 inches long by 1 to 3 broad, petioles 1/2 to 1 inch long velvety, male flowers on small cymose peduncles which are the length of or longer than the petioles and densely velvety bearing 6-9 flowers on 2-3 pedicels, calyx tubular slightly 4-5, cleft at the apex, teeth sharp erect, corolla tubular 4-5 lobed at the very apex, lobes acute, stamens about 13 seated on the disk, no rudiment of an ovary, female flowers solitary on thick peduncles which are bracteate at the apex and much shorter than the petioles, calyx deeply 4-5 lobed with the lobes acute and reflexed at the margin outwards, corolla about twice as long as the calyx, tubular 4-5 lobed at the apex glabrous within and outside at the base, lobes acute, stamens 8-10 sterile seated on the disk, ovary 4 celled, styles 2 each 2 cleft, fruit large edible. *DC. Vol. viii, p. 223.*

*This tree is common in most of our dry forests, and until I examined it critically I always considered it the D. melanoxylon, which species I have not met with if distinct from this, but this has always a 4 celled ovary, and quite answers to the description of D. Wightiana as given in De Candolle's Prodrôme; its heart wood yields a jet black ebony like the two former, but the trees are always small and stunted in the trunk, as far as I have observed, and all ebony in log I believe comes from the two former species. It is called Tendu in Hindustani, and Tunki Tumi and Tambi in Tamil and Telugu; it sheds its leaves in the cold season, and they appear again with the flowers yearly in the hot season.*

*The plate gives a flowering branch of the female tree, and a flowering twig of the male, and dissections of both male and female flowers.*



*Diospyros calycina* (Redd.)

Hooker & G.

Dunlop, Lich.

DIOSPYROS CAUTINA. (Nat. order Ebenaceae.)

UIOSI'YIiOS CALYCIKA., (licdd) A good liied true, every *nhtn* glubroui, loatei dark shining green narrow lau-  
O»I«U Mtemialod at the bue, Uperlug tt llie apex into a very blunt point about 3-3J incite\* tang by a little leas Ittiti 1 inch,  
broad, pt>tit,eH about j iticl\* lung, mala ojmen About halt tlic length of the leaves 3-9 flowered, ealx small 4 toothed, coral nrceolate  
very gibbous at the baao 4 lobtd at the apei, brigttt jello\* iu color, jtatnen\* 8 or 6 each irilh S anthers of equal length ploaed on  
the dink aurrouiHng tUe largo mdimentwy ovnrj, aprK of tho anticra ii.iloiwl and meeting over the sterile ovary which latter la 5  
loberf and torniiiiiatu in a lnug acuiiiniiti-iii, iilnneiits ilightly hairy ; female flowers solitary on Wg peduncle\* nmirly luif tto length  
of the leaves, calyx tit 4 rarely only II, Inrge cordate imbricate nor ted tegnenU which enlarge with tho fruit, corn I urceolate gibbous  
^ tube nearly globose, 4 rarely only 3 cleft at the Apes, divisions rflexad, aUminodU none, ovary 4-celled, stigmas 4 or 3 aeatile, fnntt  
globotfr, covered with hairtike scales. *Bidd. Annual Rtport of iU Conterratar of Fortttt, iladnu Prt\*idncij,for 1867-68, (. 1 and 2,*

TAit rtrycurwu\* tp\*ut\* of Diotpgntt h<u only btntAttntd in th\* TinnmUif dutritt and ioalH\*r» pertiew of Madura, tehtrt, how.  
vttr, it it wry abundant in tkt g/utfuratt from, tht/oot \*j> to 3000 (Ht flotation. it iscatitd VtUag Totrrat/, onrf yt.Wi a vataabU light colored  
vood, wAicA ii mucA li ine in tKe Tiiwevfty dui' set.

*Tht plat\* fivet a/ouviitf branth o/ bttAmah and unale trtt\*, and duHiliom pflk\* ilovxri of both itxt\* and yOHng fruit.*





Comino del

Wangy. Lich.

*Diospyros Embryophora* (Pos)

Sten...





Agnes S. P.

*Bignonia xylocarpa* (Rac.)

Dumphy Lith.

BIGNONIA XYLOCARPA. (Nut. odor J%ncniA<u;.)

**BIGNONIA** *lim.* DO. ia., U3.-GKX. CHAR. COj\* 5 toothed at iu margin rw\*)j tnUr\* w S-purW or 2-3 tobd, «tol 3 Ujj»d or utatty (quit 3 tUtt tUtWEi 4 fatlle dUjuiiuoui t 5th riorile ; \*otl»n \*iih gUbroui trljt m? nUn dwtncd, rtigtmi bilunelUte g ntpmli with tbi r\*lrw »w/wlj wqrei or flit, pmitioa flu p»nll«d (a the v\*1m; «nd» la \* tiligl\* row nt nch ltd\* at lb\* p»rti(ior, urioeJ an belli i«dt», wing p«DndiL Trte» Or thruln, tut\*\* klmul ilwiji (ipp-wte but »«rj vuiout

**BIGNONIA** XYLOCAUPA. (Roib.) A Ijirgo tree, trunk straight, bark a«h-colora(l radier spongy nod coutidenhly C»ck»d, branches *tpnne*, leave\* upj-ositu bi-tri^iimatc 1-1 Cent bug, leaflets ihort petialed from toml-eordata to obliqueij-oblong entire ftcummate gkbrotu but hard 'J-5 inches long by 1-1} broad, p«tloloa cominun and pattal cluumetled and alt&rpty wngulw scabrtm\* with elevat« d gray tp«ckft faniclo\* terroio«l corymb««o Ijrtncnes M»«nU liioofl dichotomoua with ft single floww In UIB forks aUglitJy IJUb«<sup>1</sup> w«nt, brncle\* ovito-oblong, flowiti luge white with • Unge of jellow Tory fr»gnint, ctlyi ctmpimultte TOeqmSly 5-toothed colored cotol c«mp«i«>li>to shortly tubular wit! 3 rted nmfa curW lobo, aUmcta aa in thogenus with a fifth «teriJaooo, orary oblong with ,n nnanlar disk round ib baao 2-ee!lod with imrawoua ovule\* attaohed to 2 thick oqui-dirtant racepUctei on each iddo o( the petition, it)k Uie length of the #Uro«n», atigw\* at 2 obtong lobw, W[wulo liu#ar vtirioutly bant about 2 kot long by 1-1 j iicltw in diameter, of a ve ry hard moody tenure and «itror««lf rough with mimeroous hard tubercies, I colled 3 volved partition contrary mb-ny, ieedi uusumu winged, cotyljJona thin nouly round emargtuete, radiclo »bort. *ftoxb. Ft, Ind. til. 108.*

A «mm«n trt\* »\* nimort all tkt Jladrat foretn a«d i\* M\$\*nt, Bengal 'and Bonbav; tto Uaxu art ddddwM in th\* odd vntktr and appear again with or « till!\* Hfltr tit \*mwr» in MarnA or April; U i\* a tutntUnmt (rn mi « rapidgvute, and KWMJ o/ tfuf(i- raiiui /or orn»M«t«<J tutrfioiti; it it cuVtd Vadmtarni in Tamil; u«xt brvmuh yttUm, rathtr dott-grnintd, takt\* n jwootpotih, and it KitJ for oibiiut ptpotci.

Tfm plat\* r\*/r\*M\*H only « portion of « \*>wrinj panicle and a WTJF young fruit.



**SPATHODEA FALCATA. (Nat. order Bignoniaceae.)**

*SPATHODEA*. *B.ouv. DC. Prod.* ix, 203.—**GEN. CHAR.** Calyx spathaceous closed when young at length longitudinally split, then toothed or entire, corolla somewhat infundibuliform, limb 5 cleft slightly unequal, stamens 4 didynamous with a fifth sterile, anthers with the cells separate, stigma bilamellate, capsule 2-celled loculicidally dehiscent, partition contrary corky or coriaceous, seeds corky membranaceously winged, attached to the partition not immersed in pits. Trees, leaves opposite rarely alternate, simple, conjugate digitate or unequally pinnate.

**SPATHODEA FALCATA.** (Wall.) A small tree, trunk very irregular in size and shape, bark light ash-colored, young shoots covered with whitish-down, leaves opposite and alternate unequally pinnate, 3-6 inches long by 1½-2 broad, leaflets opposite 2-3 pairs with a terminal odd one nearly orbicular often very retuse at the apex entire slightly downy short petioled from 1 to 3 inches both ways, racemes about as long as the leaves few flowered, flowers white pretty large, calyx a spathe about ¼ open on the convex side, corolla tube longer than the calyx, cylindrical border about ¼ inch across, 5 parted divisions flat equal oblong, stamens as in the genus with a fifth sterile one sometimes present, stigma 2-lobed and capsule linear about 8-12 inches long pendulous twisted in various forms. *Wall. List No. 6517. Bignonia spathacea, Roxb. Ft. Ind. iii, p. 103.*

*A small or middling sized tree common in most of the forests in the Madras Presidency, in Mysore and Bombay, and found in Ceylon or Birma; it is called Wodi in Teligoo. The timber is light colored, strong and serviceable, and much used by the natives for agricultural purposes, building, &c.*



*Asarum canadense Michx.*

Dumphy, Sch.

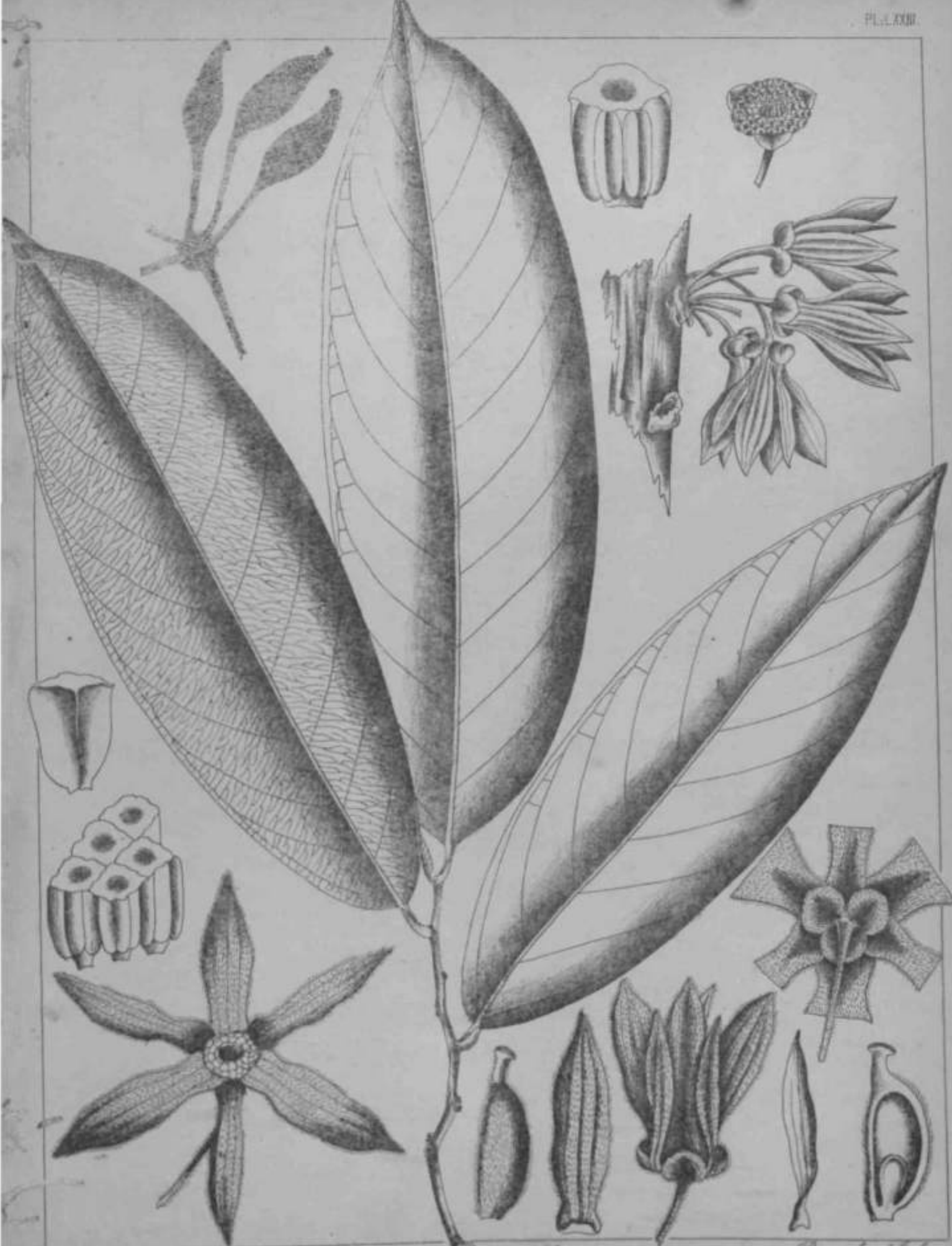
STERKOSPERMUM CITELON01DE8, (Nat. order *Bigoniaceae*.)

STEIUIOSPERMOK. *Cham. DC Pro\**, is, SR-OEK. CIAR. Calyx ooritocoai eup-ihsw>d cyliDdie tuUnmotte odtmely 9 toolhad, com] *tain* itnigt comixmulato llmb WUbko, 5 tobol, alecwQ\* 4 krtilu. and a fifth mull iluile, wtben 2 lobtU niitJ, diik llmlj Q Job<l, ovar *cylindris* •U]BU bibnulkte, e>p<ulo ittngonatu or cj-lindHo olongstn) moubna&evoui, partition coalnry to the ->lvw \*\*rj orilatw ana c<Jikj thlck, seeds long thtnljr wJDfwl talonlly fumaned, except thio *vlap*, la aatdiM b Ui< partitum.

STEHOSPERMUM CHEIJONOIDES. (ffilld.) 1 larg< tree, trunk very \*tndg!jt aod of great Lcight wid *thickness* ^ bark thick ocabroui brown, bnuabeB very imincroua, the inferior horiawtal, above gnditkl; becomiog more on J move erect, luvci oppo- fite unwjunly pinnate about 1 foot long, leaflets oppraito with an odd one (hart peJioJed generally 4 ptir.thi interior \*m<leat obliquely OTH ovate or oblong cutiro pointed sometimai ilitgitly notched about the umrgia, gUBrowent, *about* 4 iucLea bog by 2 broad, psnlclu termulul the larger ramificatonii doooiuU, Uw smaller or terminal 2 forked wiffi a MStilo flower in the fort, pedundei sad *pedicels* round corerad with oblong gray ao\*bf<M <peok<, braeta ncinll enducou\*, flowsr\* pretty large ydlgwpli *vary hagnnt*, calyx 4 (-3) tootW attheaptx, TaitU the two upper teeth biuuUto. di<k % yellow *Ht*>by ring round the buaof tha ovary, fillauants oi In the gonna vitb a 6l\$. itorile on\*, snth<w dnuule, utigma 2 cleft, <apaal< »a>ly 3 tot long Blunder twitted ibarply tetwgonont, *receptacle* of lla aocda »pongy wktb> wifli nUnniata twtchua alonR tha aidea in which the aeds lodge. *Rozb. Ft. Ind-* iii, 10\$;— *Wight Jeeaa*, M341.

Ktit tMjMM (TM it wry <mm< <> ofaw\* a< C< /a<i< </ rttf kadrwPruidr/Ujf, up to \*n tknton of abet\* 3000 fte, and fit A/JHW, Bmbay, Dtngd, liiretah <mf Ciyort, < if general!) fcitaiM 6y (\*' ' » » < n<m< /' < WH < rui ii eo/bd JTD< jora and Moid *Wood in Telaps. Pa* U te JJ<<tay, £».uo i>oiuto in Oyiw. atwi in ZWma *Thaiooppo*. Th\* wood it of a fcUMh/ri oraJi^ ydk» oolor, clHinxd t>en jratwd, Aatiom\*d dumbtt. tMitig uorUH.uidd g%<t \* imwth gkuy tnr<u\*; a evbhfooi wtiffht 07 r., 60 fix. vwawwrf, and 4\$ Wt. tf'fx tuuotuJ. aiul in tpteiJU gravity '»'708; rt\* lapwoW i> rala\*r G-rte-graiittJ, pf a broicmth w&ili coler, and tin durable. Tit vtcd U Mtaci \*\*e4 in AeitMhcibiojr and/or a variety y }ttrpoimbfi iht natinn; tht rettt, ham, anJ Hotter\* an utt-j mtdkinalty.





Morris del.

*Polyalthia coffeoides* (L.)

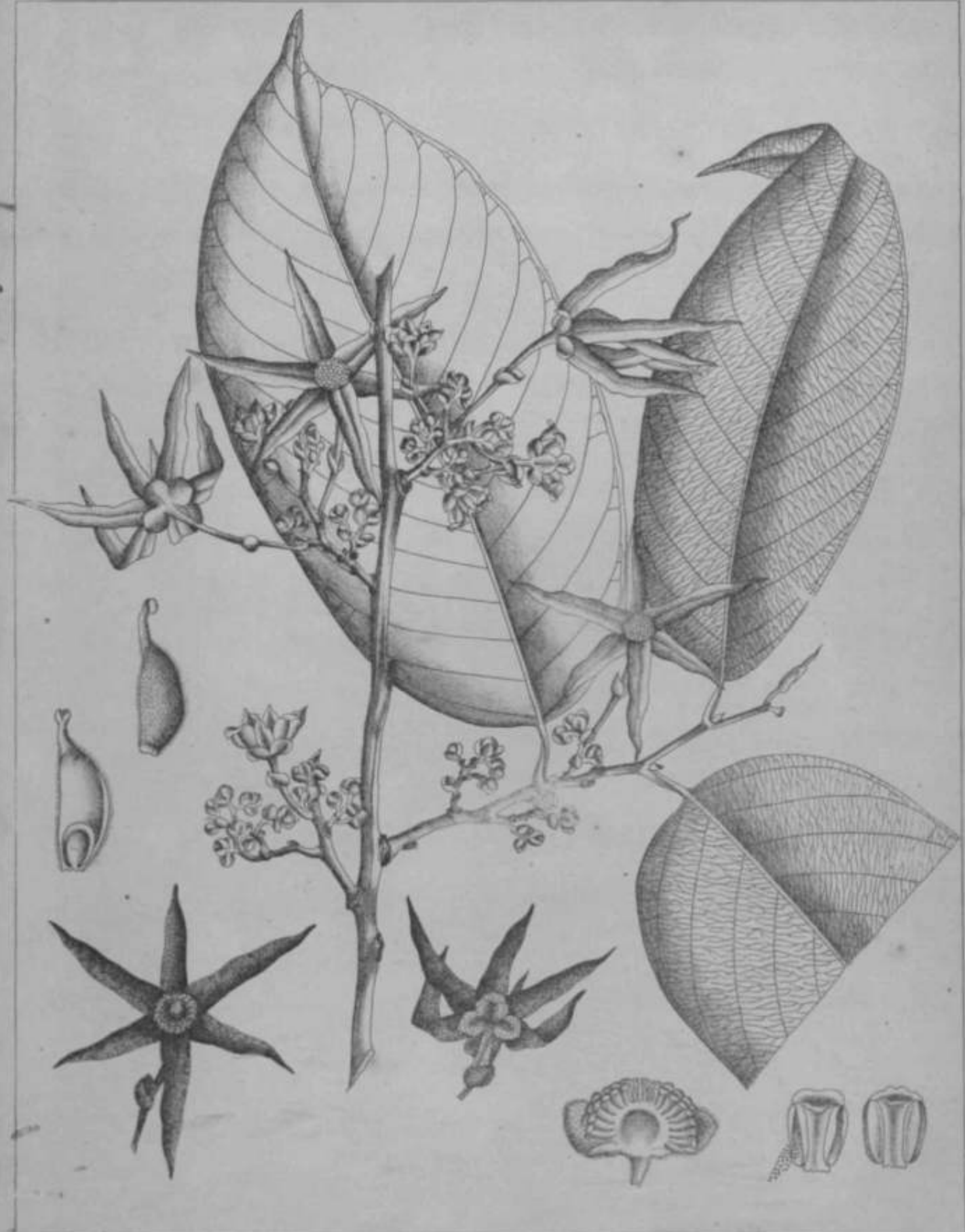
Dumphy Lith.

POLYALTHIA OFFEOIDES (Nat. order Anonacem.)

For Gen. Char. » mxltr " P. *offeoides*."

POLVALTUIA C'OFFEOIDES. (Thw.) A good sized *tree*, young *parU* minutely *piiberulouj*, loaves lanceolate or oblongo-lanceolate glabrous on both sides abining above, (veins very prominent *bliiwitli*) acule *ot r.mfide.1* at the base, gradually attenuated into an obtuse point at the apex, margins slightly undulate, 4-10 inches long 1-3 broad, petiole  $\frac{1}{2}$  inch long, pedicels *senm*] together from woody tubercles about the trunk and larger *brandies >n* solitary or twin in the *aiils* of the *(nlUn* leaves on the *youm*: branches, 1-1) inches long, minutely *&dpraso-pnbralotts*, articulated *nt I ho Inw*. *ui<i* furnished with 2-3 deciduous *aquanue-form brict3>* *scjmls* *itearty* round, *pelaln coriactooa*, glabrous or slightly *Lniry*, *Linoalate*, acute or obtuse at the apex about an inch long, in *tier on ta* rather larger, *citpo* *Is* *puberuloua* about 1 inch long ovoid *uttonuated* at both ends *on* pedicels about 1 inch long, *seed oblong*, 7 lines long 5 lines broad, flowers cream colored. *QuiUerta colfooidw*. *HooL and Thorn, Fl. /M p. 141.*

A *(tttmou In\* in aft tht ntouf fyrrtU on Vit wtttm tide of Ik\* Ifastnu f'rrtjtnty, /itim 1,000 to about 3,100 /<t ttewatiitit, and in Ceylon. It ti vtTjt abuixtaM m t, Wynwl. 'rhrtt tht Kuramban makv n>i\*\*,'from the bark, which m'2< ftth h<u a Otuwj tuutt of au.mnnia. The tree is found in flower at all seasons but most y'ieiJti/nltg ta in March mvi April, i I *www* *settiv* / <f it\* << ber, the y«>>t '«>> wnt« i-nt a most brilliant red color, and the tree is highly ornamental*



Clarke, del.

*Polyalthia fragrans* (Poir.)

Boissier, L. et

POLYALTHIA FRAGRANS, (Nat. order Anomaceae)

Far Gen. Chir. Me under "F. *ceriseoides*."

**POLYALTHIA FRAGRANS.** (Dak.) A Urge tree, leaves ovate, oblong or oblong-linear, rounded at the base, generally oblique, very prominently veined, especially beneath, glabrous above, slight pubescence on the costal and basal veins beneath, 4-9 inches long, petioles broad, petioles about 1/2 inch long, peduncles about an inch long, from the axils of the fallen IMTCI, podicels digitiform, 1 inch long, and (as are the calyx and petals) woody-papery, furnished with a half cup-shaped bract about the middle, sepals small, rounded, petals 1-1 1/2 inches long, narrow linear attenuated at the apex, lobes equal; torus dilated depresso-globous, carpels 10-20 oblique ovoid 1-1 1/2 inch long, hairy pubescent, long pedicelled. *Dah, in Hook, Bot. Beechey, iii. 206;—Hook. and Thunb., Fl. Tind. 4ft,*

*A large tree common in the mountains of the Himalayas, 2-3,000 feet, in Malabar, on the hills of the Western Ghats, and probably throughout the whole of India, from the Himalayas to the Cape of Good Hope.*



Goussier del.

*Mitropha guianensis* (Raddi)

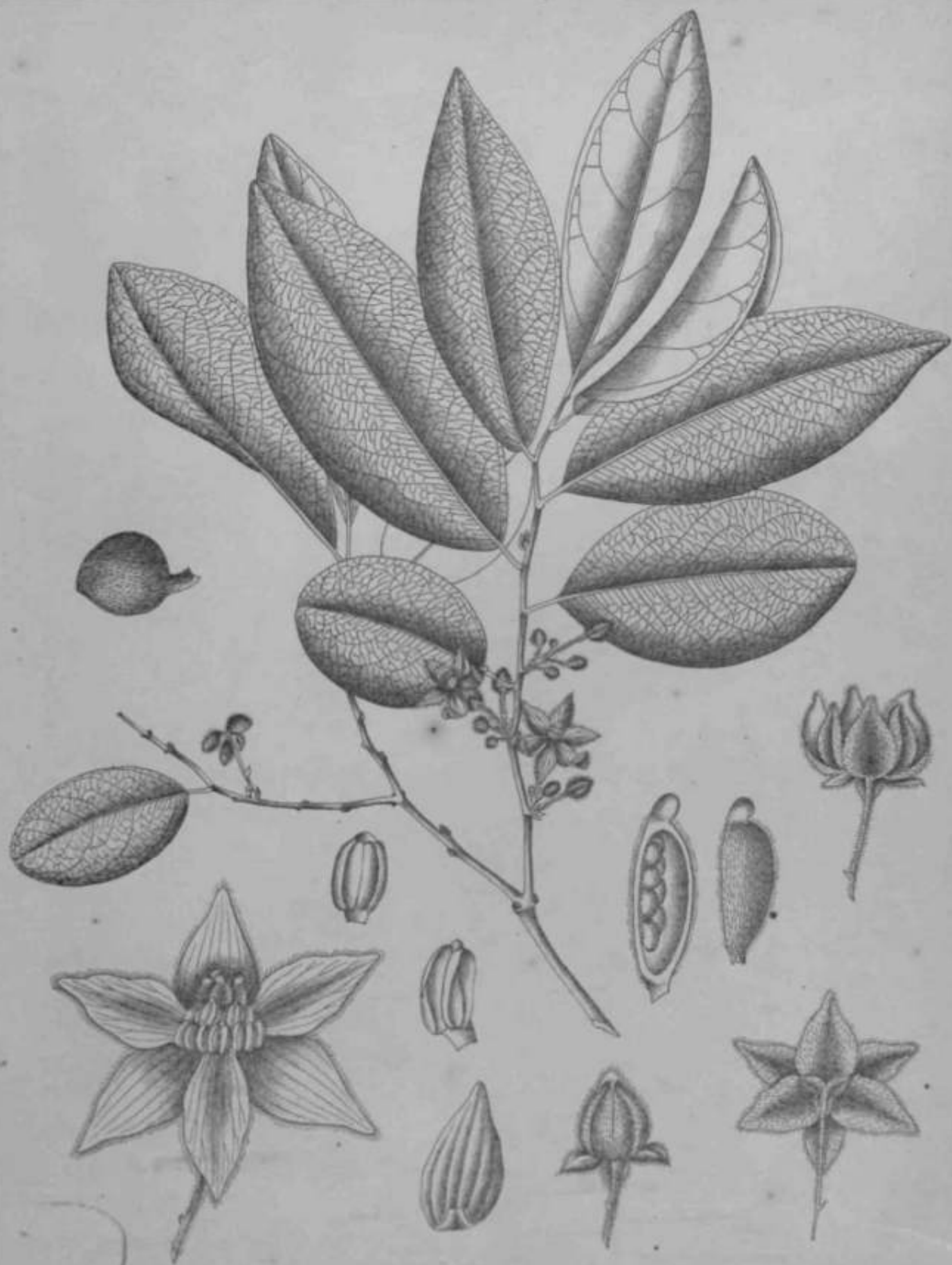
Remy del.

**MITRKTROEA GRANDIFLOBA. (Nat. onlsr Anonae\*\*.)**

**MITRKTROEA.** (Blumo.) *Bt\*tk. W Hoot. 0c\*. Pl. p. SS.*—GEN. CHAR. *Supal* i mull. p.ub if, vulv.U in a uriw, «t«ri«r Urtr  
 furnished with whu, Ktontimai panutsnt [»fl\*c tho inleriur hive lk) Ion) «H ionroMin^; inilw, Mrtlar aogninU.U onnninnt iuto» roitrtrfortn mp ct,jr Ili,  
 •U\*, ium«ii nutn<:r,ait <L>n«K piet»J ubloag eiio«\*lc, or\*ri»t ign m oi oU™«, -yie oblong -or U'tneii'», ovules m«y !u on\* or S Hrin DO tha  
 \*i«jtr. r«ia oftan ol Lugo ui«, ICITH curi«m«s.

**MITREPHORA** GftAN'DI FLOHA. (itedJ.) A largo tree,young pint\* minutely auKo-pnbcaeeiit, lento\* ovule Innnulate,  
 or elliptic with a short blunt acuuiiiialiuu, thinly cyrUceou\* glabrous mid shining above, yhiUrwicaiit beiiioalh, with hairy glands iu tli  
 uiU n' the veitii, -t-j incht\* luiy by I}-3| **bnud, pttMn** about j an incli limg, podanclen Icaf-nji^usod furnished with a bract bolow  
 each flower, 2-3: tWoied ahorwr thau the petiol««, fluureiit nubseMila, bud glub^M iL-iivly *aureo-pul*-scent, exteriur ijctuls I la I J inches  
 fengi by J tij j «f «n inch broad denwly a4[>res\*iidly vohitinotu on the ouinido, **Mb-gtabrou within, pan** whitto **ttuniag t • jctlow,**  
 into **riorpetftli** J to j of an inch lout; trkngaUr »t the np-x, with A l»ug h««i cf.nv, very hairy a( the \*pex, gJahrois bolov, wfite  
 be»utifully \*traaketl with carmine, f;rmng a n.itrephora «. (» mar the geuitalis, early dtwlHilimr utitmaus and ovuri-s indefiIt\* n\* in the  
 genu •. ovnl»i 4 6 in 2 wrica, young carpels du«ly welvatti', matum .iHtiui **tha \***» of i **hMH** out globoic mid I soedts-l, or oblong and  
 2! **Hedsd** flUCOUI with flttiM uhnrttonioiitiiuu, ;ui 1 fumi.lied with a mintd furrow **down** -he whole length.

South C\*a-trit /hat/or—tt, tltmio\* about 2,000 feet. A large very handsome tree; when in full flower it is very beautiful, its large flowers  
 rinij i( oj fj't rfutefw oi"tf (v- appir, ! i « of a Magnoliasus than an Annonasus tree, the three inner petals or mitreform cap are early deciduous,  
 •it the IhrM ontrrvtw tn<-> yn nfy iocrtatt i\* li « and turn from pure white to yellow; the timber is very tough. The specimen figured was gathered on  
 the Coloe yhat.



*Aphroaca Madrasensis* (Bahl.)

Gray & Sons Lith.

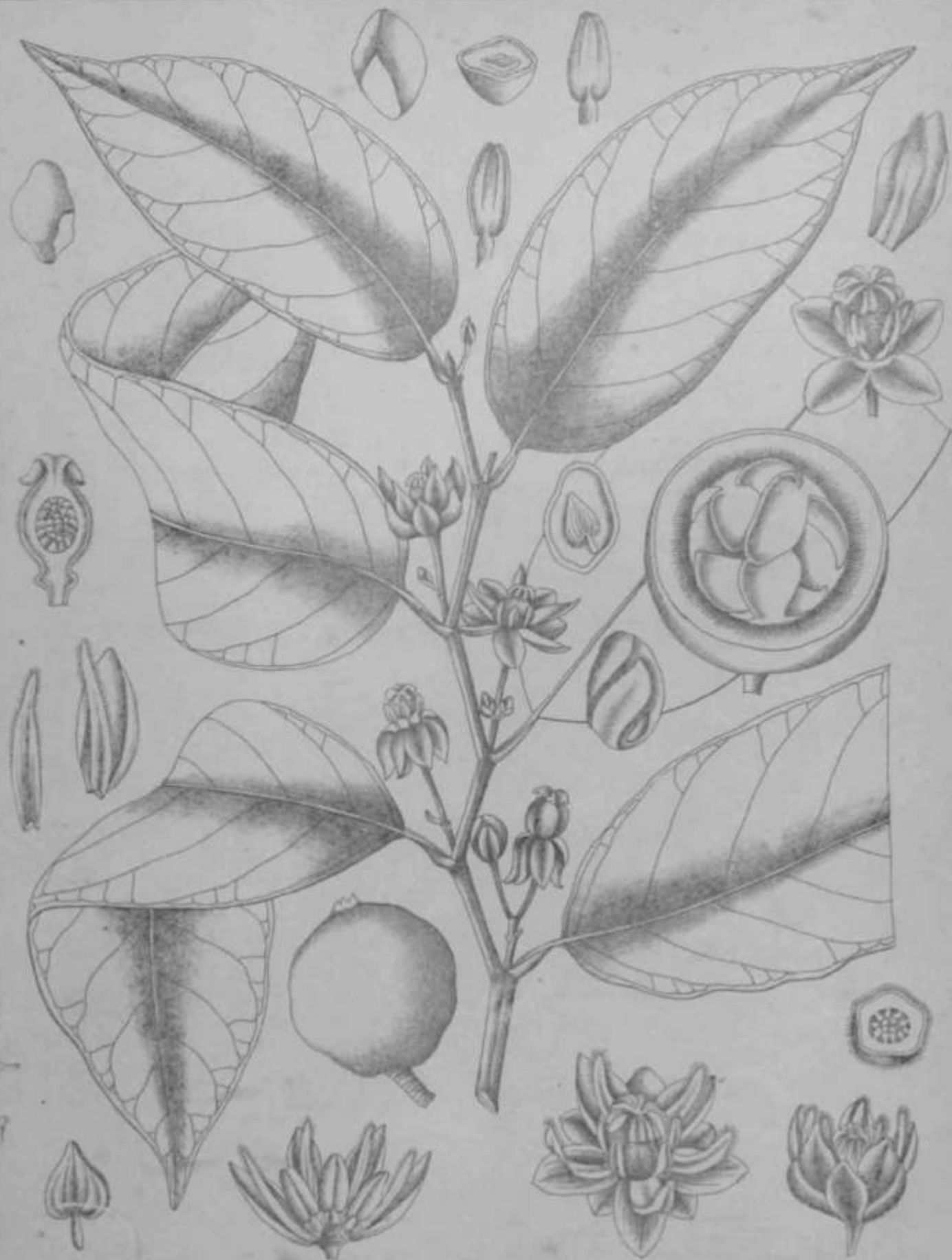
ALPHONSEA HADRASAPATANA. (Nat. order Anonoete.)

ALPHONSEA. (Uook. (eL T.) *Gtn, Pl. p.* S3.-GEX. CHAB. Sepili Simill, petdi 0, nln t ilo t Mriet, autwquil ov.te qMln or »pr»»dlnc  
•Utnoai G laity, bkty imbricated, canDecdivo ipinilit\* wd (lightly produced beyond th\* oorupiouooi darttl »oUk«r oclli; ttneu bcmijihcril, atirin 4,  
J- (rvri;tolttu)-ntyl«obl»BgordopreM»d,oruU\* 4-8 bSKiitivn th\* veatnl tutut\* (»rrwtlj 1 erw1), (rult podloclliw. Tntt with terything  
iwWHu k«are«, Uowcn «na!l luddad.

ALPHONSEA MADKASAPATANA. (Bedd.) A tree, leaven glabroua, vary shining OU the tipper surface, lanceolate  
or «<li>ticu-liuiu!okte or dceasi anally oblong or ovate, coriaceous, prominently reticulated beneath, obtuse At the apex, about 3j luclics  
long by 1J broad, petiulea about J incli long, ruguluto glabrous or ilightly pubernlous, peduncles leaf-opposed ur nbovu tin nxiU, very  
•bort, pedicel\* 1 «, i to J nti inch long, pubcrulous famished with a bract belov the middle, Dowers bright yellow, sepal\* onto  
rim»U, petals about | of an inch loog, pulicmlou\* on the outside, ettmeni 12 in 2 •eriea, ovnriw 3-4, <tyle subgloUwe, slifditly curved,  
ovules about Sin 2 rows, efrtpel\* wmd rulvo-tatneutOM.

A very kaadtom\* tperyretn iXadt priding trrr, wmmM on tank\* of ttrmmi cm tht CmMapah o«f North Artol fülls.fr.,,,, mt gnat  
levation. up to 3,000 ftd, I ant nut aajualntil with it\* timbtr : it ittctll worth) 0/ cultivation.





UTDN0CAI1PUS iLF1NUS. (Nat, order Bixinwe.)

IITDKOCAKPUS. (Owta.) *BemA*, and *BvA*, *On. PI* f. 1W.-OKN. CHAR. Ploww. dkcdmu, Mb!l\* SHJ.liuct arncb UbriatM d, petals 5, scales 5 opposite I tw |»Lili. M»l\* fluwnr, I U M U S-S, kntfasn oil-nig uniform fiind tin ID Un llim nti it thulr bun, no m<lfm>l of >u ur\*ry. *Vtnuit* flwv. • Wmt<6><u *S atuiy*, iligmu 3-0 M nuny u the p|u>t< la the «TWJ. MMU\* ctill.tat, or on verf ili'trt «lj IM, fruit l«rg\* giubote, p»rlcirp woody, seeds nmm MM wtlh • onubuwtl thriitfJ t»\*t«, (t bum HI (lixhy, (yityloJont o>t< foliw\*oui pit Hurt\*, Tr\*H, liira abort) jr p\*dolkt\* Mtnt » » \*ttii<. r«<D<« <i!>»rj- taw fluwiiwi. O<rt, fruet, 1. 148, I 60.

11 YDNOCAUPUS ALPINC3 (Wight.) A very large raronm trrrr, 70-11HI fcot liijjli, lu»v«« ffiternato ovule aeon:male entire jr'atd-mi\* 4 6inches long by t-3 inches bronl, when you»g red, •fttrwanU dt>ep green, \*«p^la all oqiul retltied, peUU ovate lanceolate glnbratu. scalw nvrow Uncuoiote u long u the p«fift ciliated luwurd\* tlio nj<\* ; tuale, atomtua 6, lilamout\* much *ah orter* lli>n the petnU glubrouj, anther\* obtuse ; fetealo, cnlyx, cgrul and stirnens in in tliu mala, but tlio Utt<r sterile, sti^niM 3 acsaito obcor- 'date )>TG>ding, /rait (Us of MI tppls cl>li<d ritli ili'frt bcjivu hxas&taa nntu>tdunyn white fli-slijr palps nuUtti elongate pointing to the hilum. *W^hi. ie. tub. Hi.*

X rr'f hümhoii, tree with • beautiful / «liage, com.iwi mi thr tfügi ia, up to nearly 2,000 feet, and on the Cüctul hilti TmmvtUy, ut (in ri\*vat<m of 1,100 l<f, awl probably ihro'fjhotit fV wrifwu yA«> o/Madnu; ui- in Ceylon, elev. aVjw 1,600 ftrt, colM Hf(ir<t<tl' on the Nihiria, v i m IA\* f'»>»rj EJ )im: A uW /or hvni anW rafitrt'ir aatwt hnttt\$ ; it it ri>uw> ut >» < for general purp. • urf, jurklhif ra-«s, &c. ; it splits readily. (Mill it o JUIW flrcwxtd. Titrtfietmr\* to July and August.



Blume, del  
Beurmann

*Scolopia orenata* (Night)

Dumphy, Lith

SCOLOPIA CRENATA. (Nat. order Bixinea.)

SCOLOPIA, *Bthrb. On. II. p. 187*,—GEN. I' HA It. Flora\* bmnwLhrodiU, *tepti\** 4B iligbljr imbricate when v\*rj jiuag but <U long bt  
i<o>ioj, ptofi tt ubny noil luuly •intUr, duntni (IMUBUU iu>er\*il nil U IM ttiLtk-ucil t<nui with Mt without ptdiU. CnHDMk« c[ ttw lalbr\*  
t\*riuu>Wng in a thick *pranm*; omy \* lib 3-4 piumlu ia<I d\* avai\*. Style filiform, With U] cut; re ar lobuil fUgmk ; fruit \* berry, «cd 3-1 w lib • bud  
tMti, ooiyUdoD\* l^»[j. Tr««, often krnod with nulltrj apt DM, [•»« dtoplo with piuntu »elm en lire uf WK>tbl RMMH tmal hi ullltrj  
S(\*IY6. Oi«. Jte. Pbolwtu., *Laur*, ft Otcd. 817. RbiMntbiin, *Sl. ffylfr*, 111). Dwymtlwrt, /"ff\*/. JW. Afon\*. il. », t (IS.

ScULOPIA. CUESATA. (Wigt.) A good *tiud* tr«, unarratd, leaves glabrous **dfiptts ilighUy iHwiiwtwl it tbi bus** tnd  
gradiolly narrowed into ID obtuia point ul tlio apex, ubttuely cramtcd, without glandn at llio bMe, 9-4 inches long by 1-1^ Uroad,  
rascONi iiiiboiccut ns long or a littlu longer tliisn tlio le>T«s from the superior sxib, flowers nwirly J an itictl in diameter DO lough  
jietjunctia wLch are famwhed nitfa 2-3 small brncta at tlm biw, calyx **tnd** coiol scarcely distilguietinblo **pnbwowitz tod ciliated**,  
placenta\* uf tliu nv>ry 4, fruit 5 lines in diameter apiuukH'. PJobertw anewttw, U'J. A W. />. 29. Sba *ortia cre* "ata, ff'«// l. «.  
6679. Pbobtros lnceohtUB, (Wlgbt). WA, /\*•\*/. p. 30.

*Tki\$* (re, it tery *cnmoH* en {fa fiAomrV^\*, *WlgM\**, dc ; >t u wlta( i/iK«ri.. by the *Burghers on the Nijer*; it is t *fir\** caM wood,  
and although *urAt\**, M trwy hard an-/ A n « ; if PM«M KiMi oiii I iy«<sup>KJ f(K>/</sup>; plants of f, \*«\*t M .... 7A\* \*\*\*<\*. *re linceolatus of W. I. An*  
the leaves *iarroir«r ami mur\** jAinrtjr 6«l ifc«> nofrfiftr *otherwis*.



Y

Alora, del.

*Bixa Orellana* (Linn.)

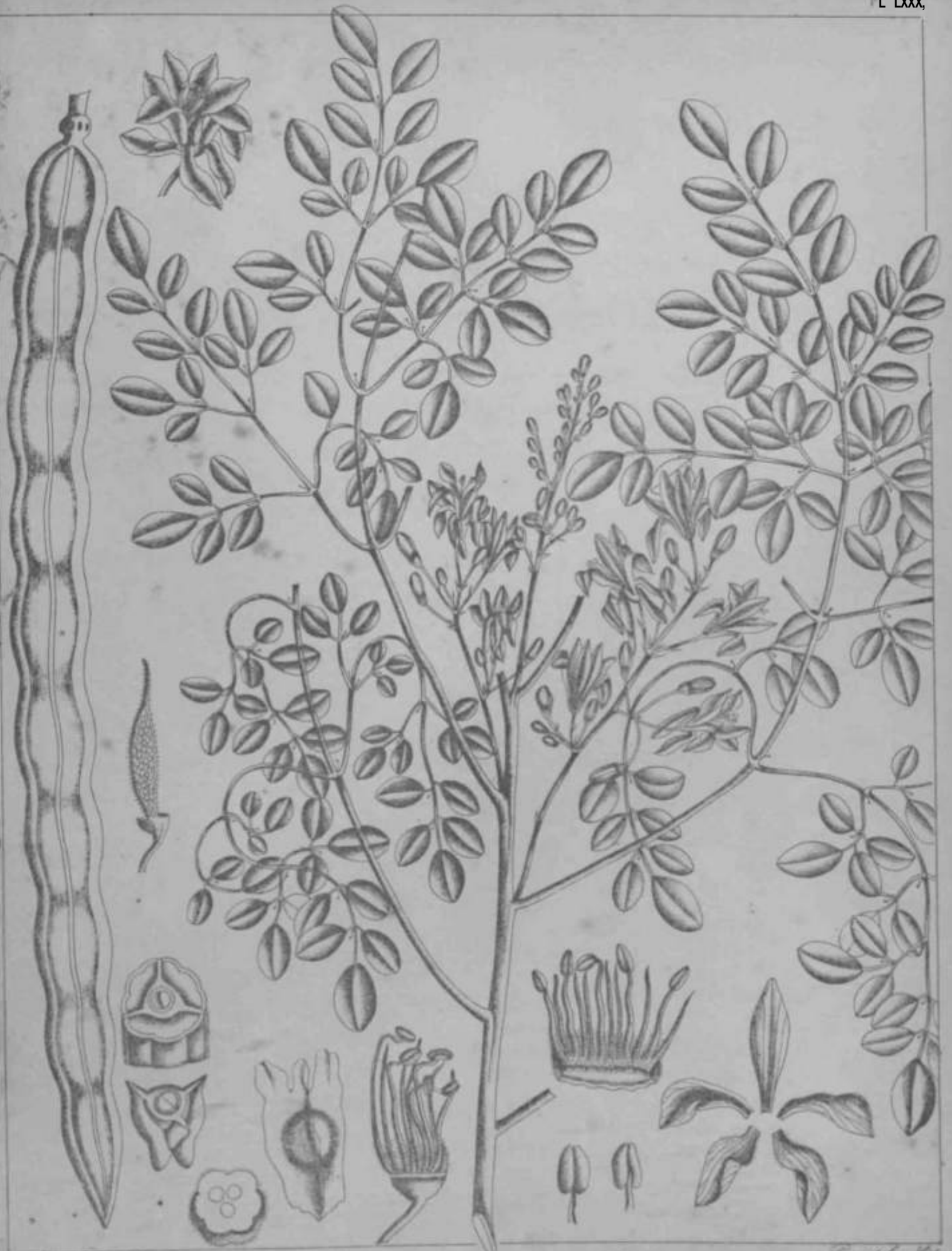
Samplig, Lith.

BIXA ORELLANA. (Nat. order Bixinea.)

BIXA. Mi. *Hmth.* 4 ffoi. *Gtu. Pl.* I. 125.—QEN. CHAB. Flowm tMimathmditt. MpaU 3 much iinbrittUd tlodduoiu, p«ul. 6 lug\* imbrie>t\*. Minuns itiJrDoi'e witi «Lurt aMong lomoirhit UtrogODDn .other. doliUdog by 2 poroiiko trautvom ulitJ at the top (r«J]r linear antrn foldes' buck a]NW themwlot OabUctig only In tu< middln >( web lobej.qyiry l-otUd wttb 2 « rarclj 3 multitTulate pUcnntw, itjls klmdar, iLignu minutely 2lobed, winniU eatMwnit <unpr<Mi<d MoU M mtmaribU, ruoly 3 (joaout rough witi lunj »tiff' briitt\*, i«[<ntu>t iota 2 ur 3 titrH, bMri'ag the se-J«cuwt>d with nrwl pulp.

BIXA OIKLLAHA. (Lino.) A small tree or ibrab 10-15 feat, tie ygngng shoote aud iitflorwcMioe rusty-pabamlou\*. le»u alternate tmta or aitbcoriUto-OT\*^, ncuiniii\*te or entire rarely with 1 or 2 unequal Uuiral lobes, italiuiuervecd at the bttM ustuJly 4-6 inclit:\* long by 2j-3^ inches brosd, glabcou\* or gtabr<\*cent; ftuirers white or rote colored IJ-Siucbas in dmnteUr in terminal panil)IM orptnded racemu, (rait IJ 2 inshM long 1 i tncbes beoid, ratlier pointed. *DC. Ptod.* 1, 259 ;—*iVight. III. tab.* 1\*.

*Thii tma'l* (r«, (AouyA o/A wrwa» or<yin, tofMJM iKt/4/ra/iMj tn M« dVarfra\* PruiiUftvjy, particularly an tht uwtftra «w«. TA\* r«ipiti/»y (!>irs>>j «/ti|««Mcl U itwJ ill a iya Mit«r t/ie IMIM O/ Arwttio; it iiprrpurd by maetraling tkf pod in totting VMtir,\*atrnrlng iht Midt, and Stiling tht pmp to tubtidt, tht laid btiny tubitqumly tArovn of, tht muiuum Kith vhicA oil i\* oftn mixed M placed in lAattnt tweU and driti in tkt tk tdt; it it of a bright yilfow color and impart\* an orange or pat\* rotcoolor, to tillt and cotton, the rubttnc\* it worth in the tb. in iht London. XtaUt; it ka\* medicinal jui/itin, faing anritigtnt and M\*\*m\*d <tn antidote to dyts\*Ury. Curdagt it wiarf\* from (A\* bark of tht trtt, tnd the wwd U a gmt on\* for pro twin} fir\* by frittion.



*Moringa pterygosperma*

*Moringa pterygosperma (Poir.)*

*Wright & Co.*

MORINGA PTERYGOSPEBMA. (Nat. order Moringwse»0

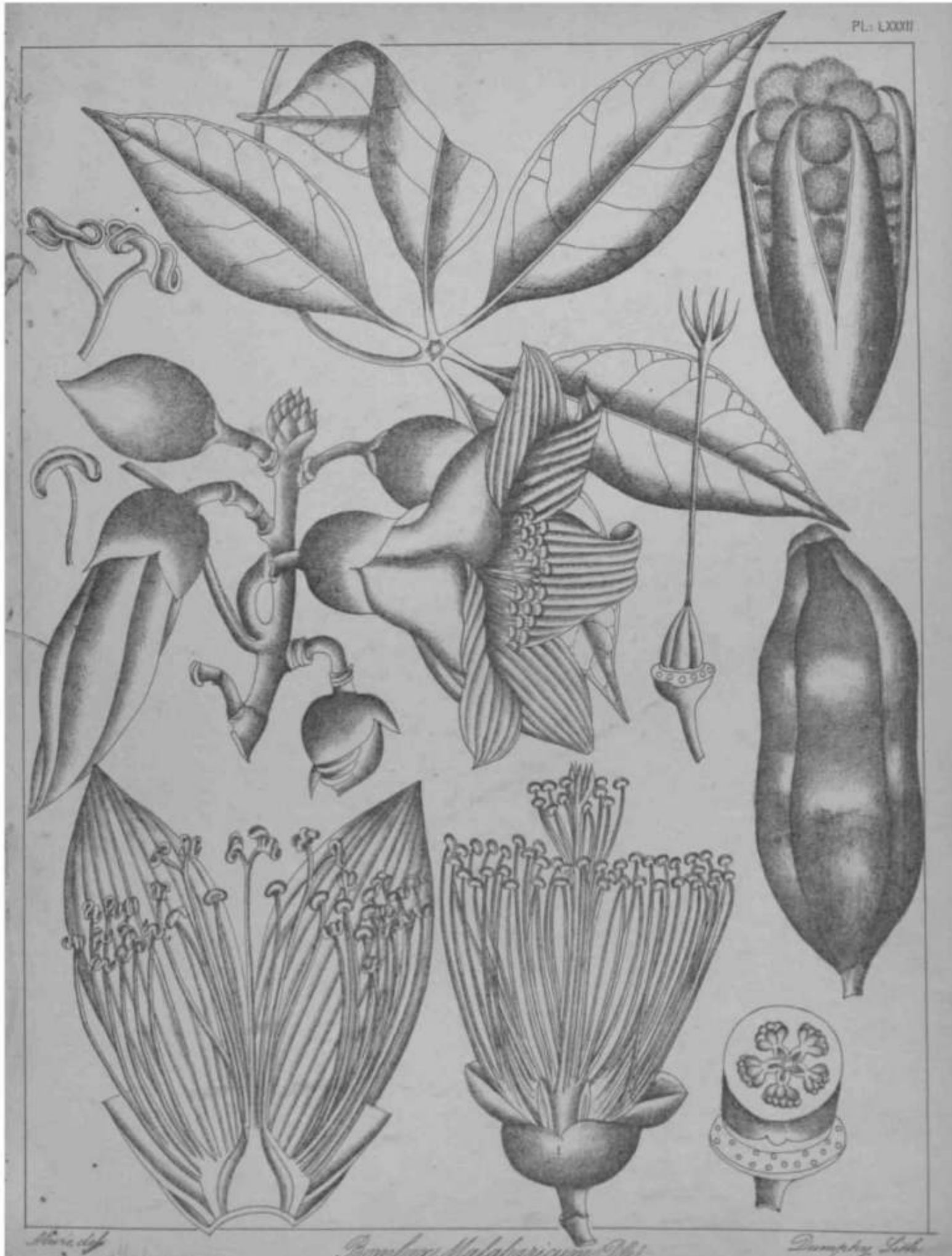
MORINGA. Jti«.—CIEJt, CHAR. feuiui »• Uut of the order, tor wbcU MM HutuL

Moit1NOA l'TEIIYGOSrEKMA. (Gierlu.) A small or middling nixed tree, leaves twice or thrice pinnate, leaflets mail or»); a stalked gknd present oil the petiole\* at the **htrtioa** of the **pfoui** and tLc same »t the insertion of Ibe secondary pinrue, and of the leaflets, fWew white or rarely rciUUb, 5 fertile eta metis and 5-7 gtaniinodia, capsules triquetrous swis 8 auulvil, Itio angles expanding into wing\*. *Qasrtn.fl.*: 2 p. 314 I, 147J;—*Jlhetd. ifal.* 61. 11 j—*Wight III. tab. 4*."

*Thi\* u tk\* hone radtih tret of India. It it wry common about ttillagu ihroHrjhovl India, and it gain viid in tntjmght; the toot fitrnuhci tie korte radak and thijvut it eaten 1m curriti; ike ttcdt yield a very pure nielt oil thicA it tud at talad oil in tit Wett Indie\*, and it alto employed b\$ watcliH'tkr\*, at it dot\* not Jrtn at a wy kit tmperatvri. TKn tret it vtry eatUy raittd from werf; it\* timber i\* vry »/I andvtolm, and not even fit far Jatl ; itt tieigt Qnd leatei are good fodder, ^n oil txudtt Jbm ineitiont in the trunk, KhicA r\* vud i\* rhwutaiim.*

*ilr. Daiah Atti riba, in h t Bombay Flora, a ucond ytJM nmUr tk\* Kftmr of M. C»DC»ntti«), which h' ttMtt it ttUd on the aktti in the Con:aa, and which only difers from this in havi V \*»r?«t androitndtr Ualt\*U, and in tAeJtoteeri being iettotstth strealt i wirA piak; Mi\* probably only a varittg o> ike tree here figured. A icctd variety v\*y abundant on tk\* Mill in Xvrih Areot, particularly \*o in, the Thtlh junglci about Hi. uiltu frun , ]'dtoni, Jk, wtta math i-trw aid rounder fa>titt tkau the ordinary cultivated/orta, nnd it probnbty ilr. DnUelCt tree, though } hare not trm it IJ &N»»r; the native\* informtd me that the fruit of thit wild variuAt/it nevtr eaten; there wen no renew c./torrrr or fruit \* tiny of them in aa in the month of Dec mUr, tkougk alt the cultivated ont\* at (Af tame period wrü in flow.*





Alora del.

*Bombax Malabaricum, DC.*

Dumphy del.

### BOMBAX MALABARICUM. (Nat. order Malvaceae.)

**BOMBAX.** *Linn. Berthold Hyk. Qtn. Pl. p. 210.*—GEN. CHAR. Calyx cup-shaped truncate or splitting into 3-4 lobes, staminal column divided into numerous filaments of which the inner ones or nearly all are more or less connected in pairs and united at the base into 5 or more bundles, ovary 5 celled with several ovules in each cell, style club-shaped or shortly 5 lobed at the top. Capsule woody or coriaceous, opening loculicidally in 5 valves, the cells densely woolly inside, seeds obovoid or globular enveloped in the wool of the pericarp, albumen thin, cotyledons much folded round the radicle. Trees, leaves digitate with leaflets usually entire, peduncles 1 flowered axillary or terminal, flowers white or red. *Salmalia, Schott.*

**BOMBAX MALABARICUM. (DC.)** A gigantic tree, the trunk at least when young covered with short conical prickles; leaves on long petioles deciduous, leaflets 5-7 petiolulate, elliptical-oblong acuminate 4-6 inches long coriaceous entire glabrous, flowers large red or white on short peduncles clustered towards the end of the branches, which are then destitute of leaves, calyx 1 inch long and more, thick coriaceous glabrous outside, silky-hairy inside dividing into short broad obtuse lobes, petals 3 inches long, oblong tomentose outside, subglabrous within, staminal column short, filaments much longer, but shorter than the petals, 5 innermost forked at the top each branch bearing an anther, about 10 intermediate ones simple, and the numerous outer ones shortly united in 5 clusters, capsule large oblong and woody. *DC. Prod. 1. 479. Salmalia Malabarica, Schott Mdetem 35. Bombax heptaphylla, Cav. Wight III t. 29;—Roxb. Fl. Ind. iii. p. 167. Moul elavao, Rheede Hal. iW.jp. 61. t. 52.*

*This gigantic tree is a very conspicuous and beautiful object in all our forests; its trunk is beautifully straight and often 80 or 100 feet to the first bough, of great girth, and generally furnished with very large buttresses. The flowers are very large and handsome, but appear when the tree is destitute of leaves; it is called the cotton tree by Europeans, Simal in Hindustani, Boorgha in Telugu, and Illavam in Tamil; the timber is generally considered quite worthless in this Presidency, but in some parts of the western coast, trunks are hollowed out to make river canoes, the wood is whitish, coarse grained, weak and brittle, soon decays, and is very subject to the attack of white ants; in some parts the timber is used for boxes, planks, &c, and it is said to be rendered more durable by the action of water, and is consequently used for water conduits, well curbs, &c, and sword scabbards are occasionally made of it. The cotton is used to stuff pillows, &c, but is useless for textile purposes; the gum from the bark and the root are in use medicinally amongst the natives. It is found throughout India, and in Bimah and Ceylon; in the latter place it is called Katu imbal, and is in use for toys, models, floats, &c.; it makes a very poor fuel. The white flowering variety is much rarer than the red*



Goussier del.

*Gordonia obtusa* (Hüll.)

Baumgarten Lith.

GORDONIA OBTUSA. (Nat. order Ternstremiaceae.)

**QOBDORU; UN:** MI Mil BMK Qq; «, 1 r JSO.-OKS. CHAB. S\*|NA .boot 5. m«d> SmtmdloJ ray uo«q«l p\*\*ing ('>» ^« <sup>bract</sup>  
u Lh\* pDU. piUb aboil M May, th. Innmurt. \*• btf«t, all usually cohering .t the b»\* itaaau OUMHK\* wtbtn <sup>about</sup> twtllk <sup>ovary</sup> 3\* (riM  
!r»«Ly0.)»IM.-«^(4-3)p\*mI, !au. ovul« In «wh «U, wp-d\* wood, Obmg ep-^g loculoidJly, th. «1«. bMri^ <sup>the dissepiments,</sup> <sup>tat</sup> usually  
leaving a G. •• omM Bk; Md. (UtUUh obliqUB, npnb-1 >t th. top iQW »n oUUuj win, J t a ^ D ontoye coorty .tr^gbt with <sup>flat cotyledons.</sup> Tim •  
liwei unw >>n pedtiucfot 1 liavund erect or recutYeJ, fluw«« thovj.

**GrOSDONIA OBTtTSA.** (WM.) A miidling sUad tree, glabrous, IMVM a«nc»ta.oblong to elliptic-lanceolate or narrow  
lanceolate, OMOH or with • blunt aontuin.U,,,! with shallow Mr\*«turo« e^bwaa 2J-5 inolww long, by 1-11 broftd, petiole\*  
about 8 lines bag, pwkinolea » little shorter th»n the peUoles, petals oboordato, eligbtly uoiud at the base, silky on the outsidio as an  
th\* bracts and calyx, stamens simewhat [liiitaUelphoiw. *Wail. L. n. 1 « 9 ;—WA. PrwL p. 87. Gordonift parviflor\*, Wight. III.*

*Vti\* vay WiKi/ui trM U wry common on th\* y&jirit, tin IPyriaJ, and throughout th\* wM«m ( A \* «/ (Ae afadroi Pr&idmcj,, from  
2,00 I/M la 7^0a 0« Me .Vi^irii « i\* M«(rf iVd^iWa ; IM timb\$ r it wUU, with a «N W MM, ewnjMned and pt«a\*ant to irori, a  
Bach : ii it Mr> gtwally in We for planki, <toon, ra/ivi, \*nd btaw, b«t Wirp\* if not well season d*



Griseb. del.

*Vateria Malabarica* (L.)

*Vateria Indica* (L.)

Dumphy Lith.

VATERIA MALABARICA (Nat ofca Dpla (carpene))

YATERU .r/. W ffu^ . ft- • i -GEN CD A II. Calj\* witi • wry iliort tub\* tunitc to Hie tortf, rtiTuioni nib<«qin  
 it\*, vri'n in fruit i tl. x\*A mA n-ir-»lj tui'nuitig in lire, ntuom niimtui". in nuia nrrii^, lathrrn liuMr or •>i.ng. ending in a long (ngle of  
 (loubU brak, orarj 3 collail, coll\* 3 urul<], **ttfla** .iilwlais. uligcua ttiull, «afnut« orjid or gobo««, thick eurtaccoui or flatly, Kilted on this rnfieiod csljx,  
 I wnted inlchic« lit OT J vilved , nenl tliick, ontje<).ju» tliiirk Hnn) iul, iwJiel\* »uj\* .ar.

Tnrt, jidiling r<Hia, gbltrunt ur [iirturacma, \*ti]iu] »inall tbeiilii'<- 01 iuumajilenDH\*, Isiet entire cotioutKJui, Bower\* white is Urtulu\*  
 pluiclu. Bentliaw >nd Ruoker imilu Mr. **ThwvUn'** Cejluti &"<" Smonnnpa™™ with Vateria; it ho\* 15 *ufhtm* in 3 t<rf«, «n4 if onltwl with V.UTU,  
 Mow•.Lortndra, with S antlirn in 1 *taia*, ulion I nL> tw locludwl. De *Dandole* in -ludf> SUMouijjvru i uJer V>tto, whkb bM u enUntwl **etlyx** »bM»  
 in iron.

V A T K K I A M.ALABARICA. (Rl ) A vary large tree, bark whitish, young sli-wtu anj all UnJer p»rts except th«  
 teav«S covorcj with fine Ktelato pub&ice'iu«, I « » H nltsniaUi j8tiulml •>long en I En, ilijlitlv cordate at the ba««, shortly glinted w nbttna  
 at the apex, coriAccoas IUIJ **uttoofa** 4-tl in.)\*,•. I.IIIL', **bj**\*- I **bw**\*4 iKLi'jlra ) inch lonj], stipules ubionu, flower\* ratbor rrtnote oti tarpe  
 terminal panicle•s, bnwte\* ovate pok ted, filaments 40-50 »rj \*l»»rt, anlhert not nrricied nt tha bnsa, terminating in a »inpl.- long  
 bristle at the apex, style a tittle longer thin **LkamUMDHi** x'cm.i .icntp. MpinJo obl'mir oblose oorfaocouff . . fleajivoches k irrg by l|  
 liroad, aeed wolitwy. *Bl. Mtt. Bot* ii ;i. 29. *Vateria Indica*, *Rosl* <. fi. l«(I. ii. 002- (not *Linn.*) Chiorojcylun Dujtutd, *Bueli* •am  
 •/"" *real in Mysore, &c.*, ii. 4TG. Paenoe, *thted. loiL Hal. iv.* 33. 15.

*T/H'I tree Aiw o(rti I\*m Ci<fu>»r mh\*t wihitii Olft in Vateria I IMtai (AinjA iluwi wll tfavibrll hy Jt.fhitrjh ; it Jifirt in it\* twin  
 and fruit being very much smaller, and in 'he /burnt My o6\*«« \* «<fw/y ow(<, newtr (twtwfaffW, niW i'« «( anthrrt r-ft «t«; « a M'N ^  
 instead of in a double bristle and in not being varicled «. (Ar bam.*

I'll in U one or the lun<si>DCSt trees in the M. tn« I Vinidanoy ; It ia common in nil the western forests front the jittuna tip to  
 5000—K>00 (ttt elevation, find la WtMMil sly planted as an »TOIHO tr«a, particularly near tli« o-nwt in Km'li Cmirs, Miliibr and  
 Trav uLcure ; the nseiua f( it nt Kirt'il in S >»rs, is a beautiful sight. It is called in Kil^Uh th« Piney Vnnnish tree, liio **OOJM**  
 tree, mid tli« wliit\* dainror tree, in i'elaga Dupala, it> T.imil WIUv RangQlam, an-l in Canarose Paini. It yields the piney **gam** resiu  
 which exudes copiouly from w.nmli in tlm fm tk, ni i i^ an excellent varnish r««nmKlin^ a>/>^ U I of a pale green oak ir, nnd h used  
 for c••riiiges and tuffiitnre ; tlio wiwd is notmudh **nateimd**, t>nt i-i UMI f>w ouf'bn und itiMtn of native vessels, «K) tmtili rf :|c i^A^,  
 are **btDoWed** nut tn make c^n«M» (or ths westorn ft w«t rivers ; tho bark U U8\*J) to kosp toddjp ftorn fermenting. The tr.g ttowern i\_u  
 January. Mr. Bruujfliton tha Oufflrumeat Q iin(il'.i<iit htw fnntiitied me with the following report oti tin resin.

R a n or VATRBU IKDICA, 11\*J(« tUmmtror pi\*y rti\*—Tkit beautiful tublnee hat low I-on know, awl itt p.v>p\*rH& an,l local  
 «\*« hart bt\*H ••«oenji,i 4ucs&41. It it alto not tudmet\* in England, end I tppmkfi I |A«( its cost (and perhaps also by „nra\*et of fa peculiar  
 •proptrlitt) ttat prtioentd it btc..ning an arc ;ft\*ofmon \*\*:<•• of castor '«• /< 'Aoudi b% mm irtt, I th'it tin " A'j.f Indian ilainnitr" tkick it  
 tsdl known arnny FIJ-HUA mdctn. tk iu/h fw/itcttt/ to f«r« riM t\*it, i'«(\*»>'<«< o/ 4 i-fji difeetM tr\*t. a«<l it imt pi-oduett in thit  
 I'rttiUney. The finest specimens of piney re litt ofi obiuittl tj <nt i\* tht trm, aivi an t\* pai\* g'ttA lr« «olvent p«cc«d oftoatidtr-  
 ahUtiu. Tlit rttii Nat a udu naturally, [j«d% Miidj.w iu«c In most of its properties u' rttmbtat •opal, but it • pouetta <, multi-  
 ties « WcA pirn rt wng ntwwta^M «ow th- vr. iili- wpal M t« b«<l "i>M<!» «hlW«\*» • «ndol, but « iiem'itu point  
 it « a btbroiy'" into solution by the addition of m,t/i\$mfAttrtotke\*pl «. It 'My toluh in cUoroMm ami thut might Ji  
 atanibitilHK/- amber in photographer's varnish ; it differs ,Drf olwiiitiifmd- by from copal by h« «( «wt« W«Me tM Mr/nitua, and dryin, aJ«o  
 IDtMoU the necessity of the preliminary destructive fusion required by that resin, a process which tends greatly to impair the color of the mflta.  
 TAr wfuiVoii u/t. The piney resin in turpentine is turbid ; r l milky, but by « addition of powdered '•trtxitxl, and jiti" gradually filtering, it yields a  
 ivüttivn tram parr n I amdtortum it: r«r, and yields a varnish which dyes well ; whitens not so as «urpa\*totl, The solution is  
 to-pentise readily mixed with the drying oils. It is on these properties of the resin that its chance of becoming an article of trade will depend. In  
 pricr it cannot compete with .tpitt a)ttm tvpplif to the Kurupetn market it rqu'»r and abundant. The present price of the best copal in the English  
 market it but X'2 ll 0 per cent. ; piney resin yields on destructive distillation 82 per cent. of an oil of agreeable odour, but not differing essentially  
 from that obtained from such cheaper resins.



J. G. Smith, del.

*Garcinia Cambogia* (Dumort.)

Samuel Lee

GARCINIA CAMBOGIA. (Nat. order GutUfone.)

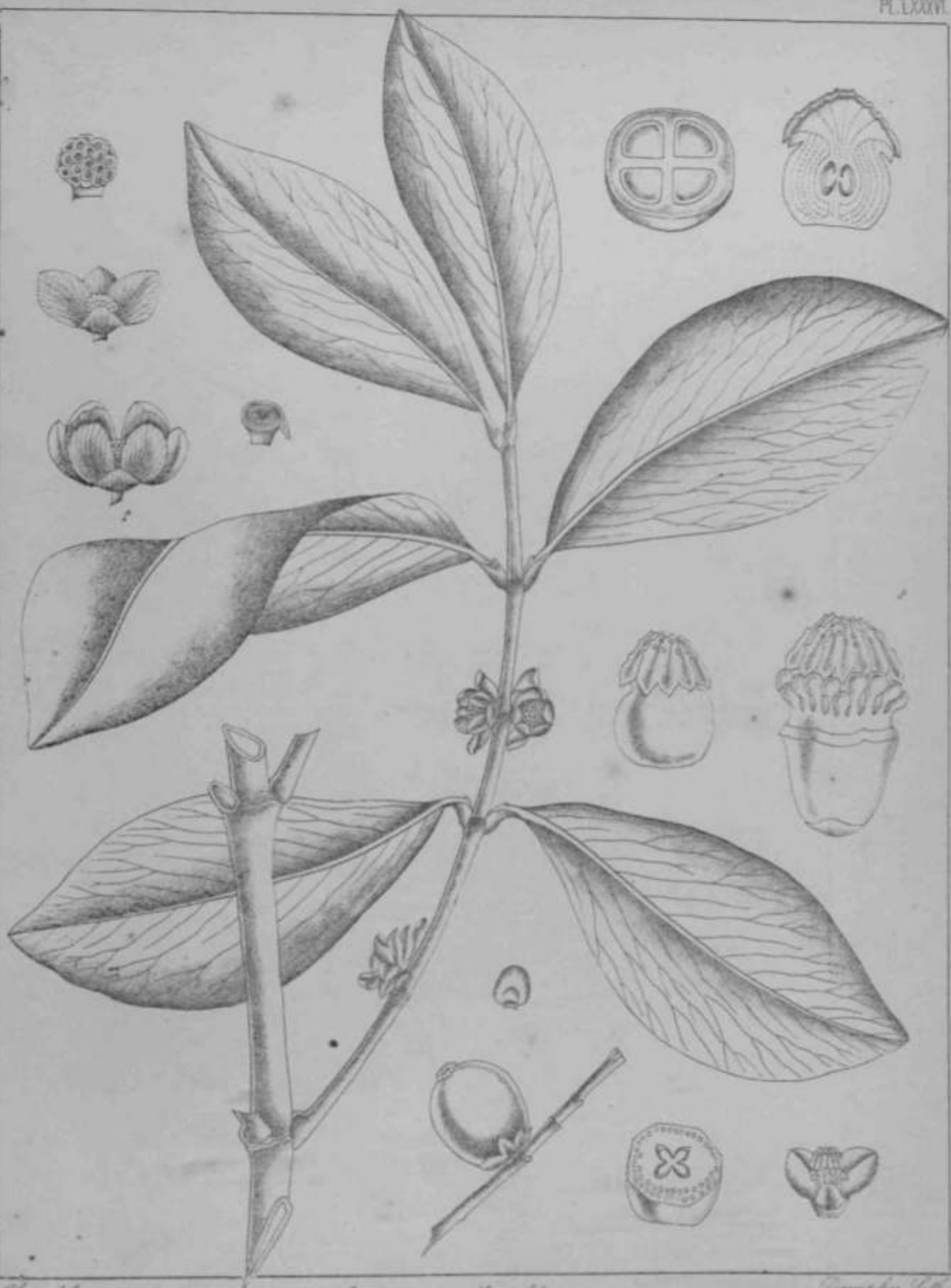
**GARCINIA.** Zutr.—GEN. CIIAIL Flo worm dJuidotu or polygamam, topili 4 in oppoatt\* p un, p\*Uli 4; male flower, tUmtu\* indefinite fr\*9 tOODMtdjihom or tctrtttolpboun, intLem erect or pttatu drliicmy longitudinally or errtMjixuciidfc i *temle* or hermnttirwtite flowcri, (tarn mod >> TiiJniui free or united, ovary a many celled, stigma mtii o lobrtl, mnoofa or tnlxTcirliln, OTUJSI mliUrj, fruit Incest\*, embryo an uadivicW ttick nuliel\* (tigoll\*)—Olibrouj treoi, usmly witli n yellow juuie, IWTW eorbeeoua Or aubn«mbru»c«nui, nppoals or tarnkttly r\*rti«ll»tc, fluwara tolitory, la«iulf J or wbpMiiculato aiillary or terminal.

**GARCINIA OAMDOOIA.** (Desroiw-) A good su»d trw, leaves lauoeUte or a deep lucid green, 4-6 inches long by about 2 broad, flowers terminal or axillary, senile sub-sessile or ptdicolled solitary or several together; male, anthers numerous on a short thick androphore. oblong 2-celled, dehiscing longitudinally introrse; female, staminodift surrounding tho bus of tho ovary in several phalanges each containing 2-3 sterile npntbukto stamens (or froo and a\* many or twice as many aa the cells of the ovary I) stigmas 5.10 lobed papillose with giunds, ovary fMO called, fruit 2-3 inches in diameter yellow or reddish, li-l 0 siilcnted, 6-10 Be«3ed, nearly globatar or ovate or somewhat elongated, furrows brood with angular edges, ami intervening flattened or only slightly rounded ridges, the furrows not baing continued to the apex which ia smooth nnd depressed nnd cftou nippo-shaped.—DC, *Prod.* 1. 561 ;—YA, *Prod. p.* 100. *Garcinia* Kyd'w, WA. *Prod. p.* 101. *Cambogw* gntU, *Linn, in part.* *Garcinia* Roihurghii, *IVighi lit. p.* tSS I Gmr-cinla papilla, *Wight Icon a tab.* 960.

*Common in alt the xwtcm eoatt J'oraU «l'A« iludrat I'retidenct/, and in Cegton; tht pigment trhieh txmfafrom i/m inni is umitrantpartnt, otry aduh'i and quit\* unmitabl atapnint; lie arid ri\*di of tin rip\* fruit on «aU», and in Ceylon tb\*y <tr\* dried and titt>\ at a condiment with nrrU,*

*Tja tru t'j called Utla by tit\* Burg/tur\* on (Ad NQgiru, and it yielJt an txeeUtnt ttaiijUt gmmtd Union colored slightly elastic wood, whith it tati'y MtW, tmd icouU amietr for common/HMUHT\*.*





Albrecht del.

*Garcinia Molle, Purous!*

Smiley del.

## GARCINIA MORELLA. (Nat. order Guttifere.)

For Ueu. Char. See under "G. Cambogia" PL lxxxv.

**GARCINIA MORELLA.** (Desrous.) A middling sized tree, everywhere glabrous, leaves elliptic with a very obtuse blunt point and gradually attenuated at the base, about 4 inches long by 1½ to 2 broad, petioles about ½ inch long, flowers sessile several together in the axils of the fallen leaves, calyx of 4 unequal sepals the 2 inner being much larger than the 2 outer; male, stamens about 26 closely packed on a raised receptacle in the centre of the flower without any rudiment of an ovary, anthers on very short thick filaments depressed peltate circumscissile; female flower, stamens 18-20 in one series round the base of the ovary, anthers sterile subquadrate emarginate at the apex, ovary glabrous 4 celled crowned with a large sessile 4 lobed stigma the lobes being 2-3 toothed at the margins, fruit size of a cherry globose 4 seeded. *Cambogia Cutta*, *Linn. Fl. Zeyl. p. 87 in part.* *Hebradendron Cambogioides*, *Graham in Hook. Comp. to Bot. Mag. Vol. u.p. 199, t. 27.* *Garcinia gutta*, *Wight III V 126 and tab. 44.* *G. elliptica*, *Wall*

- *South Canara, moist forests of the plains and ghats, up to 2,080 feet elevation. Ceylon, up to 2,000 feet elevation; called Ookatoo or Kana-goraka in Ceylon, and Aradal and Punar puli in S. Canara it is the true Gamboge of commerce, and the pigment which exudes from wounds in the trunk is largely collected and exported from Ceylon and Siam; but little or no attention seems to be paid to it in this country. In this Presidency I have only met with the tree in S. Canara, though it probably occurs elsewhere; it is closely allied to *G. pictoria*, which is our common species, and scarcely distinguishable except by the female flower. The drawing is from specimens collected in S. Canara, and the analysis from fresh flowers.*



*Garcinia* Roxb.

*Garcinia pectorata* (Roxb.)

Baillie del.

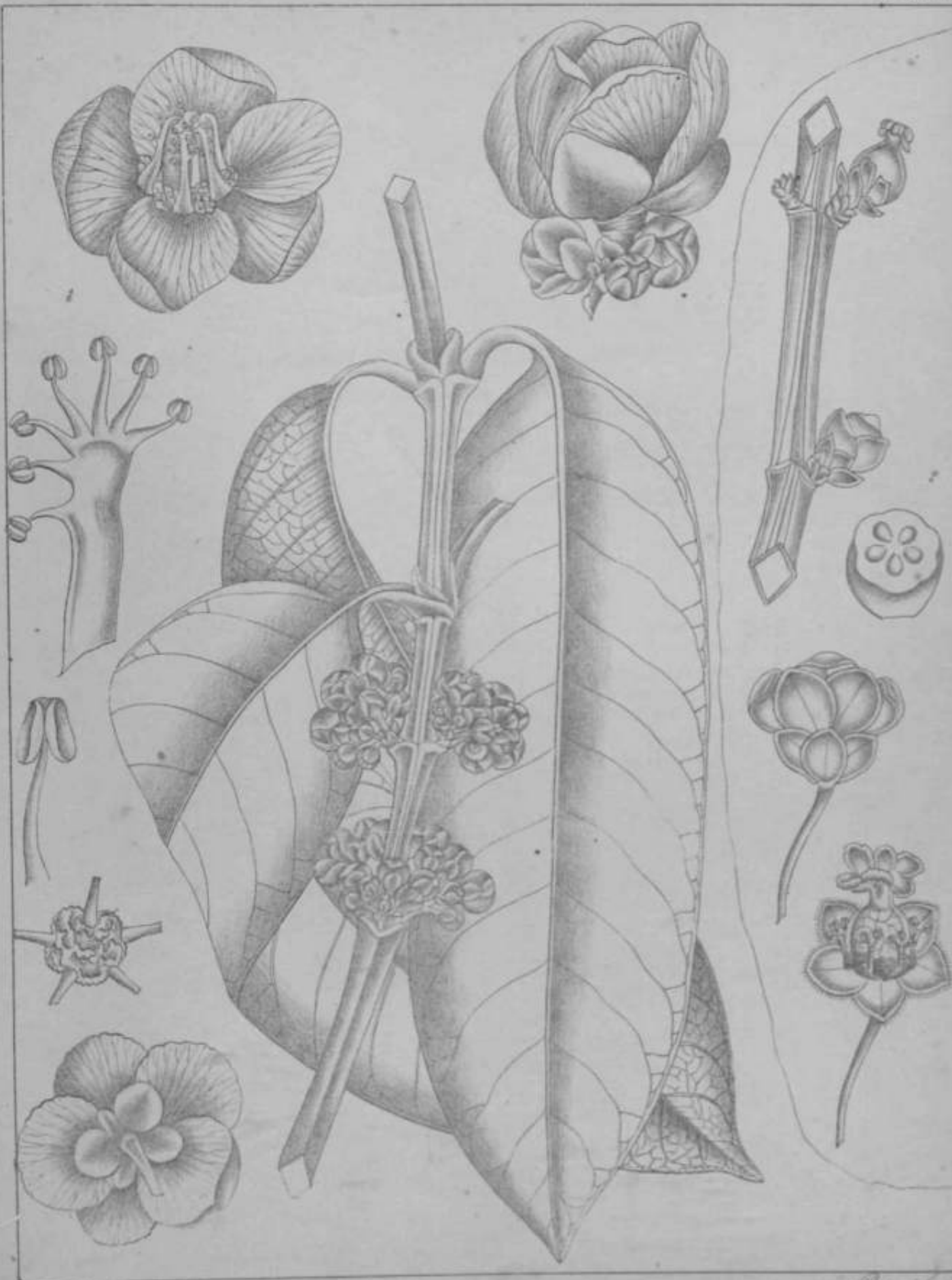
GARCINIA PICTORIA. (Nat. ord. Guttiferae.)

For Gen. Char. See under "G. Cambogia."

<sup>1</sup>GARCINIA PICTORIA. (Rozb.) A good sized tree, everywhere glabrous, leaves elliptic with a blunt rather sudden point at the apex, and gradually attenuated at the base, about 4 inches long by  $\frac{1}{2}$  broad, flowers sessile aggregated in the axils of the fallen leaves; male, stamens numerous closely packed on a fleshy more or less 4 sided receptacle in the centre of the flower, filaments short, anthers depressed peltate circumscissile, no rudiment of an ovary; female, stamens in a ring round the base of the ovary, filaments in 3-4 rarely 5 phalanges each bearing 2-7 sterile clavate anthers, ovary oblong 4 celled, stigma sessile of 4 verrucose lobes which are 3-4 toothed at the margins, berry size of a large cherry oval oblong smooth crowned with the permanent stigma. *Soxb. FL Ind. ii. p. 627.* (Desc. of fern, flower incorrect.)

*This is a very common tree in all our western forests up to about 3,500 feet elevation; it is closely allied to G. Morella, but differs in the female flower.*

\* *Mr. Broughton has analyzed some of the pigment, and informs me that it is excellent and equal to that of G. Morella. The timber is used by the natives for various purposes. The drawing is taken from fresh specimens collected about the foot of the Nilgiris below Mairty.*



Griseb. del.

*Xanthochymus pictorius* (Roxb.)

Dumort. del.

XANTHOCHYAFUS PICTOSIUS. (Nat. order Guttifew.)

*X*AVEHOUYMU & Vfatl.—GEN. L'HAR. Flowori |>u'lygimoui or diajcbu\*, Mpoli S imbricate, piUt\* it | tu»le (lowrtt, IUMttui in S narrow viig&udrou\* [ili&Unget InMKed into or beLwew tbu lube\* of» lte»liy ditk; loniilu or tiermitlir\*Iito Honor, IUDjiuuiii or ititflom iu t jk»*langa* alternating with u iimuj gtuda ud swttod rouail Uu buic at the svary, OTiry 3-0 tellrd uttli a autMnula diicuid csttts ur ndiatrlj 3-0 tuUod "tigim, OTUIOI jaliUry, Irutl I. MUtt, embrju til ink BaLj wilb btoDnipoaoot catyledotu. Trstf, reuiabting Q.rcitti\* lud ieiredjr differing *txvpt* in Hub ]>ut.inieniin intnd of letrunrua\* *lowm.*

XANTUOCUYMUS FICTOR1US. (itoib.) A very l«\*utifat middling sued troo, with a murtdauM Mui^a or dark |*reen* *shinin*; lenvei, everywhere glnbruus, young branches square, slaarply angled and oftan dilated jjut bclaw tlie Mills or the *Ivt*, leaves oblong, generally mire or Ics\*attenuated al the tiftsu with a short acute puiut tit Ilio ipcx, 8-14 iuclM lung by 2-3J broad, *very* hard and curifcnous dark iLiuiiiig green with the voioaabacuro, (when freshj pgtialus J-1 iicli long dilated near their insertion OD to the ttetn ; male fluiree auutemiui seuilo or aubautils aggregated into dense abort fMciIss in the axils }> the (all«n l«avcs, 8l«Q«w about 7 *QMch* phalange, no VMlige of an ovary ; female or herrantlirodito Hovrcrri Bnlitarj- in the axils }> the fallen leftvea, melt pbalnge luruiibod Tfitb 2-3 anthen at Iho tipei (appateully (crtilu).uvary fi-6 celled cruwued with *n* large dilated 14 lobed stigma, fruit si« of an apple- £orb. /I. /HI/, ii, p. 633. Stalagmites jiietorim, (7. *Den.*

7\*AM ferji £i«aud/Ht (r« u wry abundant in tht mull in CV»j7, UU t ham alts mti ui:h it in Wgnad, S. Cdnara, the vttUra floptt of A'ilgirit, and alker locilitiu in (As lumttt\* tide of t/u Madrat Pruidney, and 0:i Me Bombay ,//>aii • and it it cxilicuttd in garden\*. Tht tptcitntn\* Jiyurtd w»»« gnthercd below SiqxwoA en (A« JfiifirU. Tim irM y\*IH\* a gambogt, but I do n«t fcioK- of \*\*nl quality. I ixm not *acquainted* mr't the timber.



*Guerreroi*

*Chromolaena longifolia* (Hook & Hook)

Dumphy del.

## OCHROCARPUS LONGIFOLIUS. (Nat. ord. Guttifero.)

OCHROCARPUS. *Thouars.*—QEN. CHAR. Flowers polygamous, calyx closed before flowering, at length opening in 2 valves or sepals, petals 4, stamens indefinite shortly connate below or free, filament filiform, anthers erect oblong or linear dehiscing longitudinally, ovary 2 celled, style short thick, stigma large peltate slightly 2 lobed, ovules 2 in each cell, fruit baccate 1-4 seeded, seeds large, embryo of a large fleshy radicle (tigella) with the cotyledons reduced to a mammiliform projection or none. Trees, with opposite ternately verticillate coriaceous leaves, and axillary fascicles of flowers. *Benth. and Hook. Qtn. Pl. 1. 980. Calysaccion, Wight III. 1. 130.*

OCHROCARPUS LONGIFOLIUS. (Benth. & Hook.) A large tree, everywhere glabrous, young shoots terete or slightly 4 sided, leaves opposite or ternately verticillate oblong with a short blunt point, rounded or slightly attenuated at the base, hard thick and coriaceous, venation inconspicuous (but beautifully reticulated when dry), 6-10 inches long by 2-3J broad, petioles 1/2 inch long, flowers numerous in short fascicles congested on lateral tubercles springing from the axils of fallen leaves, peduncles short 1 flowered, fruit oblong falcate about one inch long by 5/8 lines in diameter. *Benth. and Hook. Gen\* Pl. i. p. 980. Maumea longifolia, Ic. p. 176. Calysaccion longifolium, Wight III, p. 130 ; et Icones tab. 1999. Calophyllum longifolium, Wall- Cat*

*This tree is indigenous on the Malabar, Cochin and Bombay ghats, and is cultivated in the Bangalore gardens, Northern Circars and elsewhere; the tree is dioecious, or at least monoecious in a wild state, but becomes often hermaphrodite when in cultivation. The tree flowers in March and April, and the flowers are white streaked with red; the globular flower buds are used for dyeing silk, and are dried and exported from the Bombay Presidency where the male tree is called Woondy and the female Poone, both being also known under the name of Suringel or Oardoondy. I am not acquainted with the timber, but it is said to be used in house building.* \*





*Calophyllum Highmorei* Mill.

Dumphy, Ldb.

**CALOPHYLLUM WIGHTIANUM. (Nat. ord. Guttifere.)**

For Oen. Char, see letter press to PL. ii.

**CALOPHYLLUM WIGHTIANUM.** (Wall.) A middling sized tree, young shoots square glabrous, leaves oval obovate or rhomboid very obtuse at the apex, very firm coriaceous and shining 3-4 inches long by 1J-1J broad, petioles about 3 lines long, racemes few flowered shorter than the leaves, glabrous or when young slightly puberulous towards the base, peduncles about  $\frac{1}{2}$  an inch long, rather slender furnished with a small boat shaped caducous puberulous bract at their insertions on the raceme, sepals 4, petals 0, stigma peltate entire. *Wall. Cat.* 4847. *C. Bpurium*, *Choisy in DC. Prod. vol. 1.* 62. *C. caioboides*, *G. Don.* *C. apetalum*, *Willd. Spr. Sys. ii.* 571. *C. calaba*, *L. in part.* *C. decipiens*, *Wight. III. p.* 128.

*This tree is common near the banks of rivers on the western side of the Madras Presidency, and is called Kalpoon in S. Canara, where it is very common, and its timber is much esteemed; the specimens figured are from S. Canara, and unfortunately have no fruit, which is described by Dr. Wight as "small, oval, somewhat attenuated at both ends" it was formerly described as having only 4 floral envelopes, viz. 4 sepals and no petals, but Dr. Wight says that he discovered 8. I have dissected a large quantity of buds and have never found more than 4; it is possible that the tree here figured differs from Dr. Wight's, but I believe it to be the apetalum of Willdenow\*. The timber is of a red color, very hard and heavy, and valuable for engineering purposes.*



Blanc, del.

*Ternstroemia gymnanthera* (Wt.)

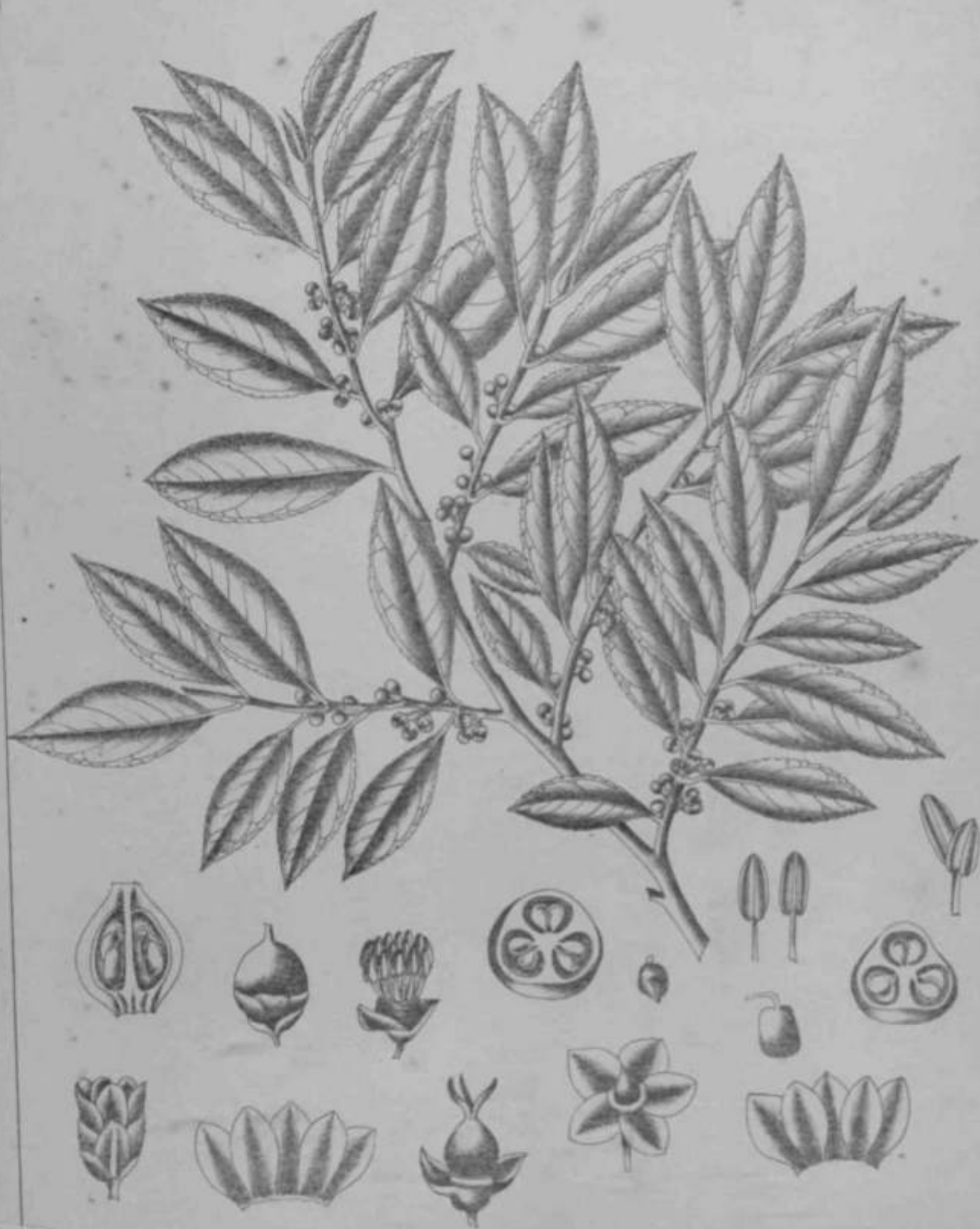
Pursh, bot.

TERNSTRÖMIA GYMNANTHERA. (Nat. ord. Ternstroemiaceae.)

~~TERNSTRÖMIA~~ Zinn.—GEN. CHAR. Flowers usually hermaphrodite, sepals 5 much imbricate, petals 5 imbricate united at the base, stamens numerous adnate to the base of the corolla, anthers glabrous basifixed, colls adnate, ovary 2-3 celled with 1-4 ovules suspended from near the apex of each cell, style simple with a broadly 2-3 lobed stigma, fruit thick and indehiscent, but rather dry, seeds 2-few large, horseshoe-shaped inside, albumen fleshy often thin or scarcely any, embryo much curved or folded longitudinally. Trees or shrubs, leaves coriaceous, peduncles 1-flowered axillary or lateral curved downwards with 2 bracteoles close to the calyx.

TERNSTRÖMIA GYMNANTHERA. (WA.) A middling sized tree, glabrous, leaves cuneateobovate, obtuse or shortly and obtusely pointed coriaceous entire, peduncles twice as long as the petioles, bracteoles persistent, anthers dotted with little points on the connective without bristles. *Gleyera gymnanthera*, WA. *Prod.* p. 87. *Ternstroemia*, *Benth. and Hook.*

*A common tree on the Nilgiri and other elevated mountain\* on the west side of the Presidency, from an elevation of about 4,000 feet upwards, also in Ceylon; called Kaymone on the Nilgiris. The wood is pinkish in color and much esteemed; it works well, but requires to be well seasoned; it is used for doors, rafters, and a variety of purposes.*



*Journal del.*

*Eurya Japonica (Hantsu)*

*Ramph. Lott.*

EURYA JAPONICA. (Nat. ord. Ternstroemiaceae.)

**EURYA.** Thunb.— GEN. CHAR. . Flowers mostly unisexual, sepals 5 much imbricate, petals 5 imbricate united at the base, stamens usually indefinite seldom above 15, anthers glabrous basally fixed, cells adnate, ovary 3 (rarely 2-4-5) celled with several ovules in each, styles as many either almost free or united to near the top; fruit a berry, embryo much curved in a somewhat granular Albumen. Trees or shrubs, flowers very small axillary, fasciated on short pedicels, or sessile.

EURYA JAPONICA. (Thunb.) A small tree, branches glabrous or pilose, leaves glabrous obovate or oblong 1½ inches long, slightly crenulate narrowed at the base, pedicels axillary usually 2-3 together 1½ lines long, flowers about 2 lines in diameter white, styles 3 distinct or united to near the apex. Thunb. *Fl. Jap.* 191, t. 25. Eurya Wightiana, Wall;—WA. *Prod.* p. 86. E. fasciculata, Willd. E. tristyla, WA. *Prod.* p. 86. E. Ceylonica, Wight *III.* 1. 98. E. elliptica, membranaceaet parviflora, Gardner.

Common on the western side of the Madras Presidency, principally on the mountains at the higher elevations, but also at low elevations, also in Ceylon and Northern India; called Hoolooni on the Silgiris, and Neyadasse in Ceylon. Timber of a light chocolate brown; in leaf and general appearance it much resembles the tea plant, and I have seen it reared as such in tea plantations; there is only one species in this Presidency, but it is a very variable plant.



*Piciloncuron pauciflorum* (Budd.)

Sampsony Lith.

fit: \*noty. 1887

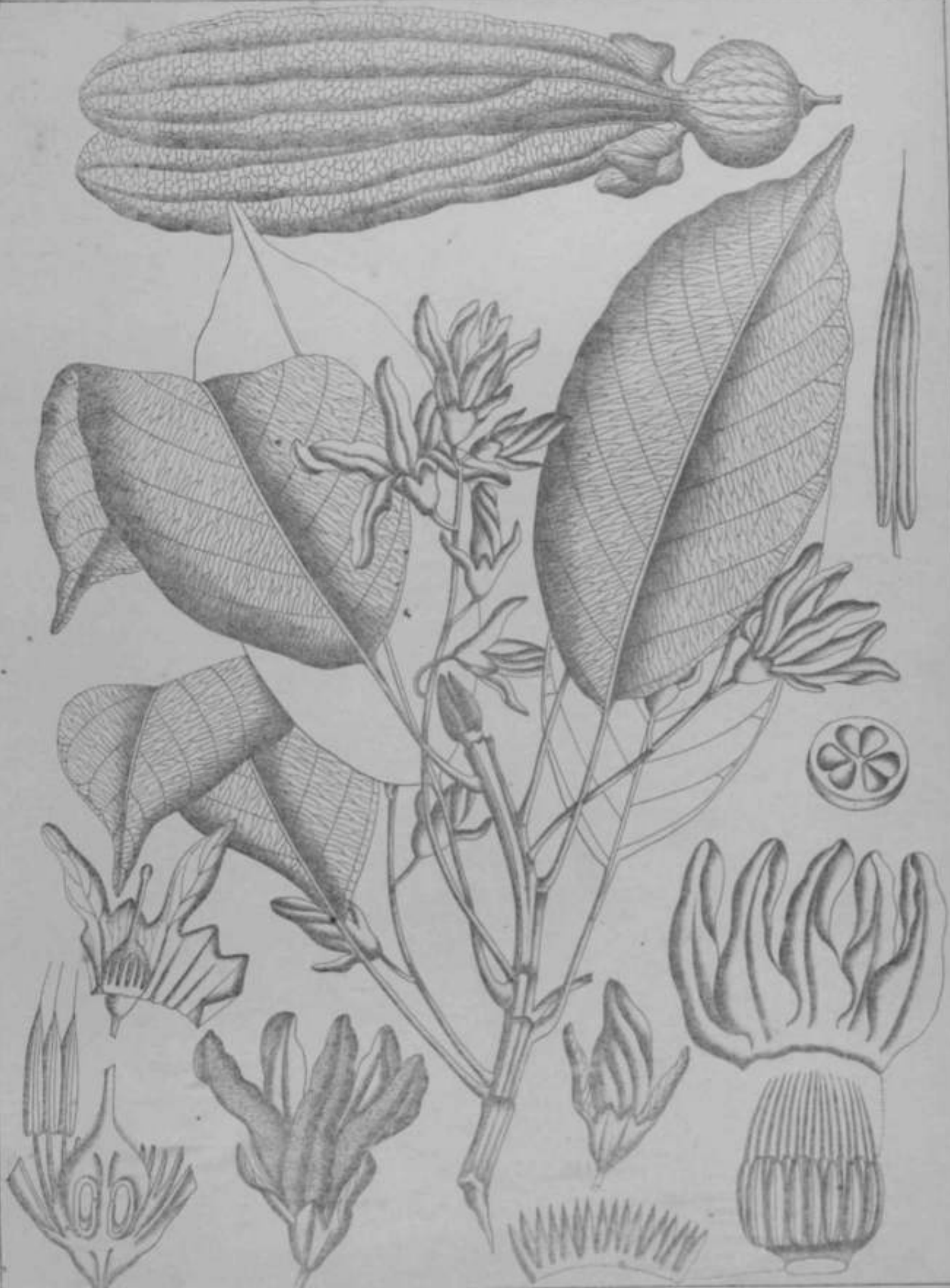
**PiECILONEURON PAUCIFLORUM. (Nat. ord. Ternstroemiaceae)**

**P** Cor Gen. Char, see letter press to plate of P. Indicum, Pl. iil, and under the head of this genus in the Manual.

**PIECILONEURON PAUCIFLORUM. (Bedd.)** A good sized tree, glabrous, leaves narrow lanceolate with a longish blunt acumination and attenuated at the base, 5-6 inches long by 1-1½ broad, petioles 4-5 inch long, peduncles solitary or 2 together axillary or in the axils of the fallen leaves 1-1½ inch long, minutely puberulous, sepals 4 unequal puberulous on the outside, the 2 outer small, petals 6 imbricate, stamens 16-22 in two series inserted on to an evident disk below the ovary, styles 2, ovary 2 celled with 2 erect ovules in each cell, fruit globose pointed size of a large cherry dehiscent into 2 coriaceous valves, 1 celled, 1 seeded, seed hard round, testa loose membranaceous striated easily separable from the seed, cotyledons very large fleshy, albumen none.

*Abundant on banks of rivers on the South TinneveUy and Travancore mountains up to nearly 4,000 feet; called Pudangalli. It yields a valuable hard reddish timber, which is used for building and other purposes, and for walking sticks. In the plate a drawing is also given of a young seedling just after germination, showing the cotyledons and the loose testa attached.*





Goussier del.

*Dipterocarpus Indicus* (Budd.)

Pomph. Lith.

DIPTEROCARPUS INDICUS. (Nat. ord. Dipteroocarpeae.)

DIPTEROCARPUS. *Germin.—GEN. CHAR.* Tube of the calyx, when in flower free, divisions unequal slightly indented when very young but soon upon or subulate, tube of the calyx when in fruit enlarging and enclosing the fruit, 2 of the divisions expanding into long erect wings, the other 3 small, stamens numerous, anthers linear entire, valves equal, connective acuminate. Ovary 3 celled, cells 2 ovuled. style filiform entire or almost 3 toothed, capsule woody indehiscent; 1 rarely 2 seeded enched on the enlarged calyx, cotyledon, very large fleshy unequal

caducous, leaves coriaceous-entire or amato-dentate, parallelly pinnveined and transverse y  
flowered racemose (Pterygmm, *Corr in Ann. Mus. Par.* viii. 397.)

DIPTEROCARPUS INDICUS (Bedd.). A lofty tree, everywhere glabrous except the stipules petals and ovary, leaves solitary a little

*antoti* & *iMmna* with a long slender bristle, fruit about 1 inch in diameter not ribbed, wings about 5 inches long. Bedd. » « *Conservator of forms* *mp y* (Madras) for 1864-65.

Common in all the great forests from Canara down to the very open in the grain and not durable, but is occasionally extracted; *ri* « *ajuti* *ba* « am, nice *vopai* « « « *Pinus* « « « and the produce of a *ro* ?! « *Ac* « *fi* « *ft* « extracted from the *tiardwickia* *pinnata*.



W. G. Smith del.

*Valeriana Roxburghiana (Miq.)*

W. G. Smith sculp.

## VATICA ROXBURGHIANA. (Nat. ord. Dipterocarpe\*.)

VATICA. Lfwi.—GEN. CHAR. Tube of the calyx very small adnate to the torus or base of the ovary, not or scarcely enlarging when in fruit; divisions rather acute, when very young imbricate but soon open or pseudo-valvate, enlarging with the fruit, equal or unequal and patent. Stamens 15, anthers oblong or linear rarely ovate, connective generally with a short apiculation, ovary 3 celled, cells 2 ovuled, style short with a clavate apex, or long subulate; stigma entire or 3 toothed, capsule thick woody indehiscent, or 3 valved 1-2 seeded. Tree\*, bearing resin\* stipules small fugacious or inconspicuous\*, leaves entire coriaceous pinnate-veined and reticulato-venose, flowers in axillary or terminal panicles.

*Sec. I. Nitfwztt.*—Enlarged divisions of the calyx equal, patent below the fruit.

*Sec. II. Euvatica.*—Enlarged divisions of the calyx very unequal wing like, patent below the fruit,

the 2 Southern Indian species both belong to I«auxi».

VATICA ROXBURGHIANA. (Wight.) A large tree, young branches petioles and inflorescence minutely furfuraceous, leaves glabrous above except the costa, which with the costa and veins beneath is slightly scaly, ovate to oblong with an obtuse point rounded or obtuse at the base, furnished with 10-14 primary veins on each side, 4-8 inches long by 2-3} broad, petiole 1J-2 inches long, panicles axillary shorter than the leaves, branchlets few flowered, calyx and outside of petals furfuraceous, divisions of the former acute enlarging in fruit and then 5 nerved and glabrescent, petals 5 times as long as the calyx, stamens 15 in 2 rows, anthers oblong with a short apiculation, style nearly double the length of the anthers, stigma clavate obscurely 5 or 6 lobed. fruit globose not sulcated crowned with a small nipple-like point at the apex, rough with minute raised reticulations and furfuraceous, hard woody and indehiscent. *Wight III p. 88.*

*Common in the western coast forests, particularly in the South Canara jungles, and planted in avenues, &c. in Travancore. \*Uo indigenous in Ceylon, where it is called Men&era; its timber is much used in Ceylon, but I have not seen it in use in India, < produces a gum-resin.*



i |

It

*H. ca. Neghiana (Walt.)*

Thompson sc. 46

HOPEA WIOHTIANA. (Nat ord- Dipteroearpwe.)

Fnr Gen. Char. •«• under<sup>1</sup> O. j<sup>^</sup>rviiflort,<sup>1</sup> PL rl.

HOPE A WIOHTIANA. (Wall.) A large tree, young branches and petiolw furnUhed with a dense »hort pubwcnce, ovato-obtong, rounded at the bw and attenuated toward, the »p« into . very obtuw point, gUbroo. on both «d« except the above, primary voin. diaUnt 7 • 10 on oach .id\* of the coata, 6-9 inches iong by 2-3 braid, petiolw H<sup>TM\*</sup> »'K- P<sup>TM'</sup> «<sup>TM</sup>TM « rally 3 together, ahorUr lhan or about the length of the t<sub>B</sub>«<sub>M</sub>, flower, pink about A u inch m length w ^ d brmoUobU a bw of their «ry Bhoct pedicel., a dj. lW>«<sup>MM1</sup> »«<sup>^</sup> on ^ out,rd0) BttftmenS ^ / J " ' 7 , <log " ? L JT, 7-9 tencinated with a long bridle, fruit and clyx wing, | U » » bright »{<>» clored, wmg, 281 mche, l«g by j an u»h «r«d. \_IT«U. £. ff. 6295 ; - i n . /'rorf. p. 85, aud III. tab. 37-Jwrougw to fh. 10 atametti.)

? «, . jj. ^ Jr., young bnMte wd petiol« gl.brou or .ab-glabron\* Hope\* gUbm. WA. / W . p. M.

*This tree is very common in many of our western forests, an echinate excrescence, much like the young fruit of a Spanish chestnut, is often produced in the axils of the leaves; it is probably the formation of some insect in the bud of the panicle, it is represented in the figure, a somewhat similar formation occurs in Hopea parviflora, as I have gathered specimens of the longer leaved variety in Tinnevilly with regular abortive panicles, several of the branchlets of each terminating with hard, round, warty, fruit-like excrescences 4 lines in diameter.*

*The timber is very mhrtl. «««\* very similar to that of Hopea parviflora. Variety β is \* \* ? \* [Tinnevilly, and is par excellence the timber of that district. I have not seen this more glabrous variety in fruit, but the flowers in no way differ from the ordinary form; the latter is most abundant in the S. Canara district, where it is called Kalhee and Hiral bogi; it is a first-rate coppice firewood, and large tracts in this state are met with in the plains of that district never apparently flowering, but abundantly covered with the abortive fruit-like excrescence.*



DOONA ZETLANICA. (Nut. ord. Dipteroarpe®.)

DOON A. *Tim.—QWK.* Fl. Mt. Tiilm of tho calyi In fluirec Tory short ndunto to tbe torttt, iliriüam imbricate, in Imlt the tube oat ciilnrg. ing, 3 ot tbd ilittniou\* ml urging inio Ivga wiwl winpi; 3 until, ill wmairunt »t thu bw round ths frud, it\* mem lG, lathtn oblong with thr nil\* oijuil, tonuctiro produced Into a terminal pnx»«i, oTJry 3 nllrd, wilt % arnlti, nyl^ tabnlate, itigro\* mult, fniit iuilabiceut gmetally I wedfd, HA ovokl, i-otjlcilon. <Xn>mi>r cpatortuptuat«, nilictg •tjuriar.

GUbraui trsMt, rwdntteron\*. tljpulet nuttl tteciiluoui or ioeonipimiotn, t«ra <u(Ira oariuMiu peuuiurTtd, ptuicltt «ill»ry or texmitu), llowfln rrtb.tr mull.—*Thtc. Hook. Sea Jam. Lv. p, T* ; -«<ittt, and *tlool. fan. Pi. p. m.*

DOONA ZEYLANICA. (Thw.) A lofty tree, trnk itrwght, niucU branched toward\*, tbo upper part, hark rough and cracked, branches terete and smooth, leavi-s pennivoined with uumoromi intermodtato wticulatioiiB lanceolate dark-green aböTO, piler l>onMth, rounded nt tha bn\*«, tapering toward\* tho ftpoi into a rather long acamiuation with an abr«i)t point, 2-2J incbw long by j of an inch wido, petiole\* \ inch long grooved along tho upper surface, panicle\* farnUhed with small brown deciduous bractc\*, calyx pale-gmn tiDged with red. tho 3 enlarged leaves becoming B, deeper red, potali pule row darker at tho tips, filaments united about J fcay up. *Tkw. L c,*

7'kU i4 th« famom fMo.i >ru ot Ctylaa, oattmi alti ihinyU (w 6y &tj.tanttrt; i\ U twrjñ abundant in OK Cntrai ; *resireca* i (fat Uandvp to i,QiX)/ttt tUwattm, OJM! iA« limber it highly prittd Jor budding prt>o\*u and for i&ingl<u ; tht ttnyitüUa <ar.je pntity of cvlorlai <j«m.rt\*Ufram U, u and branches >, vM •\*«• ditnrid in &iriU of mi *is a turpentine maker on e* \*oUU\*t wrnih.





Linnaeus del.

*Quercus laevis* No. 1

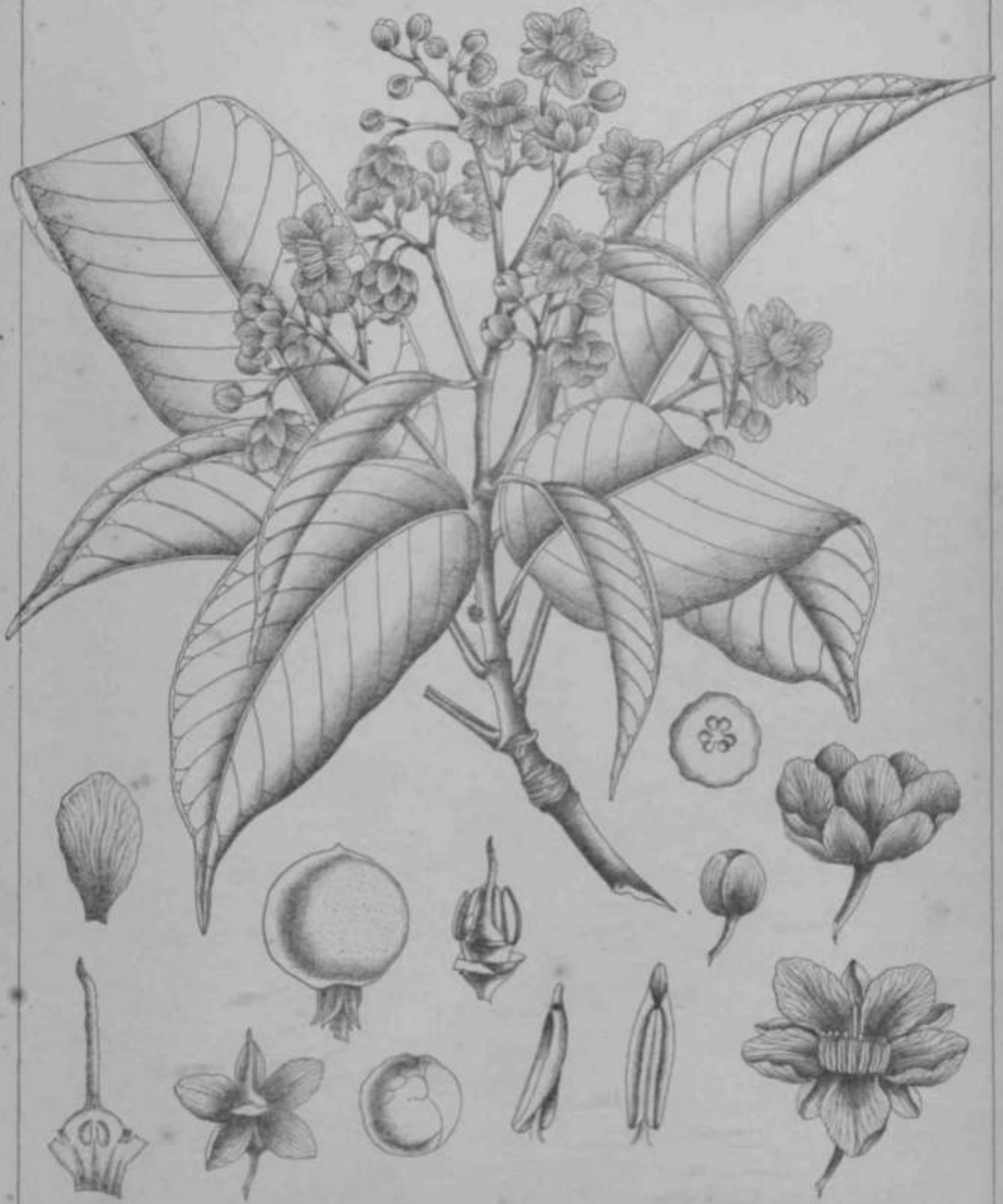
Walters sculp.

**DOONA GARDNERI. (Nat. ord. Dipterocarpe©.)**

For Gen. Char, see letter preu to PL. xcvi.

**DOONA GARDNERI. (Thw.)** A lofty tree, leaves ovate or ovato-lanceolate, rounded at the base tapering into a longish point at the apex, 2-3 $\frac{1}{2}$  inches long by 1 $\frac{1}{2}$ -2 inches broad, petioles about  $\frac{1}{2}$ -1 inch long, flowers drooping about  $\frac{1}{2}$  an inch across, bractes small early caducous, calyx minutely puberulous or at length glabrous, corol densely pubescent on the outside. *Thw, En. PL Zey% p. 35.*

*This beautiful tree is found in the Central Provinces of Ceylon at 3,000 to 5,000 feet elevation.*



Gaudourea

*Hemionoxerus gaudourea* (Thunb.)

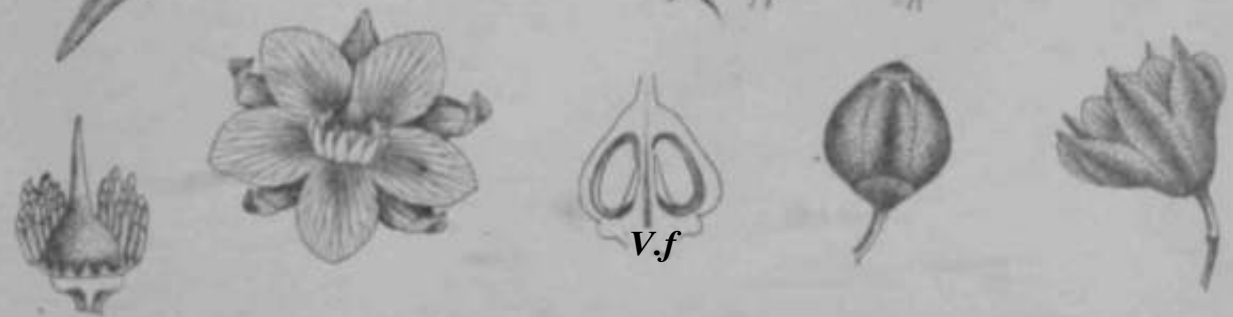
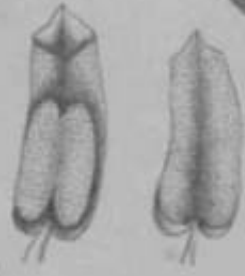
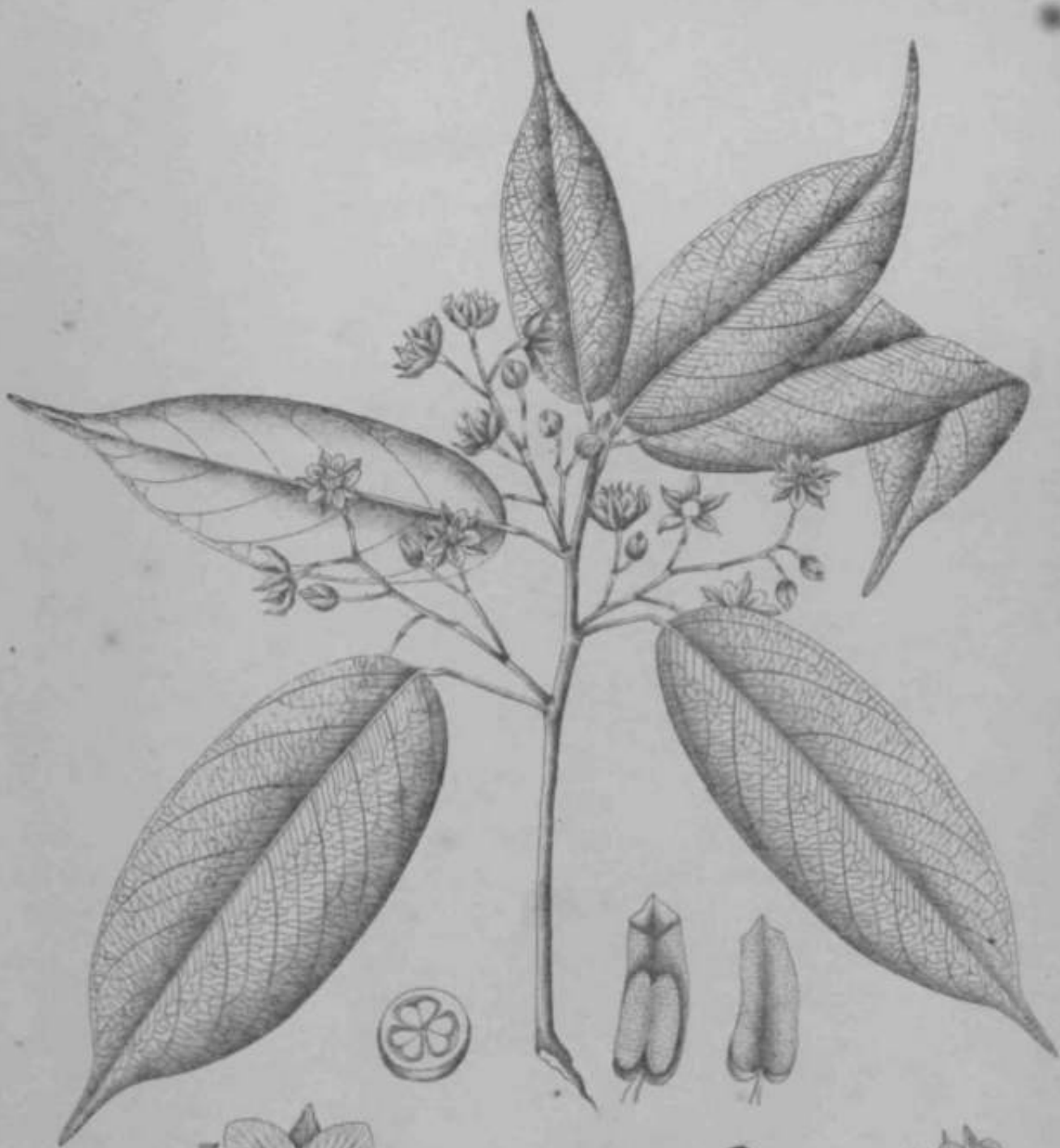
Boissier & Heldr.

## STEMONOPORUS GARDNERI. (Nat. ord. Dipterocarpeae.)

STEMONOPORUS. *Tkto.—QW.* CHAR. Calyx 5 parted, divisions equal not enlarging in fruit, petals 5 equal, just imbrication convolute, stamens 15 in 2 series, 5 interior and 10 exterior, monadelphous on a short ring round the base of the ovary, anthers oblong introrse dehiscent by a pore at the apex, connective not produced beyond the anther, ovary 3 celled, cells 2 ovuled, ovules pendulous from the apex; of the axis anatropal, style filiform, stigma simple, fruit spherical 1 inch in diameter with the calyx reflexed beneath it, 1 celled by abortion, irregularly dehiscent, testa membranaceous, embryo exalbuminous, cotyledons thick plicato-convolute. Trees like *Vateria*, but differing in their fewer anthers arranged only in 2 series. *Thw. Hoole. Journ. of Bot. Vol. vi. p. 3.* *Vateria (in part) Benth. and Uoolc. Qtn. PI p. 194.* *Vatica (in part) DO. Prod. xvi. p. 620.*

STEMONOPORUS GARDNERI. (Thw.) A large forest tree, leaves oblong-lanceolate or ovate acuminate, rounded at the base or subcordate, prominently veined beneath, 3-6 inches long by 1-2 inches broad, petioles about 1 inch long, panicles slightly hoary numerous at the apex of the branchlets, more or less elongate 4-12 flowered, pedicels 3-4 lines long, flowers about 1/2 inch across in expansion. *Thw. I. c. and En. PL Zey. p. 38.*

*Ceylon, in the Central Provinces at about 5,000 feet elevation.*



V.f

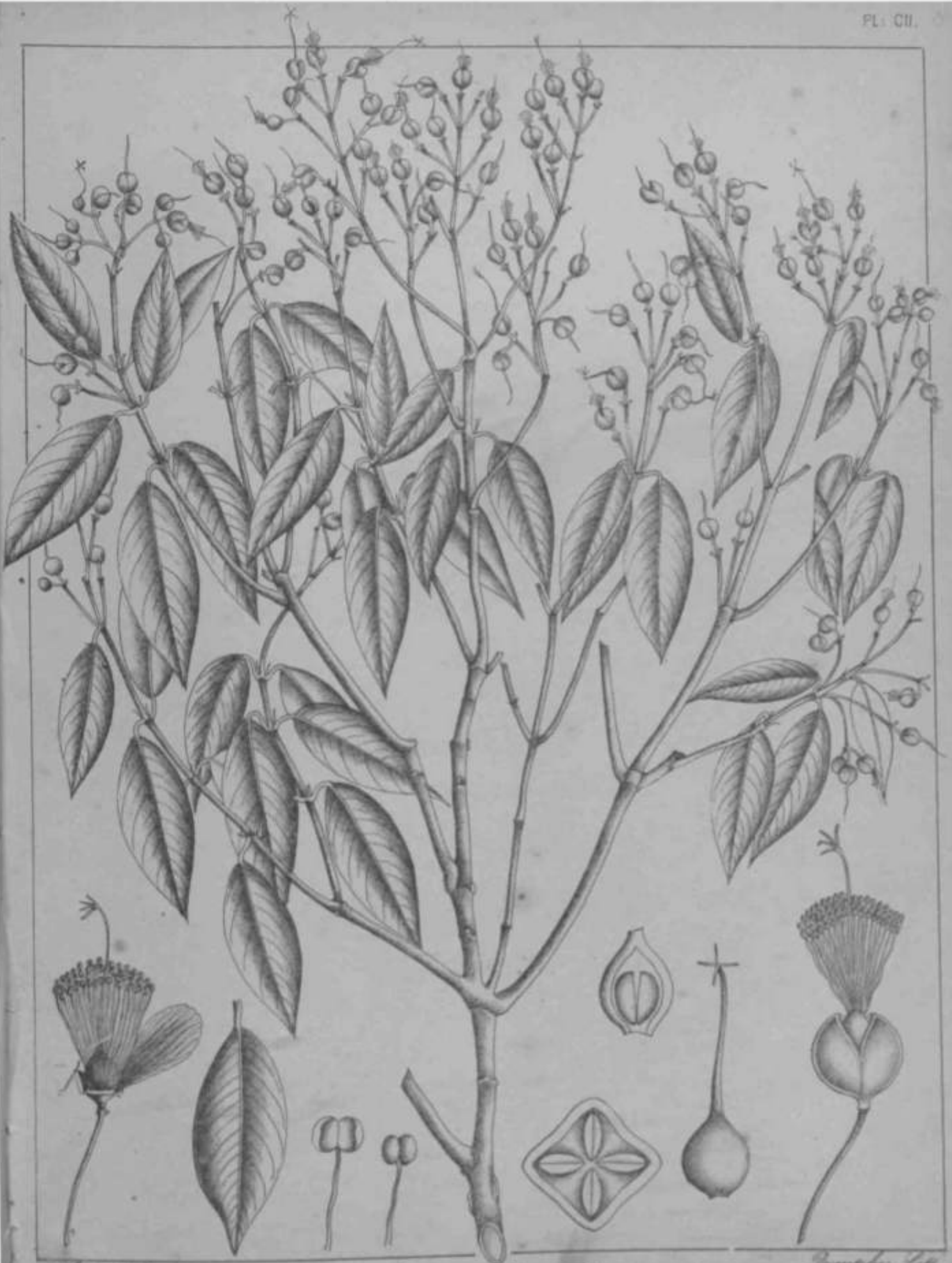
*Bateria* *Homocarpus acuminatus* (Thunb.)  
 Gussone del. Gussone sculp.

**STEMONOPORUS ACUMINATUS. (Nat. ord. Diptcroarpea.)**

For Gen. Char, see letter preu to ft. xcii.

**STEMONORUS ACUMINATUS. (Thw.)** A large tree, branches moderately rugose, leaves narrow lanceolate to oblong lanceolate gradually attenuated into a long blunt point, rounded at the base, prominently veined and reticulato-venose, 4-7 inches long by 2 inches broad, petioles 1-1½ inches long, stipules falcato-lanceolate 3 lines long ½ line broad, early caducous, panicles puberulous about the length of the leaves, racemiform or moderately ramous, bracts minute deciduous, calyx lobes ovato-lanceolate puberulous. *Thw. En. PL Zty. p. 403.*

*Ceylon, in the Ambagamwa, Badulla and Mahamahanewera districts at no great elevation.*



Flora del

*Kayea styliso* (Thunb.)

Bumphy del

**KAYEA STTLOSA. (Nat. order Guttifem)**

**KAYEA YEA.** Wall. -GEN. CHAR. Flowers hermaphrodite (or polygamous ?), sepals 4 petals 4, stamens numerous free or scarcely united at the base, filaments long filiform, anthers small subglobose 2 celled dehiscing longitudinally, ovary 1 celled, style elongate shortly and acutely 4 cleft at the apex, ovules 4 erect, capsule roundish coriaceous indehiscent included in the much enlarged coriaceous calyx 1-4 seeded, testa membranaceous colored, cotyledons fleshy. Trees, leaves oblong penninerved, flowers numerous small in terminal panicles or solitary and large.

**KAYEA STYLOSA.** (Thw.) A large tree, branches terete glabrous reddish, leaves ovato-lanceolate acuminate, 2-3 inches long by 7-10 lines broad, petiole 2-3 lines long, flowers very fragrant small in terminal panicles or from the upper axils, style much longer than the numerous stamens. Thw. En. Pi. Zty. p. 50.

*This elegant tree has only been found in Ceylon, in the south of the island at no great elevation; it is called Soovanda by the Sinhalese. The timber is valued for building purposes.*





*Monoporaudna cordifolia* (Thunb.)

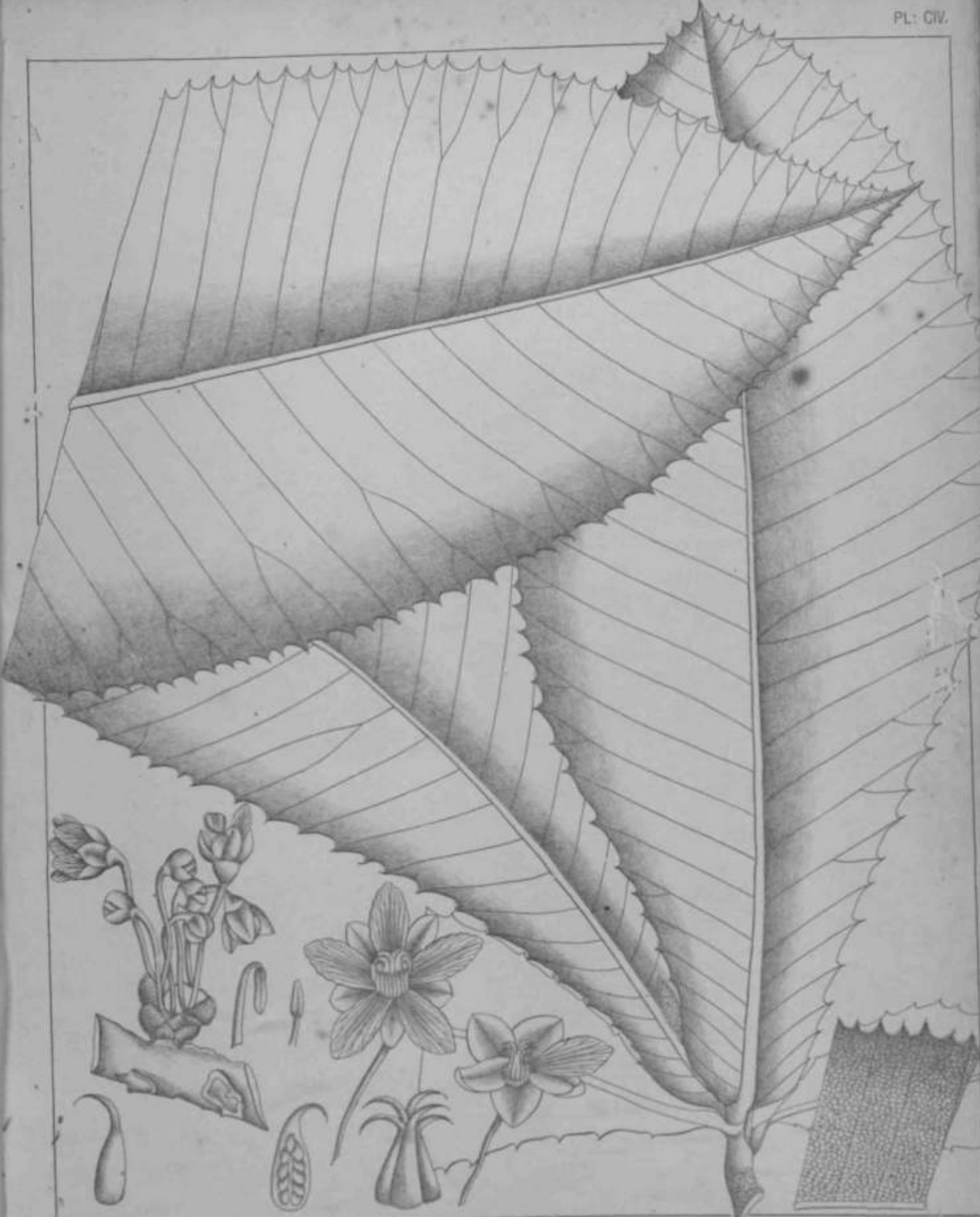
Dumphy del.

### MONOPORANDRA CORDIFOLIA. (Nat. order Dipterocarpera.)

MONOPORANDRA. *Jl/ite*.—GEN. CHAR. Calyx 5 parted divisions equal not enlarging in fruit, petals 5 equal aestivation convolute, stamens 5 monadelphous in one aeries in a short ring round the base of the ovary, the rest as in Stemonoporus. *Thw. Hook. Jour, of Bot. vol. vi. p. 5;—Benth% and Hook. Qen. Pl p. 194 ,-DC. Prod xvi. p. 637.*

MoNOPORANDRA. CORDIFOLIA. (Thw.) A middling sized, much brauched tree, leaves shining rigid very coriaceous ovate or oblong with a very sudden long blunt acumiation, rounded but scarcely cordate at the base, costa and primary veins very prominent beneath depressed above, 2£-4£ Inches long by 1£-2£ inches broad, petioles £ to nearly 1 inch long, panicles much shorter than the leaves, slightly puberulous, flowers very small, calyx segments very acute, fruit small size of a large pea, *Thu>.£n.Pl. Zey.p. 39.*

*Ceylon, in the Ambagamwa and Sapagram districts, at an Oevation of about 3,000 feet.*



*Dillenia pentagyna*, (Roxb.)

Dumphy del.

WMW

**DILLENIA PENTAGYNA. (Nat. order Dilleniaceo.)**

For Gen. Char see letter press to Pl. ciii.

**DILLEKIA. PENTAGYNA. (Roxb.)** A very large tree, leaves quite sessile and amplexicaul at the base or with petioles 1-4 inches long, oblong to oblongo-lanceolate or obovate acute or obtuse at the apex, 1-2 feet long (or in saplings up to 5 feet long) paler beneath, when adult very coriaceous glabrous or puberulous beneath, when young membranaceous and more or less pilose or sericeous according to age and ciliate at the margin, very prominently veined with raised parallel veins which are simple and excurrent at the margin into a sharp serrature or once or twice forked (generally only towards the apex) each veinlet ending in a serrature, flowers H i"ch in expansion appearing before the leaves in small clusters along the older branches, pedicels 5-8, one-two inches long arising from several small concave thick silky bractes, sepals unequal the 3 outer ovate the 2 inner longer and narrower, petals oblong to obovate yellow very caducous, stamens numerous the interior row longer than the other and reflexed like the styles, ovaries 5, styles reflexed, stigmas simple apiculate, seeds by abortion 12. *Roxb. Fl. Ind. ii. 652.* *Dillenia angusta et pilosa, Roxb. I. c. Colbertia Coromandelina, DC. Prod. 175.*

*This tree is most abundant throughout South India and in Northern India and Birmah, but does not occur in Ceylon ; it is to be met with in almost every forest in this Presidency. It flowers towards the end of January, or a\* late as March or April, when the tree is destitute of leaves. It is called Rai, Pine %nd Ndi-tek in Tamil in different districts, Chinna Kalingd in Telugu, Kanagalee and Machilin Canarese, and in Birmah Yeengd and Bjooben. The wood is close grahei, strong, tough, fibrous and durable even under ground, of a reddish brown colour and a pretty wavy surface on one side, not easily worked and subject to warp and crack ; a cubic foot uneasoned weighs 85—90 lbs., and 70 lbs. when seasoned ; its specific gravity is 1'120 ; it is used in house and ship building, and is adapted for cabinet purposes.*



*Gouanaceae* DC.

*Sterculia guttata* (Baob.)

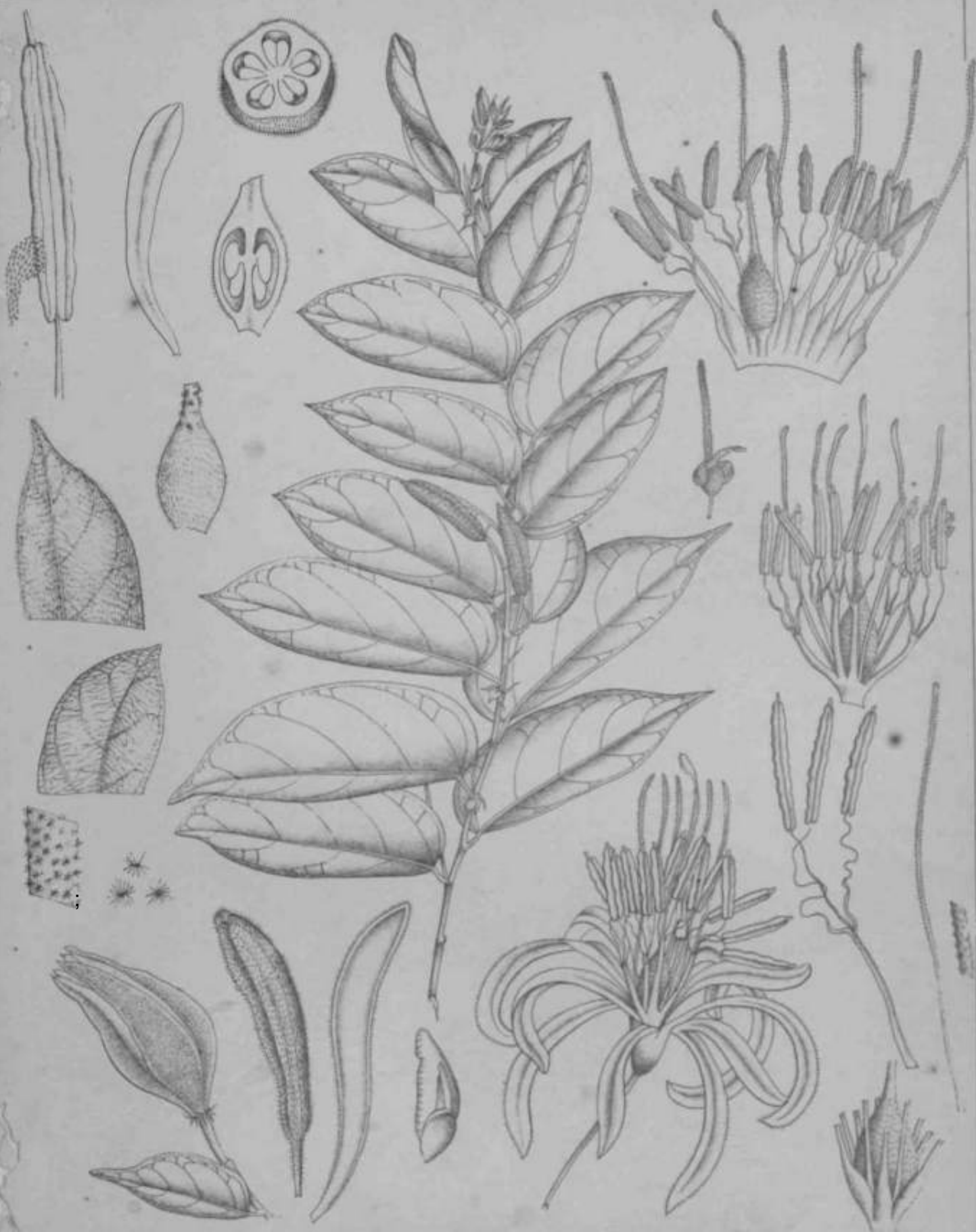
Dumortier del.

STERCULIA. LINN. (Nat. order Sterculiaceae.)

GEN. CHAR.: Flowers unisexual or polygamous. Calyx more or less deeply 5 cleft, rarely 4 cleft, usually colored. Petals none. Staminal column adnate to the gynophore, bearing at the summit 15 or rarely 10 stamens, irregularly clustered in a head. Carpels of the ovary 5, distinct or nearly 5, with two or more ovules in each. Styles united under the peltate or lobate stigma. Fruit carpels distinct, spreading, either firm or woody, and scarcely opening along the inner edge, or thinner, and opening as Collides, even long before they are ripe. Seeds 1 or more in each carpel, rarely winged; albumen adhering to the cotyledon\*, often splitting in two, assuming the aspect of fleshy cotyledons; real cotyledons flat or nearly so, and thin, the radicle next the hilum or at the opposite end, or intermediate. Trees, leaves undivided or lobed, or digitately compound. Flowers in panicles or rarely racemes, mostly axillary, sometimes very short; terminal flowers usually female, in these the staminal column is shorter and the anthers less perfect than in the male; surrounding the base of the ovary; in the males the ovary is often entirely abortive.—*Brachychiton*, *Trichosiphon*, and *Poeciloderrais*, *Schott*; *Delabechea*, *lindl.*; *Cavallium*, *SchotL*; *Southwellia*, *Solid.*; *Firmiaua*, *Mars.*; *Pterygota*, *SchotL*; *Hildegardia*, *Schott.*; *Cwpopbyllum*, *Miy.*; *Scaphiam*, *SchotL*; *Pterocymbium*, *Br.*; *Triphaca*, *Lour.*

**STERCULIA GUTTATA.** A large tree, with a tolerably straight trunk, bark cracked, leaves oblong to very broad ovate slightly cordate at the base entire with a longish sudden acunination, upper side smooth and shining, beneath very softly villous, about 7-9 inches long by 4-5 broad, petioles round downy 2-5 inches long, stipules ensiform early caducous, racemes terminal and from the divisions of the branchlets simple densely villous, flowers in threes, very shortly pedicelled about 1/2 inch across, chiefly hermaphrodite, bractes lanceolate, a larger one below the middle flower and a very minute one below each of the others, calyx densely villous on the outside, hairy within and beautifully freckled with purple, ovary long pedicelled globose 3-5 lobed downy 3-5 celled, fruit carpels generally 5 coming to maturity serai-ovate, about 3 inches long by 2 broad, villous of a brilliant red color; seeds oblong jet black. #0\*6. *Fl. Ind.* iii. U9.

-4 very common tree in almost every forest in Southern India and in Ceylon; it is a beautiful object when covered with its bright red cap. *cap.*; the timber is not used that I am aware of, but the bark yields a valuable cordage, and is also made into a kind of clothing in some parts of the western coast; for this purpose it is taken off in strips, beaten, washed, and dried in the sun; the tree is called *Kawillee* by the Kaders on the Anamallays, and *Kukar* and *Ooldar* on the Bombay ghats.



**PTEROSPERMUM. SCHREB. (Nat. order SterouliaceoQ.)**

GEN. CHAR. : Calyx tubular 5 lobed, petals 5, stamens united into a column at the base with 5 long barren filaments, and 15 shorter ones (in 5 phalanges of 3 each) each bearing a linear erect 2-celled anther, ovary shortly stalked 5 celled with several ovules in each cell, style entire, capsule woody with a loculicidal dehiscence, seeds winged at the upper end, albumen scarcely any- Trees, with a stellate or scaly pubescence, leaves coriaceous, flowers usually large solitary or few together on axillary peduncles.

**PTEROSPERMUM RUBIGINOSUM. (Heyne),** A very large tree, young branches covered with brownish rusty tomentum, leaves very obliquely ovate very unequal sided, quite entire acuminate, upper side covered with fugacious rusty down at length quite glabrous, under side softly downy, with close set brown tomentum, 2-2½ inches long by about 1 inch broad, petioles about 2 lines long, stipules downy with a broad concave base and 1-2 filiform teeth, peduncles axillary 1 flowered 2-3 times longer than the petioles furnished at the base with a few bractes resembling the stipules, flower bud angled stellately downy on the outside, bracteoles of the calyx none, flowers about 2 inches long, white, sepals and petals narrow linear, connective of the anthers produced into a terminal point, stigma obscurely 5 lobed, capsule ovate pointed 5 angled covered with stellate down, 2 inches long by about ½ inch in diameter.— *ROt. Prod. p. 68.*

*This very fine tree is very common in the Tinnevely districts, the Wynad, Anamallays, and generally throughout our western forests up to about 3,000 feet; the timber is excellent, and the tree is called Karatoveray in Tinnevely, where the wood is much in use for building and other purposes.*





Alonso, 1816

*Guazuma tomentosa* (Lam.) DC.

Dumortier, Lith.

### GUAZUMA TOMENTOSA. (Nat order Sterculiaceae.)

GEN. CHAR.: Calyx 2-3 parted, petals 5 subunguiculate at the base cucullato-concave produced at the apex into a linear ligulate bifid appendage, staminal tube or urceolus with 5 sterile acute lobes alternate with the petals, in the sinuses of which are the fertile filaments (each opposite to a petal) connate at the base and trifid above each bearing 3 anthers, ovary sessile 5 lobed 5 celled, cells many ovuled, styles 5 more or less connate, stigmas simple, capsule subglobose woody tuberculoso-muciculate or echinate with long hairs, imperfectly loculicidally 5 valved at the apex, seed albuminous, embryo slightly curved, cotyledons plaited, radicle near the hilum. Trunks atellately pubescent or glabrescent, leaves unequally toothed often oblique, cymes axillary shortly pedunculate, flowers small *Diuroglossum*, Turcz.

GUAZUMA TOMENTOSA. (DC.) A middling sized tree, leaves ovate oblong acuminate cordate and unequal at the base toothed, upper side stellately pubescent, under with a stellate white tomentum, about 3-4 inches long by 1½ broad, petioles 3-4 lines long. DC. 1. 485, *Boubroma tomentosa*, Spr. *Quazuma ulmifolia*, Wall.

*This tree has been naturalised in India, being of American origin; it is now very common throughout the Presidency, being largely planted in avenues and topes, &c. The wood, which is known as Bastard Cedar, is light and loose grained, and of a light brown color, and is used for furniture, and by coach makers for panels, and for packing cases, panneling, &c. It weighs about 40-45 lbs. per cubic foot unseasoned, and 32 lbs, when seasoned, and its specific gravity is .52; the leaves are an excellent fodder for cattle.*



Seemann del.

*Prunella ulmifolia* (Kunt.)

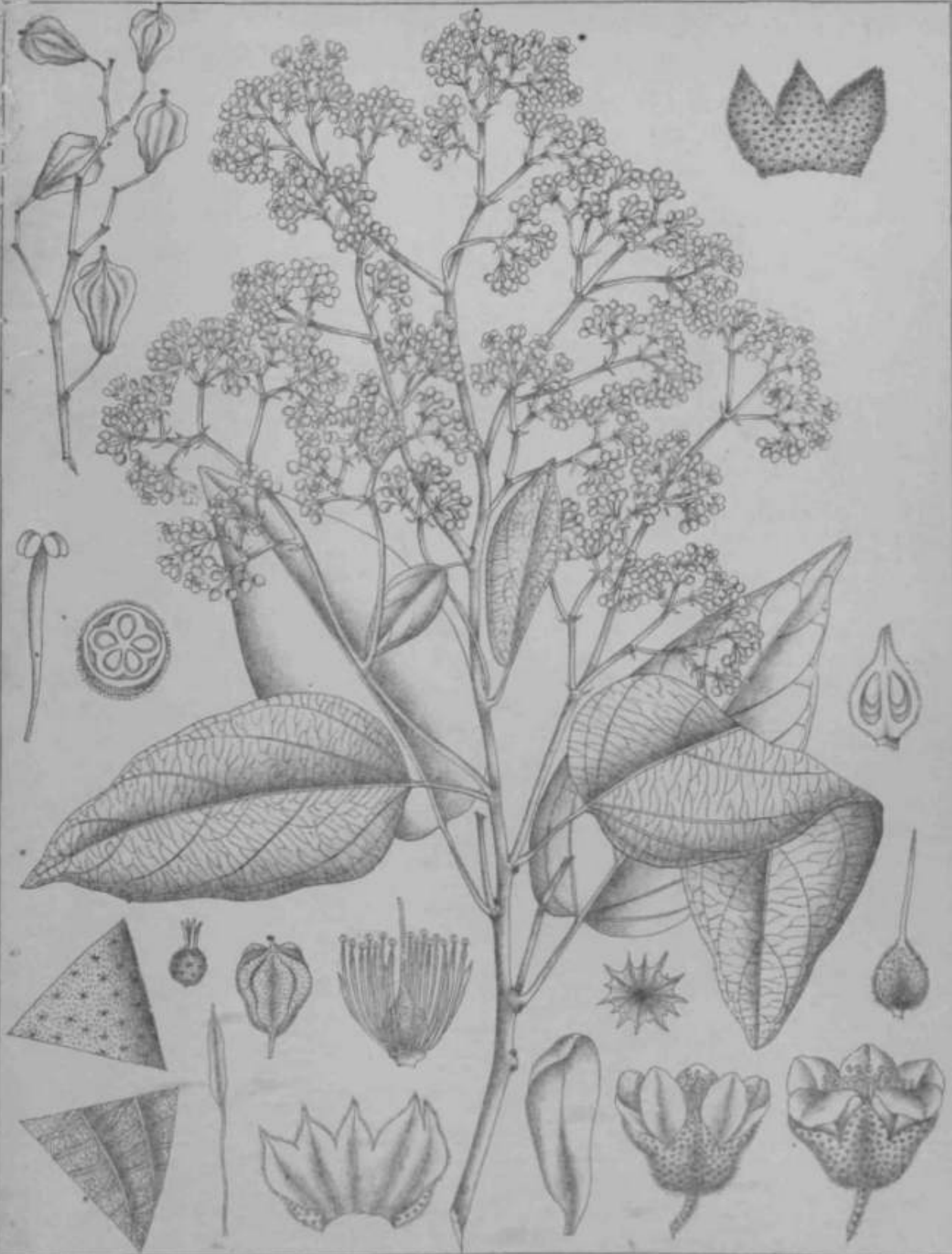
Drumphy del.

## OREWIA. LINN. (Nat. order Tiliaceae.)

GEN. CHAR. • Flowers regular hermaphrodite pentamerous, sepals distinct, petals unguiculate, claw thickened glandular ciliate, rarely wanting, stamens indefinite all fertile free springing from a raised glandular torus, ovary 2-4 celled, cells 2-many ovuled, style subulate, stigma shortly 2-4 lobed, drupe 1-4 stoned entire or lobed, stones 1-2 or more seeded and divided by spurious dissepiments between the seeds, seeds ascending or horizontal, albumen fleshy or horny, cotyledons flat leafy. Trees or shrubs, frequently covered with stelliform hairs, leaves entire or lobed 3-7 nerved, flowers yellow or pink in axillary or terminal cymes. *Mallococca* et *Chadara*, *Fonk*. *Microcos*, *Linn*. *Omphacarpus*, *Korth*.

GREWIA TILLEFOLIA. (Vahl) A large tree, the younger parts covered with a short dense coating of felted hairs, at length sub-glabrous, leaves obliquely cordate roundish, acuminate or rounded at the apex irregularly toothed sometimes with a tendency to be lobate at the apex, 4-6 nerves long by 2-4 broad, 5 nerved at the base, petioles about 1 inch long, stipules transverse falcate lanceolate caducous, peduncles axillary or emerging a little on one side of the petiole, 2-3 together equal to or a little exceeding the petioles, 3-5 flowered, pedicels furnished with bracts, sepals linear oblong, petals oblong  $\frac{1}{2}$  the length of the sepals, torus scarcely exceeding the glands, style about twice as long as the stamens, stigma 4 lobed, drupes globose or 2-rarely 4 lobed, lobes globose with two hemispherical 3 celled nuts or one spherical 6 celled nut in each lobe. *Vahl. Symb. 1. p. 35* — *Roxb. Fl. Ind. ii. p. 587*. G- arborea, *Roxb*- Q. *elastica*, *Royle* ?

A very common tree throughout the Madras Presidency and all over India and Ceylon ; it ascends the mountains to about 4,000 feet, and is often found of large size in favorable localities; the berries are eaten, having an agreeable acid flavour ; the timber is highly prized for strength and elasticity, and is used for building purpose\*, bows, buggy shafts, walking sticks, and a variety of other uses; it is much in use at Jubbulpore, where the tree is known by the name of *Dhdman*, it is light and rather soft, flexible and fibrous, coarse grained and durable, of a light pinkish color turning to light brown, and easily worked ; unseasoned it weighs 45 to 50 lbs the cubic foot, and 34 lbs when seasoned, its specific gravity is .544. The tree is called *Tharrd* or *Thadd* in Tamil, *Chardchi* in Telugu, *Thadsal* or *Butale* in Canarese; the leaves make a good fodder\* " ">" " " « bark (like that of all the *Orewias*) is used as cordage.



Amorim  
Mariano

*Polyranthe verrucosa* (Munz)

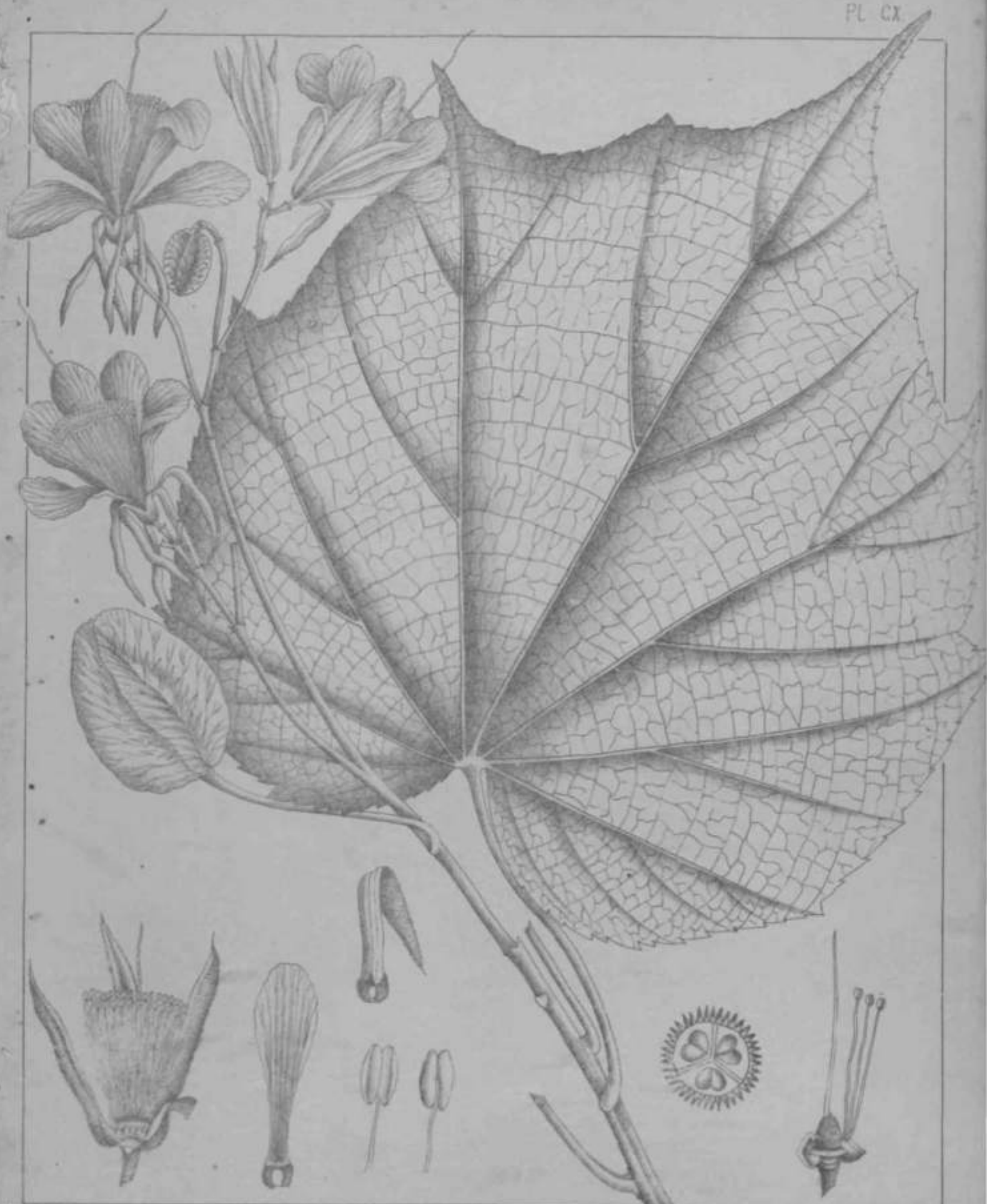
Amorim

**PITYRANTHE VERRUCOSA. (Nat. order Tiliacere.)**

**PITYRANTHE.** n».-OEN. CHAR. Calyx urceolate eampauulate, 3-4 lobed, petals 5 rather broad naked inserted round the base of the torus, fertile stamens about 15 inserted on t> the torus free or obscurely 5 adelphoua, stamiuodia 5 shorter than the stamen, and inserted with them npathulate upwards, anthers adnate, cell\* divaricate, ovary 5 celled, cells 2 ovuled, styles 6 in the youngr bud afterwards closely united into one and filiform, capsule inflato-turbinate 5 angled loculicidaUy 5 valved, 1 seeded by abortiou. A tree, leaves ovate or obovate crenat\*, Bower, wnal in terminal panicles. *Thw. Fn. Pl. Ziyi. p. 29.*

**PITYRANTHE VERRUCOSA.** (Thw.) A tree, leaves ovate toobovate, inconspicuously crenite penninerved or sub 3 nerved, above sparingly furnished with tufte of stellate hnirs at length glabrous, beneath whitish with deuse close pressed tomentum, 2-6 inches long by 1-3 broad, petiole J-J inch long, panicles terminal lepidote, flowers numerous 1J Une long, capsule furfuraceous verrucose, seed black oblong 2 lines long" very minutely reticulated covered with pale deciduous stellate pubescence. *Thw. En. Pl. Zty. ;> 29.* *Kleinhovia verrucosa, Gardn. MS.*

- *A tree found only in Ceylon, abundant in the Batcaloa dittricl, and at Jaffna and Trincomalet.*



Scavola del.

*Ericocarpus Nimboriensis* Griseb.

Sampl. 214

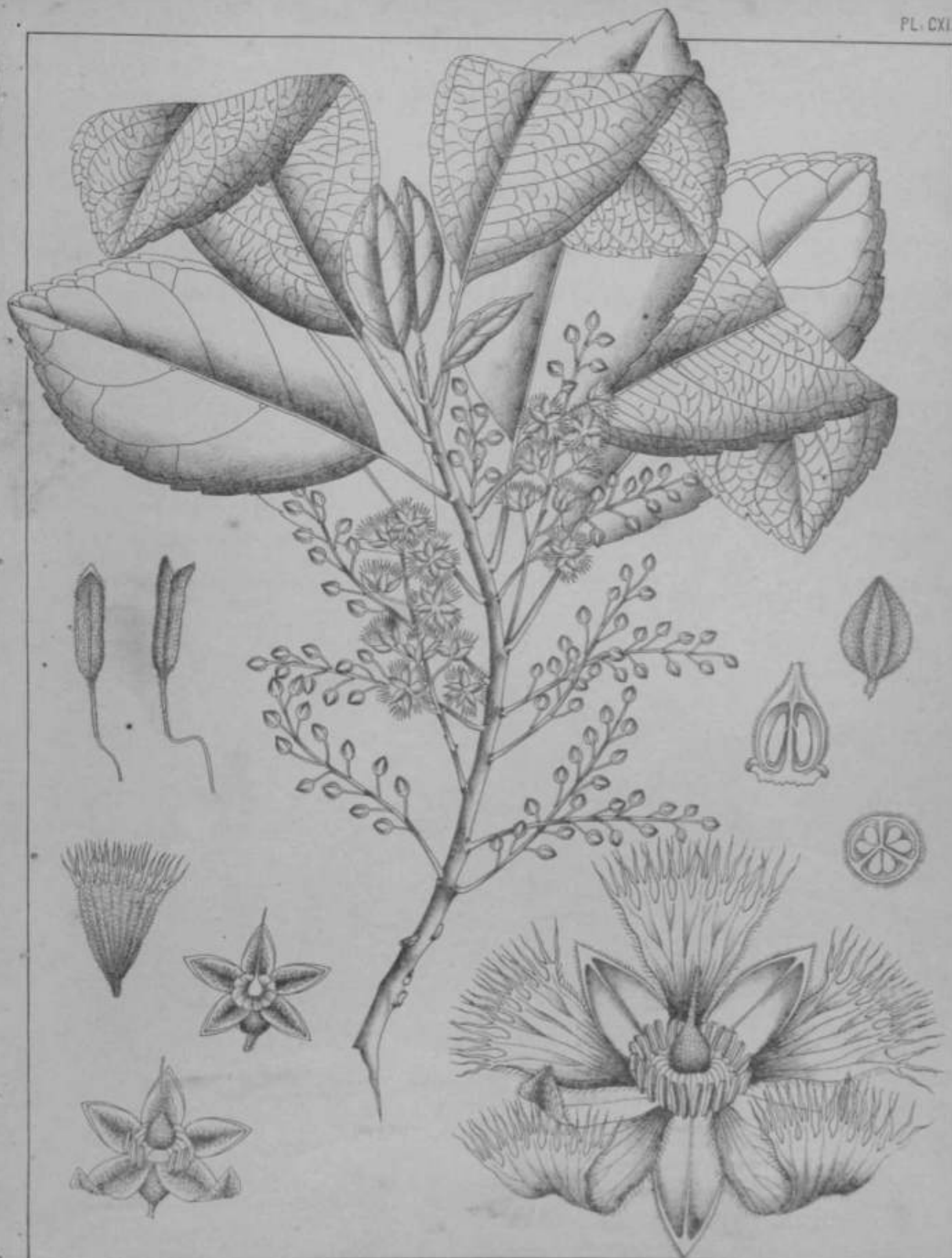
### ERINOCARPUS NIMMONIL (Nat. order Tiliaceae.)

ERINOCARPUS. Mm mo.—GEN. CHAR. Sepals 5 distinct, petals 5 with pit like glands at the base on the inside, inserted round the base of the torus, stamens numerous inserted on the elevated torus free or the exterior very shortly connate in a ring, ovary 3 celled, cells 2 ovuled, style filiform, fruit large rather woody indehiscent triquetrous, and slightly winged, echiaate, seed pendulous oblong, testa coriaceous, albumen fleshy, cotyledons ovate plane. A tree, leaves broad palminerved lobate and toothed, flowers yellow large laxly arranged ou large panicles, bractes cordate. *Xlmmo in HoH. Bombay ', ^Benth. and Hook. Gen. Pl. 1. 234.* -

ERINOCARPUS NIMMONTL (Grab.) A small tree, leaves roundish cordate, irregularly serrate 5-7 lobed, lobes acute, prominently palmately 9 nerved, glabrous above pubescent beneath or in age subglabroua except the veins, about 8 inches each way, petioles 3-5 inches long, flowers nearly 2 inches across, yellow in terminal panicles, calyx stellately pubescent ou the outside, ovary pubescent, fruit pubescent and echinate, about 2 inches long. *Grah. in Cat. Bombay PL p. 21.*

*This tree is common on the Concm ghats, and probably ocdurs in Canara; it /lowers in September and October, and is called Chow/a or Jungli Bendi The bark is used for making ropes.*





*Leaves etc.*

*Glaxocarpus amarus, Thunb.*

*Samuel J. Smith*

**EI^EOCARPUS AM^NUS. (Nat. order Tiliace@.)**

**ELdEOCARPUS. Linn.—GEN. CHAR.** Sepals 4 or 5, usually valvate. Petals as many, fringed, lobed or rarely entire, inserted round the base of the torus, induplicate-valvate, and embracing some of the outer stamens in the bud. Stamens indefinite, inserted on the torus within a glandular ring; anthers oblong or linear, opening at the top in 2 valves (that is, the cells placed back to back and opening in short, terminal, confluent slits.) Ovary 2 to 5 celled, with 2 or more ovules in each cell; style subulate. Fruit a drupe, with a hard often bony putamen, 2 to 5 celled or 1 celled by abortion. Seeds solitary in each cell, pendulous (or rarely erect?), testa hard, albumen fleshy, cotyledons broad, flat or undulate. Trees, leaves alternate or rarely opposite, entire or serrate. Flowers in axillary racemes, sometimes polygamous. (*Monocera, Jack.*)

**ELiEOCARPUS AMiENUS. (Thw.)** A middling sized tree, glabrous except the young leaf buds, leaves ovate or ovato-lanceolate with a short blunt or retuse point, crenate-serrate, furnished with glands in the axils of the leaves beneath, 2-4} inches long by |2 broad, petioles 4 lines to 1 inch long, racemes puberulous very numerous towards the end of the branches, axillary and from the axils of fallen leaves, anthers quite naked, deeply cleft at the apex, each petal cut down at the apex about \ of its length into about 8 segments each with 2-4 fringed points, ovary 3 •elled, ovules 2 in each cell attached about the centre of the axis, drupe spherical. *Thw. En, VI Zey. p. 32.*

*Tkii very beautiful tree is common in the central provinces of Ceylon up to 4000 feet, and is also cultivated in gardens.*



W. & A. G. & Co. Lith.

*Chorizanthe parviflora* Schlecht.

Hook. & G. Bot. Beechey.

**ELAEOCARPUS FERRUGINEUS. (Nat. order Tiliaceae.)**

For Gen. Char, see letter press to Pl. cxi.

**ELAEOCARPUS FERRUGINEUS. (Wight.)** A good sized tree, young shoots densely villous, leaves cucullate very coriaceous ovate to elliptic serrulate, with a bluntish rather sudden point at the apex, at first villous above with fugacious tomentum, at length glabrous, deusely and closely tomentose beneath, stipules linear acute glabrous viscid and shining above, downy at the base on the back, early caducous, racemes axillary or from the old axils just below the leaves, a little shorter than the leaves, tomentose as are the calyx, petals and ovary, flowers less than  $\frac{1}{2}$  an inch long, pedicels about the same length drooping slightly elongating in fruit, petals involute at the margins furnished with a prominent ridge up the inner face about 9 fringed but not otherwise, divided, anthers puberulous along the cells furnished with a long awn from the exterior valve, ovary 3 celled, ovaries 6-8 in 2 rows in each cell, drupe oval smooth a little more than  $\frac{1}{2}$  an inch long. *Monocera ferruginea, Wight hoes tab. 225.*

<sup>9</sup> *A very common tree on the A'dgirii, Anamallays and Pulneys, at the higher elevations. The margins of the leaves are always connivent, rendering the leaves quite boat-shaped. The Umber is used for building purposes. Wight figures the ovary as 4 celled, but in several flowns that I have dissected it is 3 celled.*



Hook. & Grev.

*Clavicornus tuberculatus* (Hook.)

Hook. & Grev.

**ELJEOCARPUS TUBERCULATUS. (Nat. ord. Tiliacess.)**

For Gen. \*Jiar. see under "Elseocarpus amaeu\*" PI. cxi.

ELJEOCARPUS TUBERCULATUS. (Roxb.) A gigantic tree, leaves crowded about the apex of the branchlets, obovato-oblong remotely and inconspicuously serrulate, gradually narrowed into a retuse base very broad towards the apex and obtusely pointed, glabrous above villous beneath particularly along the veins, 8-12 inches long by 4-5 broad, petioles 1-2 inches long round and villous, stipules conical villous deciduous, racemes numerous just below the leaves (from the axils of fallen leaves) 3-4 inches long villous as are the bractes, pedicels and calyx, pedicels short drooping 1 flowered, bractes lanceolate caducous 1 to each flower, flowers pure white 1 inch long, petals villous on the back glabrous inside except at the 2 oblong glands at the base, each one bifid for nearly half its length the divisions overlapping, many fringed, anthers very numerous 70-80, each with a long terminal beak from the exterior valve, ovary 2 celled, ovaries numerous in 2 rows, drupe size of a small apple, nut woody oval slightly compressed much tubercled on its flat sides with a thickened margin, 1-2 celled. *Roxb. FL Ind. iii. ?.* 594. *Monocera tuberculata, Wight. Ic. tab. 62.* *E. serrulatus, Roxb Hort. & ngh. p. 42.* *E. bilocularis, Roxb. in. E. I. G. Mas. tab. 1. 985.*

*This truly magnificent tree is very common in Coorg, the Annamallays, Malabar and Traoancore, up to an elevation of about 4,000 feet, and probably throughout our western forests. Very large trees of it may be seen in the dense forests about the foot of the NUGIRIS below Makurty Peak and Banghy tappal; it is called Roodrac, and the beads are worn as ornaments, and by fakirs. I am not acquainted with the timber, but it is worth attention.*



*Leptomychus moscardoides* Hook.

W. H. & A. S. 1848

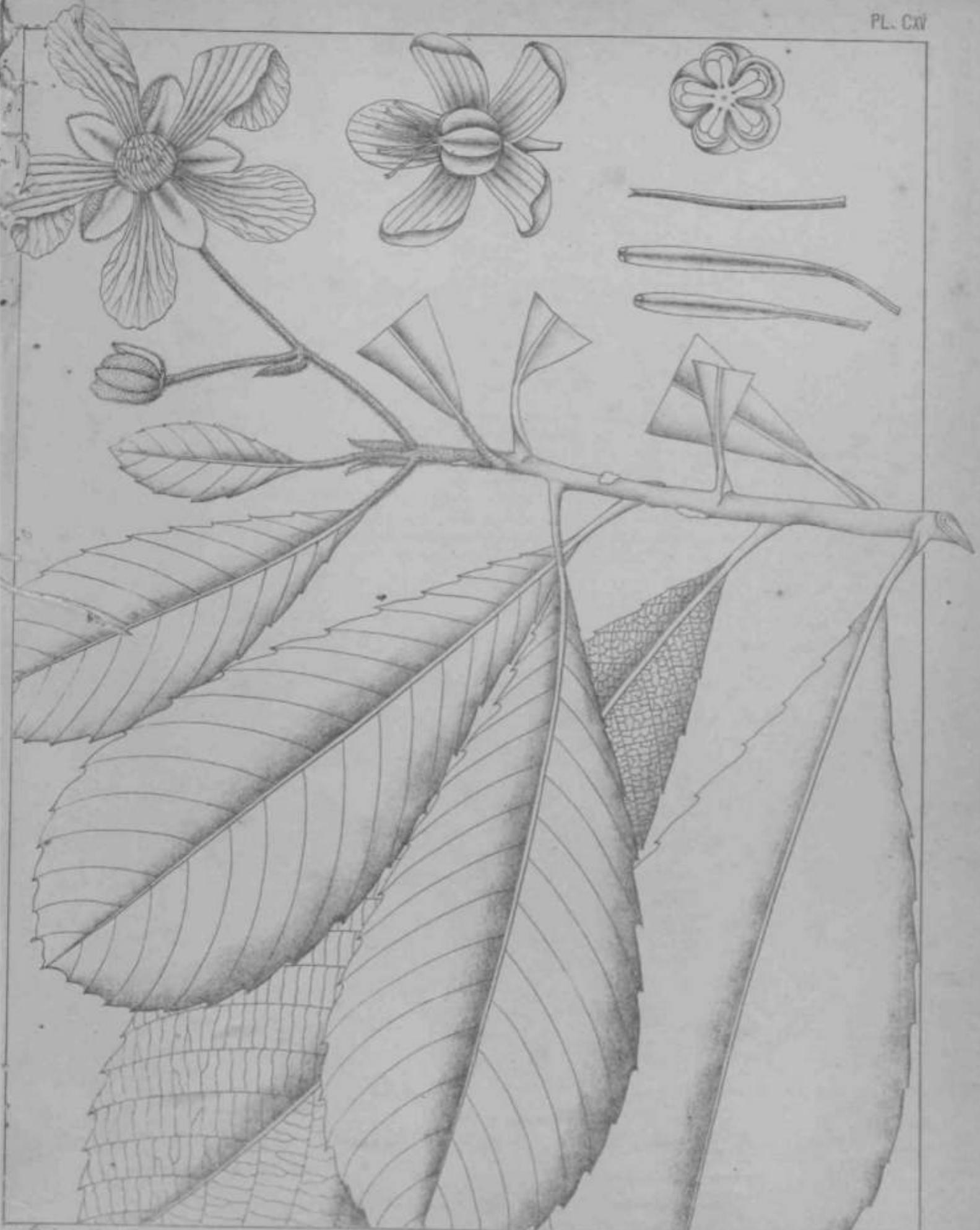
**LEPTONYCHIA MOACUBROIDES. (Nat. order Tiliace®.)**

**LEPTONYCHIA.** Turcz. - QEN. CHAR. Sepala 5 distinct valvate in bud, petals 5 glandular at the base very small inserted round the base of the torus alternate with the sepals, imbricate in bud, staminal tube short embracing the base of the ovary, fertile stamens 10 in pairs in the axils of the leaves, anthers 5 <sup>5</sup> & U tooth like at anthesis, each fertile filament being also furnished with a long sterile filament attached at its base about 1/3 from the base, anthers parallel at length divaricate, ovary 4 celled, ovules numerous in 2 rows attached to the axis, style simple, stigma obscurely 2 fid, fruit verrucose and deusely downy dehiscent, by abortion 3 celled, cells 1 seeded, seed covered with a red spongy aril, albumen homy, embryo straight, radicle pointing to the hilum. Trees or shrubs, leaves entire glabrous, flowers small in short axillary cymes.

**LEPTONYCHIA MOACURROIDES.** (Bedd.) A small tree with much the appearance of a Grewia, leaves glabrous on both sides penninerved or sub 3 nerved at the base, oblong with a long gradually fine acurination, about 4 inches long by 1 1/2 broad, petioles 3-4 lines long, stipules small lanceolate early caducous, flowers lit axillary cymes' about the length of the petioles, calycine segments linear lanceolate pubescent, petals nearly orbicular not more than 1/3 the length of the sepals densely villous except fit the base inside, ovary and style pubescent, fruit about 1/2 of an inch each way slightly 2-lobed verrucose and covered with down (and much ~~the~~ of Moacurra (felonioides).

*An elegant small tree inhabiting the western coast forests of the Madras Presidency, 1,000 to 3,000 feet elevation, I have met with it on the Carcoor ghat in the Wynad, on the Coimbatore hills, and on the Tinnevetty ghats.*





Hooker det.

*Vernonia bracteata* (Nights)

Leung, Loh

**WORMIA BRACTEATA.** (Nat. ord. Dilleniaceae.)

**WORMIA.** JtoWJ.—GEN. CHAR. Sepals 5 spreading. Petals 5. Stamens numerous, with erect linear anthers opening at the summit in two pores, the inner ones often longer and recurved. Carpels 5 to 10, scarcely cohering, with several ovules in each, dehiscent when ripe. Seeds with an arillus. Trees, often very lofty, leaves large, with raised parallel veins diverging from the midrib, the petioles often bordered with narrow deciduous wings, flowers large, in loose terminal panicles.

**WORMIA BRACTEATA.** (Wight.) A large tree, young parts sericeous, leaves obovate gradually attenuated towards the base, rounded at the apex crenate or serrate, glabrous on both sides in age, 3-8 inches long by 3-3½ broad, petioles 1-1½ inches long, racemes few flowered, leaf opposed, pubescent, shorter than the leaves, flowers white 2½-3½ inches in diameter, sepals sericeous on the outside, petals obovate, ovaries 5, styles minutely 2 cleft at the apex. *Dillenia bracteata*, *Wight Icones* tab. 358. *Worraia*, *H.f. et T. Flora Ind.* p. 63.

*This\* very handsome tree I have only observed on the Coimbatore hills and the Anamallays, but it is also found in Mysore and on the Arcot and Cuddapah hills. It is well deserving of cultivation for ornamental planting, &c. The specimen figured was collected in the Bolativputty valley on hills near Coimbatore, and I believe I am correct in referring it to Dr. Wight's species; his figure however is not as good as his description.*

**WORMIA TRIQUETRA.** (Rottl.) A Ceylon tree very like this species, differs in its much broader leaves rounded at the base, and in its more numerous flowered glabrous peduncles; the young petioles are curiously sheathed in the stipules, which latter are however soon deciduous. \*7c is a highly ornamental tree and very common about Colombo, and might receive attention for ornamental planting.



*Crataeva, sp.*

*Crataeva religiosa (Forst.)*

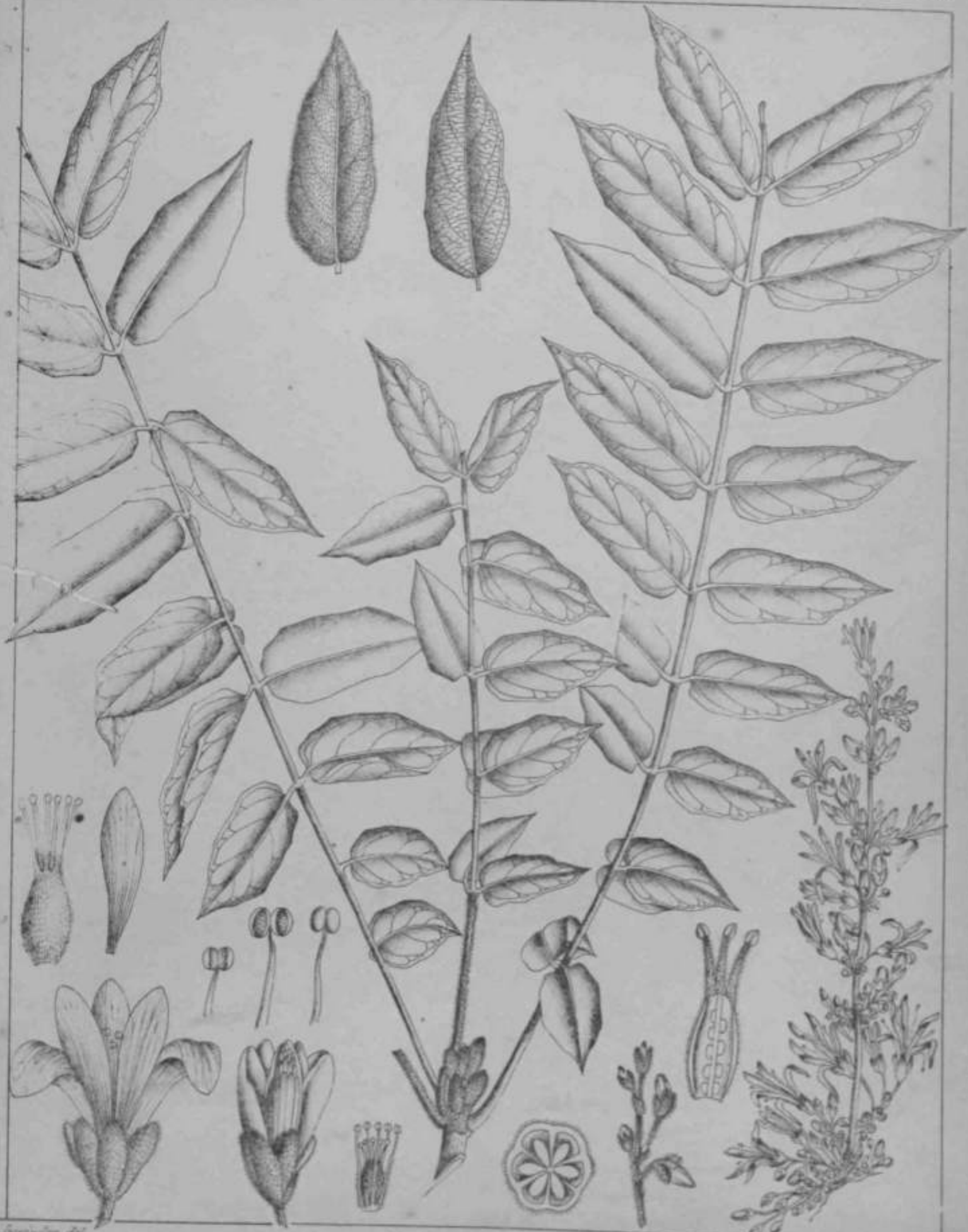
*Ampl. 200*

C R A T J E V A R E L I G I O S A. (Nat. ord. Capparidace@.)

CfiATiÈVA. *Linn.*— GEN. CHAR. Calyx 4-partite; lobes distinct from the base and open in aestivation. Petals 4, elliptical or ovate, pinnate, with a long claw. Stamens usually 16-20, inserted on the more or less dilated torus; filaments free filiform. Ovary ovoid or globose on a long gynophore, 1-celled with 2 multiovulate placentas or 2-celled owing to the cohesion more or less of the placentas. Stigma sessile. Fruit globose or ovoid with a coriaceous rind. Seeds indefinite, reniform; testa coriaceous; radicle conical, incumbent. Tree\* or shrubs, leaves 3-foliolate, flowers corymbose, showy.

C R A T I E V A R E L I G I O S A. (Forst. ; DC. Prod. I, 243.) A tree attaining about 30 feet. Branches glabrous, smooth or slightly verrucose. Leaves 3-foliolate. Leaflets membranous, acuminate, entire, glabrous, petiolulate, articulated to the petiole, 3-6 inches long; central leaflet elliptical elliptic-lanceolate or oblanceolate, narrowed into the petiolule; lateral leaflets usually obliquely ovate-elliptical or rhomboidul. Flowers polygamous, J-1\ inches across, in terminal and lateral many-flowered corymbs. Pedicels J-2 inches; upper bracts linear or subulate, caducous. Calyx-lobes oblong or ovate-oblong, distinct, rather acute. Petals enlarging after expansion; lamina elliptical or ovate, obtuse, claw equalling the sepals. Ovary ellipsoidal to globose, on a gynophore of 1-2 inches\* T-v^lid, or 2-1 ocular at least partially, owing to the cohesion of the placentas. Fruit about the size of an apple, with a coriaceous pericarp\m a strong stipes. *Oliver FL Afr. p. 99.* C. *Roxburghii*, B. Br. C. *Adansonii*, et *laeta*, *Be. Prod. L 243.*

*A small tree very handsome when in flower, common throughout the Madras Presidency, Bombay, Bengal, and in Ceylon, and also found in Africa; it occasionally flowers before the leaves are developed, but not generally; it is very common on the banks of rivers, and is much planted by native\*. The wood U soft but tolerably serviceable and is used for various purposes. The tree is called Uskia man (Teligu) in the Northern Division and in the Oodavery forests, and Lunuwarana in Ceylon; the fruit is hard, globose and woody, and something like that of the Wood-appU (Feronia.)*



*Licania* del  
*Licania*

*Anacardium Bilimbi* (Lam.)

Thunberg

**AVERRHOA BILIMBI. (Nat. ord. Geraniaceae.)**

AVERRHOA. *Gen.*—GEN. CHAR. Flowers regular, sepals 5 imbricate, petals 5 hypogynous contorted, glands of the disk none, stamens 10 very filiformly connate at the base all bearing anthers or 5 sterile, ovary slightly 5-6 lobed, 5-6 celled, styles distinct, stigmas capitate; ovules numerous in the cells, berry oblong indehiscent, seed naked or arillate, albumen fleshy sparse, embryo straight. Trees, leaves alternate unequally pinnate exstipulate, flowers racemously panicled.

AVERRHOA BILIMBI. (Linn.) A small tree, 15-20 feet, leaflets sub-opposite 5-10 pairs (rachis very villous) softly villous on both sides especially underneath, entire ovate to oblong-lanceolate acuminate, 1½-2 inches long by ¾ inch broad, petioles 1-2 lines long, panicles villous, flowers reddish, calyx villous or pubescent, limb of the petals ovate-oblong, anthers 10 alternately long and short, ovary 5-6 celled, style 5-6, fruit oblong obtusely angled, seed exarillate. *DC Prod.* 1, p. 689. Bilimbi, *Rhode Mai* 3. t. 45,46.

*This pretty little tree is common in a cultivated and semi-wild state, and easily establishes itself; it is supposed to be a native of India, but I have never seen it in any of our jungles; the fruit is a pleasant acid, and syrup is made of it, and it is preserved and pickled. Its native name is bilimbi.*



Garuga kinnata Roxb.

*Garuga kinnata* Roxb.

Garuga kinnata Roxb.

GARUGA PINNATA. (Nat. ord. Burserae^.)

G A B U G A . *Soxb.*~ QE%\ CHAR, Flowacs polygamom. Calf I oam pan *aifkte*, 5-1 obcd, nlvate. Petals 5, innsrt\*d nhoTO tLe middla of tbo calyxtul t', iujtipiicita-valvate. Disk tniu, Imiit-j tint oilyx-tube, Stamen\* 10, It|sorted with tha pataU, O?irj 4 or 5 celled ; »t\_y)H ejongst\*d ; ovule) 2 in il,tdi cell. Drupe iuiljhiflount, with S or fewer boa; Data, rugoso outride. *Sevis* wlfesry in each nut; cnilyfdonn fullfl»il. Tree\*, k u < ptnnit\*. J'liiwota ritUer Iirgo for tbft order, in terminal panicles.

**GARUGA** FINNATA. (Roib.) A large tree, leaves unequally ptmsotc, 8 inchea to 3feBt long, lenfleb very shortly petiol-od, genernlly about 7-9 pairs with nn odd one, elliptic-oblong very ueequal nt the base with nn icumination at the apei, creuate-aer-rMQ, 2-4 inches lung by 1-1^ brand, more or leaa villoua oa both Bidea or nearly glabrous, pnticles terminil mnfiy flowered puberuiutis or mealy, Dowers 2-3 linea in diamoter yellowiali white, disk liuing tbe wilyx tube for more than htiif its length mid closely adhering to it, crowned with 10 gland-liko rounded teeth at its fipax each alternate- with OHO of tlie sUraons, filamente hairy, anihers versatile, cvary sessile hairy, aiyles hairy coinbiued into one elongate about as long as the petals, stigmas », drupe globose flostiy about the nizu . & a. gooseberry with 1-5 bony nuts. *Roxb. Fl. Ind.* ii. 400.

A ttoy common tree in tilmott every dry jungt\* and forwt in tfo Aladra\* ('vesitUnci/, aha in Bombay and Bengal, bttn abw»t from C«i)lon j the havet are iiai>iduo:t4 in the told vmather a>td appear with ttufioisert O/rty in the hot season ; the fruit U eaten by tlie native\* both raw and pickled, T!» (r« it ealUd Koorak in tha Bombay I'rsd'Uncy, and Khar-pat in Bengal ; rf\* timber it I bclitve, inferior, bvl w >'u UU \*nid tU nativci, and rattier prited in tome parts. The bark u collected by tannrt, and the lita&w arc itied a\* foddtr. The Tcbgn name w Gantgu, and the Tamil Earn VamUi.

Transferred 10 It \$ f i,ihri,iry from  
lbe )nd v Garden, Calcutta.





STB del

*Schleicheria trijuga*, (W.) J&

Thompson Lith

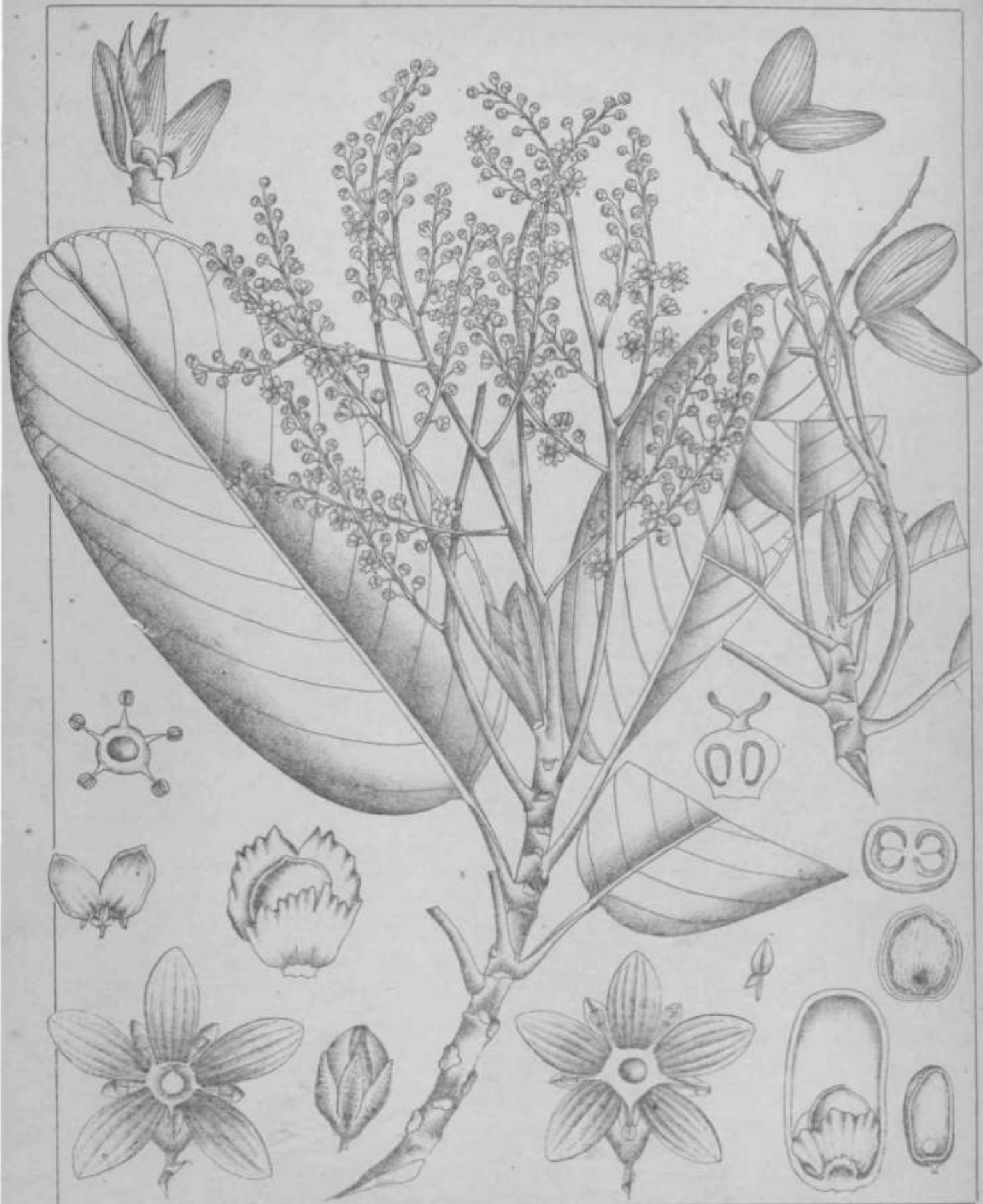
### SCHLEICHERI TRIJUGA. (Nat. order Sapindaoea.)

SCHLEICHERA. *XVilld.* -GETf. CMAR. Flowers polyg-mio -iioBcioua, calyx small 4(5) cleft valvate or obscurely imbricate, petals 0, disk repand or lobed, stamens 8-10 (rarely 4-5) insetted ou to the disk, filaments elongate puberulous, anthers basifixed, ovary 3-4 celled, attenuated into a rigid style, stigma capitate 3-4 lobed, revnlute, ovules solitary iu the cells erect, fruit dry subcrustaceous ovoid apiculated with the base of the style unarmed or armed-with a few prickles, 1-3 celled, seed erect included in a pulpy aril compressed, testa black, embryo conduplicate, cotyledons unequal connate. Treesi It-aves alternate exstipulate abruptly or uequally pinnate, leaflets subopposito k\*w paired entire or undulately repand, racemes simple or paniculate, flowers small fasciculate. —Casaumbium, *Rampji*. Koou, *Ocert*. Melicocca, *Jus\**.

SCHLEICHERATRIJUGA. (Willd.) A large tree, young parts sericeous, leaves about the extremities of the branches abruptly pinnate, 8-16 inches long, leaflets 2-4 pairs, subopposite sessile lanceolate to oblong, entire very unequal at the base, pretty smooth ou both sides, the lowest pair the smallest, 3 to 8 inches long by M£ broad, panicles axillary or from the old axils, slightly puberulous; male flowers and kerinathrodite generally ou different trees, male flowers much crowded, stamens 6-10, generally 8, a small rudiment of an ovary in the middle of the dUk. Hermathrodite, flowers more laxly arranged, ovary ovoid gradually attenuated into a short sty i ^ celled, cells 1 ovuled, ovules erect, stigma 3 lobed, fruit dry size of a small nut smooth and unarmed, or furnished with a few prickles, aril succulent and edible. *Roxb. Fl. In<fc* ii. 277.

*This handsome tree is very abundant tkrougfiout the Madras Presidency, Bombay, Bengal and Ceylon, ascending the mountains up to about 3,000 feet, but a<sup>l</sup> ways confined to the dry forests. It flowers early in the hot season, it is one of our most valuable unreserved timbers, and the wood is much prized in some districts; it is reddish in color, very herd and heavy, and makes excellent crushers for sugar and oil mills\* and ù in use for building and u variety of purposes. The common Tamil name is Puva, and the Teligu Puska, on the Anamallays it is called Puvatti by the Kaders, and in Ganarese it is called Chakota and<sup>s</sup> Akotd, in Ceylon Cong, and in Bengal Oosam. The fruit ripens in May, and the pulpy aril is a very agreeable acid; an oil is expressed from the seed and used for burning, and a quantity of lac is produced on the young branches. The fruit is sometimes quite smooth though often armed with prickles, which U evidently caused by some insect.*

*The figure repteseatsa flowing branch of a male tree:—1 is a young male flower, stamens not fully developed] 2, the disfc and stamen of male flower, calyx removed; 3, a branch of hermat^rodite flowers) 4, an hermathrodite flower.*



*Caracas*  
Glabr.

*Trochirandra Indica* (Bald.)

Dunphy. 118.

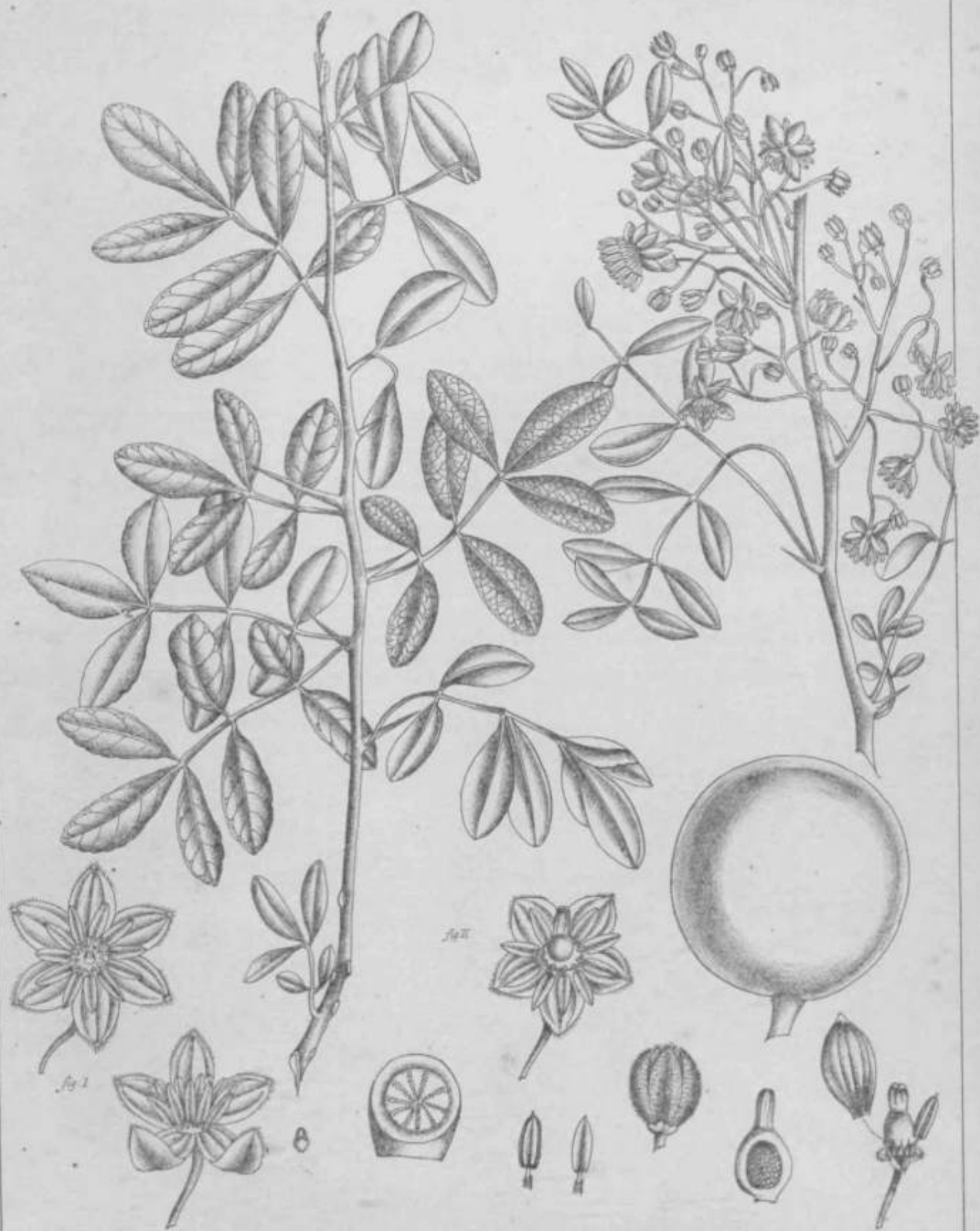
### TROCHISANDRA INDICA. (Nat. order Celastrineae.)

TROCHISANDRA. *Bedd. GEN.* CHAR. Calyx 5 cleft, petals 5 patent, stamens 5 alternating with the petals and monadelphous in a complete ring round the base of the ovary, filaments subulate, anthers didymous, ovary globose free 2 celled, cells 2 ovuled, ovules erect, raphe ventral, micropyle inferior, styles 2 filiform, capsule coriaceous deeply 2 lobed 2 celled dehiscent, seed generally solitary by abortion erect furnished with a very large thick fleshy aril, albumen sparse fleshy, embryo erect, cotyledons small orate unequal, radicle elongate. A lofty tree, stipules very large at the apex of the branches including the leaf bud, early deciduous and leaving a large scar, leaves alternate entire very coriaceous and shining penniveined, panicles axillary, flowers small on short pedicels.

*My only flowering specimen of this new genus has been forwarded to Kew, and the generic character is taken from a drawing of the flower made some three years ago, and a specimen in fruit.*

TROCHISANDRA INDICA. (Bedd.) A lofty tree, everywhere glabrous, leaves oblong to oblongo ovate very coriaceous and shining, veins very prominent on the underside scarcely acute or rounded at the apex 6-8 inches long by 2-3 broad, petioles 1-1½ inches long, panicles axillary towards the apex of the branches about the length of the leaves many flowered, flowers small 2-3 lines in diameter, capsule deep 2 lobed, lobes oblong 1-1½ inches long, one generally abortive and smaller than the fertile one, dehiscing at maturity.

*A very handsome tree with a beautiful foliage, much resembling the Indian rubber tree (*Macus elasticus*) when only in foliage; it is very abundant in the dense moist forests of the Anamallays at an elevation of 3,000-4,500 feet, in which localities it is a very large tree, and I have also observed it on the banks of the Toracadu (on the same mountains) at an elevation of nearly 6,000 feet, but it is of smaller growth at this elevation; it is said by the natives to yield a valuable timber; it flowers in December and January, and ripens its fruit in April and May. The genus is nearly allied to *Kurrimia* ("Wall).*



*Gerrard, Kth.*

*Feronia elephantum, (Corr.)*

*Dumphy, Kth.*

**FERONIA ELBPHANTUM.** (Nat. order Rutaceae.)

**FEROXIA.** *Coma.*— GEN. CHAR. Flowers polygamous by abortion, calyx small 5 toothed, teeth deciduous, petals 5 rarely 4-6 patent oblongo-lanceolate imbricate with incurved tips, stamens 10-12 (sometimes a few imperfect ?) filaments dilated at the base, apiculate at the apex, inserted below the torus, anthers linear-oblong, torus a short soft woolly bed, style none, stigma large oblong 5 lobed, ovary oblong 1 celled, placentas 5-6 parietal, ovules numerous crowded in many series, berry globose woody 1 celled, many seeded, filled with pulp, seed oblong compressed, cotyledons thick fleshy. A thorny tree, leaves unequally pinnate, flowers racemose or paniced ; fruit large woody, pulp edible.

**FERONIA ELEPHANTUM.** (Corr.) A large tree, leaves unequally pinnate 2-4 inches long quite glabrous, leaflets 5-7 almost sessile lanceolate to obovate quite entire or slightly crenulate towards the apex, furnished with glandular dots, petioles slightly winged, panicles short axillary or terminal or from nodes in the old axils, puberulous, flowers small dull reddish colored, petals ciliate at the apex, in the male flower there is a small abortive ovary and 5 lobed stigma and generally 11-12 fertile stamens, in the hermaphrodite the stamens are fertile generally 10, the filaments in the male are rather shorter and less apiculate than in the hermaphrodite, (I have never observed imperfect stamens in either sex.) Fruit as large as a billiard ball, hard and woody with a greyish rind, seeds immersed in fleshy edible pulp. *DC. Prod. Vol. i. 538.*

*This tree is common throughout India and in Ceylon, it is universally "known as the Wood-apple, in Telugu it is called Velagd and Elate; Kawet in Hindustanee; Veld in Tamil; Bilwdr in Canarese ; and Diwool in Ceylon : the wood is hard, strong, heavy and durable, and is used for various purposes. A gum exudes from the trunk, which is much like the gum Arabic, the pulp of the fruit makes a pleasant jelly, and the leaves are used medicinally by the native\*. The tree flowers in February and March, it is much cultivated throughout India, it is the only species of this genus.*

Fig. i. fertile flowers.

Fig. ii. male flowers.





*Guirardos, det.*

*Guirardos, det.*

*Guirardos, det.*

*Guirardos, det.*

AILANTHUS MALABARICA. (Nat. order Simarube\*.)

AILANTHUS

imbricate at the sides with the tips incurved, disk 10 lobed, stamens 10 m ^ ^ ^ ^ I Z t e (rudimentary iu tho male flowers) carpels at the base of the disk, filaments very short or filiform f ^ ^ ^ ^ X m l stigmas, often more or less distinct towards the base, ovules solitary compressed 1 celled, styles a, many as the carpels consolidated into 1 with ^ m o M « we thickened ^ ^ ^ ^ ^ § h g l a geed ( Beed in each cell attached to the ventral suture below the apex, frmt ^ J ^ T ^ ^ short 8aperior. Large trees, leaves alternate pinnate, flattened, suspended, testa membranaceous, albumen scanty, cotyledons leafy nearly or Diouar, »u leaflets many pair, flowers small in terminal panicles.

AILANTHUS MALABARICA (DC) A lofty tree, bark rough and often studded with bright reddish grains of resin,

AILANTHUS MALABARICA. (UW A J , opposite «r commencing a little above the base leaves equally pinnate, quite glabrous 15-20 inches long, J \* \* ^ " ^ £ l m nation! glabrous on both sides, shining above, of the petiole, semiovate from a very unequal base gradual U y ^ n g e d f ^ £ \* J b 1 - u b r o a d , petiolules 2-4 lines long; panicles very pale beneath, (veins pinnate forked and looped near « p m , , ) 3 7 » the base of the lowest ^ position, slightly p t a t a i o axillary much branched nearly as long as the leaves and oc as, o, ally 1 r f y a t W , , , n e u r v e i " = m a l e f l o w e r s ^ ^ ^ glabrous, calyx slightly puberulous and ^ f ^ ^ ^ f f j g j Z ^ L \* exseJ/much longer than the corol, the female, disk 10 lobed with a minute 3 lobed rudunenof an o T M y » \* 1 0 s t e r i l e s t a m e n s a l t e r n a t e l y s h o r t e r , ^ ^ ^ ^ anthers oblong attached by the centre of ^ j ^ ^ ^ r w a r t o d . S a m a r a 3 - 3 f i n c h e s l o n g b y 1 0 - 1 3 l i n e s b r o a d , the corol, anthers sterile saggitate basifixed, disk large irreguaiiyy woou DO. Prod. ii. p. 89. Pongelion, Rheed. Mai. 6. t. 25.

\* / w , l , of the Western ghats of the Madras Presidency (up to 3,000 feet) f. om S. Canara

A ver, lofty tree, common in the dense T M A ^ \* Z M ^ B a g a L o o p , m a t t i p a l o n t h e A n n o m , , U a y , a n d K u m b a l u o r W a i b i l i n g down to Cape Comonn, also in Ceylon ; in SCanara « u f f e l l , a f r a g r a n t r e s i n o u s b a l s a m ( k n o w n a s m u t t i p a l ) e x u d e s f r o m in Ceylon, in Travancore the tree is commonly planted, ^ " ^ " ^ 1 ^ d o e L i n d y s e n t e r y a n d s a i d t o b e a f i r s t r a t e r e m e d y , t h e t h e t r u n k , r e d u c e d t o p o w d e r m i x e d u > i t h m o t « < \* « £ » • " / " J J ^ " , a m i f u g e a n d t i c . M r . B r t u g h t o n h a s f a v o r e d m e v , i t h . b a r k h a s a p l e a s a n t s l i g h t l y b i t t e r t a s t e a n d w u s e d m e d i c i n a l l y b y W e n a t i v e s a s a j j y t h e f o l l o w i n g r e p o r t o n s o m e o f t h e r e s u s u b m i t t e d t o h i m f o r a n a l y s i s .

« This resin as commo,dy met mth u dark bro>a or O'ly T M A ^ ^ n d t l i i s d L t U s s t h e r e a s o n w h y i t i s a l w a y s m i x e d w i t h f r a g , i m p u r i t y . T h e r e i n U ^ h a ^ g t U ^ ^ ^ ^ s o f t h a r d ( h e r m a i n d r b e i n g m e » t s o f e a r t h w h i c h m a k e s u m o r e e a s y t o h a n d l e . T h e w ^ . I , e x a m i n e d a n a l y s e d 7 7 f e r U >> a v e i y v i s c i u s , t r a n s m i t l i g h t b r o w n s e m i - l i a u i d w h i c h d o e s a d u l t e r a t i o n s . A l c o h o l r e u d i l y d i s s o l v e s t h e r e s i n , a n d o n e » « p » < £ £ % £ ^ ^ f a g e a M e a n d L e i t i s s o m e t i m e s u s e d f o r i n c e n s e . I t s n o t s o l i d l y b y m a n y d a y s e x p o s u r e t o a s t e a m U a t . » h e n b u r n t \* i g v e a I J i n a j t r a n s p a r e m p r o u g e d ^ ^ ^ ^ ^ ^ ^ ^ ^ ^

trpZine in La is ^tinned a. a desNeru^ n i> the rep \*u of the Juries of the Madras Edition of 1855, eta\* 1J.





*Gyneria* etc.

*Ulma Wadon (Pachyrrhizus)*

*Barthley 1826*

### ODINA WODIER. (Nat. ord. Anacardiaceae.)

**ODINA.** *Roxb.*—GEN. CHAR. Flowers polygamous. Calyx 4-5 fill or partite ; segments ovate OP roundish. Petals as many, imbricate. Disk small, annular or saucer-shaped. Male flowers, stamens 8 or 10, inserted under the margin of the disk; anthers versatile or subversatile. Rudiment of ovary usually 4 fid. Fertile flowers, anthers smaller often effete. Ovary sessile, free, glabrous or hairy, 1 celled. Styles 4 or 3, short, distinct, rather stout; stigmas terminal. Ovule solitary, pendulous. Drupe oblong or ellipsoidal, compressed. Embryo with flat fleshy cotyledons. Trees or shrubs. Leaves alternate, deciduous, unequally pinnate, usually collected at the extremities or in lateral tufts from nodes of a previous year; leaflets opposite, entire. Flowers racemose, often fasciculate, shortly pedicellate or subsessile. *Roxb. FL Ind. ii. 293. Lannea, Quill, and Perr. FL Seneg. 1. 153.*

**ODINA WODIER.** (*Roxb.*) A large tree, trunk of no great height to the branches, but thick and tolerably straight, bark pretty smooth ash colored, branches numerous, the lower spreading the upper ones disposed in every direction generally leafless at the time of flowering, leaves alternate about the ends of the branchlets unequally pinnate 10 to 18 inches long, leaflets about 5 opposite pair (with an odd one) on the upper half of the common petiole ; sessile or subsessile ovate to oblong often oblique at the base entire with a longish blunt acumination, when young more or less covered with white stellate wool at length quite glabrous, 2-5 inches long by 1-2 inches broad ; inflorescence terminal the male on long filiform paniced spikes, the fertile on short racemes both covered with stellate rather scaly pubescence, flowers tetramerous very small, male and fertile on the same tree or on different trees, calyx slightly hairy, in the male there are 8 fertile stamens on long filaments inserted under the 8-9 lobed disk, in the centre of which is the rudiment of an ovary terminating in a style with a star-like 4 cleft apex, in the female there are 8 sterile anthers on short filaments a large ovary crowned with 4 short stout distinct styles, stigmas more or less 2 cleft, drupe kidney-form smooth, red when ripe, the size of a small olive.

*This tree is common in most of our jungle\* and is found in Bengal, Bombay and Ceylon, and is also abundant every where in this Presidency in, a planted state, particularly as an avenue tree, but the cultivated trees are generally grown from cuttings and are gnarled ugly specimens ; it is the worst possible avenue tree as it is bare of leaves for several months in the driest and hottest time of the year ; it is called Gumpini and Dumpini in Teligit, Wodier and Wude in Tamil, Shimtee and Poonil in Canare\*, and Hig or Hoh in Ceylon, it seldom ascends the mountains to any elevation, but is found all over the Mysore plateau at 3,000 feet; the outer wood is white and worthless, but the heart wood of good seedling trees which is of a deep reddish mahogany, is useful for many purposes and would be excellent for cabinet purposes and furniture, the tree is lopped for fodder and a gum exudes from the trunk which is used medicinally by the natives, being given in asthma and as a cordial and used as a plaster and also in cloth printing, the tree inhabits Birmah, where it is called Nabhay and the timber is in use for sheaths of sword\*, spear handles, oil presses and rice pounders, and a closely allied species is found in tropical Africa.*



Griseb. del.

*Roswellia alba* (Pursh)

Engelm. lith.

## BOSWELLIA GLABRA. (Nat. order Burserace\*.)

BOSWELLIA. Jtatk—GEN. CHAR. Flowers regular hermaphrodite. Calyx small 5-7 toothed persistent, petals 5-7 spreading imbricate, stamens 10-13 alternately shorter inserted under the fleshy annular undulate or crenate disk, ovary sessile narrowed into a short style 3 rarely 4 celled, stigma 3\*4 lobed or entire, ovules 2 in each cell collateral attached to the axis above the middle, fruit 3 rarely 4 angled coriaceous, the epicarp separating in 3-4 valves from as many bony 1 seeded pyrenes which are persistent to the central axis, seed compressed pendulous with a membranaceous margin, testa membranaceous, cotyledons multifid contortuplicate or quite flat, radicle superior. Trees abounding with resin, bark deciduous in papery or membranous lamina, leaves deciduous crowded at the apex of the branches, alternate, unequally pinnate, exstipulate, leaflets opposite serrate, racemes or panicles axillary or collected at the ends of the branches, appearing before the leaves, flowers white. *Roxb. Pl. Corom.* iii. 4. t. 207. *Libanus, Cokb. in As. Res.* 9. 377 L 5./i. i. *Plaesslia, End. Nov. Stirp. Dec.* 39.

**BOSWELLIA GLABRA.** (Roxb.) A good sized tree with a greenish smooth bark, leaves alternate towards the apex of the branches unequally pinnate, about 1 foot long, the petiole very slightly puberulous or glabrous, leaflets 6-10 opposite or subopposite pair, with a terminal odd one) sessile or subsessile, glabrous on both sides, from quite entire to distantly serrated often only towards the apex, lanceolate obtuse about 2½ inches long, by 10-12 lines broad, racemes terminal, or from the upper axils rather crowded, slightly puberulous, calyx puberulous or subglabrous 5-6 or occasionally 7 cleft, petals 5-6 occasionally 7 slightly puberulous on the back, anthers hairy 10-12 occasionally 13, ovules 2 in each cell collateral attached to the axis above the middle, stigma 4 lobed, pyrenes (not quite mature) heart-shaped with a long beak at the apex (at length winged?), cotyledons flat or contortuplicate trifid, lobes again variously cut or entire, radicle superior long. *Roxb. Fl. Ind.* ii. p. 384.

*This fragrant resin-bearing tree is very common in many of our dry subalpine jungles, particularly on the eastern side of the Presidency, on the Vellore, Cuddapah, North Arcot and Kurnool hills, Mysore, Quzzlehatty pass, &c. etc.; it does not occur in Ceylon, it flowers in January and February generally when quite destitute of leaves, the gumresin theolibanum of commerce and is known to the natives as Koondricum, it is much used as a fragrant incense and (when boiled with oil) as pitch, and is also said to possess stimulant astringent and diaphoretic properties, it is largely used in some parts of India as an application to indolent sores and is supposed to form the chief ingredient in "Wroughtoris ointment," it is well deserving of careful attention and can be procured in almost any quantity, the substance is bitter and pungent and is soluble in cellar and spirits of wine; in Tamil the tree is called Kungli and Googoolu and Telugu Anduga. I am not acquainted with its timber, but it is said by the natives to be of little or no value.*

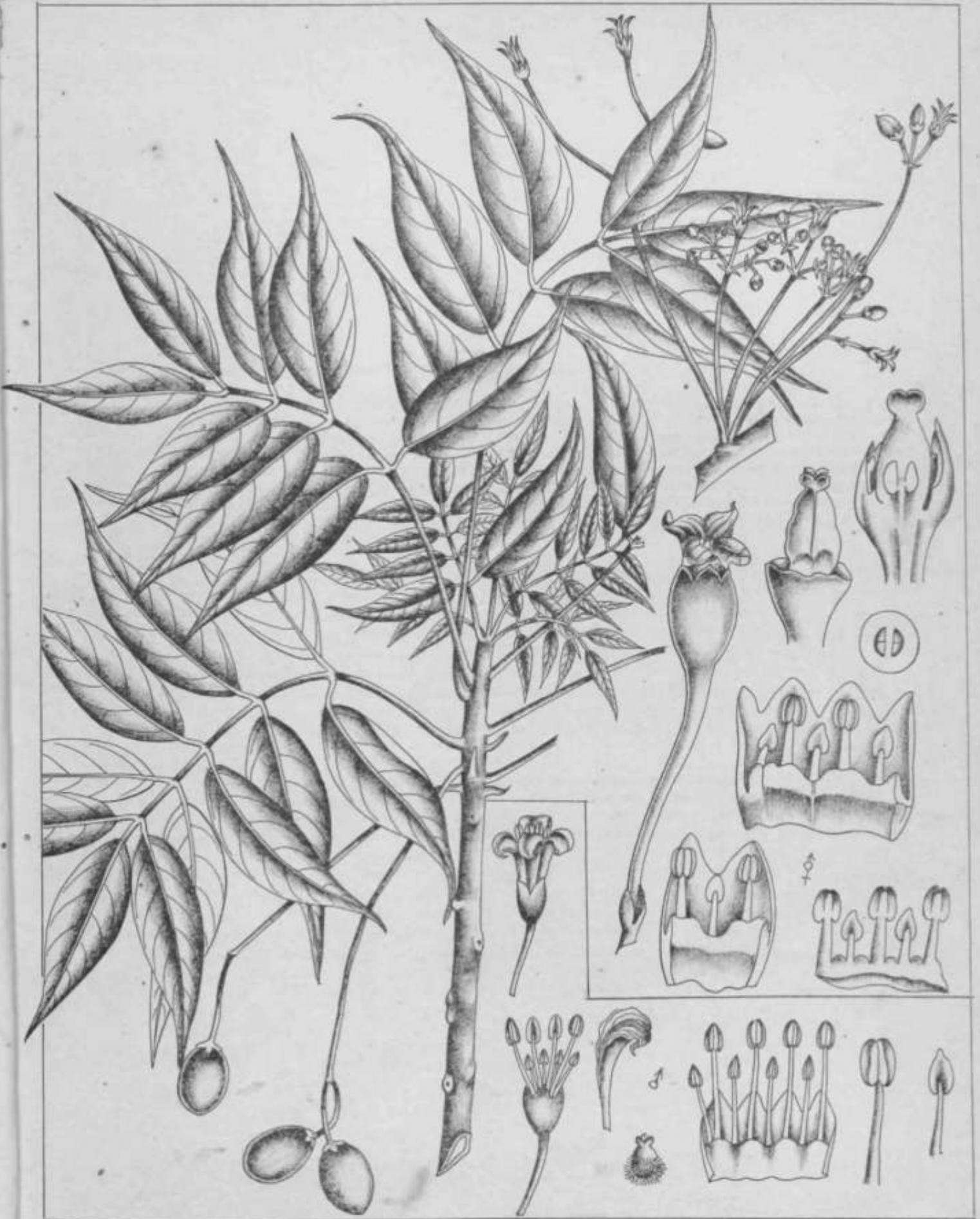
### Analysis.

The drawing is from fresh specimens collected on the Nilgiri slopes, the analysis is from 5 merous flowers (which are most common) but the sepals and petals are sometimes 6-7 and the stamens 12-13.

Fig. i. is a fruit opened, showing the heart-shaped pyrene or nut.

Fig. ii. A nut cut vertically, showing the embryo with unfolded trifid cotyledons (they are sometimes folded.)

Fig. iii. An embryo opened out showing more cut cotyledons than in fig. ii.



Caricada del

Ramon

*Protium caudatum* (W.)

Stampsby, 1. 1886

PKOTIUM CAUDATUM, (Nat. ord. Burseraceffi.)

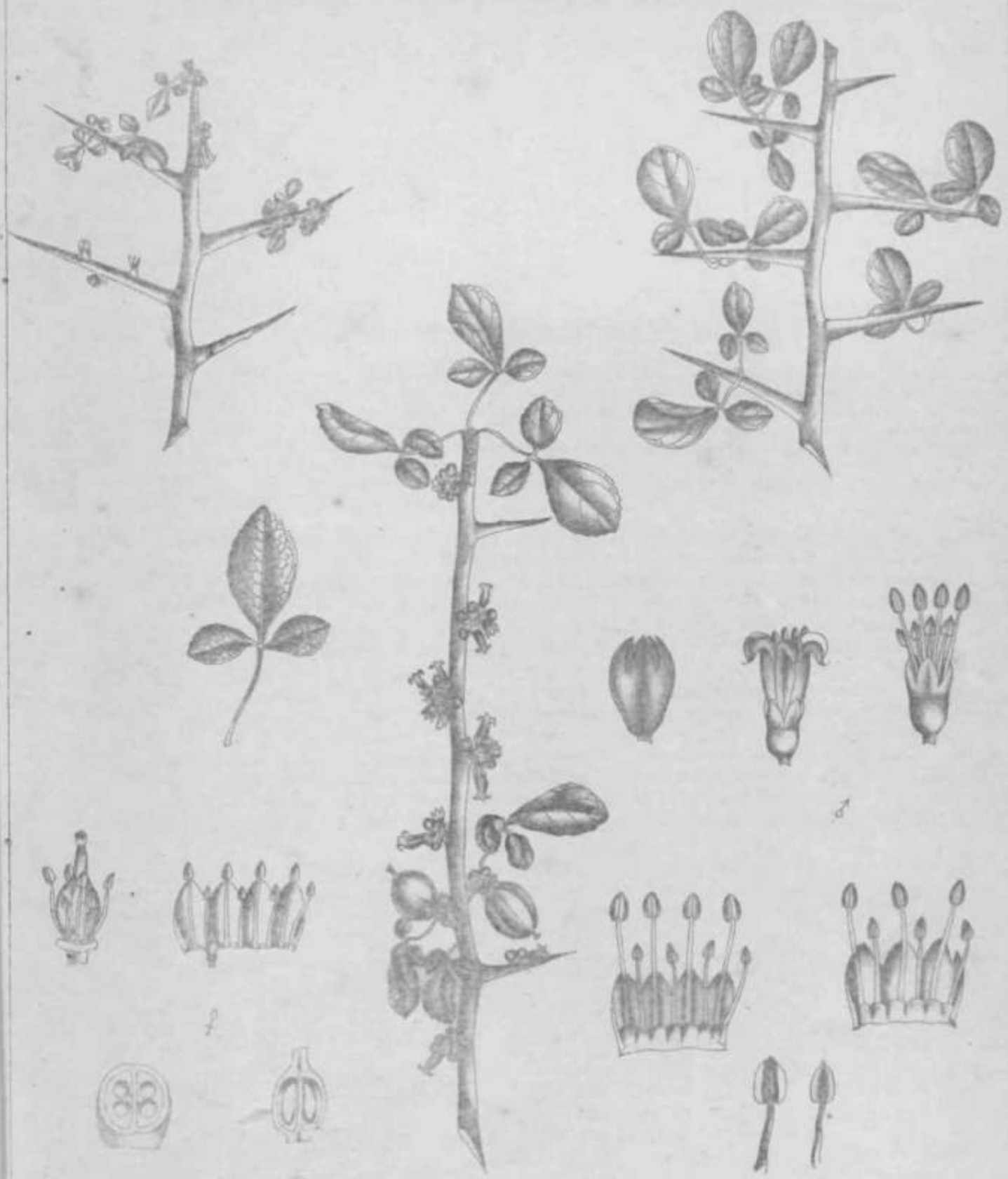
PROTIUM, *Wiff/latut Araol.*—*QES.* CHAR, Flow<sr> polygamous, c.lijc siwll tubular <\* el<ft or dentate,lobes vacate ; peU)s4er<t, vrith the apt\* recurnsd ind thg til>s incurved, linear oblong ditglitly imbricate at ths sides with the lips incurvad io swtivation ; disk urceolate \* lobsd lining thfl bot- tom of the cilyi, margin fr<s, stains in 8-10 inserted below tbu margin of Uie disk <n llia o utb id o ultimately ah cuts r, erect free sborter lbau the calyi in the fertile flower, much longer than the calyi ill tho flteriln llower, the longer i'nss rising froni tbs buck of tho lobes of the disk and the shorter ones from or behind the sinuate ; ovary sessile 2-4 tilled, stylo vary short or obsolete, dtigma 3-4 In bail, ovules 2 iti each cell collateral pendnlus from the apex of the utii, ilrupc fltiby globose, »arcocnrp nt length i valvod with V bony 1 siedud pyraneu wbieli aro connau et first but at length separitiag, seed oblong, tota 'aeojL'ruuipfoiia, cotyledoun mem bran addons contoituplicsto, radicle guperior. Small tree without tbonis, bearing rtaio ; leaves ultomatd toward\* tho ipti • >f the branches, 3 fdlutU or ueequilly piunate, panicles loug ptduiided crowded towards the apci of the branches. Ho wen bnull. *Wi. Prti, p, ITC* 'ti o f n U , K( JfHi ant, i. 229.

**PROTIUM CAUDATUM.** (WA.) A middling sized tree, bark very smooth ami of a bright gm u eclor, leaves altenwto about the ex tram ities of the I ranches 3-foliolate or unequally piuuate, 3-6 inches long, leaflets 1 to 5 pnir with an odd onej quite 'glabrous on both aides, from broadly ovuta to lanceolate vrith a long terminal sharp acumination, nbuut 2 inches long by J-1 inch broad, petiolules 2-4 lines long, panicles fascicled supra axillnry from the young shoots ; nbout equal in length to the young leaves but shorter thiau the adults, 2-3 times dieliotomous, tai, iuroished with filiform npioulate brncteales (2.3 tiuea long) at the base of the ramifi- cations ; petals refleied but with an incurved tip at tua apej, etameus 8 alternately shorter insetted below tho margin of the disk ou the outside, shorter than the cnlyx in the fertile flowers, much lunger thtin the calyx In the sterile, the anthers of the shorter filaments apiculnte the others rounded, ovary oblong 2 celled, ovules 2 in each cell collateral pendulous from the apex of the axis, Stigma subses\_ sile 3-4 lobed, in the male flowers there is a small abortive ovary with a 3 lobed sessile stigma, drupe the size of a small sloe. *WA. Prod. p. 176.*

*This gretn burktd tret it common in most of out- dry svbulfine jungltsou botlitifto of ihc it<idro« Prwidency, atid ii J'ound in. Ceylon ail our this PrMtiency ; it vtry tommon at an avenue tru, anil a very bad one it mnkcts, at it ie bar\* of leaves for taint motitlit touiardt the end </the ecld ttason and beginning of the hot, the young Uavit appearing With the ftavieri in March. It is air iota that it U not menrioiitti by Roxburgh a\* it it to abundant in IOJUC parts of the NnHhem Cirears ; t( M talitd Komld itdmidi in Teliyii uiul Kiltmaif in Tamil; tht whole tree it wry odori/ti-oia, the Itavet and hark having a strong ijratr/itl fragrance tomelhiuy tike mangtw. The trctyroies matt readily from large cuiiinyt, which is the reason i it is SO nftu employed for avenue purpose\* ; tho tuoool ie saif (u te worthiest.*

The figure is from a thrawiug eiecittcd tti tba Cejlon Herbarium, and represents fertile Hoivers. My S. laduu nwirmtltl <init< tall}-, ««« j that the lufiits aw broader sml fower In uumbor, tie stigma-Biinetally (I'WBJ» I) 3 lobtd, Mid tho urules pendulout instead of accendiHg ; the litter difference is an error u[ llie CbyUni (irtitt. I Jiava idded [ilgafe A.) diw^tigiis of the male flower taken from fresh simriueoe col letted in tbi<i PmHeoCf,

*The South Indian specie\* of Prntium and the 3. India\* Bakamodmdren, mini be ptaml un<U? the same ycnus; tlteJUNntrs only differ tji t.'it fcu-i),r having a i lohal <lt< ami the latter a 6 S-arenatetl did-, and there is no diffraux in the fruit ; the 2 jWctVa tif PMima are unarved toitek longpedtmeltd jMukles- fl-iiunuxclndrvn it«rvucl,md hat almost sessile inflorttctm^ha this would not UHUitVtt a generic (17t(in<:tion, and the ge>us Protium of WA, mud lapse.*



*Balanocleidon Bergii* Auct.

Thompson Lith.

BALSAMODENDRON BERRYI. (Nat. ord. Burseraceae.)

BALSAMODENDRON, *Kunth.-QEK* CHAR. Flowers polygamous. Calyx tubular 4 toothed persistent, petals 3-4 erect recurved towards the apex with incurved tips, linear-oblong, the lobes slightly imbricate and tips incurved in estivation, stamens 6-8 inserted outside the margin of the very short 6-8 crenated disk, free, alternately shorter, ovary surrounded by the disk sessile 2-3 celled, narrowed into a long style, stigma obtuse 4 lobed, ovules 2 in each cell, collateral pendulous, in the male flowers the ovaries are abortive very small or sometimes wanting. Drupe ovoid or subglobose, epicarp 2-4 valved, with 1-3 bony 1 seeded pyrenes, seed, exalbuminous, testa membranaceous, cotyledon, contortuplicate sheathing the terete pointed superior radicle. Trees or shrubs yielding resin, generally spinose, leaves, alternate 1-3 foliate or unequally-pinnate flowers small faceted on thickened node, or short lateral ramuli or on 1-4 flowered axillary jointed peduncles. *Kunth. in Ann. Sc. Nat. n. 348. H. Udelotia, A. A. FL Seng. 150. t. 39. Cumjaphora, Jacq. Hort. Schanb. t. 294. Balsamophleos, O. Btrg. in Sot. Zeit.*

BALSAMODENDRON BERRYI. (Arnt.) A small or middling sized very thorny tree up to 3-4 feet in girth with numerous lateral spinose ramuli nearly at right angles with the branches, leaves more or less fasciated at the extremities from nodes on the branches or thorn-like ramuli, trifoliate 1-1.5 inches long, common petiole an inch long channelled slightly sessile or subsessile at the apex of the petiole cuneate obovate, the terminal one twice as large as the lateral ones, sides from entire or slightly undulate to more or less crenate particularly towards the apex flowers very small (about 3 lines long) fasciated on nodes on the branches and thorn-like ramuli sessile or subsessile, calyx tubular 3-4 cleft at the apex twice as long as the calyx 3-4 petaled, petals slightly imbricate at the sides with inflexed tips during estivation, erect with a recurved apex which terminates in an incurved tip, disk very small (generally rather larger in the male flowers than in the female) 6-8 crenated, the crenatures resembling the teeth of a saw, calyx and the 3-4 longer ones equal the width shorter, in the fertile flowers the 3-4 longer ones equal the width (and effete?) ovary large in the fertile flowers attenuated into a rather long style with a 4 lobed stigma, very small (or wanting) in the male flowers, stigma 4 lobed, fruit as above. *Arnt. Ann. of Nat. Hist. vol. iii. p. 85, 86; — Wright, IR. Prothm. Queensland, W.A. Prod. 170. (exc. syn.) Amyris Gillendennis, Herb. Fl. Ind. ii. p. 246 (exc. syn.)*

X^A

This is a good sized tree in the dry jungles to the east of the Nilairis (Guzzlehatty pass, Sc.) covered with flower and fruit in February and March, a tree over the Presidency very common; the tree has a grateful fragrance and is tacked when young by some insect or rendered abortive from a successive propagation. I have seen the plant makes an admirable hedge.

I have seen the generic character entirely from the Indian plant, the drawing is from fresh specimens, the Coatore district.





Canarium, etc.

*Canarium brunneum* (Thunb.)

Jhimpr, etc.

CANARIUM: BRUNNEUM. (Nat. ord. Burseraceae.)

CANARIUM, *Linn.*—GEN. CHAR. Flowers hermaphrodite or polygamous, calyx urceolate or cupulate 3-5 cleft (rarely only 2) valvate persistent, petals 3-5 as long or longer than the calyx, valvate or imbricate, stamens 8-10 short erect or incurved (6 in some extra-Indian species) inserted on to a long staminal tube, disk obsolete or none, or on the margin or outer side of a fleshy entire or undulate disk, filaments cohering more or less together at the base and with the disk; ovary ovoid 2-3-4 celled, ovules 2 in each cell collateral fixed to the axis, stigma sessile or subsessile, capitate 3-4lobed, drupe ovoid or ellipsoid often 3 sided with a bony 1 seeded putamen, testa membranaceous, cotyledons contortuplicate, radicle short straight superior. Large trees yielding resin, leaves alternate pinnate with or without stipules, the lowest pair of leaflets occasionally resembling stipules, leaflets opposite entire or crenulate, panicles axillary, flowers small,—*Scutinauthe*, *Thw.* *Colophonia*, *Oomm.* *Pimela*, *Lour Fl. Coch.* *Canariopsis*, *Blume Mus. Bot.* 1. 222.

CANARIUM BRUNNEUM. (*Thw.*) A tree 50 or 60 feet high, branchlets and young leaves rufo-tomentose, leaves unequally pinnate 10-20 inches long, leaflets 5-11, oblong slightly oblique acuminate, entire, 4-8 inches long 2-3 broad reddish, petioles 4 lines long sulcate above, tumid at the base, striated, panicles axillary many flowered tomentose, flowers 3 lines long, sepals 5 erect, petals 5 valvate fleshy coriaceous persistent, the length, of the calyx, stamens 10 cohering in the lower part in a ring and consolidated with the base of the calyx and corol, anthers oblong introse, fixed by their back, ovary 2 celled, drupe oblong rufo-tomentose attenuated at both ends about 1 inch long, cotyledons undivided. *Thw. En. Pl. Zey. p.* 410. *Scutinanthe brunnea*, *Thw. Hook. Journ. of Bot.* viii./>. 266. t. 8 <*k En. PL Zey I. p.* 78.

*Ceylon, in the Central provinces, at an elevation of 2,000-3,000 feet, called Mahalulumora-*



\* Otr...

*Canarium...*

...

CANARITJM STEIOTUM. (Nat. ord. Banaraoe«e.)

CANARIUM STBIOTUM. (Roxb.) A very Jarge tree, pojygamow, trunk toll and straight, young brandy, petiole, « \* ties., and Costa beneath, densely rtffo-tomentose, leaves equally or unequally pinnate 1-4 feet long, by 10-20 inches **bmd** leaflets brilliant red when young aud densely **tomentOM** on both <sub>a</sub>id«s, fit length glabroua and shining above, a.ft and densely **tonmtoM bweath** (the **Momentum** being reddish on **the** costa and veins but otherwi<sub>BC</sub> whitish) ovate to obWg, acuminate **often** very **mumd** »t the **ban** about •f , oppuite or suboppcuito pair with or without \* lon<sub>s</sub> petioluled odd one, more or I«u cremate or Koala particularly when yenne or **wbmlw**, 6-12 inches long by 3-6 broad, **petiolul.6** about 3 lines long; panicles wilbry Uemely rufb- to men tow <ns U the «],,) a tittle shorter **than** the leaves, Bowers white crowded **toward**, the apes of the pediceh., caly\* ouplar 3-4 fid valvate **pan!>tent** petala 3-4 more Una twice as long <sub>u</sub> the calys much imbricate, slightly hairy **on** the outside towards the apex ; mule flowera disk none staminal tube submenbraiaceoiw as long or a little longer than the calyx terminating m 6,8 filaments which are jtd the length of 'the calyx slightly dilated at the base and attenuated upwards, anthers oblong slightly acute dehiscing longitudinally attached at the back slightly .bow the base, rudiment of the ovary Bmall 6 lobed glabrous below densely hairy towards **the** apes; female Uower unknown, **drap art!** tapering at both ends, putamen hard woody 3 celled.

This vtry **btaxtifid** tree it **AMI** abundant in all the moitt ghat foreU\* on the western side of tie Madras and Bombay Prctideneies «p At 4,000-4,501)/«\*, bvt it does not **oaour** m Ccykn or **Itackm**, and it it **nur w. in** dry forest., its brilliant cimson foliage maim\* <z matt beautiful sight kltm in young Vut, tfo **ltm«** of **wpting\*** and yovmg tree\* **an** very mveh larger than time of adidu, the tret is hum asthe«bl,ckd<i>tmr"to Europeans and is called Karapu **KungxlUm** to Taw.il; bat also receives the names of **Qoogal** and **Lhup** and <sup>TM</sup> & Canara **Jtandd Dhcop**, a brilliant btect dovmrr **imdetfnum** incisions in the trunk which it a wiuidntble artkk of trade **aitH tome** of our hdlmbta, rh,z dimmer is nted medicinally and for variou\* pvrpotc\*, • it it **inwbthh** iv. cold, but partially <sub>ev</sub>Uble in **boMnff** alwtiol with the atldition of mvtp/tor; ichtn, powdered it is readily soluble in oil of turpentine, it twits **a** wore retinoit\* **tnuU** and burm vM mart smote than the **Vateria** resin, a small pi<sub>re</sub>« makes an **tsetttmt** "jhe reviver," the trta flows early in the **year**, gtntraihj **in** January or February, but tometimei as late a & April, J am net acquainted with the timber.

The following is Mr. Broughtou'a report upon some of the resiii submitted to him for chemical analysis.

**Tins null known** tufatatic offers little chnncvof tstfalncts in Enropt, at least when the many retina art considered that art found i., the market at,afat tet price, ft is uttct in thit (out)l>yfer viany;small purpotes, as in IU manufacture of balding wax, **rarnuka**, iDe. Its <sub>eoVa</sub> whentn solution U pail compared with it\* dark'int when in mass. Though insoluble in </>iril, its solution in turpentine font a **toteralfoni\*L** **Wha tuumitudo** desli-uctire distillation it yields about 76 per cent of oil resembling that **obtahtd** from common colophon, <sub>Tut. I</sub> fear i,i the majority of its pouitlt application\* it posteutt fta advantages **ow** ordinary retin at 7\*. HJ. pir (.,,; The number of subttunees suitable for coach varnishes h'Jve **lautg** bteom\* very nHMeruus m Europe, common rain is now purified by « patent prooctt **comating** of distil. lotion icith superheated iteam, by which it is obtained nattily <xi **trwupwitt** <>iU **ootoim** ut yhtss, in, inch amount that <rinaU firm turn\* owt 80 ton\* per xerL

The figTtte repnwnUi n. Iruuich iu bud, aii.l nearly thu wbuleot apnindo from a mile trc.-. Fig t. it the stauwn tutw from a 3 uwrotraok I fig. ii. tdo wmu (torn a 4moruu, **floww**; iii. **iburtiTB t** tobrf 0»«J **op«Bpl** out. hi thf p:nio are aJw aaaljik of **Oa** flowtm of Catmriiui cgmtnino ivnd C' **K>l.«l—(cnmnmjiment-i-d** Iy Ur. ~"wittes'!



Seawater, etc.

*Filicium decipiens* (M)

Baron, Lath.

**FILICIUM DECIPIENS. (Nat. ord. Burseraceae.)**

**FILICIUM.** *Thw.-GBN.* CHAR. Flowers polygamous, calyx 5 parted, lobes imbricate, petals 5 small without scales imbricate, disk tomentose 3 lobed, stamens 5 inserted on the disk, filaments filiform, anthers ovate-sagittate, ovary sessile globose 2 celled (sterile in the male flowers) style short uncinata, stigma simple or slightly 2 lobed, ovules solitary in the cells pendulous from the apex, drupe fleshy with a membranaceous pericarpium 1-2 celled 1-2 seeded, seed oblong, testa membranaceous, embryo exalbuminous curved, cotyledons foliaceous plicate, radicle dorsal directed towards the hilum and nearly reaching it. A tree, leaves alternate coriaceous unequally pinnate, rachis winged, flowers small white. *Danied Thw., AY. PI Xeyl*, p. 408. *Pteridophyllum, Thw. in Hook. Kew. Journ.* vi. 65. (1.)

**FILICIUM DECIPIENS. (WA.)** A middling sized tree all the young parts clothed with scurf like scales, leaves when young slightly puberulous in the costa beneath, more or less scaly on both sides and slightly glutinous at length glabrous, unequally pinnate 10-15 inches long by 3-7 wide, rachis interruptedly winged, the portion between each leaflet tapering at the base and truncated at the apex, leaflets 6-12 alternate or subopposite pair, linear to narrow oblong tapering at the base quite entire or slightly repandulate towards the apex, panicles axillary large shorter than the leaves angled; flowers, &c. as in the generic character—*Rhus decipiens WA Prod, p, 172.*

*This very elegant fern-leaved tree is found more or less throughout the Western ghat forests of the Madras Presidency and in Ceylon, and has been introduced into gardens; it is very abundant in the moist forests of the Anamallays at about 4000-4500 feet elevation and also at much lower altitudes, the timber is strong and valuable for building purposes, it flowers in December and January and ripens its fruit in Uarrh in Ceylon it is called Pehimha.*

*The drawing of the branch in fruit is from a specimen collected on the Anamallays. The analysis is from a drawing by Dr. Thwaites, i. a male flower; ii. the same petals removed; iii. a fertile flower ovary removed; iv. a section of a fertile flower showing the ovules and the position of the stamens.*

Fig. 2



Carondeo, del.

Fig. 1



Burphy, lith.

*Aglaia Roxburghiana* (W.)

**AGLAIA ROXBURGHIANA. (Nat. ord. Meliaceae)**

For Gen. Char, see under "Meliaceae" in the Manual.

**AGLAIA ROXBURGHIANA. (WA.)** A large tree polygamous, all the young parts more or less scurfy with reddish scales, leaves unequally pinnate 6 inches to 1 foot long, leaflets opposite or alternate 2-4 pair with an odd one, always more or less lanceolate but sometimes obovato-lanceolate to obovate spatulate, quite entire, paler beneath, 2-5 inches long by 1-1½ broad, petiolules 2-6 lines long, panicles axillary all more or less scurfy from much shorter to longer than the leaves, generally longer and more compound in the male, and shortened in the female, flowers very small generally a little larger in the female, pedicels 1-3 lines long, calyx 5-fid scaly or glabrous and often ciliate, petals 5 often scaly on the outside when young, staminal tube subglobose from nearly entire to 5-toothed or lobed, anthers 5 sessile (but the tube immediately below each anther is often more or less thickened and gives the appearance of there being a regular filament) quite included or their apices slightly protruded above the tube, fruit from nearly globose to pear-shaped.— *Milnea Roxburghiana*, *WA. Prod.* p. 119. *Milnea apiocarpa*, *Thw. En. Pl. Zey.* p. 60.

*Very common throughout the ghat forests on the western side of Madras Presidency up to 4,000 feet, and in parts of Mysore, &c, and U Ceylon ; it is very variable in the shape of the leaves and fruit and amount of pubescence, the timber is strong and useful for building, the tree generally flowers in March and April, but I have also seen it in flower in other seasons. Fig A represents a common form (a branch of the fertile tree with dissection of flowers of the male tree). B is a variety from the Tinnevely hills (Atraymally ghat) a male tree with dissections of the flowers, this variety has the leaves obovate-spatulate, the dissections are all from male flowers, but the female flower only differs in having a fertile ovary.*

*One variety or species in my Herbarium, a large tree from South Canara which I refer doubtfully to this species, has the leaves about 2 feet long and the leaflets ovate-lanceolate from a broad base 7 inches long, male panicles nearly as long as the leaves and very compound, flowers in no way differing from those of Roxburghiana (fig. A), fertile flowers and fruit not seen.*

*Fig A is a branch of a fertile tree in young bud and young fruit, and dissections of male flowers (from the Annamallays). Figure B is a male tree and dissections of the flowers (from South Tinnevely.)*





Severini del.

*Lansium Anamalayanum* (Raddi)

Thunberg. Lich.

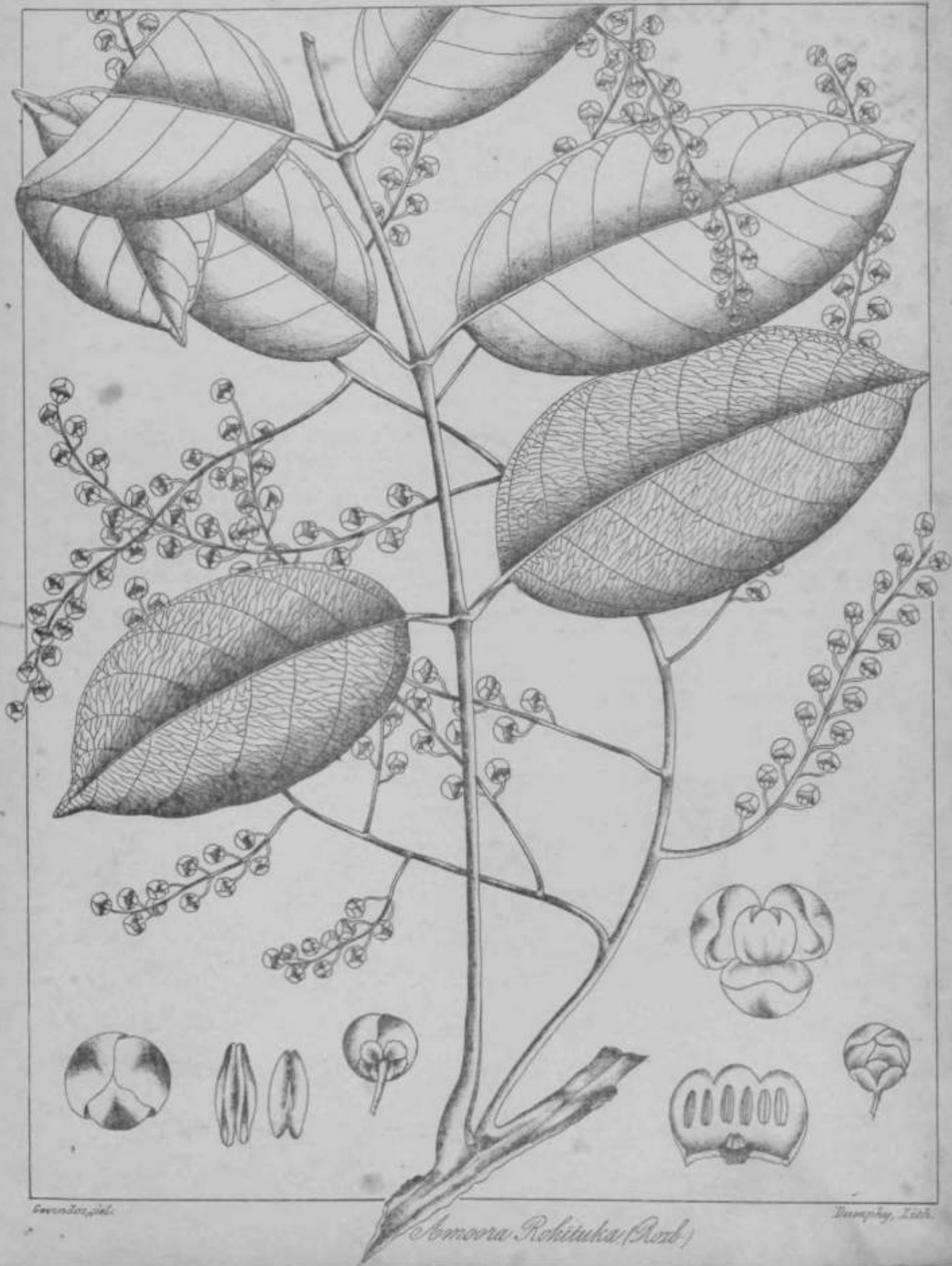
### LANSIUM ANAMALIAYANUM. (Nat. ord. Meliace®.)

LANSIUM. *Rümpf.*—GEN. CHAR. Flowers dioecious, sepals 5 rounded imbricate, petals 5 rounded connivent Imbricate, staminal tube globose crenulate at the mouth, aethers 10 alternately shorter, the apices of the 5 longer ones just ezserted, disk inconspicuous, ovary globose 3-5 celled, style very short thick, stigma truncate 3-5 lobed or radiate, ovules 1-2 in each cell fixed to the axis, berry with a rind 5-celled or by abortion 1-4 celled indehiscent, cells 1-2 seeded. Seed solitary or twin collateral oblong, hilum ventral, aril pulpy covering the whole seed, testa coriaceous, cotyledons transverse, radicle superior. Trees, leaves unequally pinnate, flowers small in axillary racemes or panicles or branched spikes, berry yellow or red, aril sometimes edible.—Sphserosacme, *Wall, in part.*

LANSIUM ANAMALLAYANUM. (Bedd.) A good sized tree, leaves 6-9 inches long unequally pinnate, glabrous, leaflets 3-5 elliptic obtusely acuminate, attenuated at the base, entire, 3-4J inches long by 1J-2 broad, furnished with hairy glands in the axils of the veins beneath, petiolules about £ an inch long, flowers in axillary panicked spikes, peduncle very short 1-2 lines long, branchlets 2-3 inches long, flowers pentamerous hermaphrodite (always?) yellow, about 2 lines in diameter, sepals imbricate rounded ciliate, with 1-2 minute bracts at the base, petals about twice as large, imbricate, rounded at the apex, stamen-tube oboletely 5 cleft, anthers 10 alternately shorter, the 5 longer ones just appearing above the apex of the tube, filaments adglutinate to the tube and not separable with the anther, ovary densely strigose sessile on a very small disk, 3 lobed 3 celled, ovules 1 in each cell attached to the axis near the base (or 2 ovules in each cell ?) style very short or obsolete, stigma large obtusely 3 lobed, fruit oblong with a dry greyish rind size of a grape, 2 celled, 2 seeded, seed completely covered with a very succulent ari). *Bedd in Linn. Iran\**, vol. xxv., and *hones Plant. Indies tab. civ.*

*I formerly described the ovaic cells as 2 willed, though I only figured them as 1 ovuled; in dissecting severalflowers I novb find only 1 ovule in each cell, but it probably varies.*

*A handsome tree, common in the dense moist forest of the Anamallays (particularly in the Anagoondy shola) at an elevation of about 2000 feet, also in Malabar (foot of the Mlgiris) ; it flowers early in April, and the fruit ripens in July, the succulent aril in the latter is greedily eaten by wonkeys and birds ; it is the only species of the genus found in the Peninsula, one species occurs in the Himalayas and a third in Java.*



Gardner, del.

*Amoora Rokituksa* (Roxb.)

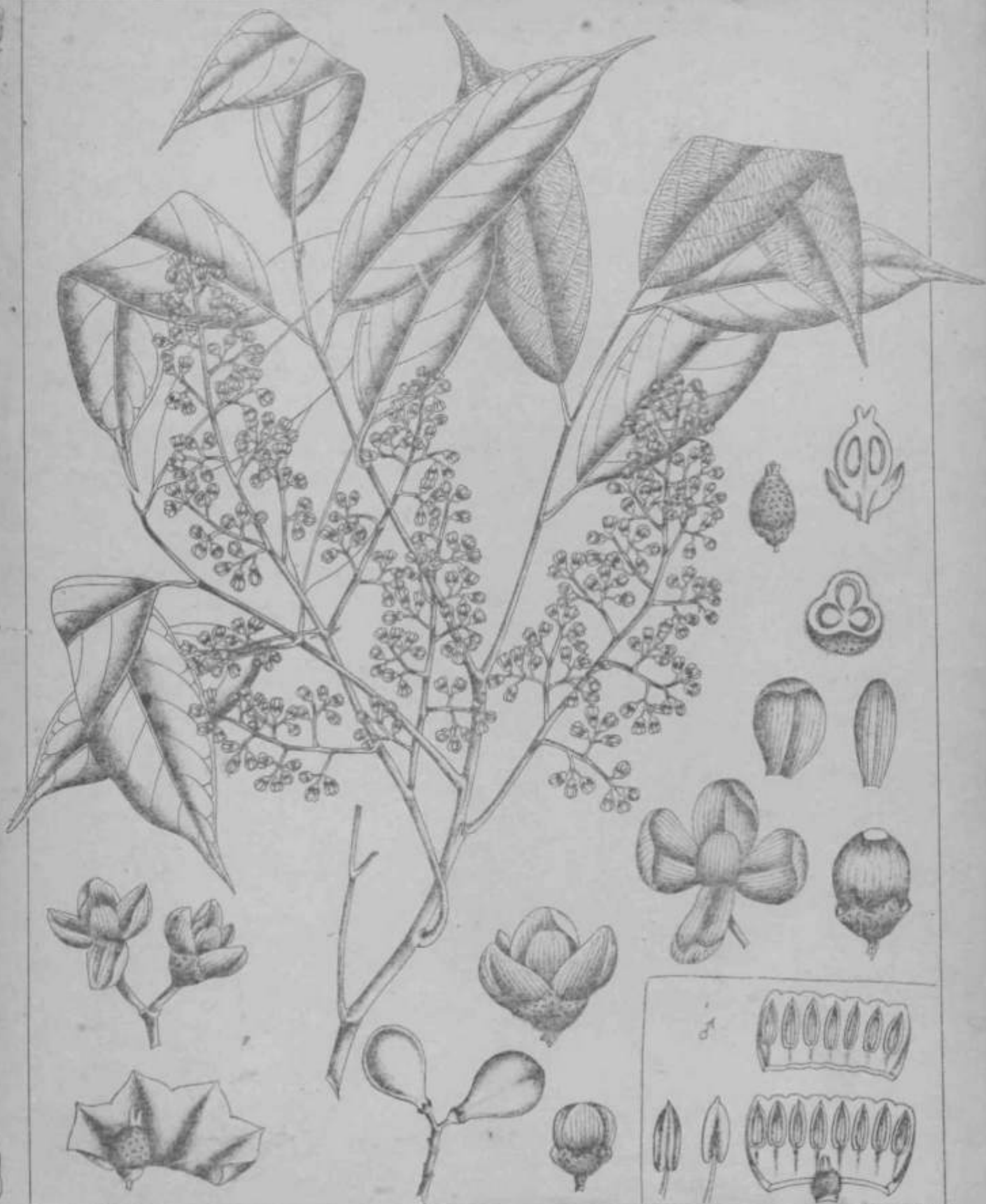
Rumphus, Lich.

ASIOORA ROHITUKA. (Nat. ord. Meliaoea.)

For Gen. Char, see under this genus In the Manual.

AMOORA ROHITUKA. (Roxb.) A small or middling sized tree, polygamous, trunk pretty straight, bark smooth ash colored, leaves alternate unequally pinnate 1-2 feet long, leaflets 4-8 pair opposite obliquely oblong glabrous shortly pointed at the apex 3-6 inches long by 2-2f broad, petiole less than £ an inch long slightly pubescent when young at length glabrous inflorescence axillary, paniced on the male tree, and spiked on the fertile. Male panicles axillary or a little above the axils somewhat drooping very large and much branched, but shorter than the leaves, flowers numerous, pedicels 2-3 lines long, calyx 5 parted imbricate, petals 3 oval to orbicular concave imbricate, stamen-tube globular bluntly 3 lobed at the apex, anthers 6 sessile included, or with the apices just appearing at the mouth of the tube attached by the centre of their back to the tube, a small rudiment of an ovary hairy at the base and 3 lobed at the apex, fertile spikes \ or a little more than half the length of the leaves, flowers as in the male except that they contain a fertile ovary whioh is 3 celled with 2 ovules in each cell superposed and attached to the middle of the axis, stigma subsessile 3 lobed, lobes emarginate, capsule round reddish 1J inches in diameter a little attenuated at the base, 3 celled 3 valved opening from the apex, seed oblong with a brown testa enclosed completely in a fleshy scarlet aril.—Andersonia Rohituka, *Roxb. Fl. Ind.* ii. 213.

*This tree is met with sparingly throughout the Western ghat forests of the Madras Presidency up to 3500 feet elevation in Bengal and in Ceylon (where it is called Ringoot), it is rather common in the AnamaUays, an oil is extracted from the seed in Bengal The specimen figured and the dissections are all from a male tree gathered in the Anamallay hiUs,*



G. S. P.

*Amora Lauri* (Wight)

D. S. P.

**AS100RA LAWII. (Nat. ord. Meliace©.)**

For. Gen. Char, see letter press to Pl. cxxxii.

AMOORA LAWII. (Wight.) A middling sized tree, all the young parts and the inflorescence scaly with yellowish brown leprous scales, leaves unequally pinnate generally about 8 inches each way, leaflets 2-3 opposite or alternate pair with a terminal odd one, leaflets lanceolate acuminate about 4 inches long by 1 £ broad, petioles 2-3 lines long, panicles axillary much branched, calyx scaly more or less 4-toothed, petals 4, one of which is much narrower than the others, stamen-tube orbicular subentire or crenated at the apex, anthers 8 rarely only 7, attached by the back near the base to an evident filament which is adglutinate to the calyx tube and rises from nearly its base, ovary scaly, 3-celled, cells 1 ovuled, ovules attached to the axis a little above the base, stigmas 3 sessile, fruit (immature) pear-shaped size of a plum indehiscent abounding in white resinous juice.—Nimmoia Lawii, *Wight. Gal Journ- of Nat. His.* vii. 13. *Nemeda Nimmonii, Dalz% in Bomb. Flora*, p. 37.

*A middling sized tree, Bombay and Canara ghat forests, and probably elsewhere on our western chain of ghats; called Boorumb in the Bombay Presidency.*



L. C. Sw.

*Hognia affinis* (Sw.)

Thompson del.

HEYNEA AFFINIS. (Nat. ord. Meliaceae.)

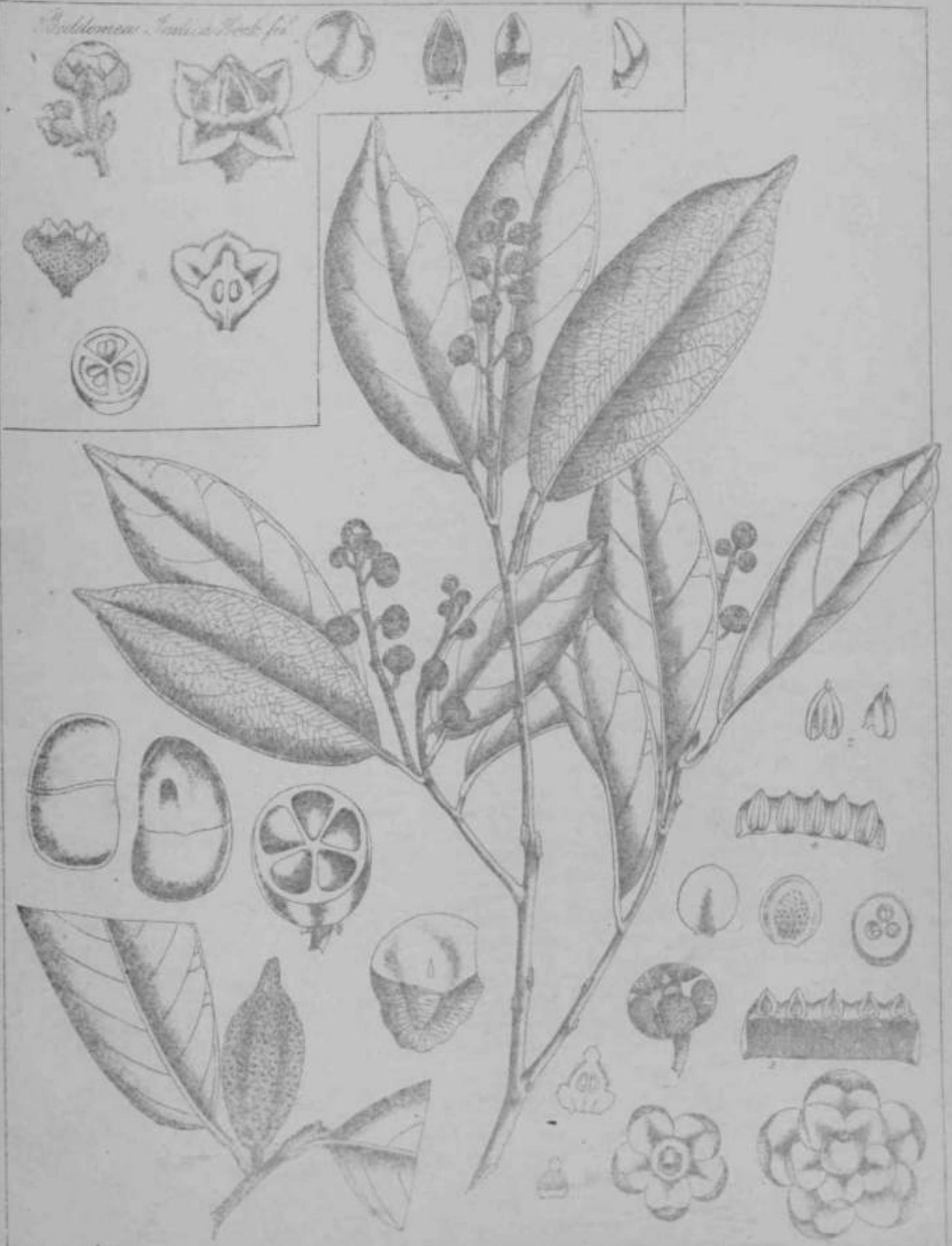
HEYNEA *Roxb.* - OEN. CHAR. Calyx short, 45 deft imbricate, petals 4-5 oblong erect imbricate, staminal-tube deeply 8-10 cleft, divisions linear sharply 2-toothed at the apex and each bearing an anther between the teeth, anthers slightly exerted, disk fleshy annular, ovary immenwd in the 'disk depressed. 2-3 celled, style short thickened upwards and clubbed at the apex, stigma 2-3 toothed, cells o! the ovary 2 ovuled, ovules pendulous from near the apex of the axis, collateral. Capsule fleahy 1 celled 2 v.lved. 1 seeded, seed arillate, radicle superior. Trees or shrubs, glabrous or pubescent, leaves unequally pinnate, leaflets opposite, panicles axillary long peduncled, corymbose, flowers small.

HEYNEA AFFINIS. (Jass.) A middling sized tree, glabrous, leaves unequally pinnate 12-20 inches long by 10-16 broad leaflets 3-4 opposite pair with a terminal long pedunoled odd leaflet, glabrous above, beneath white and glaucous, but also glabrous except a few distant white hairs on the costa and over the surface (only visible with a lens), obliquely ovate to oblong very unequal at the base and ending in a long terminal very sudden acumination, 4-8 inches long by 2½-3 J broad, the parallel primary veins, very prominent beneath, petioles from less than J to | inch long (terminal one 1J inches,) panicles axillary about §rds the length of the leaves corymbosely branched at the apex of the long glabrous peduncle, branches minutely pubescent and furnished with minute hairy bracteoles at the branches, flowers white about 2 1 1 ^ 8 ^, calyx corol and staminal-tube pubescent, anthers yellow obtusely apiculate. fruit oblong or roundish about 6 lines long by 5 broad bursting when ripe into 2 valves disclosing the solitary seed surrounded by its aril. *Ad.de Jus., in Mm. Mm. 19.* Heynea trijuga, *Roxb. Fl. Ind. ii. 3901*

*A very ornamental tree, common in ma\*\*, localities on the western mountains of the Madras Presidency, from 2000 feet up to 6000 feet (Conoor 6000 feet, abundant, Bolampatt, valley 3000 feet, very abundant.)*



*Soldanella paniculata* (Poe.)



*Soldanella*

*Soldanella paniculata* (Poe.)

James Smith

### BEDDOMEA SIMPLICIFOLIA. (Nat. order Meliaceae.)

BEDDOMEA. *Hook. JU.*— GEN. CHAR. Calyx 5-6 partite, lobes broadly ovate imbricate, petals as many orbicular, equal in size, or the inferior smaller, much imbricate: stamen-tube short or globose, crenulate at the apex, anthers 5-6 sessile at the apex of the tube partially or almost wholly asserted, connective very thick, cells narrow marginal at length confluent at the apex; ovary short hirsute more or less immersed in an inconspicuous disk 3-celled, cells 2 ovuled, ovules collateral attached to the axis at or a little above the middle, style short thick, stigma 3 lobed pyramidal, fruit coriaceous oblong or ovate or subglobose often acute at the apex, more or less ribbed and densely covered with close-set scurfy and stellate tomentum, tardily dehiscent 2-3 celled but the partitions very thin and often obsolete, seeds 3-5 large more or less angled exarillate, cotyledons superposed, radicle centripetal. Trees or shrubs with more or less scurfy pubescence, leaves simple trifoliate or pinnate, leaflets entire, opposite or alternate, flowers in axillary panicles or racemes or solitary in the axils.

BEDDOMEA SIMPLICIFOLIA. (Bedd.) A tree up to 3 feet in girth and 25 in height, young parts furnished with scurfy scales, leaves from lanceolate to broadly elliptic more or less acute slightly scurfy when young, at length quite glabrous 3-6 inches long by 1J-3J broad, veins parallel and prominent beneath, petioles  $\frac{1}{2}$  inch long much thickened at the apex (but not apparently jointed,) flowers very variable in size from 1\ to nearly 5 lines in diameter, panicles or racemes from much shorter than the leaves to filiform and much longer or the flowers are occasionally solitary in the axils, pedicels 1-3 lines long, pubescence of the panicle and calyx from densely rufo-tomentose to scurfy, flowers 5-6 merous, petals equal or subequal orbicular slightly scaly in the centre of the back, stamen-tube in the paniculate and racemed flowers large globose crenate at the apex the inside sometimes furnished with prominent corrugations, anthers with a very large thickened connective, attached by their back near the apex of the tube and partly exerted; in the solitary flowers the staminal tube is smaller plane inside and the anthers cover the whole length of the tube the apices being slightly exerted, ovaries of both flowers as in the genus and furnished with ovules, fruit oblong size of a pigeon's egg more or less acute, densely rusty-tomentose.

Vary- a. racemes much shorter than the leaves, flowers large 4-5 lines in diameter, rufo-tomentose.

Wynad, Tinnevely hills and Travancore, 2-4000 feet.

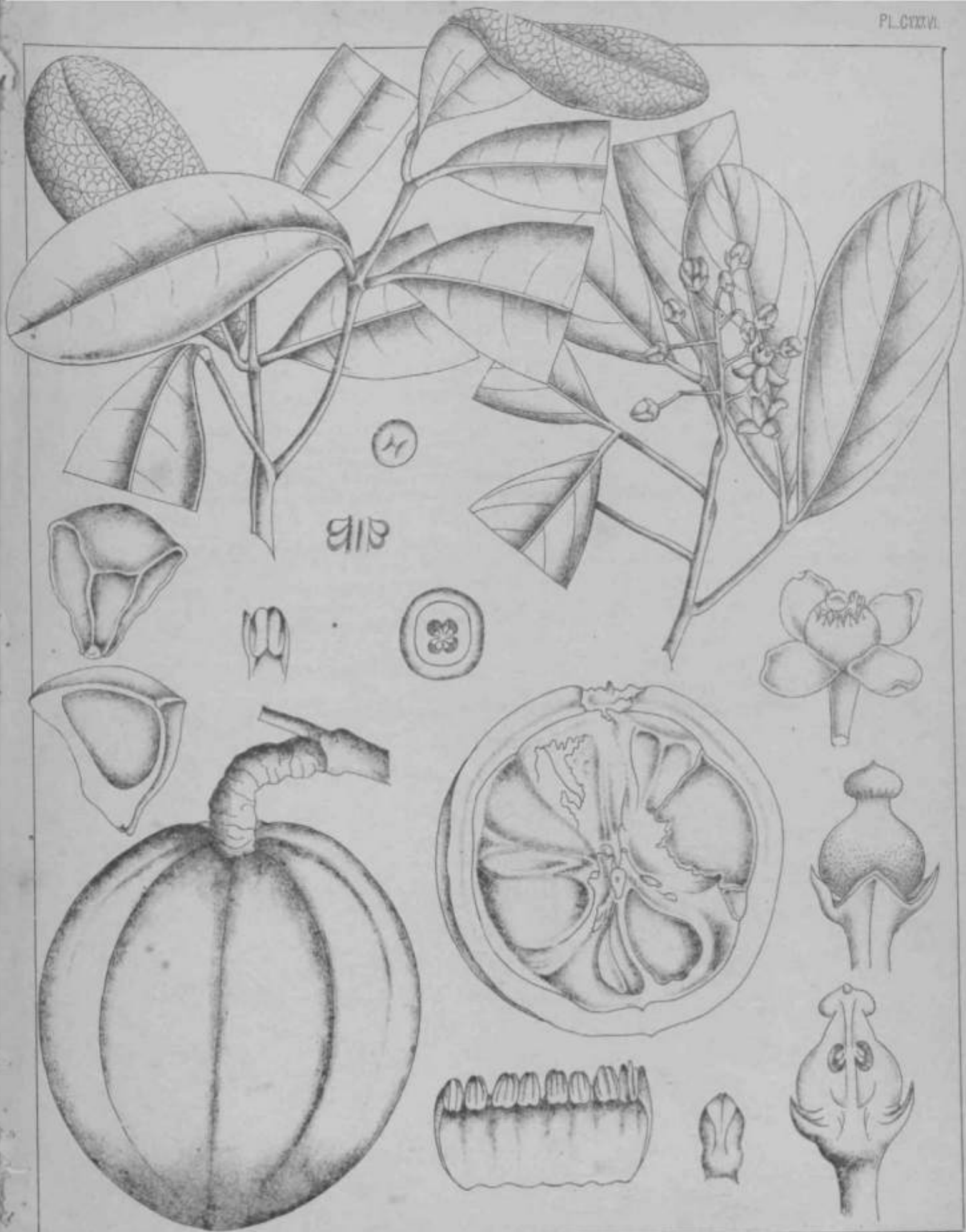
Vary- *?*. *parviflora*, panicles very small not much longer than the petioles, flowers 1-2 lines in diameter, rufo-tomentose, Annamallay hills and Pulney Hills, 3-4000 feet.

Vary- *y.* *racemosa*, racemes filiform longer than the leaves, pubescence scurfy.

Wynad, Coorg and South Cauara.

It was only after a long acquaintance with all these forms in a growing state that I made up my mind to unite all the simple leaved forms of *Beddomea* under one species. All the varieties occasionally have solitary axillary flowers which differ a little in their anthers, but as the fruit is always solitary in the axils, it is probable that these are the only truly fertile flowers, though all the flowers have ovules in the ovaries. Vary. *y.* resembles *B. Indica* in its racemes, but its staminal tube and anthers are the same as the other varieties of this species. The species figured is vary. a. (from Travancore). Fig. 1 gives the front and back view of the petals. Fig. 2 front and side view of the anthers. Fig. 3 the staminal tube and anthers of the panicled and racemed flowers. Fig. 4 the staminal tube of the solitary axillary flowers. At the top of the plate I have given dissections of the flowers of *B. Indica* (*Hook. fil.*) in the Manual, A. B. and C. are front, back and side view of one of the anthers.

*The different varieties are all small trees and very common throughout the Western Ghats forests from Qanara down to Cape Comorin*



818

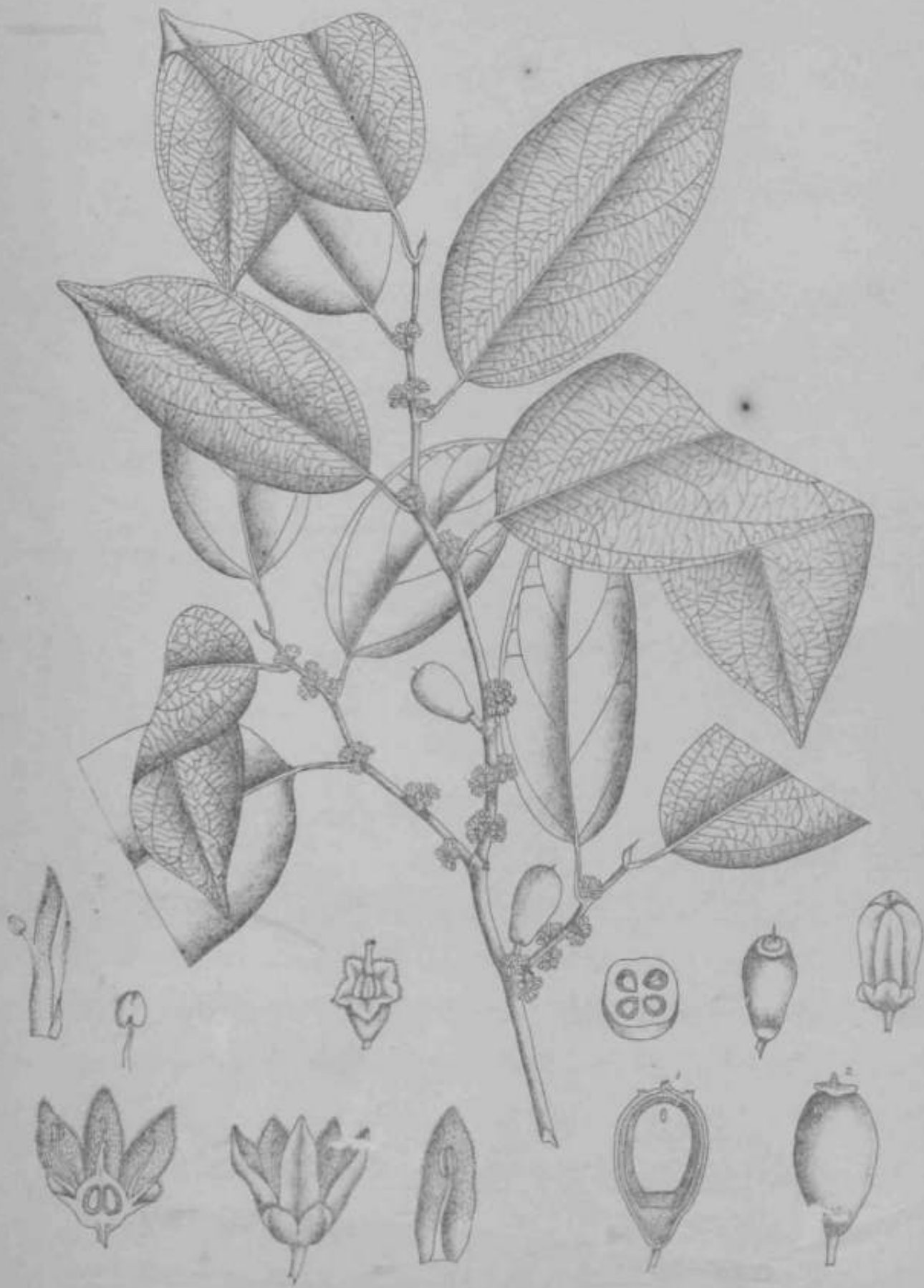
4

CARAPA MOLUCCENSIS. (Nat. ord. Meliaceae.)

CARAPA. *Auhl*—GEN. CHAR. Calyx small, 4 or 5 lobed. Petals 4 or 5 free, imbricate in the bud. Staminal tube urceolate, crenate or lobed, anthers 8 or 10, within the summit. Disk thick surrounding the ovary. Ovary 4 to 5-celled, with 2 to 6 ovules in each cell, style short, with a large disk-like stigma. Capsule globular or ovoid, fleshy or woody, the dissepiments often disappearing. Seeds several in a compact mass round the remains of the central axis, large, thick, with a ventral hilum; testa spongy; cotyledons superposed often united; radicle dorsal. Maritime trees. Leaves pinnate with entire leaflets. Panicles axillary.—*Xylocarpus*, *Keen*. ;—*Benth. Fl Aust.* 1. p. 386. *Persoonia*, *Willd. Sp. Pl.* ii. 331. Touloucouna and Racapa, *Revue Agric.* 123.

CARAPA MOLUCCENSIS. (Lam.) A tree glabrous in all its parts. Leaflets 4, rarely 2 or 6, opposite, ovate, obtuse, shortly acuminate or rarely acute, 2 to 3 or rarely 4 inches long, somewhat coriaceous, reticulate. Panicles short, loose, and few flowered, sometimes reduced to simple racemes or with few divaricate branches. Calyx small, irregularly lobed. Petals 4 or rarely 5, 3/8 to 3 lines long. Staminal tube crenate or splitting into short lobes. Ovary very small, in the centre of a large thick depressed disk. Ovules 2, 3, or 4 in each cell, excessively minute. Fruit often 3 or 4 inches diameter, irregularly globular. Seeds usually 4 to 6, large irregularly shaped, closely packed; testa very thick, of a hard spongy consistence—*Xylocarpus granatum*, *Keen* ;— *Willd. Sp. Pl.* ii. 328;—*Benth. Fl Aust.* 1. p. 387.

*This tree is a native of the coast in Malabar, Ceylon and in the Sunderbunds, and is also found in Africa, Australia, Madagascar and the Malay Archipelago ; in Tamil it is called Kandalanga, and in Ceylon Kadul The drawing and dissections are commended by Dr. Thwaites.*



Wiegand del.

Wiegand del.

(Hornum)

*Strobosia Ceylanica* (Poebl)

### STROMBOSIA CEYLANICA. (Nat. order Olacinese.)

**STROMBOSIA.** *Blu.me.-GEK.* CHAR. Calyx limb small, 5 lobed; lobes broadly ovate or deltoid rotundate, in fruit enlarged, aduate. Petals 5, perigynous, valvate. Stamens as many as and opposite and adnate to the petals, filaments shortly free above, tvery broad, inserted upon a disk semi-immersed or altogether immersed, 3-5 celled nearly to the apex; style short; stigma obtuse, slightly thickened, obscurely lobulate; ovules pendulous, 1 in each compartment. Fruit drupaceous. Seed pendulous with a minute embryo within the apex of a fleshy albumen. Glabrous trees. Leaves alternate, coriaceous. Flowers small, in axillary cymes or fascicles, pedunculate or sessile.—Sphoerocarya, *D&Lz. A. DC. Prod.* xiv. 629. *Lavallea B. II.*

**STROMBOSIA CEYLANICA.** (Gardn.) A large tree, leaves ovate oblong glabrous acute at the apex paler beneath, about 5 inches long by 2 broad, petioles about \ an inch long, flowers subsessile glomerate on very short scaly nodes which are axillary or on the branches between the leaves, flowers 1-li lines long, calyx lobes rounded very small about £ the length of the petals, stigma 41 b d, ovary 4 celled, fruit (immature) pyriform scaly. *Gard. in Calc. Journ. of Nat. Hist.* vol. vi. p. 350. *Sphoerocarya leprosa, Dalz. Jlook. Jour. of Bot.* iii. 34 and *Bombay Flora, p> 223.* *S. Javanica, Thw. En. Pl. Zeyl. (not Blume.)*

*Ceylon, Canara ghats, a large timber tree, the wood is white and durable, the drawing and dissections are taken from a Ceylon specimen. Fig. 1. and 2 of the ripe fruit a:e copied from Blume's figure of S. Javanica, a closely allied species, which differs in its pedunculate inflorescence. I have only a poor specimen of the Oanaratree, it appears to be the same, but the style is longer and the stigma entire or 2 lobed.*



Illustration No. 100  
1850

*Amelanchier canadensis* Mill.

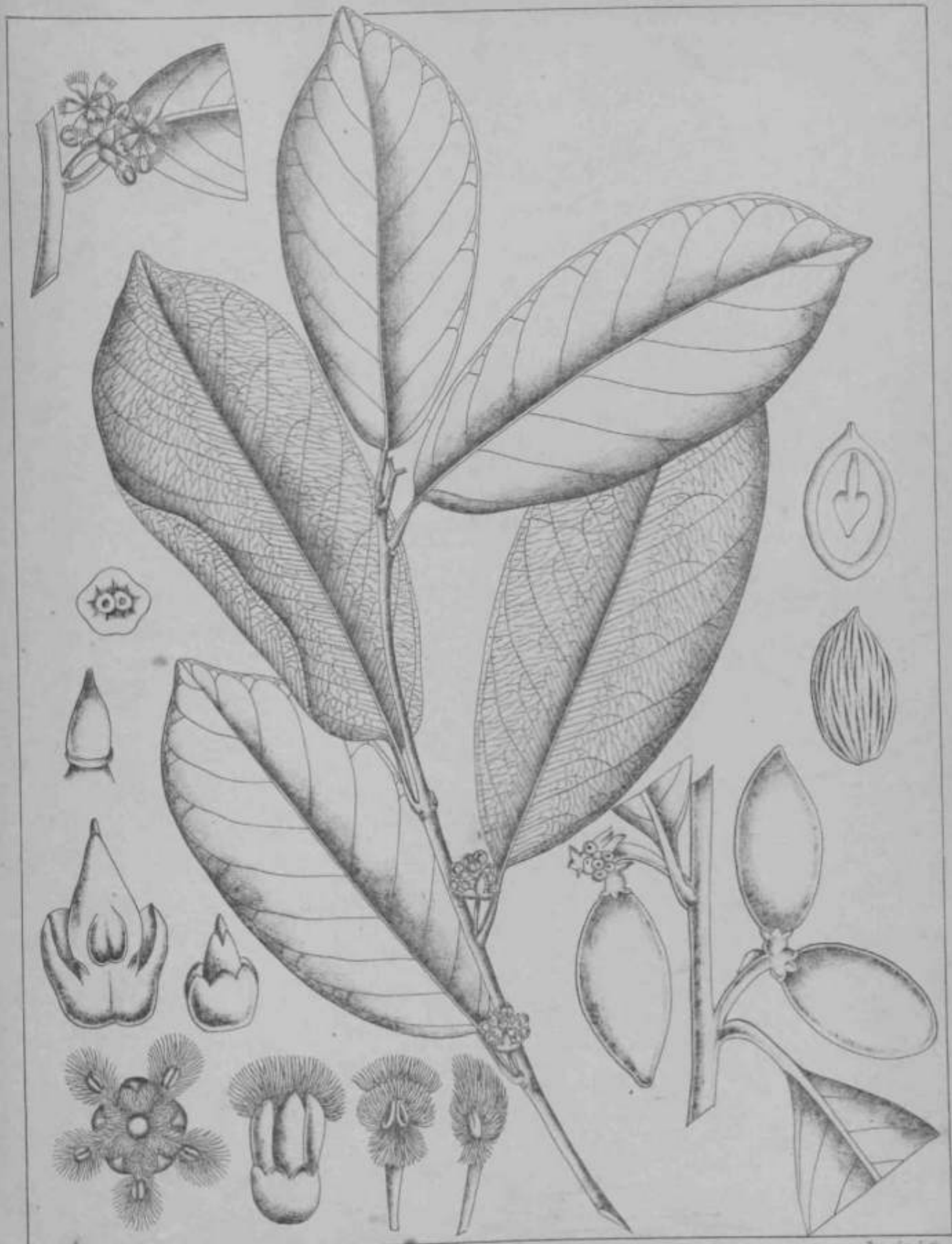
ANAGOLOSA DBNSIPLORA. (Nat. order Olacine\*.)

~~ANACOLOSA~~ 2H.— GEN. CHAR. Calyx small cyathiform truncate denticulate free, unchanged in fruit, disk hypogynous adnate to the ovary increasing in fruit, petals 6 inserted into the margin of the disk, valvate, concave at the base where they embrace the anthers, hairy above, stamens 6 inserted at the base of the petals and opposite to them, anthers ovate, ovary immersed in the disk 1-3 celled generally imperfectly partitioned, style entire or 3 toothed, ovules 2-3 pendulous from nearly the apex of the axis, drupe baccate 1 seeded with a ringed margin near the apex of the adnate disk, putamen crustaceous, embryo small in the apex of fleshy albumen, radicle superior, leaves alternate entire coriaceous, flowers congested in the axils pedicellate.

ANACOLOSA DENSIFLORA. (Bedd.) A lofty tree, branches terete, leaves glabrous shining oblong, obtusely acuminate, rounded at the base, 4-5 inches long by 1<sup>1</sup>/<sub>2</sub> broad, petiole  $\frac{1}{2}$  inch long, flowers 7-20 fascicled in the axil\*, pedicels about 3 lines long, flowers 3 lines long, pale yellowish very fragrant, calyx with 4-6 minute teeth, petals very hairy within, filaments glabrous, ovary\* 2-3 celled, style 3 fid. *Bedd. Linn. Trans, vol. 4 v. p. 211.*

*This is a very lofty timber tree which I have only met with in the Anamdlaya, moist forests at 2000 feet elevation (Anagoondi shola, J it flowers in November and December, when the boughs are a perfect mass of very fragrant flowers.*





*Swartz, det.*

*Spicaria*

*Lasiacantha apiculata* (Thunb.)

*Swartz, det.*

## LASIANThERA APIOAULIS. (Nat. order Olacinese.)

LASIANThERA. P. *de Beauvois*.— GEN'. CHAR. Flowers hermaphrodite (or polygamous.) Calyx shortly and broadly 5 lobed. Petals 5 hypogynous, valvate in aestivation. Disk fleshy, unilateral or inaequal. Stamens 5, alternate with the petals, free or adnate at the base to the petals, anthers tufted behind with a pencil of soft hairs. Ovary free, 1 celled, narrowed above; stigma minute. Ovules geminate, pendulous. Fruit obovate-oblong. Seed pendulous, with a small embryo within the apex of a fleshy albumen. Glabrous trees or shrubs. Leaves alternate entire. Flowers axillary, capitate; peduncles umbellate, leaf opposed.—Stemonurua, *Blum Bijdr. ex parte*. Urandra, *Thw. in Hook. Km Jour, of BoU vol. vii. p. 211.*

LASIANThERA APIOAULIS. (Thw.) A very large tree, branches terete glabrous, leaves entire very coriaceous, oblong or obovate-oblong abruptly shortly-acuminate; narrowed at the base paler beneath 4-6 inches long by 2-3 inches broad, petioles 5-8 lines long, peduncles axillary solitary or twice shorter than or about the length of the petiole, capitula 7-12 flowered, flowers hermaphrodite, petals greenish, purple towards the base about 2 lines long, drupe oblong sub acute 1½ inches long more than an inch broad greenish purple, putamen woody with several longitudinal cavities filled with soft cellular matter externally fasciculate fibrous, testa consolidated with the pericarp. *Thw. Ea. Pl. Zey. p. 43 and 405.*

*Ceylon in damp forests 1000 to 3000 feet elevation, called Urukana; the dissections are communicated by Dr. Thioaites.*



Zuccarini del.  
(Blasina)

*Spodoptera Bontheuoniana* (Nyl.)

Zuccarini del.

APODYTES BENTEAMIANA. (Nat. order Olacnere.)

Aj'ODYTES, *E. iltyer*.— GEN. CHAR. Calyx small 6 toothed or partite, petals 5 bjpofjynoas *Ilet* vaWat\* gUbiout ot aubghroni, il&mtm M maay <u md alternate with tñfl petal\* free or very shortly adherent to their base, anther, limwr to UnceoUto oblong or lagittato, otary 1-wilrt, rtyfc filiform moro or l<<\* oblique atigra. email, orata I pendulous Knb-ítiperpn.nd, drupo b.ocato obliquely ellipmui.l or roumM mñittiraM b<irinB on one rib » a.\*\* »ppcndage<sub>1</sub> «it orurtaceou. or woody, ««d l pendulnu., with . «m\*] «<sub>m</sub>b<sub>r</sub>j<sub>0</sub> n^r tlu a<sub>p</sub>g<sub>1</sub> of UM floihy albumen. Trt» or .lirub., IMTH alwinate p.nn«<sup>T</sup>Ma«l, flowert in Urniual **pwdoN M MñimJ** taicloa.-RapLiostrylBB, *Planch?* NothpodyUm, 5li<BW. 1/<J. B<( I. 248.

APODYTES BENTHAMIANA. (Wight.) A middling siaed tree young parta minutely tmren-pubescent, branches terete i leaves alternate coriaceous glabrous (turning quite black in drying) oblong elliptic obtuse at both ends 3W iachss long by d petiole 3-1J indies long, i.aucles terminal contracted rigid ahorter than the leaves slightly pubescent, brae tea minute or wanting flown white 3 Hoes long, calyx minute 5 toothed aighbtly pubescent as is the pedicel, petals elliptic iuflexed at the point, sUmensthe length of the petals, autbers pubuewt ou the front fan and sides, basiBxed linear obtuse, deeply Mgittate at the baae, ovarv alibrona ovate, style lateral straight, stigma inconspicuous truncated, drupo semi-ovote nmifonn crowned with the ixñialaiit bow or the style and fun.isb.ed with a lateral scutelliform appendage. *Wight Icmñt tab.* 1153. A. Oardñntana, *Kim^A\*\**, and *Hag. of Nat. Hi\*t. tmiu* 2, vol. ix. p. 380.

Var<sup>1</sup>• a. Leaves coriacaous obtuse at the apex, paniolsa short rigid.

Var<sup>2</sup>• fl Lcavea membraaaoeoua, broader than in var. a., with a loug uarrow auuiniuiitiuu at the apex terminating iu a abaru or obtuse point, panicles hi and much larger than in variety a.

Variety a.—Nilgiri, Aiwmallays, Travaucoire, Titmevelly hills aud Ceylou, elevation 5000-7500 feet- Vary §. northern Hlopea of the Nilgiria, Travan'core (Myuendri coffee estates,) elevation 3,000 feet. The 2 varieties have a very different agptñnoe, and I long thought them distinct, but d careful analysis of the flowers shows no difference, aud variety 0. may I think be safely considered only a lower level more membranaeeous form, it is a much handsomer tree than the variety bund at higher elevations. Tññ figure is taken from living specimens of var. a gathered on the NilgirU.





*Nac. hystrix* (Willd.)

*Nac. denticulata* (Willd.)

Guerrero del Rio

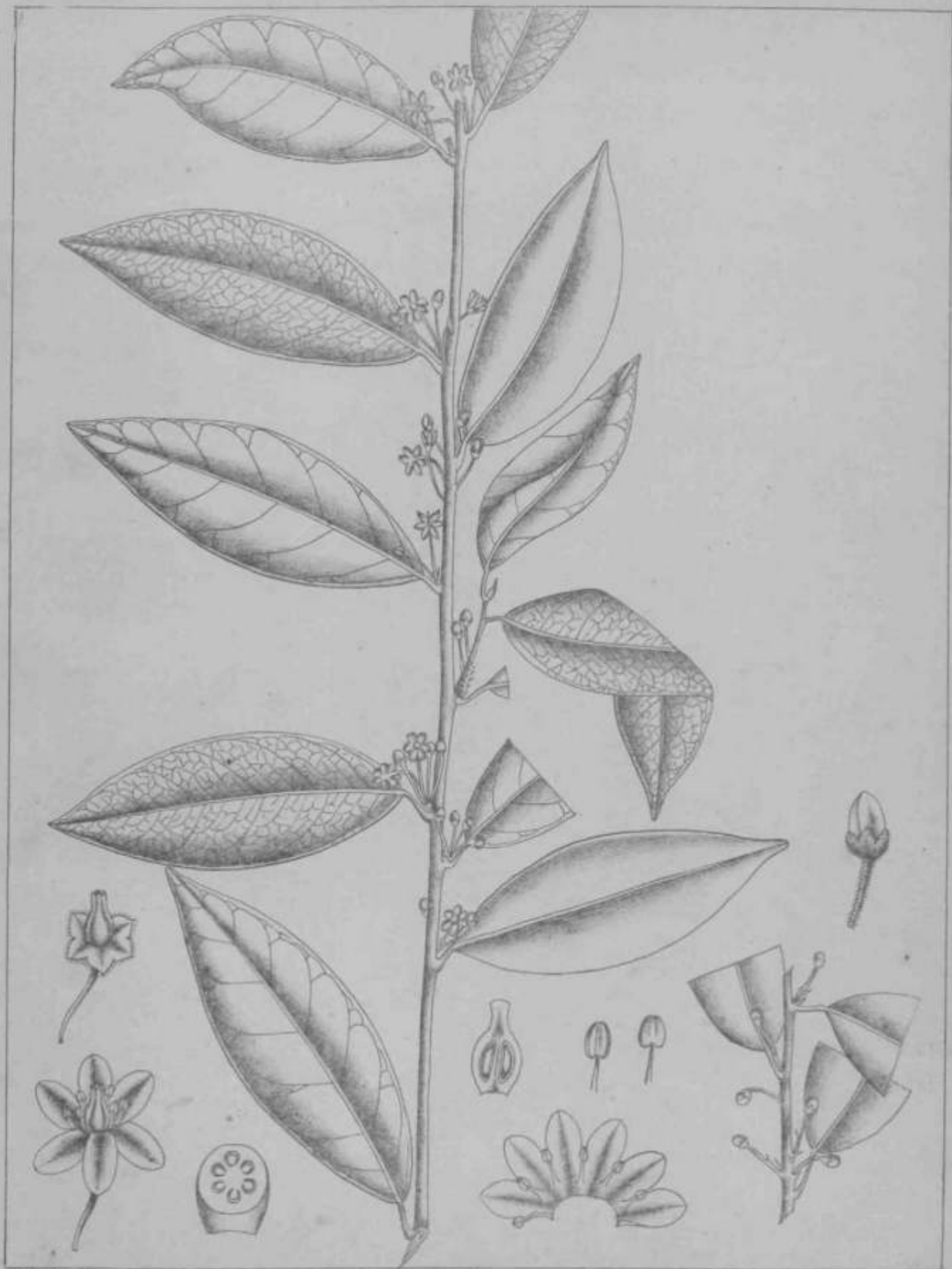
Bartholomae

### ILEX DENTICULATA. (Nat. ord. Hoinese.)

ILEX. Linn. - GEN. CHAR Flowers unisexual or hermaphrodite, calyx persistent 4-6 cleft, petals 4-6 connate at the base into » rotate corolla hypogynous imbricate, stamens as many as the petals and alternate with them and inserted on the corolla, anthers oblong, ovary sessile sub globose 4-6 (rarely 7-8) celled, style none or short thick, rarely elongate, stigmas as many as the ovary cells, distinct or combined, ovules 1-2 in each cell collateral, drupe globose, putamen 4-5 celled, or with 4-8 long or crustaceous pyrenes. Trees or shrubs, leaves alternate generally shining entire or toothed or spinose, inflorescence axillary.—Pseudehretia, Turcz.

ILEX DENTICULATA. (Wall.) A very large tree glabrous or the young parts minutely puberulous, leaves very coriaceous glabrous and rather shining above, paler beneath ovate to oblong, acute acuminate or obtuse at the apex serrated, 2 ½ to 4 inches long by 1-1½ broad, petioles ½ to 1 inch channelled above, peduncles axillary very short, pedicels numerous minutely puberulous 3-4 lines long simple or again bearing 3 pedicels, flowers tetramerous, petals only connate at their very base at least in the male flowers (I have no fertile flowers for dissection), stamens inserted at the very base of the corolla on to the connate portion between the petals. *Wight III. tab. 142.*

*THE larvae timber tree is not uncommon on the higher ranges of the Nilgiris and Anamallays at 6000-8000 feet, and at similar elevations. Its timber is much valued and is said not to warp or crack, it is at once distinguished from the other species by its serrated leaves and 4 merous flowers.*



W. & A. G. S. del.

*Hieracium*

*Hex Malabarica (Roth)*

Ampl. del.

**ILEX MALABARICA. (Nat. order Ilicine®.)**

For Gen. Char, see Pl. cxlii,

.

**ILEX MALABARICA. (Bedd.)** A large tree glabrous or the young parts minutely puberulous (under the lens) leaves narrow oblongo'elliptic slightly attenuated at both ends acute or acuminate at the apex quite entire dark shining green above very pale beneath, 4-5½ inches long by 1-1½ broad, petioles 3-4 lines long channelled above, peduncles axillary very short or almost obsolete, pedicels 3-8 rarely only 1 simple 3-4 lines long slightly pubescent, flowers hexamerous, calyx slightly pubescent, petals connate to nearly ½ their length, ovary minutely puberulous with a large obsolete 6 lobed stigma, 6 celled, cells 1 ovuled, ovules pendulous from nearly the apex, drupe size of a pea.

*This species is at once distinguished from the others by its 6 merous flower, the leaves and inflorescence are also different. I have only observed this tree in the Wynad, elevation 3,000 feet (but it probably occurs elsewhere in our western forests); it is abundant at Benni between Mudumallay and Sultan's Buttery, it flowers in January and February and probably more or less all the year as the other species do.*





**ETJONYMUS CRBNULATUS.** (Nat. ord. Oelastriace.)

**EUONYMUS.** Zi>w.—GEN. CHAR. Calyx 4-6-fid, divisions patent or recurved, petals as many inserted below the disk patent entire toothed or fimbriate, stamens the same number inserted on the disk, filaments generally very short, anthers broad didymous, disk fleshy ample 4-5-lobed, ovary immersed in the disk and confluent with it, 3-5 celled, styles short, stigma 3-5 lobed, ovules 2 (rarely 4 or many) in each cell, capsule 3-5 celled with the same number of lobes or angles and opening loculicidally in as many valves, cells 1-2 seeded, seeds nearly enclosed in a colored usually scarlet arillus, testa chartaceous, albumen fleshy, embryo orthotropal, cotyledons foliaceous, radicle inferior. Trees or shrubs, with opposite leaves, flowers dull reddish or greenish in axillary dichotomous or trichotomous oymes.—*Melanocorya*, Turcz. *Vyonomus*, Presl *JTalp. Am.* ]. 188.

**EUONYMUS CREMULATUS.** (Wall.) A small tree, leaves elliptic obtuse crenulate-serrate towards the apex, coriaceous deep shining green above, 2-2 J inches long by 1-1J broad, petioles about 3 lines long, peduncles solitary shorter than the leaves once or twice dichotomous few flowered, flowers 5 or occasionally 6-merous, petals orbicular, stamens very short, anthers opening transversely, margin of the torus free, style very short, stigma blunt somewhat umbilicated, capsule turbinate 5 celled, lobed at the apex, seed with a small aril. *WA. Prod.* p. 161.

*A small tree common on the Nilgiris, Pulneys and higher parts of Western ghats of the Madras Presidency, the wood is white, very hard and close grained, and answers for wood engraving, and is about the best substitute for Boxwood in this Presidency; the wood of the other species is very similar.*



*Lophopetalum Wrightii* a?utr.

Wright

Leach

## LOPHOPETALUM "WIGHTIANUM. (Nat. order Celastrineae.)

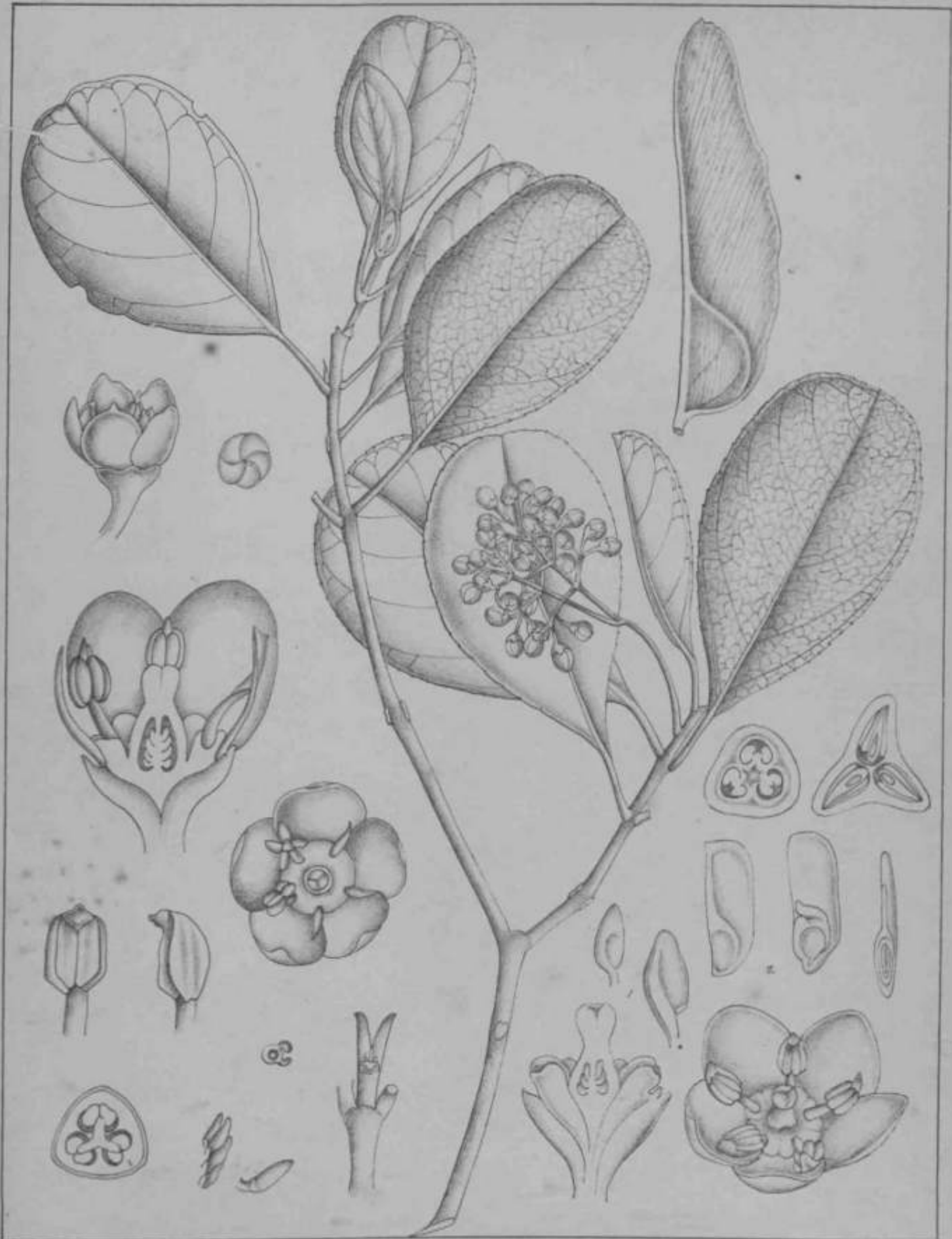
**LOPHOPETALUM.** *Wight.*-GEN. CHAR. Calyx scutelliform with a very broad flat spreading base, lobes 5 vwy short rounded soon obsolete, petals 5 (rarely 4) orbicular, continuous with the disk, either furnished at the base with a membranaceous corrugated crest and covered near the base with the projecting lobes of the disk, or rarely naked, and alternate with the lobes of the disk, disk 5-lobed thick fleshy covering the whole cavity of the calyx, the lobes adnate to the base of the petals, stamens 5 (rarely 4) inserted on to the disk, filaments subulate short, anthers versatile oblong ; ovary small continuous with the disk and sometimes immersed in it, 3 (rarely 4) celled contracted into a short style, stigma capitate, ovules numerous in A double row in each cell, capsule coriaceous 3 (rarely 4) angled, 3 (rarely 4) celled dehiscing loculicidally, seed few or many, often winged, arillate, albumen fleshy. Trees or shrubs glabrous, leaves opposite or alternate, exstipulate coriaceous entire or serrulate, cymes axillary and terminal, flowers often large.

**LOPHOPETALUM WIGHTIANUM.** (Arnt.) A large tree, leaves elliptic oblong obtuse or slightly acute rounded or subcordate at the base, entire coriaceous glabrous on both sides, 5-9 inches long by 2-4 broad, petioles about J inch long, cymes axillary and terminal shorter or nearly as long as the leaves, flowers 5-merous dull-reddish, 7-9 lines in diameter, calyx lobes very short and broad in bud, nearly or quite obsolete in expansion, petals with a membranaceous corrugated crest, ovary continuous with the disk but not immersed, fruit sharply triangular 3-celled, 3-4 inches long, seeds numerous imbricate compressed winged. *Wight Icones tab. 162.*

*This tree inhabits the Western ghats of the Madras Presidency from, Canara down to Cape Comorin, and is also found on the Bombay ghats ; it grows to a very large size and is a very handsome tree. The drawing is taken from specimens collected in the moist forests in the plains of South Canara (at Parapa), but it also ascends the ghats to an elevation of 3000 feet / it is called Balpdle in S. Canara, and Us timber U mtch esteemed by the natives.*

### *Analysis.*

1. A young bud.
2. The same, more advanced.
3. A flower, front view.
4. The same, back view.
5. Anthers, front and back view.
6. Ovary cut vertically.
7. The same cut horizontally,
8. A very young fruit cut open, petals and stamens still persistent.
9. A winged seed (very immature.)



*Walter*

2r/

*Walter*

**KOKOONA ZBTLANIOA. (Nat. order Celastrine.)**

KOKOONA, *Thw* —GEN CHAR. Calyx small 5 lobed, petals 5 coriaceous, contorted in aestivation, glanduloso-punctate, stamens 5 inserted near the margin of the disk, filaments thick! subulate, anthers oblong, disk thick, glandular obscurely angled, ovary semi-immersed in the disk 3-celled, styles short thick, stigma 3-lobed, ovary-cells 4-12 ovuled, ovules in 2 series adnate to the axis, ascending, capsule rather woody oblong trigonal, 3-celled 3-valved dehiscent loculicidally, seeds imbricate furnished with a long wing, cotyledons plane, embryo "albuminous. Large ramous glabrous trees, leaves opposite petioled coriaceous, cymes axillary paniculate, flowers small n «. in *Book. Ke» Jo«m. r. p. 379.* Tigonocarpus, w\*. *Cat. 6250.*

**KOKOONA ZEYLANICA, (Thw.)** A large tree, leaves obovate or retuse narrowed towards the petiole obscurely and remotely crenulate, glabrous, minutely punctate beneath, 2-4 inches long by 1j-1f broad, capsule about 4 inches long, seeds 3J inches long of which the wing is 2J. *Thw. I. c. and En. PI- Zey. p. 52.*

*A large tree peculiar to Ceylon, not uncommon on banks of stream in the Sitfragram and Ambagamom districts at an elevation of 2000-4000 feet. The inner yellow bark is employed medicinally and an oil is expressed from the seeds, which is used in lamps. A second species of this genus inhabits Borneo. The analysis of the oil is as follows: C<sup>55</sup>H<sup>98</sup>O<sup>2</sup>.*

1. Ovules, 2. Young seeds. 3. Full grown seed, life-size.



*Pithecolobium*

*Passiflora Ceylanica* (Lam.)

W. & A. G. & Co. Lith.

**KURRIMIA CBYLANIOA. (Nat. order Celastrineae.)**

**KURRIMIA.** *Wall.* — GEN, CHAR. Calyx 5-fid, petals 5 inserted under the margin of the disk patent and recurved. Stamens 5 inserted with the petals, filaments short subulate, anthers didymous, disk fleshy 5-lobed, ovary globose free glabrous except at the apex where it is very hairy, 2-celled, cells 2-ovuled, styles 2 filiform, stigmas small capitate, ovules erect from the base of the cells, capsule 1-2 celled coriaceous indehiscent, or at length 2-valved, 1-2 seeded, partition membranaceous, seed linear-oblong erect nearly quite enclosed in a fleshy aril, testa coriaceous shining smooth, albumen copious fleshy, embryo axil much compressed, cotyledons linear-oblong, radicle elongate inferior. Trees glabrous, the apices of the branchlets enclosed in stipules which are soon deciduous, leaves alternate towards the apex of the branches, petioled coriaceous entire shining pinnateveined with transverse striated veinlets, racemes axillary simple or paniced, flowers small yellowish, aril white or reddish. *Wall, Cat. 4m.,—Benth. and Hook. Gen. Pl. 1 p. 365. Bhesa, Ham. in Ed. Phil. Journ. xvi. 315, ex parte. Pyrospermum, Miq.*

This genus differs from *Trochisandra* in its free stamens and in the shape of its capsules.

**KURRIMIA CEYLANICA.** (*Arnt.*) A large tree, branches terete glabrous their apices acute and encircled with the large stipules which are soon deciduous, leaves ovate acute glabrous and shining 3-6 inches long by 1-3 inches broad, petiole 1-1½ inches long, panicles elongate longer than the leaves or contracted and shorter than them, flowers small pale-greenish, capsule oblong or rotundate, fleshy coriaceous ½ inch long reddish, seed oblong, aril white, testa membranaceous brown. *Arnt. Pug. X. 328 ;—Thw. En. Pl. Zey. p. 72.*

*A large tree, peculiar to Ceylon, from the plains up to 6000 feet elevation; the higher level form has shorter panicles and larger flowers. The tree is known by the names Palang, Hoora, Candic and Alareya. The plant figured is from no elevation; the dissections of the fruit, figs. 1 to 4, are from the pencil of Dr. Thwaites.*





*Engelm. del.*

*Barney. Lith.*

*Eleocharis Rasburghii* (M.)

## ELSIODENDRON ROXBURGHII. (Nat. order Celastrineae.)

ELSIODENDRON *Jacq fit.*—GEN. CHAR. Flowers polygamous or hermaphrodite, calyx 4 or 5 (rarely 3) *chtt*, petals as many as the calyx segments spreading, disk thick fleshy angled, stamens as many as the petals inserted under the edge of the disk, filaments subulate, anthers nearly globular dehiscing longitudinally, ovary more or less deeply immersed or confluent with the disk 2-3 (rarely 4-5) celled, style very short, ovules 2 in each cell, drupe dry or succulent, the putamen 1-3 celled, cells 1-2-seeded, arillus none, testa membranaceous or spongy, albumen scanty or copious, cotyledons flat. Trees or shrubs, usually quite glabrous, leaves coriaceous opposite or alternate entire or crenate, flowers small yellowish greenish or white in axillary cyme, or umbeliferous. Neerija, *Soxi*; Schrebera, &c. Rubentia, *Commers.* Portenschlagia, Trattmick, CWxylon and Mystroxylon, *EM*,

ELSIODENDRON ROXBURGHII. (WA.) A tree often of great size, leaves opposite and alternate elliptical to ovate or even subrotundate, generally bluntly crenated sometimes sharply serrated, very coriaceous, glabrous and shining above, 3-4\* inches long by 1 U 1 broad, petioles 1 to 1 inch long, cymes axillary often lax with or without a solitary caducous flower in the forks; from \*rd as long to nearly as long as the leaves, flowers yellowish or green 4-5-merous, ovary 2-celled, drupe obovoid with a 1-celled putamen. WA. *Prod. p. 157.* Neerija dichotoma, *lioxb. Fl. Ind. 1. p. 647.* Eteodendron paniculatum, WA. *Prod. p. 157.*

*This tree it found throughout this Presidency and in Bombay and Bengal, it is most variable a\* to size, and in the size, shape and margin of the leaves. In the dry Seegoor forests about the foot of the Nilgiri it is found of immense girth, and in the moist forests of the AnamaUays at 2000- feet elevation it is a very large tree, again in the Coimbatore plains it is met with as only a shrub «A sharply serrated leaves (but differing in no other way); the tree is called Karkavd andlrkdiin Tamil, Nirijaa^ Nerddi in TeZigu, and Tamroojon the Bombay ghats; the wood is not very strong or stiff, but is tough, close and even grained, and the surface beautifully cut and flowered and of a reddish brown color and suited for cabinetwork; it is used by the natives for the manufacture of combs, &c, and is suited for picture frame,, Ac.; a cubic foot unseasoned weighs 60-65 to; and 46 lbs. when seasoned, and its specific gravity is .736; the root and bark are used medicinally by the natives.*

### Analysis.

1. A bud.
- 2 ft 3. Pentamerous flowers, front and back view.
4. Anthers.
5. Ovary cut vertically.
6. A 4-merous flower.
7. Ovary cut horizontally.
8. A fruit.
9. The same cut vertically.
10. The same cut horizontally.



Engelm. del.

Gray. sculp.

*Symplocos macrocarpa* Howe.

-

**DTSOXYLTUM MACROARTJPM. (Nat. order Melioere.)**

**This tree has been fully described in the Manual at page Irl.**

**The drawing has been received from Dr. Thwaita and is from a Ceylon specimen.**



*Homogyne amara* (Roxb.)

C. F. Smith del.

R. Sargent & G. L. Hitchcock sculp.

### HEMIGYROSA OANESOENS. (Nat. order Sapindace\*.)

HEMIGYROSA. *Blume*—GEN. CHAR. Flowers polygamo-monajcious irregular, sepals 5 unequal erect concave, 2 exterior smaller, broadly imbricate, petals 4-5, the fifth sometimes wanting or small each furnished with a scale above the long villous claw ; disk unilateral, stamens 8 in the male, 6-8 in the hermaphrodite unequal unilateral (at least in the male), filaments pilose, anthers scarcely exerted, ovary excentric 3-angled or sub-entire 5-celled, style short or elongate, stigma 3-angled or subentire obtuse, ovules solitary in the cells fixed to the axis about the middle, fruit indehiscent coriaceous fleshy or woody 3-angled or spherical, velvety or tomentose 3-celled, cells hirsute within, seed oblong exarillate, testa coriaceous, cotyledons fleshy equal. Trees, leaves alternate exstipulate abruptly or unequally-pinnate, flowers in canescent racemes.

HEMIGYROSA CANESCENS. (Roxb.) A good sized tree, trunk of considerable girth but not straight, bark ash colored, slightly scabrous, branches numerous spreading, leaves alternate abruptly and unequally pinnate 6-10 inches long, leaflets occasionally only 1 pair or ternate, generally 2 pairs with or without a terminal odd one, the terminal pair opposite, the lower pair opposite, snbopposite or alternate, lanceolate to oblong entire glabrous slightly coriaceous, 3-6 inches long by 1J-2 J broad, petiolules 2-3 lines long slightly fuscous, racemes numerous axillary or scattered over the branchlets, simple or branched at the base, minutely tomentose, bracteoles minute triangular shorter than the pedicels, flowers small white fascicled, in the male the stamens are always 8 and all unilateral and the petals only 4, the adnate scales being larger than in the fertile flowers, in the fertile flower the disk is unilateral? the stamens 6-8 arranged irregularly all round the ovary, petals 5 all equal in size and each furnished with a bifid scale, or the 5th scaleless, or entirely absent or small, fruit subspherical or 3-angled tomentose often 1-seeded by abortion.—*Molinaea canesceus*, *Roxb\* Fl. Ind.* ii. 243. *Cupania canescens*, *WA. Prod.* p. 113. *Sapindus tetraphyllus*, *DG. Prod.* 1. 608.

*A common tree in jungles on the eastern side of the Madras Presidency, Salem, Coimbatore, Mysore, &c., also found in Bombay and Ceylon ; it does not exceed the magnitude much above 30 ft high ; the wood is white and is occasionally used by the natives for building purposes ; it is called Kari in Teligue, Akota in Tamil, and Kurpa in the Bombay Presidency ; in most of the fertile flowers (from fresh specimens) that I dissected, I found 5 equal petals, one of the 5 often being scaleless, and the stamens as often 6 as 8, I could not find more than 4 petals in any of the male flowers ; the flowers are probably subject to great variation (as is often the case with polygamous flowers), some being intermediate between the male and hermaphrodite, &c, and an analysis from other individuals might show considerable difference. ( Vide remarks in the Manual under *Eemigyrosa trichocarpa*.)*



Linden, del.

*Schmidelia hispida* (Thunb.)

Remy, sculp.

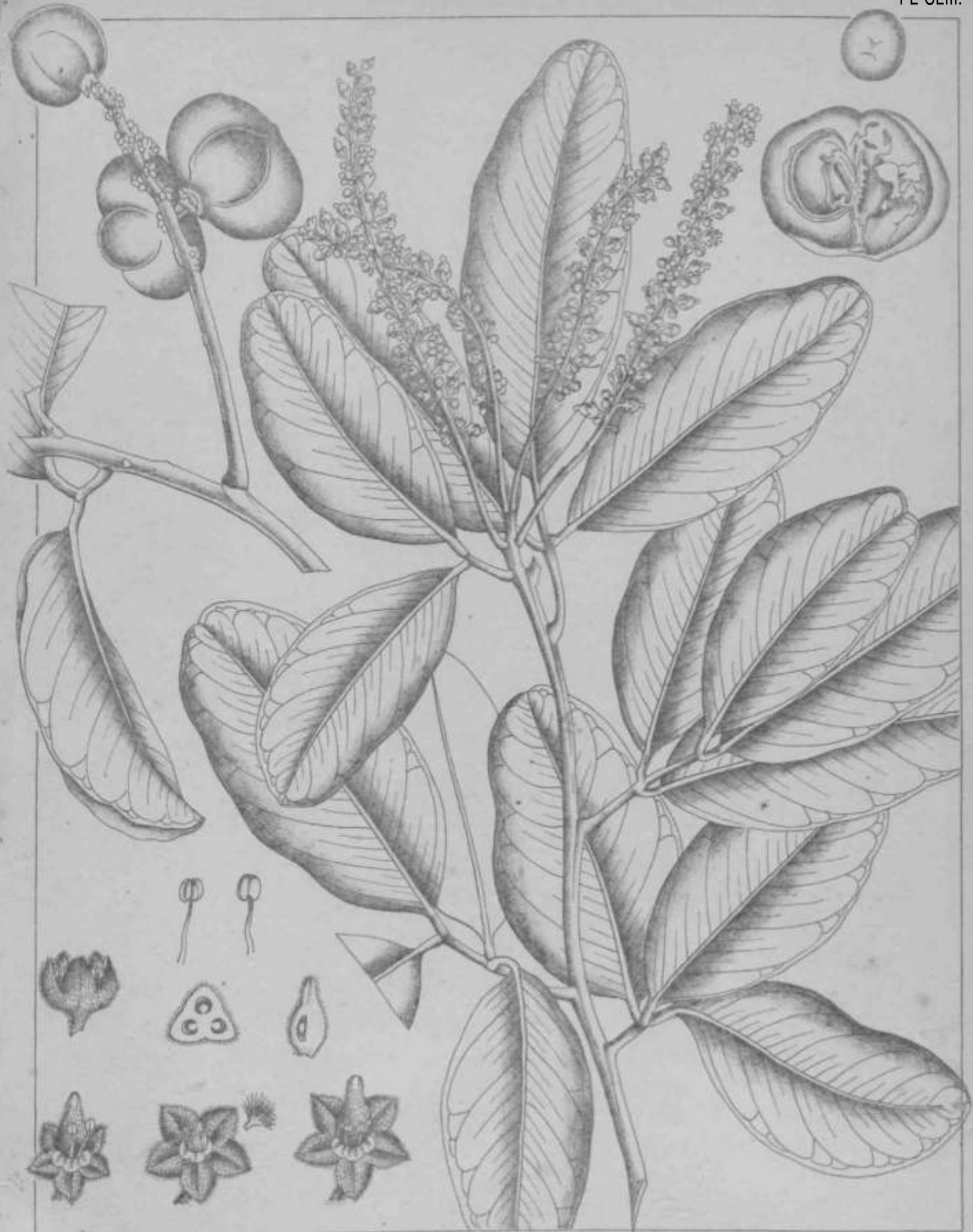
## SOHMIDELIA HISPIDA. (Nat, order Sapindaceae.)

SOHMIDELIA. Z\**nw.*-GEN. CHAR. Flowers polygamo-diacious, sepals 4 in two opposite pairs membranous, cucullate, broadly imbricated, **the two** outer ones smaller than the others, petals 4, small or absent, glabrous or villose internally. Disk unilateral, entire or lobed or with a gland opposite\* each petal, stamens excentric or subcentric, included or shortly exserted, ovary excentric, single and 1-celled or didymous and 2-celled, rarely 3-lobed and 3-celled, style robust, divided sometimes to the base into 2 or 3 lobes, ovules solitary in the cells, ascending from the base, cocci of the fruit one or two, turbinate or subgloboae, dry and coriaceous or fleshy, seeds erect, with a short fleshy arillus, embryo curved, the cotyledons conduplicate. Trees or shrubs.—Ornitrophe, *Juss.* Allophyllus, *linn.* Aporetica, *Font.*

**SCHMIDELIA HISPIDA. (Thw.) A small tree branches hispid, leaves simple 5-14 inches long by 2-5 inches broad, lanceolate acuminate rounded at the base or slightly narrowed, glabrous but hispid at the margin and on the costa and primary veins on both sides, petiole f-2 inches long, racemes very short, flowers crowded, petals unguiculate, scales furnished with long villous hairs, Thw. En. PI Zey. p. 55.**

*A small tree, moist forests in Ceylon, at an elevation of 1000-2000 feet. The drawing and analysis are from Dr. Thwaites.*





73?

*Glomicea Cymbarica* (Hook. & Pl.)

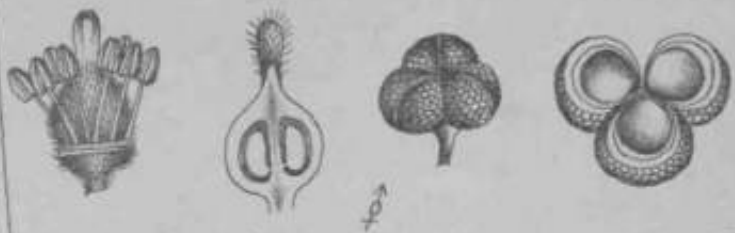
Samuel J. Cook

**GLENNIEA ZEYLANICA. (Nat. order Sapiadace\*.)**

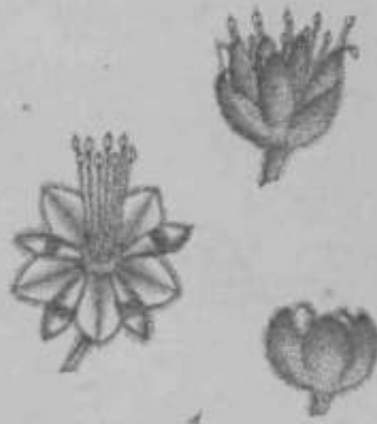
GLENNIEA. *Hook, fil*— GEN. CHAR. Flowers regular polygamous, calyx 5-lobed, lobes acute valvate, petals very minute broader than long shortly unguiculate concave villous, disk complete expanded fleshy glabrous lobed, stamens 8-10 inserted regularly round the ovary filaments short subulate, anthers short didymous, ovary ovoid, puberulous 3 celled, attenuated into a very short conical style, stigmas 3 shortly 2-lobed, ovules solitary in the cells, fruit obscurely lobed, 3-celled 3 seeded (or by abortion 1-2-celled 1-2-seeded), seed subglobose, aril 0. A large tree, leaves alternate pinnate, leaflets 1-2 pair, racemes simple or branched, leaf opposed, flowers small pubescent. \*

GLENNIEA ZEYLANICA. (Hook, fil.) A large tree, leaves (turning black in drying) alternate pinnate, petioles terete tumid at the base, leaflets 1-2 pair with or without a terminal odd one, glabrous lanceolate reticulate obtusely acuminate, 3-5 inches long by 1½-2 inches broad, petiolules tumid 2-3 lines longer, racemes simple or branched subterminal, leaf-opposed, minutely pilose, fruit 1½ inches in diameter, subglobose and obscure, lobed. *Hook, fil Gen. Pl. 1 p. 404. Sapindus unijugus, Thw. En. Pl. Zey. p- 56, and Nephelium fuscatum, p. 57. Glenniea, p. 408.*

*A large tree, Ceylon, Trincomalee, and on the mountains up to 4000 feet elevation ; the drawing of the branch is from Dr. Thwaites; the analysis is taken from dried flowers,*



♂



♀



*Sapindus emarginatus* (Vahl)

Samuel Dale

Samuel Dale

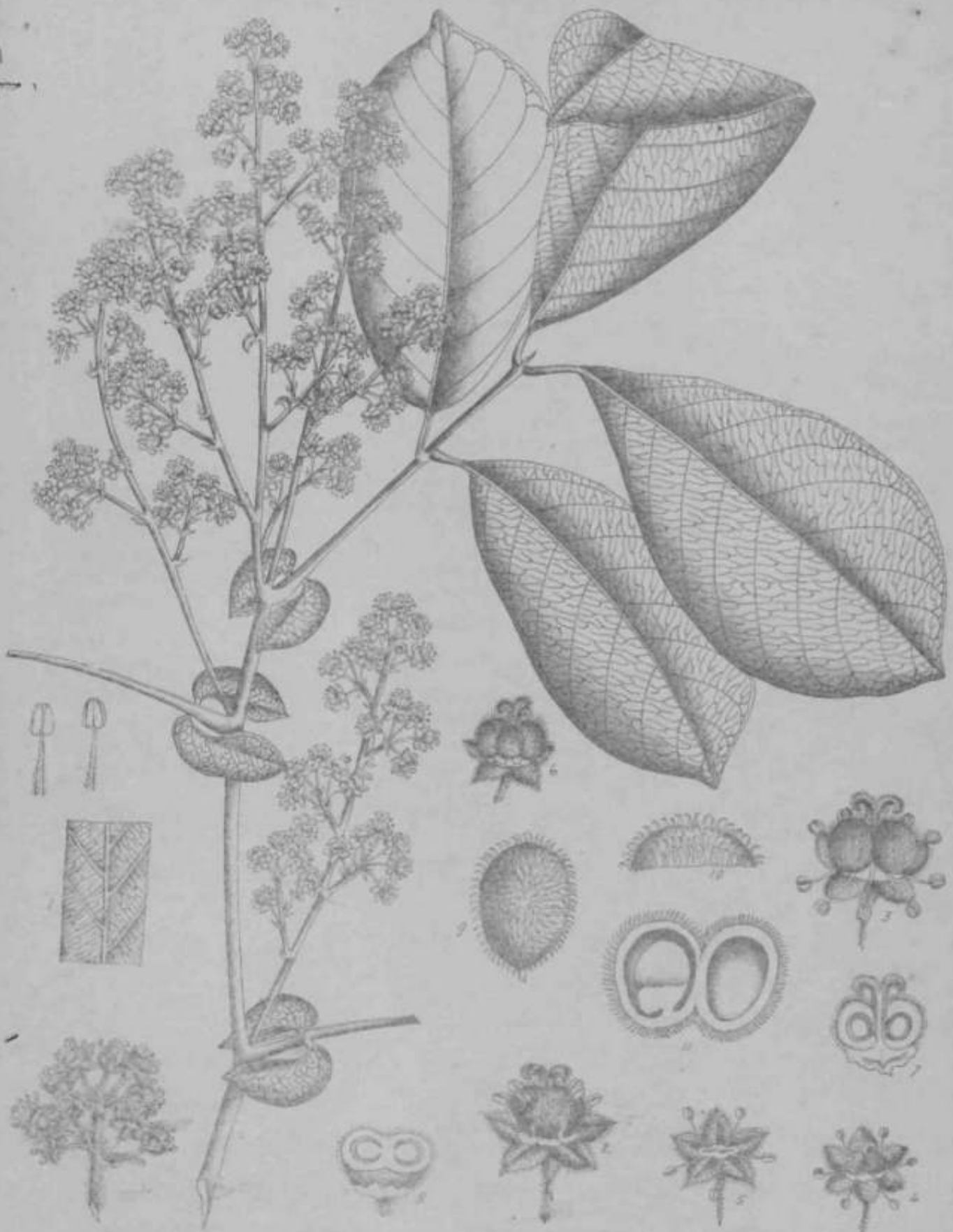
### SAPINDUS EMARGINATUS. (Nat. order Sapindaceae.)

SAPINDUS. linn.—GEN. CHAR. Flowers polygamous, regular, sepals 4-5, biseriata, broadly imbricated, petals 4-5, scaleless or furnished with 1 or 2 scales above the claw, disk complete, annular, stamens usually 8-10, central, the filaments usually pilose, anthers versatile, ovary entire or 2-4 lobed 2-4 celled, style terminal, stigma 2-4 lobed, ovules solitary in the cell?, ascending from the interior angle at the base, fruit fleshy or coriaceous, usually with 1-2 cocci, which are oblong or globose, and indehiscent. Seeds usually globose, exarillate, with a crustaceous or membranous testa. Embryo straight or curved, the cotyledons thick, the radicle incurved. Trees. -Aphania, *Blume*. Dydimococcus, *Blume*.

SAPINDUS EMARGINATUS. (Vahl.) A middling sized tree with a short trunk and a very large dense spreading head and a deep green foliage, leaves alternate abruptly pinnate 6-8 inches long, petiole terete pubescent on the upper side, leaflets 2-3 opposite or subopposite pair, oblong entire with a rounded emarginate apex, prominently reticulated particularly beneath, shining above and glabrous on both sides or downy beneath, 4-5 inches long by 1 ½-2 broad, petiolules 2-3 lines long slightly pubescent, panicles terminal much branched, flowers small whitish inodorous, bracts small caducous, sepals and petals 5 the latter hairy on the outside and furnished with 2 inflexed woolly scales about the middle, or the scales are absent and the hairs only present, filaments 8, alternately a little shorter in the male flowers, fruit with 3 rarely 4 cocci, smooth at first but wrinkled in age, seeds dark colored size of a large pea and very ban\*. *Roxb. Fl. Ind. ii. 279*; - *Vahl. Symh 3. H*; - *Wight III t. 51*.

The specimen figured is from the Anamallay forests, and having only male flowers, I have taken the drawing of the fertile flower and fruit from Dr. Wight's plate in his *Illustrations*,

*A handsome tree common in many forests in the plains and subalpine regions of this Presidency and in Mysore, Bombay, Bengal Birmah and Ceylon, it is called Retha in Hindustani, Konkudn in Teligoo, Puvandi and Ponnanga in Tamil, Puvella in Singhalese and Haikhyae in Birmese; the berries are saponaceous and are used with the other species as soap by the natives, and all the species are called soap nut trees by Europeans; the root, bark and fruit are used medicinally by the natives and are said to have virtue in epilepsy, and an oil is extracted from the nut; the wood is occasionally used by the natives for ordinary purposes, such as posts, doorframes, and the construction of carts; it is pale yellowish, close and prettily grained, hard, but not durable, and cracks if exposed, and is said not to work easily; unseasoned it weighs 75 to 80 lbs. the cubic foot, and 64 lbs. when seasoned; its specific gravity is .928. Sapindus detergent, Roxb, a Bengal tree, is probably not specifically distinct from this species.*



Handwritten text, possibly a collector's name or date.

*Nephelium lappaceum* (Reddy)

Handwritten text, possibly the artist's name.

NEPHELIUM STIPULACEUM. (Nat. order Sapindacere.)

Nephelium, Linn.—For Gen. Char, see Manual.

NEPHELIUM STIPULACEUM (Bedd.) A middling sized tree, leaves glabrous abruptly pinnate, 6-14 inches long, the lowest pair opposite, quite at the base of the common petiole, very small obliquely curved and stipuliform, the alternate opposite or subopposite oblong obtusely or rather sharply pointed slightly attenuated and oblique at the base, glabrous on both sides pale or glaucous beneath and there furnished with small round pit-like glands in the axils of the primary veins, 3-6 inches broad, panicles axillary and terminal slightly pilose, a little shorter than the leaves, flowers polygamo-dieecious 5-6 parted in a single series, lobes distinct or nearly distinct subvalvate, stamens 5-9, only slightly exerted, ovary 2-3 celled, style 2-3 parted, lobes recurved, fruit oval (only 1 carpel coming to maturity) the size of a large gooseberry densely covered with weak prickles, seed oblong half covered with the succulent aril, testa brown, cotyledons very large fleshy. *Bedd. in Linn. TrZ. vol. xxv. and hoes 1% Lnd. Orient. Part VI. tab cm. page 21.*

*A handsome tree, rather rare in the moist forests in Malabar and on the Anamallays; the wood is strong and serviceable.*

*Analysis.*

- I. A small portion of the leaf, underneath view to show the glandular pits in the axis of the primary veins.
- 2, 3, 4. & 5. Magnified views of the apetalous flower, showing 5, 6, and 9 stamens and 2 lobed ovaries.
6. A flower with a 3-lobed ovary,
7. Ovary cut vertically.
8. The same cut horizontally.
9. The fruit, natural size.
10. Magnified view of the mmmricated rind of the fruit.
- II. Fruit opened.



*Euphorbia longicaulis* (Roxb.)

Dumort. & Sch.

## EUPHORIA LONGANA. (Nat. order Sapindaceae.)

**EUPHORIA**. —GEN. CHAJT. Flowers regular, polygamous, sepals 5, distinct, imbricate or valvate in the bud, petals none or as many as sepals, deeply 2 or 3-lobed, or divided to the base into distinct styles, fruit deeply 2 or 3-lobed, or reduced to a single carpel, indehiscent, often tuberculate, seeds enclosed in a pulpy arillus; testa coriaceous, cotyledons thick. Trees, with the young shoots pinnate, leaflets as in *Nephelium*, but in *E* species toothed; flowers small in terminal panicles.—See Manual under the genus *Nephelium*.

**EUPHORIA LONGANA.** (Roxb.) A rather large tree with a short straight trunk and a dense globular head polygamous, leaves alternate abruptly pinnate 6-10 inches long, leaflets 2-4 pair glabrous above, more or less hoary and pubescent beneath, (as are the young shoots and panicles) coriaceous entire, from ovate-lanceolate to oblongo-lanceolate, often very oblique at the base obtuse or acute at the apex and sometimes mucronate, 2-9 inches long by 1-2½ broad, veins pinnate prominent, petiolules 2-5 resolute panicles terminal and from the upper axils, flowers small pale yellowish-white, male and hermaphrodite mixed in the same panicle calyx deeply 5-parted hoary or downy on both sides, petals 5 inserted between the calyx-lobes and the disk, scaleless, narrow linear-lanceolate, hairy, much longer in the male than in the hermaphrodite, stamens hairy generally 10 in the male and 8 in the hermaphrodite (sometimes only 8 and 6), in the former longer than the petals, in the latter with very short filaments, ovary hairy 2-3 lobed, like same number, fruit of 1-3 (generally only 1) cocci about the size of a cherry, from nearly smooth or more or less hoary or pubescent to grossly tuberculate and warted, aril edible.—*Scytale longana*, Roxb. *FL Ind.* ii. p. 270. *Euphoria longana*, Lam\* DC. *P. d-lp*\* 611. *Dimocarpus longana*, Lour. *Nephelium longanum*, Comb.

*A handsome tree, common in all the jungles (up to 3,000 feet) on the west side of the Madras Presidency, in Mysore Bombay, Eastern Bengal, Ceylon and in China; the description is drawn up from copious specimens collected in South Canara, the Anamallays, the Sivagherry hills, Courtallum and Ceylon; in S. Canara the tree is called Mai dhcodt, at Courtallum Poond, in the Bombay Presidency Wumb, Ceylon Mora; the Chinese name is Longan, (hence Roxburgh's specific name, he having first received the tree from China); the wood is said to be hard close grained and white and worth attention, but I have not seen it in use; the succulent aril of the seed is an agreeable acid and something like the Litchu As a genus it should not I think be kept distinct from Nephelium. The drawing is from a specimen gathered on the Tinnevely mountains at 2500 feet elevation, and the leaves are more acuminate than in most of the farms. Analysis is given of male and hermaphrodite flowers, the former with 10 stamens, the latter with 8 only.*

### Analysis,

1. A male flower showing 10 stamens, petals and stamens, much larger than the calyx.
2. A petal.
3. Abortive ovary.
4. Anthers.
5. Female flower, stamens removed, showing the ovary, disk and short petals.
6. The same, showing the short stamens, 9 in number.
7. Anthers.
8. A 3-lobed ovary.
9. A 2-lobed ovary.
10. Ovary cut vertically.
11. A 3-celled ovary cut horizontally.
12. A 2-celled ovary cut horizontally.





*Pometia pinnata*  
Thunb.

*Pometia pinnata* (Thunb.)

Swamy del.

POMETIA EXIMIA. (Nat. order SapindaceaeB.)

POMETIA, *Font.-QEX.* CHAR. Flowers regular polygamo-disceious, calyx small cupular 4-5 fid, teeth erect valvate, petals 4-5 without scales, disk complete, stamens 4-8 central very long and exserted, anthers small, ovary deeply 2-3 lobed, 2-3 celled, style short or elongate, stigma small, ovules solitary in the cells ascending from the base of the axis, fruit of 1-2 globose or ovoid indehiscent cocci, seed nearly covered with an aril, embryo conduplicate; lofty trees glabrous or tomentose, leaves alternate pinnate, leaflets subsessile serrate, the lowest pair small and stipuliform, racemes simple or paniculate slender elongate, flowers small. *Font Prod.* v. 74 (partly). *Irina*, *Blum Bijdr.* 230, *Eccremanthus*, *Thw. in Hook. Kew. Journ.* vii. 272 U 9.

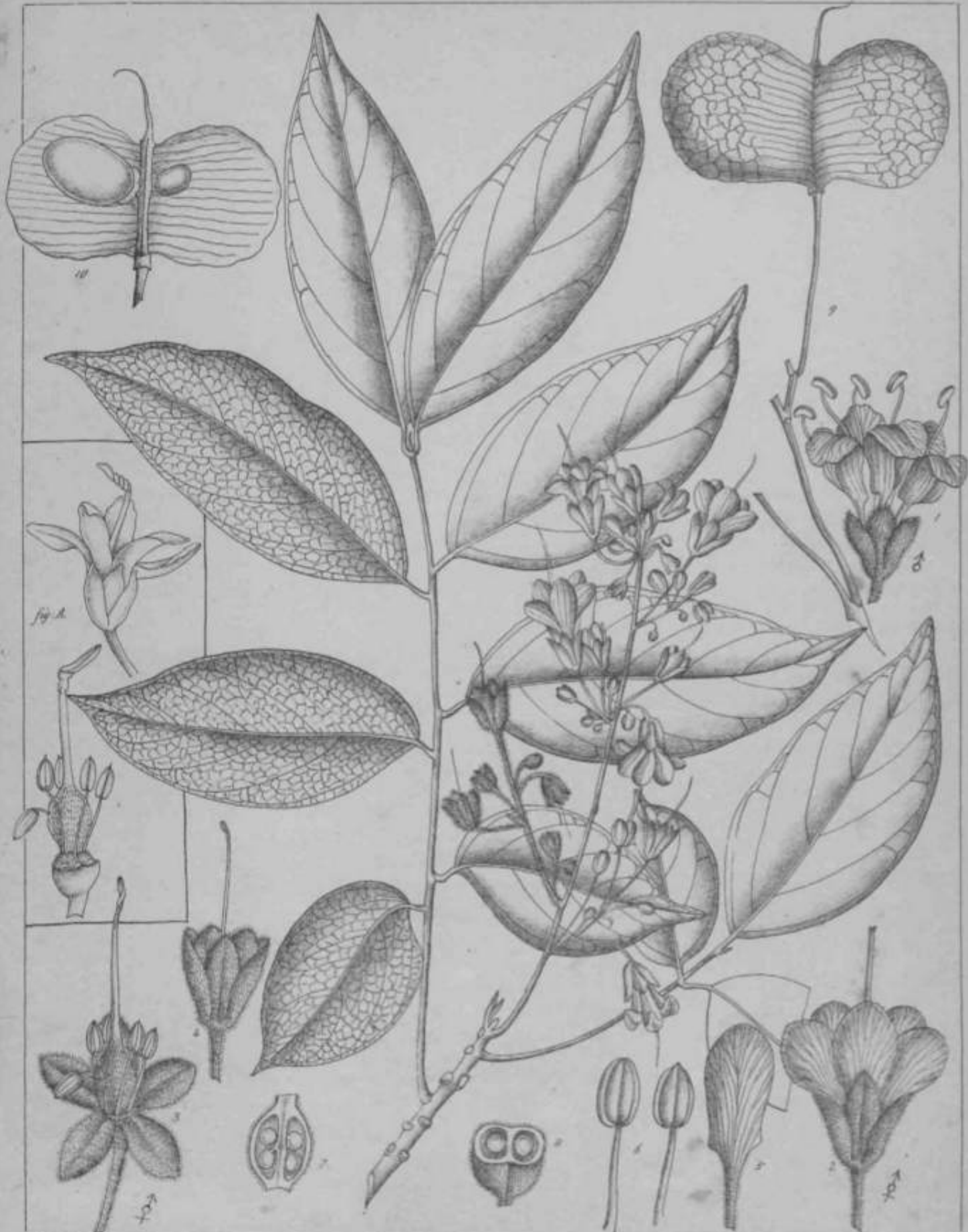
*See Manual under the Genus Nephidium.*

POMETIA EXIMIA. (Thw.) A large tree 40-60 feet, young branches rufo-hirsute, leaves large abruptly pinnate subsessile, leaflets 5-13 pair oblongo-lanceolate serrate subsessile, hirsute beneath, the lowest pair very small and stipule-like, oblique, curved and often deciduous, panicles tomentose, branches elongate pendulous many flowered cylindrical, flowers minute 5-merous, calyx-segments short subacute, petals small not clawed, transversely oblong not furnished with scales but with a transverse hairy line near the apex on the inside, disk fleshy reddish, stamens 5 inserted on to the centre of the disk, in the male flowers very long and exserted, short and only slightly exserted in the hermaphrodite flowers, ovary 2 lobed hirsute, style linear, stigma minute 2 lobed, fruit fleshy subglabrous, generally 1 lobed, seed oblong nearly covered with the aril, hilum large oblique, testa red. *Thw. En. Pi Zey.* 2. 57, and in *Hook. Journ. of Bot.* vii. p. 272. t. 9.

*This tree has only been found in Ceylon (elevation 1000-2000 feet) ; it flowers in May and fruits in July.*

*Analysis.*

- 1, 2. Male flower, front and back view (much magnified.)
3. A petal showing the line of hairs near its apex on the inner face.
4. Anther, back view.
5. Anther, front view.
6. Hermaphrodite flower.
7. The same petals and stamens removed to show the ovary.
8. Ovary cut vertically.
- 9, 10, 11, 12. Fruit, seed, &c (Figures 9 to 12 from a drawing by Dr. Thwaites).



Guindro. 1866

*Xerophyllum intricatum* (Blanco)

Lampy. 1866

## HARPULLIA IMBRICATA. (Nat. order Sapindacera.)

HARPULLIA, *Rocob*.— GEN. CHAR. Flowers regular, polygamous. Sepals 4 or 5. Petals as many, without any scale, but sometimes\* with inflected auricles at the base of the lamina. Disk inconspicuous. Stamens 5 to 8. Ovary 2-celled, with 1-2 ovules in each cell; style short, or elongated and spirally twisted. Capsule coriaceous, somewhat compressed, with 2 turgid lobes opening loculicidally in 2 valves. Seeds 1 or 2 in each cell, with or without an arillus; cotyledons thick. Trees, leaves pinnate; leaflets usually large, the primary veins prominent underneath. Flowers in loose terminal little-branched panicles, sometimes reduced to simple racemes. Capsule usually large, red or orange-colored.— *Strep* to stigma, *Thw.* Otonychium, *Blume*, ? *Blancoa*, *Blume*. *Tina*, *Blume*. *Dauatophorus*, *Zippel*.

*Barpullia cupanioides*, *Roxb. PL 2nd. ii. p. 645*, is a nearly allied species found in North India; it differs chiefly in the ovary being only 1-celled, in its large entire aril, and bifid stigma; it is called Harpulli in Chittagong.

**HARPULLIA IMBRICATA.** (Blume.) A large tree, much branched, young parts petioles and panicles slightly velvety pubescent, leaves alternate abruptly pinnate 10-16 inch long, leaflets 3-5 pair generally alternate sometimes opposite or sub-opposite membranaceous, pinnateveined (primary veins inconspicuous above, prominent beneath) entire ovate from generally an oblique base, to oblong ovate acute or acuminate, generally glabrous on both sides except the costa beneath, but sometimes *tho* *Cos* *fa* above and primary veins beneath are pubescent, 2-7 inches long by 1-2 inches broad, petiolules 2-3 lines long, panicles lax, flowers green, in the hermaphrodite ovary hairy, cells 2-ovuled, stigma generally twisted, sometimes entire or sub-entire, stamens included; in the male, stamens much exerted. Capsule glabrous 2-2½ inches broad *h* or less than that in length, bright orange in color, 2 lobed depressed between the lobes and apiculate with, the remains of the style, lobes much inflated generally 2 (sometimes 1) seeded, seed black furnished with a small aril, seldom more than 1 in each capsule coming to maturity.—Otonychium imbricatum, *Bl. Rumpkia. iii. 180.* Streptostigma viridiflorum, *Thw. in Hook Journ. of Bot. vol. vi. p. 298. t. 94.*

*This very beautiful tree is common in the western moist forests of this Presidency from Canara down to Cape Comorin, and it ascend\* the mountains to about 3500 feet elevation; when covered with its brilliant orange fruit it is a beautiful sight on the ghats in Malabar and Canara? it is also found in Ceylon. I have never seen the stigma so much twisted in the Indian plant as it is in the Ceylon one (fig. A is a drawing of a flower by Dr. Thwaites from a Ceylon specimen J, and it is sometimes not at all twisted; the tree flowers in the cold season and ripens its fruit in March and April I know nothing of the timber.*

### Analysis.

1. A male flower showing the exerted stamens.
2. Hermaphrodite flower.
3. Same, petals removed and calyx opened out to show disk, stamens, ovary and twisted style.
4. Hermaphrodite flower, petals removed, showing a style not twisted.
5. A petal.
6. Anthers, front and back view.
7. Ovary cut vertically, showing the 2 superposed ovules in each cell.
8. The same cut horizontally.
9. A fruit.
10. One of the valves of the capsule showing 2 seeds with their small arils (the other 2 seeds adhering to the other valve.) The three lower leaflets on the left side of the branch represent the upper surface, the other leaflets with more prominent primary veins the lower surface; the flowering branch is from a hermaphrodite tree.



Wight & Gilchrist del.

*Turpinia Nepalensis* (Wall.)

Thompson Lith.

### TURPINIA NEPALENSIS. (Nat. order Sapindales.)

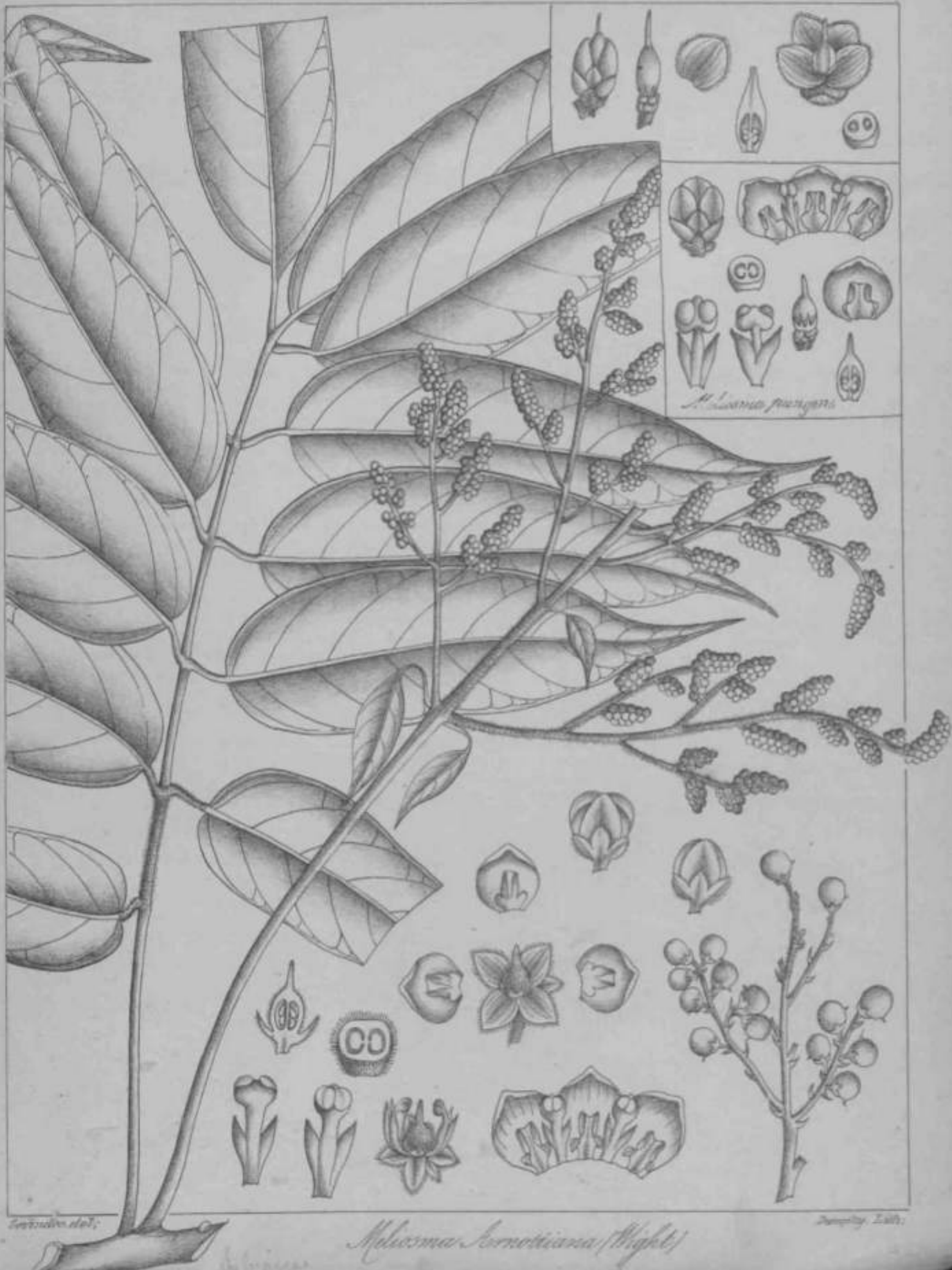
**TURPINIA.** Teit.—GEN. CHAR. Flowers regular hermaphrodite, calyx 5-lobed imbricate persistent, petals 5 sessile imbricate, disk raised crenate or lobed, stamens 5 inserted under margin of the disk and between its lobes, ovary sessile 3-lobed 3-celled, styles 3 combined or free, stigmas subcapitate, ovules 2 in each cell or many in 2 series ascending anatropal. Fruit subglobose fleshy or coriaceous crowned with the scars of the styles, 3 celled or fewer by abortion, seed pendulous or fixed horizontally to the axis angled compressed, testa crustaceous or bony, hilum large, albumen fleshy, embryo straight, cotyledons plano-convex. Trees or shrubs glabrous, leaves opposite unequally-pinnate (or very rarely simple), stipules interpetiolar early deciduous, leaflets opposite serrate, flowers small in axillary or terminal panicles.—Dairymplea, *Moxb.* Lapeceaea, *E.B.K.* Ochrantha, *Lindl.* Eyrea, *Champ.* Triceraria, *Willd.*

**TURPINIA NEPALENSIS.** (Wall.) A good sized spreading evergreen tree, young parts generally very minutely puberulous (under the lens), leaves trifoliate or unequally pinnate 4-7 inches long furnished with interpetiolar stipules which are early deciduous, leaflets 1-2 opposite pair with an odd one, ovate to elliptic, acuminate rather coriaceous toothed or rarely entire quite glabrous on both sides 2-3 inches long J to \ broad, petiolules 2-3 lines long, stipules small acute, panicles in the axils of the upper leaves, from shorter to a little longer than the leaves trichotomous, minutely bracteoid, flowers numerous small greenish yellow, calyx very minutely ciliate and slightly puberulous on both sides, tinted with red on the outside, petals ciliate and hairy on the inside glabrous or very minutely puberulous outside, glands of the disk yellow, filaments glabrous, ovary 3 lobed with 3 styles, lobes and styles combined but easily separable when young, ovules 2-3 in each cell, fruit globular or subglobular, the 3 lobes of the ovary quite consolidated into one, more or less 3-pointed with the remains of the styles, very variable in size, generally not larger than a pen, sometimes up to 1 inch in diameter. *Wall L. n. 4277 j—Wight hoes 972.*

*A common tree on the mountains all over India and Ceylon, also found in Hongkong; it is occasionally found in very low elevations not much above sea level; it is particularly common about Ootacamund at 7000 feet; it is called Neeld by the Burghers on the Nilgiris, and Kankoombala and Allakirilla in Ceylon.*

#### *Analysis.*

1. Apex of a very young branch showing one of the interpetiolar stipules, the scar of another, and the minute stipules.
2. A young bud,
3. A flower.
4. The same open, showing the ciliate calyx and hairy petals.
5. A flower, petal\* and 3 stamens removed, showing the lobed disk, insertion of the stamens, and the 3 ovaries (closely attached.)
6. A petal.
7. Anthers, front and back view.
8. Vertical section of the ovary showing the insertion of the ovules.
9. Transverse section showing the cells 2 ovuled.
10. A small portion of a fruit-branch.



*Melasma purpurina*

Scribble del.

*Melasma hornemannii* (Wight)

Dumortier del.

### MELIOSMA ARNOTTIANA. (Nat. ord. Sabiaceae.)

MELIOSMA, *Blume*.—GEN. CHAR. Flowers herniathrodite or polygamo-disecious, sepals 4-5 unequal or sub-equal imbricate, petals 4-5 opposite the sepal\*, very unequal, 3 exterior orbicular concave, 2 interior small flat sometimes bifid, disk cupular 3-8 toothed, teeth sometimes bifid, stamens 5 inserted outside the base of the disk opposite the petals, very unequal free or cohering with the base of the petals, the 2 larger perfect, the 3 sterile opposite the large petals, filaments flat, anthers large globose didymous, cells dehiscing by a large opening, connective much dilated saucer\* shaped, ovary sessile 2-3 celled, style simple sulcate short and thick, stigma simple or 2-3 fid, ovules 2 in each cell superposed horizontal or pendulous, micropyle inferior, drupe obliquely subglobose, endocarp bony or crustaceous 1-celled 1-seeded (rarely 2-celled), seed with a small cavity on one side near the base, testa membranaceous, cotyledons conduplicate, radicle incurved. Trees or shrubs generally pilose or pubescent, leaves alternate simple or pinnate, leaflets entire or serrate, racemes compound thyriform many flowered generally bracteate, fruit small pea like.—*Millingtonia*, *Roxb. Fl. 2nd. 1. 102.* *Oligostemon*, *Turcz. Lorenzana*, *Liebm. Kingsboroughia*, *Zjebm.*

*A genus of very curious structure, Roxburgh and some other botanists have described it as with 2 stamens and 3 petals, the bifid petals and sterile stamens being considered nectaries. Besides the 3 specie\* described in this flora, which are all most abundant in thü Presidency, 2 ivhahit Bengal, M. pinnata, Roxb. ; and dilleniifolia, Wall.*

MELIOSMA ARNOTTIANA. (Wight.) A large tree with a very spreading head, leaves unequally pinnate 8-16 inches long, leaflets 5-7 opposite or sub-opposite pair, ovate-oblong with a long acumination, coriaceous quite entire glabrous above or the costa pubescent, densely pubescent or glabrous except the costa beneath, 2½-5½ inches long by J-J broadi petiolules 3-6 lines long, panicles axillary large covered with much rusty pubescence, often furnished with large leaf-like bractes below the lower or 2 lower ramifications, flowers very small and as in the generic character, calyx-segments more or less unequal generally 4 equal or sub-equal and the 5th very much smaller, style persistent and spinuliform nearly at the base of the fruit—*Millingtonia Arnottiaua*, *Wight III. p. 141 and tab. 53.* *Sapindus ? microcarpus*, *WA. Prod. p. 112.*

*A very common tree in Southern India and Ceylon at 4000 feet and upwards ; it is very abundant at Conoor on the Nilgiris, and is a most beautiful sight in June when in full blossom, its whitish panicles forming a perfect sheet of flowers over the top of the tee ; it is also a very conspicuous tree when in flower in the mountain sholas on the Annamallays. It is called by the Bvrghers on the Nilgiris Huli makay (tiger-Hie), the heart-wood of very old trees being striped reddish and white ; the timber is worthless, being spongy and light, but is occasionally used for rafters and as firewood.*





Herbar. Bot.

Rubiac.

*Eyle maculata* (Linn.)

W. & A. G. & C.

**ÆGLE MARMELOS. (Nat. ord. Rutacea.)**

**ÆGLE**, Comer. ←GEN. CHAR. Flowers hermaphrodite, calyx small 4-5 toothed deciduous, petals 4-5 oblongo-lanceolate patent imbricate. Stamens numerous, filaments short subulate, anthers elongate erect, disk inconspicuous, ovary ovoid 3-15 celled attenuated into a Beak style, stigma oblong deciduous, ovules many in each cell in 2 rows, berry globose, rind woody, 8-15 celled, cells many seeded replete with mucous juice, seed oblong compressed, testa woolly and covered with slime. Trees, spinose, leaves 3-foliolate, leaflets slightly crenulate, pellucidly punctate, panicles axillary few-flowered, flowers rather large white, fruit large, pulp edible.

**ÆGLE** MARMELOS. (Corr.) A good sized tree, trunk pretty erect, bark ash-colored, branches few and irregular, spines axillary single or in pairs, or wanting, very sharp and strong, leaves trifoliolate (rarely pinnate with 5 leaflets ), leaflets glabrous or pubescent oblong or broad lanceolate attenuated to a blunt point, inconspicuously crenulate, the exterior one always the largest, panicle small terminal and axillary, flowers, &c. as in the generic character, fruit about the size of a cricket ball round and very hard. *Soxb. FL Ind. ii. p. 579.*

*This is the well known Bel tree, it is common in a cultivated state throughout India, and is met with wild in many of our subalpine forests, but the wild variety has a far inferior fruit (one variety on the Bmkinacottah hills, Salem, has densely pubescent foliage); it is called Bel in Hindustani, Vilva in Tamil, and Maredu in Telugu; it ascends the mountains to about 4000 feet. The wood is light colored and variegated, compact and hard, but it is seldom cut for timber. In the Godavery forests the native drum is often made from it, and in some parts it is used for the naves of wheels and sugar crushers; the juice of the fruit makes a delicious eherbat, and is much drunk in Bengal as a hot weather beverage, it has aperient and detersive properties, and is considered a most useful drink in diarrhoea and dysentery, as it also acts as an astringent; the bark and root also are in use medicinally with the natives.*



W. Smith del.

*Mangifera Indica, Linn.*

J. Smith sculp.

**MANGIFERA INDICA. (Nat. ord. Anacardiaceae\*)**

**MANGIFERA, Zinn.—GEN. CHAR.** Flowers polygamous or discious, calyx 4-5 partite imbricate deciduous, petals 4-5 imbricate inserted below the disk furnished on the inside with a lobed glandular scale or crest, stamens arising from the disk 1 (or rarely 2) fertile with a subulate fleshy filament about as long as the style, 3-4 (or rarely more) sterile slender minute tipped with a gland, disk thick fleshy 4-5 lobed, ovary free or its base immersed in the disk, sessile fleshy oblique, 1-celled 1-ovuled, ovule ascending from the side a little above the base, style lateral, stigma simple, drupe generally subreniform ovoid or globose but very variable in shape and size fleshy, putamen woody fibrous indehiscent or 2 valved, seed compressed, cotyledons plano-convex, thick fleshy often lobed, radicle inferior ascending. Trees, leaves alternate petioled simple entire coriaceous, panicles terminal branched bracteate, flowers small.

**MANGIFERA INDICA. (Linn.)** A large tree up to 15 feet in girth, with an erect trunk covered with dark colored scabrous cracked bark, branches very numerous, leaves generally about the extremities of the branches lanceolate, often more or less waved at the margin, acute or acuminate, coriaceous glabrous and shining, 6-12 inches long by 1-2 inches broad, petioles 1-2 inches long, panicles terminal always much branched often very compound puberulous or glabrous, flowers small yellowish with stripes of red near the base of the petals, male and hermaphrodite mixed in the same panicle, calyx segments 5 oblong concave, petals 5 lanceolate twice as long as the calyx, disk of 5 large yellow fleshy lobes surrounding the base of the ovary, each lobe as large as the ovary, fertile anther purple, sterile filaments 2-3-4 or more. *Linn;—Willd. Sp.* 1. 1150.

*This is the well known Mango tree ; it grows to an immense size in all our mountain forests up to 4000 feet elevation, generally in ravines and on the banks of streams ; the tree is most variable in the length and breadth of its leaves and form of its panicles, and the cultivated varieties differ wonderfully in the shape and size of the fruit the tree generally flowers during the first 3 months of the year, and the fruit ripens during the next three ; the wood is coarse and open grained, of a dull grey color, not durable, and soon attacked by insects; a cubic foot unseasoned weighs 52-58 lbs, and when seasoned 42 lbs, and the specific gravity is .672 ; it is much in use for coffee cases, &c. and for planks ; and the natives use it for building purposes; a gum exudes from the trunk. The tree is cultivated throughout tropical Asia, but really good fruit is seldom found except on grafted trees. It is called *Ami* in Hindustani, *Mā* in Tamil, *Mdmadi* in Tehgu, and *Attamba* and *Amba* in Ceylon.*



Am. Acad. Sci.

Harvey. 1847.

*Anacardium occidentale* (Linn.)

## ANACARDIUM OCCIDENTALE. (Nat. ord. Anacardiaceae.)

ANACARDIUM, *Roxb.*— GEN. CHAR. Flowers polygamous, calyx 5-partite, segments imbricate erect deciduous, petals 5 narrow imbricate, disk filling up nearly the whole of the tube of the calyx and combining the base of the stamens and petals, stamens 8-10 unequal all or 1-4 only fertile filaments joined together at the base, ovary free sessile obovate or obcordate, style oblique filiform, stigma punctiform, ovule pendulous from the funicle which ascends from the side of the cell near the base, nut reniform oblique, supported on a fleshy pear-shaped enlargement of the torus and pedicel\* indehiscent, pericarp thick, containing in its substance cells full of an acrid oil, seed reniform ascending, testa membranaceous adhering, cotyledons semilunate, fleshy, plano-convex, radicle short uncinata. Trees or shrubs, leaves alternate, petiolate simple coriaceous entire, panicles terminal, corymbose-branched bracteate, flowers small—*Acajuba*, *Qcertn. Fvuct. t. 40.* *Cassuviuin, Lam. Diet. 1. 22.* *Rhinocarpus, Bert. Monodynamus, Pold.*

ANACARDIUM OCCIDENTALE. (Linn.) A middling sized or small tree, trunk short thick and crooked, bark rough and cracked, branches numerous spreading in every direction, leaves oval to obovate rounded or rather emarginate at the apex often, narrowed towards the base glabrous on both sides, rather coriaceous, 4-8 inches long, 2-4 broad, petiole 2-12 lines long, panicles terminal bearing often both male and hermaphrodite flowers, bracts gibbous lanceolate, calyx slightly hairy, petals linear lanceolate revolute slightly hairy on the outside, pale yellow in color streaked with pink, filaments generally 9 sterile and 1 fertile, the latter very much longer or sometimes only slightly longer than the others, in the male flower there is hardly any rudiment of an ovary but a style various in length sometimes as large as in the fertile flower with a 2 cleft apex. Ovary in the fertile flowers obcordate, stigma punctiform. *Linn ;—DC. Prod. ii. 62.*

*This is the well known Cashew nut tree, indigenous to tropical America, but long since thoroughly established all over India near the sea coast, the timber is of no value, but is occasionally used for packing cases, Ac, and makes excellent charcoal; the pericarp of the nut contains an acrid oil which is used medicinally, it is very caustic, and will raise blisters on the shin; a transparent gum exudes from the trunk, not inferior to gum Arabic, which is in use as a varnish, and is said to keep off insects; and in S. America book binders wash their books\* with a solution of it;—the kernels are very nice when roasted and are well known as a dessert dish in India, and they yield an oil; the enlarged crimson colored pedicel to the fruit is also eaten and has an agreeable acidulous subastringent flavor; the tree is called Edju in Hindustani.*



Wright, 1842

*Angustifolia*

*Notopegia Colobrocarina* (Night)

Wright, 1842

NOTHOPEGIA COLKBROOKIANA. (Nat. order Anacardiaceae.)

For Gen. Char, see Manual under head of this genus.

NOTHOPEGIA COLEBROOKIANA. (Wight.) A small tree, leaves coriaceous oblong to obovate entire acute or ending in a short abrupt acumens parallelly veined glabrous, racemes axillary or from the axils of fallen leaves much shorter than the leaves many flowered, flowers small white, petals linear oblong, drupe size of a cherry transversely oblong filled with sweet eatable pulp.—Pegia? Colebrookiana, *Wight Leones tab. 236*. *Glycyarpus racemosus, DalzAn Hook. Journ. Bot. ii. p. 39*. *Nothopegia, BlumeMus. Bot. i. 203*.

*Common in all the Western ghat forests of this Presidency and Bombay, and also in Ceylon ; called in Bombay Amberee, and in Ceylon Bald. The drawing is from the pencil of Dr. Thwaites, and was taken from a Ceylon specimen.*

*Analysis.*

1. Flowering branch female tree.
2. The same of the male tree.
3. A male flower.
4. Hermaphrodite flower.
5. The same petals removed.
6. The same cut vertically.
7. A fruit branch.
8. Fruit cut vertically.



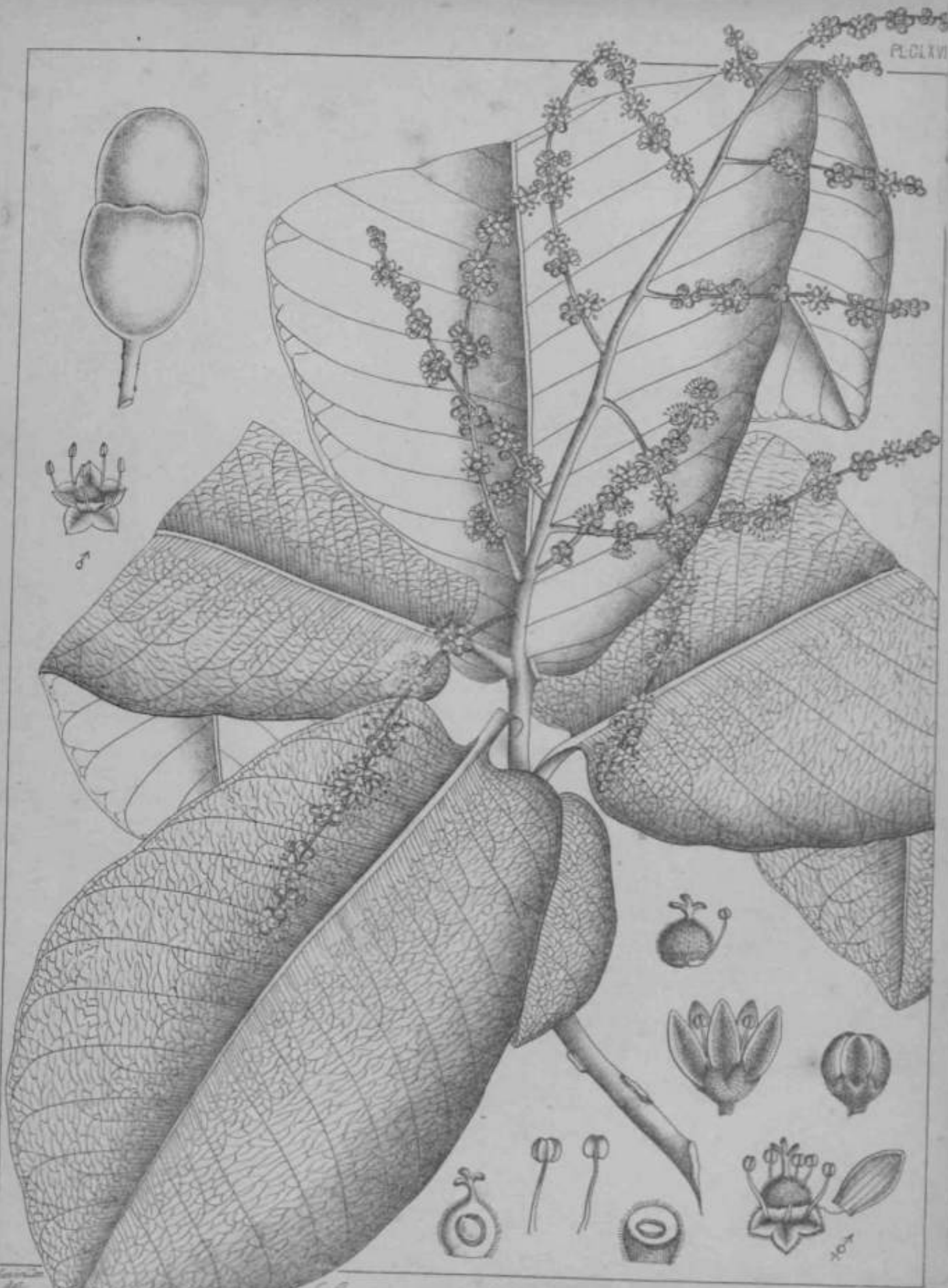


**BUCHANANIA LATIFOLIA. (Nat. order Anacardiaceae)**

**BUCHANANIA, Roxb.—GEN. CHAR.** Flowers hermaphrodite. Calyx short, obtusely 3 to 5-toothed. Petals 5, imbricate in the bud. Disk orbicular, crenate. Stamens 10, inserted round the disk. Gynsecium of 5 or 6 distinct carpels, of which one only perfect, the others rudimentary and style-like; style of the perfect one short, with a truncate stigma; ovule suspended from an erect filiform funicle. Drupe email, the putamen crustaceous or bony, 2-valved. Seed with thick cotyledons and a superior radicle. Trees, leaves alternate, simple, entire coriaceous. Flowers small, white, in terminal or axillary panicles.—Coniogeton, *Elvme Bijdr.* 1156. Cambesaedeae, *Kunlh. in Ann. Sc. Nat.* ii. 366.

**BUCHANANIA LATIFOLIA. (Roxb.)** A good sized tree, trunk straight and often of considerable height, branches numerous spreading in every direction, leaves broadly oval to obovate very obtuse or emarginate, glabrous or subglabrous above, hirsute with rather matted hairs beneath, 6-7 inches long by 3-4 broad, petioles 6-10 lines long, panicles terminal and from the upper axils hirsute erect much branched, bractes small caducous, flowers numerous small whitish green, structure as in the genus; drupe size of a cherry a little compressed smooth and black when ripe. *Roxb. Fl. Ind.* ii. 385.

*A very common tree in most malpine jungles in this Presidency both on the eastern and western side, and ascending the mountains to nearly 4000 feet elevation; it is also found in Bengal and Birmah, it flowers in December and January, and ripens its fruit in May. The latter is eaten by the natives, and the kernels are also eaten and used in confectionary and they abound in oil. It is called Chironji in Hindustan, Kdt mud and Aimd in Tamil, Chara and Chinnamoral in Teligu, Nuskulin Canarese, Pyal and CharoU in the Bombay Presidency, and Charu at Cuttack; the wood is rather tough and used by the natives for bullock yokes and other purposes and for charcoa\ a cubic foot seasoned weighs 36 lbs; the bark is used by tanners.*



*Tomocarpus Anacardium* Linn.

Wm. G. Lusk

**SEMECARPUS ANACAEDITJM. (Nat. order Anacardiace\*.)**

SEMECARPUS, *Linn. //*.-GEN. CHAR. Flowers polygamous. Calyx small, 5 lobed. Petals 5, imbricate in the bud. Disk orbicurr, slightly lobed or crenate. Stamens 5, inserted round the disk. Ovary 1 celled, with 3 styles, and somewhat club-shaped stigmas ; ovules suspended from the top of the cavity. Drupe or nut reniform, seated on the much enlarged, thick, succulent, fleshy, cupular or turbinate base of the calyx, (hypocarp) pericarp thick, hard, filled with resinous cells. Seed pendulous, the testa coriaceous, somewhat fleshy inside, embryo thick, with plano-convex cotyledons and a very short superior radicle. Trees, leaves alternate; flowers small, in terminal or lateral panicles.

SEMECARPUS ANACARDIUM. (Linn.) A large tree bearing male and hermaphrodite flowers on different individuals, trunk pretty straight, bark scabrous, branches numerous spreading, leaves about the apex of the branches oblong to obovate rounded at the apex entire, pretty smooth but harsh, whitish underneath 6-18 inches long by 4-8 broad, pinnate veins and veinlets conspicuous on both sides, petioles  $\frac{1}{2}$  to 2 inches long, panicles terminal very large composed of many simple spikes, those of the male tree more slender but as large or larger, flowers numerous small dull yellow, as in the generic character, the males smaller with a small rudiment of an ovary, hypocarp about the size of the drupe yellow when ripe. *Roxb- Fl. Ind. ii. p. 83.*

*This is the marking-nut tree, called in Hindustani Bhildma, in Telugu Jiri, and Bibu in Bombay; it is common in subalpine jungles throughout this Presidency and in Bengal and Bombay; its wood is soft and of no value; the fruit contains the black corrosive resinous juice generally used in this country for marking linen and also in use medicinally with the natives; the green fruit well pounded makes good bird-lime, the fleshy receptacle below the nut is sometimes roasted and eaten, and the kernels are also occasionally eaten; the marking ink is improved in color and prevented from running by the mixture of a little quicklime water. A brown colored tasteless gum exudes from the bark*



Arborescens del  
Anonimorum

*Holigarna longifolia* Benth.

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## HOLIGARNA LONGIFOLIA. (Nat. order Anacardiace®.)

HOLIGARNA, *Ham.*—GEN. CHAR. Flowers polygamo-disceious. Calyx cup-flhaped 5-toothed, teeth distant, petals 5 valvate with incurved tips villons, at length patent, disk broad annular, stamens 5 inserted round the edge of the disk, ovary inferior 1 celled, stylos 3-4 (sometimes a 5th small one) terminal, stigmas reflexed creacent-shaped, ovule pendulous from one side of the cell very near the apex, drupe inferior subcompressed oblong or ovate, pericarp thick, somewhat fleshy containing between its lamina cells full of thick acrid juice, putamen coriaceous. Seed conformed to the cell, terta membranaceous, embryo thick, cotyledons plano-convex, radicle minute. Trees, leaves alternate simple petiolate entire coriaceous, petiole furnished about the middle with 2 setiform stipels, or glands, racemes or panicles axillary and terminal, flowers small, drupe acrid. *Ham. in Roxb. Fl. Ind. ii. p. 80.*

HOLIGARNA LONGIFOLIA. (Roxb.) A large tree, trunk straight, bark pretty smooth ash-colored, young shoots rufo-pubescent, leaves crowded about the apex of the branches, always more or less spathulate or cuneiform, broad a little below the base and thence gradually narrowed down to the petiole, retuse, rounded, or acute at the apex, glabrous on both sides, or often more or less pubescent beneath or even villous about the costa near the base, generally about 7-9 inches long and 2-3 broad below the apex, but occasionally up to nearly 2 feet in length, petioles glabrous or rufo-pubescent  $\frac{1}{2}$ -1 inch long furnished about the middle or a little below it with 2 subulate recurved generally villous stipels, panicles (rarely racemes) terminal and from the upper axils, male and fertile on different trees, always more or less pubescent sometimes densely rufo-tomentose, petals valvate closely cohering at their sides at length patent, tips incurved, male flowers smaller than the fertile, the 5 stamens seated round the margin of the evident disk inserted, with large versatile anthers, rudiment of an ovary 0, or very small; fertile flowers with the stamens very small seated round the margin of the disk, anthers small and effete, ovary quite sunk except its hairy apex in the disk and calyx tube, styles 3-4 (rarely a 5th email one in the centre), stigmas broad flat recurved jagged at the edge and acute at the apex sometimes slightly hairy, fruit ovate to oblong, size of an olive, as in the generic character. *Roxb. FL Ind. ii. 80.*

*This tree is very common about the Western ghats of this Presidency fom Canara down to Cape Coworin, and is also found in the plains and close to the sea. I have copious specimens from all parts ; it also occurs in Bombay and Bengal, but is absent from Ceylon; in South Canara it is called Kagira, and in the Bombay Presidency Hoolgeree ; a very acrid black juice is extracted from the trunk and from the fruit rind, which is used by painters and as a black varnish, and the Jruit and bark are used medicinally. I have never known the timber to be used, but in some parts it is said to be in use for houie building, and boats are made of it. The specimen figured is from S. Canara ; th\* analysis from fresh flowers.*

### Analysis.

1. Petiole showing the stipel-tfke bodies.
2. A male bud showing the cup-shaped calyx with 5 distant W i .
3. A male flower showing the exserted stamens.
4. Male flower open.
5. The same petals removed, showing the 5 stamens inserle.l round the margin of the annular disk.
6. Anther, front and back view.
7. Fertile flower-bud showing calyx and valvate petals.
8. A full fertile flower.
9. Petals removed.
10. Fertile flower (calyx-teeth and 2 petals removed) showing the small effete stamens inserted round the margin of the torus, the apex of the ovary (the hairy coating removed) and the styles.
11. Vertical section of the same showing the solitary ovule pendulous from nearly the apex of the cell.
12. Apex of an ovary showing 4 styles and stigmas.
13. The same showing 3 styles and stigmas.
14. The same showing a small 5th style present.
15. The effete anthers of the fertile flower.
16. Young fruit.



*W. G. Cleyol del.*

*Anolis*

*Comptosia togolensis* Th.!

W-5

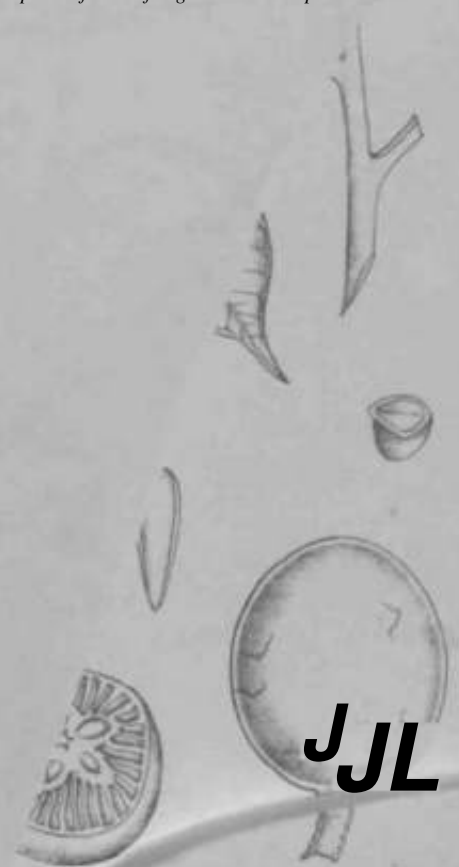
CAMPNOSrEIUVIA ZEYLANICUM. (Nat. order Anftcordiaca..)

CAMPNOSPEKMA, *Tkw.*— UBS. C11AE. Flower\* herntbiwlite, wlyt 3 pittite pentitout, diriinna oroot imbricate, petal\* 3 iub-orbkular met kabrkate, disk m cool ate. Stamens 6 inteited it the bom of the dink, DTiry tree aetulo ovate, 1 colltd, atylo THJ abort niul tbicli, align faiaad poltato and lobed, oviile pendutou\* from tbo apei at tbo aett; drup« Quhy orate, puUmes bony, tha cavity «emi 2-nollotl in the upper half panicles simp a; (lowon minute. r?i«, iit /Joot A'ni Juurn. vL CS-JIj. L

CAMPNOSPEBMA ZEYLANICUM. (Tbw.) A tree 30-40 fiset, nmoui, branohos *teteto* yonng pflrta and young Ferruginous, leaves kncoolaU to obovote'lanceolate, grtidiuilly attenuitod at tbo base penuiveined and reticulated, below m'mut' punctate, S-4 inches long fcy ^-1J brand, llo^cis 2 tinea long 1 brscteolate. *Thw. I. c.*

*Ceylan, net vneotmen on ihc hanti efttrtam al Ratnapoora and the twcerpaH of the Safiragaw. diitriect wp to obi elevation.*

*The dissection\* art from a drawing by Dr. Tktoaita,*



JJL





R. W. G. 1861

*Persea mangrove* L.

Harvey's Lab.

### SPONDIAS MANGIFERA. (Nat. order Anacardiaceae.)

SPONDIAS. *Linn.*—GEN. CHAR. Flowers polygamous. Calyx small, 4 or 5-lobed or divided to the base. Petals 4 or 5, spreading, almost valvate in the bud. Disk orbicular, crenate, stamens twice as many as petals, inserted round the disk. Ovary 3 to 6-celled, with as many short conical connivent styles; ovules solitary in each cell, pendulous. Drupe with a fleshy epicarp, the putamen hard and bony, the cells erect or vertically curved and diverging at the top, the putamen pierced with a foramen corresponding to the apex of each cell. Seeds solitary in each cell pendulous; testa membranous; embryo straight or slightly curved with the seed; cotyledons oblong, radicle superior. Trees, leaves crowded at the ends of the branches, pinnate; flowers small, in terminal or axillary panicles.—*Evia, Comm. Cytherea, WA. Poupartia, Cotnm.*

SPONDIAS MANGIFERA. (Pers.) A large tree, trunk straight, bark smooth ash-colored astringent, leaves alternate about the ends of the branches, pinnate with an odd one 12-20 inches long, petiole terete, leaflets 4-5 pair opposite or subopposite ovate to elliptic-oblong rather abruptly acuminate oblique at the base quite entire glabrous prominently veined, 3-6 inches long by 2-2½ broad, panicles terminal large diffuse, flowers numerous small white often barren, disk large fleshy crenate, anthers alternately shorter incurved about as long as the petals, styles 5-6, ovary 5-6 celled, drupe oval or nearly round yellow when ripe about 1½ inch across. *lioxb. Fl. Ind. ii. 451. Evia amara, Commers. Ambalam, Bheede Mai. 1. p. 89. t. 50.*

*This is a common tree in jungles throughout this Presidency, and in Ceylon it ascends the mountains to about 3500 feet; it is known to Europeans as the Hog plum, and is called dmr̄d in Hindustani, Kdt mda in Tamil, and Aravi mdmadi in Teligoo (names signifying wild mango); its fruit is eaten raw when ripe, and unripe it is pick-led and preserved, and eaten in curries; the wood is soft and of little or no value, and a gum much like Gum Arabic exudes from the trunk; the leaves are agreeably acid. In the Anamallays it is called Puli ille by the Kaders.*



*Cochlospermum gossypium* (D.C.)

A. DC.

L. C. DC.

**COCHLOSPERMUM GOSSYPIUM.** (Nat. order Ternstrsemiaceae.)

**This tree is fully described in the Manual, vide page xiv.**



Seemiller del.

Seemiller sculp.

Amisocia

*Hylophora parvifolia* (Hook. fil. et Th.)

**XYLOPIA PARVIFOLIA. (Nat. order Anonaceae.)**

For Gen. Char. Bæ Manual, p. ix.

**XYLOPIA PARVIFOLU.** (Hook. fil et T.) A very lofty straight tree, 60—30 or even 100 feet to the first bough, and then forming a small dense head, trunk of no great thickness, 4-6 feet in girth, always furnished with considerable buttresses at the base, which extend up the trunk 6-10 feet from the ground, young branches slightly puberulous, leaves elliptic oblong with a short acumination, slightly coriaceous shining and glabrous above except the costa, slightly glaucous and glabrous beneath except the costa, about 3 inches long by 1-1 ½ broad, petioles puberulous 3-4 lines long, inflorescence axillary pubescent, peduncle very short 3-flowered, pedicels scarcely more than 1 line long bibracteolate at the apex below the calyx, calyx small cup-shaped 3-toothed, exterior petals thick about 9 lines long, interior a little shorter triquetrous except at the hollow base, torus conical, ovaries 3-4 (5-6 Ceylon specimens) densely strigose hid in the torus, style long glabrous, stigma very large slightly hairy, connective of the anthers truncate capitate, ovules 4.

*This lofty straight tree is abundant in the moist forests about the foot of the Travancore hills in the vicinity of Colatoorpalay, where I discovered it in flower this August; it is the first time the genus has been observed on the continent; it also inhabits the south of Ceylon, and is mentioned in the Manual at page ix. as a Geyh'i tree. I have carefully compared the Travancore specimens with dried specimens of the Ceylon plant, and I can detect no difference, though the latter is described as a small tree or shrub. Dr. Thwaites says that the flowers and bark are used by the Cinghalese for chewing with their betel*



## GARCINIA TBAVANCORICA. (Nat. order Guttifere.)

For ~~Gen.~~ Char, see letter press to PL Ixxxv.

GARCINIA TRAVANCORICA. (Bedd.) A middling sized tree, leaves very coriaceous narrow oblong to sub-spathulate very obtuse, dark green and shining above paler beneath, 3-4 inches long by about 1 inch broad, primary veins straight and at nearly right angles with the costa, veinlets forming a beautiful net work and very conspicuous on the under side, petioles about  $\frac{1}{2}$  to 1 inch long, 2 outer calyx segments much smaller than the 2 inner, petals rounded; male flowers on very short terminal panicles or racemes which are 1-2 inches long and 5-15 flowered and furnished with small bractes at the ramifications, pedicels very short thickened, stamens in 4 many-fid polyandrous phalanges, anthers about 100 in each phalanx, 2-celled dehiscing longitudinally, no rudiment of an ovary, style thick 2 lines long, stigma very large peltate convex above, exactly like a mushroom, glutinous ; female flowers solitary or twin in the terminal axils, ovary with a very large convex glutinous stigma, 4 celled, effete stamens in 6-8 phalanges each with 2-4 thin filaments, fruit oblong to subglobose,  $1\frac{1}{2}$  to 1 $\frac{1}{4}$  inches long, crowned with the enlarged peltate stigma, seeds 15 lines by 7 lines broad, long, flat on the inner face, 1-2 come to maturity, testa bright brown.

*This very beautiful species is the No. 2 referred to in Manual, page zxi. I only procured it last month (August) in flower, and in ripe fruit at the same time; the tree is confined to the southern portions of the Travancore and Tinnevely ghat forests (3000-4500 feet elevation), but is most abundant in localities where it grows (MiUi-kuli vayal Travancore, Calcad hills TinneveUyJ ; every portion of the tree yields abundance of a bright yellow gamboge, which has not been examined yet; it is a highly ornamental tree, and seed has been transmitted to the Ceylon and Bangalore Botanical Gardens, it is called Malampongu in Tinnevely.*





*Elaeocarpus venustus* (Benth.)

Amesbury, J. H. C.

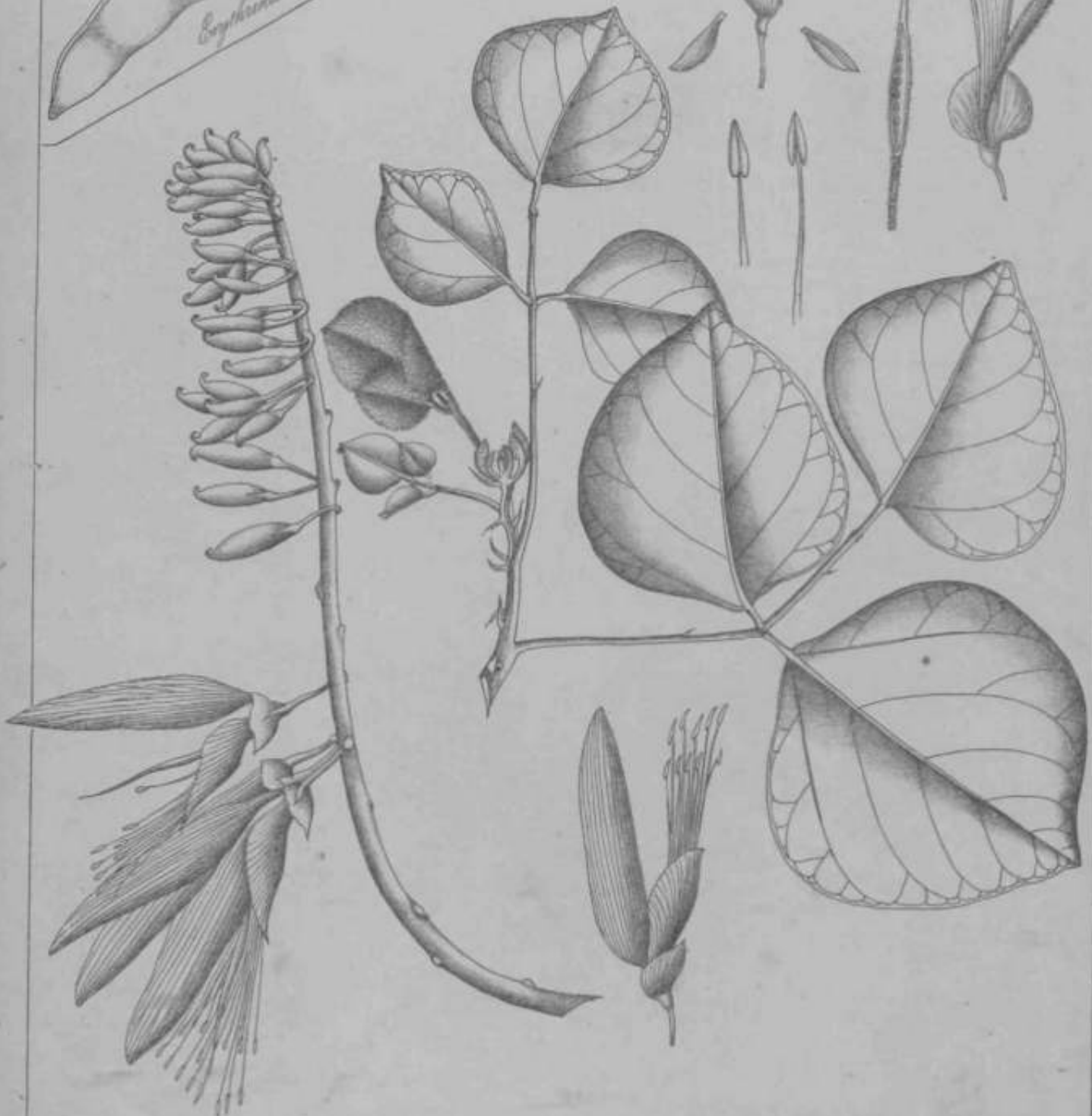
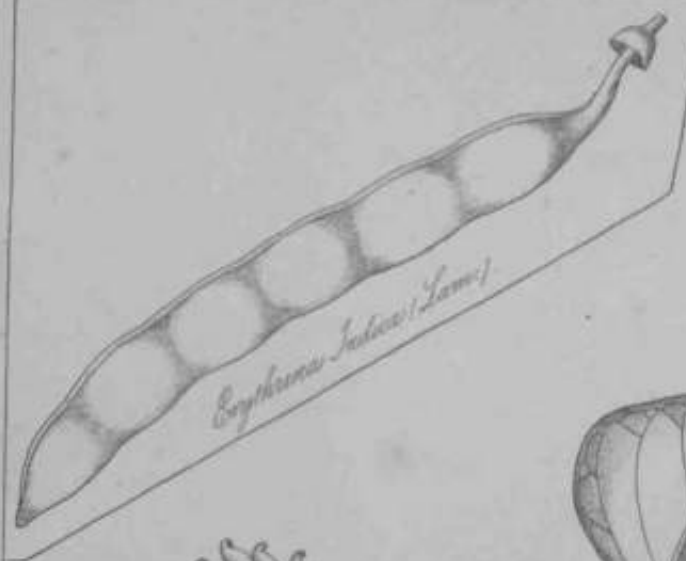
Thompson, L. C.

**ELEOCARPUS VENUSTUS. (Nat order Tiliace©.)**

For Gen. Char, see letter press to PL cxi.

**ELJEOCARPUS VENCSTUS. (Bedd.)** A large tree, glabrous in all its parts except the flowers, leaves elliptic to oblong or sometimes obovate, slightly acute or quite rounded at the apex attenuated at the base, serratures shallow distant and iucouspicuous, coriaceous, 3-4J inches long by 1J-2 broad, furnished with very large glands in the axils of the primary veins beneath, which often terminate in a pointed or bifid process raised above the lamina of the leaf, the glands form prominent convex marks on the upper side of the leaf, petioles 6-8 lines long, racemes axillary lax 4-8 flowered as long or a little longer than the leaves, pedicels distant 12-16 lines long with a minute deciduous bracteole at the base of each, flowers 12-16 lines in expansion pure white and very fragrant, calyx glabrous on the outside, pubescent within, divisions thick and coriaceous, petals a little longer than the calyx 3 cleft with each division 5-6 fingered, rather densely silky on the outside, nearly glabrous within except the hairy raised process at the base, the linear anthers and filaments hairy, the upper valve with a short point, ovary glabrous 2 celled, cells with 6 ovules in 2 rows, style subulate very slightly hairy, drupe not seen.

*A fiM large tree only observed in the MiUi huli %ayal> South Tratancore, 4500 feet elevation, in flower in August; it is truly beautiful when covered with its snow white large flowers, which it produces in great abundance; it has only jvst been discovered, and should be added to the Manual at page xxxviii.*



*Erythrina stricta (Rach.)*

Samuel Dale

Dumort. Lill.

## ERYTHRINA STRICTA. (Nat. order Leguminosae.)

ERYTHRINA. *Linn.*— GEN. CHAR. Calyx campanulate or cylindrical, obliquely truncate or slit on the upper side, entire or toothed. Standard broad or long, erect or recurved, narrowed at the base, without appendages ; wings short, often minute or none ; keel short, the petals united i\* free. Stamens all united at the base, the upper one often free from the middle, anthers reniform. Ovary stipitate, with several ovules, style subulate, oblique at the end, with a small stigma. Pod stipitate, linear-falcate, acuminate, narrowed at the base, more or less contracted between the seeds, 2 valved, usually pithy between the seeds. Seeds distant, ovoid or oblong, with a lateral oblong bilum, not strophiolate. Erect trees or shrubs, rarely tall herbs, the trunk, branches, and often the petioles armed with conical prickles. Leaflets 3, usually broad, entire or 3-lobed, the stipellae usually gland-like. Stipules small. Racemes axillary, or, if terminal, leafy at the base. Flowers large, usually red, in clusters of 2 or 3 on lateral nodes along the peduncle. Bracts small or none—*Micropteryx*, *Duchassaingia* and *Macrocymbium*, *Wats.*— *Stenotropis* and *Hypaphorus*, *Hassk.* *Chirocalyx* *Meissn.*

ERYTHRINA STRICTA. (Roxb.) A large tree armed with numerous white prickles, stipules falcate, petioles sometimes prickly, leaves unarmed, leaflets glabrous entire, the terminal one reniform-cordate pointed ; racemes terminal horizontal, calyx spatheous entire acute short, vexillum about 10 times as long as the calyx and twice the length of the keel, keel 4-5 times longer than the ate, its petals united. Stamens monadelphous with the sheath entire at the base, diadelphous upwards, ovary 4-8 ovuled, legume usually 2-3 seeded. *Roxb. Fl. Ind. iii. p. 251 y—lflA. Prod. p. 260.*

*This tree is very common on the western side of the Madras Presidency ; the wood is soft, light and spongy (as in all the other Erythrinai); it is employed as a substitute for deal, and is much in use in the manufacture of toys, trunks, &c. and is afterwards varnished, its large pores admitting and retaining the varnish better than almost any other wood, the wood is not liable to warp, contract, or split*



Lamington del.

*Pueraria frondosa* (Kunt.)

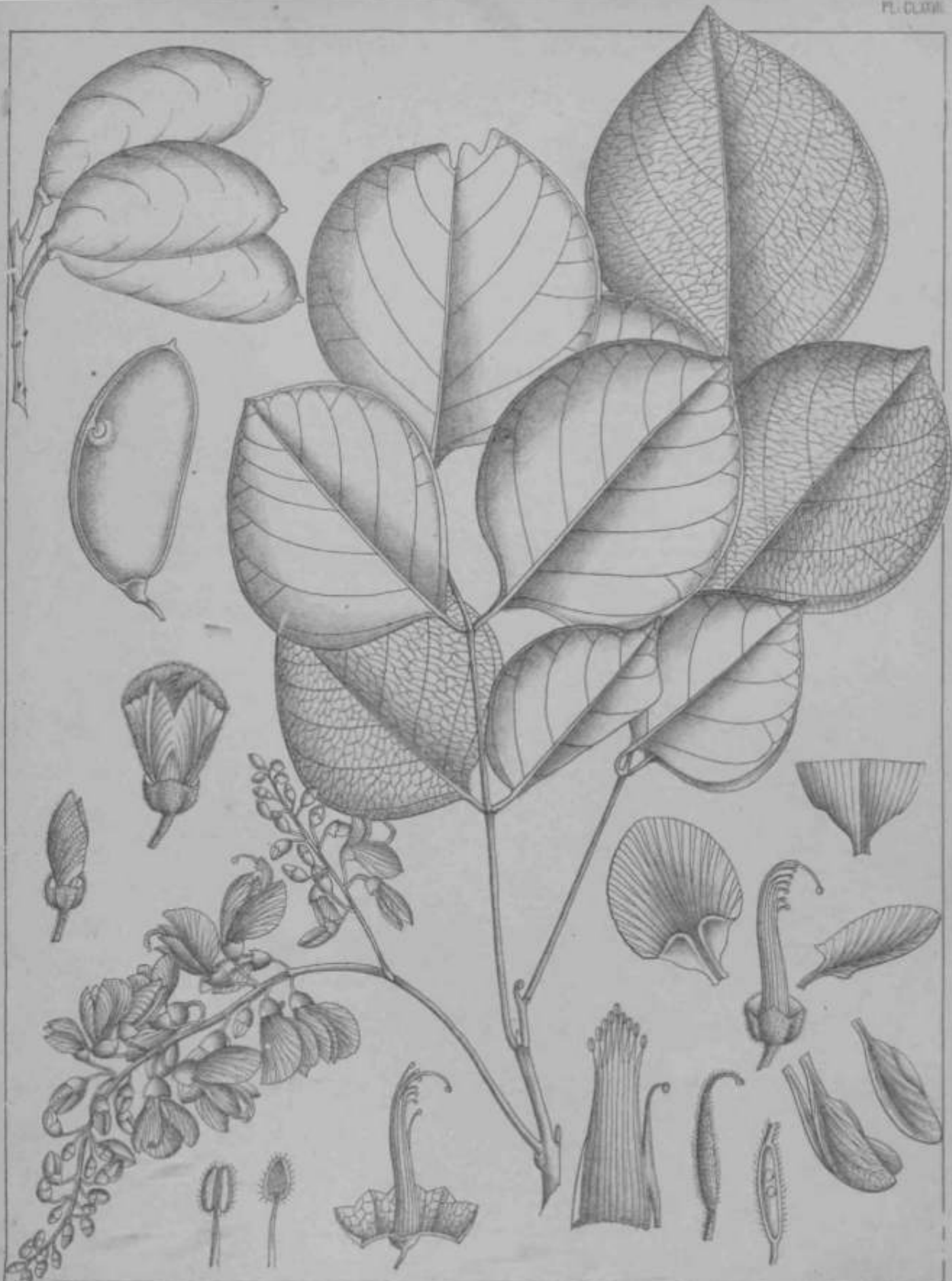
Lamington del.

**BUTBA FfIONDOSA. (Nat. order Leguminosae.)**

**BUTEA A. Roxb.** —GEN. CHAR. Calyx campanulate bilabiate, upper lip almost entire, lower 3-lobed, vexillum ovate acute recurved inappending to the keel, keel much incurved acute equalling the vexillum. Stamens diadelphous 9 and 1, the vexillum one free, anthers uniform, ovary sessile or shortly stipitate 2-ovuled, style elongate incurved, stigma small glandular, legume subsessile or stalked oblong or broadly linear 2-valved and 1-seeded at the apex only, below flat compressed rather thin, indehiscent. Trees or lofty climbers, leaves pinnately 3-foliolate, stipules small, flowers large orange or flame colored, fasciated in racemes or panicles.

**BUTEA FfIONDOSA. (Roxb.)** A middling sized tree, trunk generally crooked covered with ash-colored spongy thick scabrous bark, the middle stratum of which contains a red juice, young shoots downy, leaves alternate pinnately 3-foliolate 8-16 inches long, leaflets emarginate or rounded at the apex, coriaceous above shining and pretty smooth below slightly hoary, the 2 lateral ones obliquely oval, 4-6 inches long 3-4 lines broad, the terminal one obovate and much larger than the others. Stipules small recurved downy, stipels subulate, racemes simple lax terminal axillary and from nodes over the naked branchlets, pedicels about twice as long as the calyx, calyx segments short slightly acute several times shorter than the tube, bractes lanceolate caducous, 1 below each pedicel and 2 below the calyx, corolla densely pubescent 4-5 times larger than the calyx, of an orange red mixed with silvery down, vexillum ovate acute, legume as in the generic character about 6 inches long downy. *Roxb. FL Ind. iii. p. 244.*

*This tree is common throughout the dry jungles in this Presidency and in Bengal, Bombay and Ceylon ; it is a very beautiful sight when in full flower in March and April; it is called Palds in Hindostanee and gave its name to the field of Plassey as it was covered with this tree; in Telugu it is called Modagu, Thoras in Canarese, and in Ceylon Qass-kaala. The wood somewhat resembles Teak in appearance, and is used for gun-powder churcoal, also for building purposes and well curbs; a red colored astringent gum exudes from wounds made in the bark and is officinal, and the fibrous yield a dye \ropes art made from the fresh fibre of the roots.*



Amboise, del.

*Pongamia glabra* (Vat.)

Amboise, del.



PONGAMIA GLABBA. (Nit. order Leguminosce.)

**PONGAMIA.** Vent—GEN, CHAR. Calyx truncate. Standard orbicular, with inflexed auricles at the base; keel slightly incurved. Upper adnate free at the base, connate with the others in a tube in the middle; anthers uniform. Ovary nearly sessile, with 2 ovules; style curved, stigma emarginate, terminal. Pod broadly and obliquely elongate or subterete, thick but flat, 1-seeded, indehiscent, the suture obtuse, with 2 seeds. Seed reniform. Tree, leaves bipinnate, without stipules. Flowers in axillary racemes. Bracts very deciduous; bracteoles minute or none.—*sdup\**, *torn*.

**PONGAMIA GLABBA.** (Vent.) A middling sized tree, glabrous except a very slight pubescence on the inflorescence. Leaves 7, ovate, shortly and obtusely acuminate, usually broad, about 3 inches long, on a rather long petiole, but variable in size. Racemes sometimes panicled, about 3-5 inches long. Flowers in pairs; the pedicels 2 to 4 lines long. **Standard** about 1 inch long, lower petals shorter. Pod usually 1 to 2 inches long, and about 1 inch broad, sessile or nearly so, often somewhat *sate* in very short incurved point. *Benth. Syn. Jall*. 117.

*This tree is most abundant throughout South India in the plain, also in Bengal, Bombay and Ceylon, generally on the banks of rivers or near water; it is called Pongā in Tamil; Kattina in Telugu, Karunj in Bombay, Mago in Kuranda in Ceylon; the wood is light, tough and coarse and is grained, of a yellowish brown color, not easily worked nor giving a smooth surface; it is improved in strength and texture by being seasoned in water; a cubic foot unseasoned weighs 45 to 50 lbs., and 40 lbs. when seasoned, and its specific gravity is 0.40; it is used for a variety of purposes, and the solid wheels of the wooden carts are often made of it. An oil is expressed from the seed, which is used by the natives for lamps, and it is an excellent dire for itch and mange; the tree generally sheds its leaves at the end of the cold season; its flowers are a mixture of white and purple are produced in the hot season, and its seed ripens towards the end of the year. Cattle are very fond of its leaves, brought into the ground root readily, and grass and almost everything else grow well under its shade.*





Wright del.

Thompson sculp.

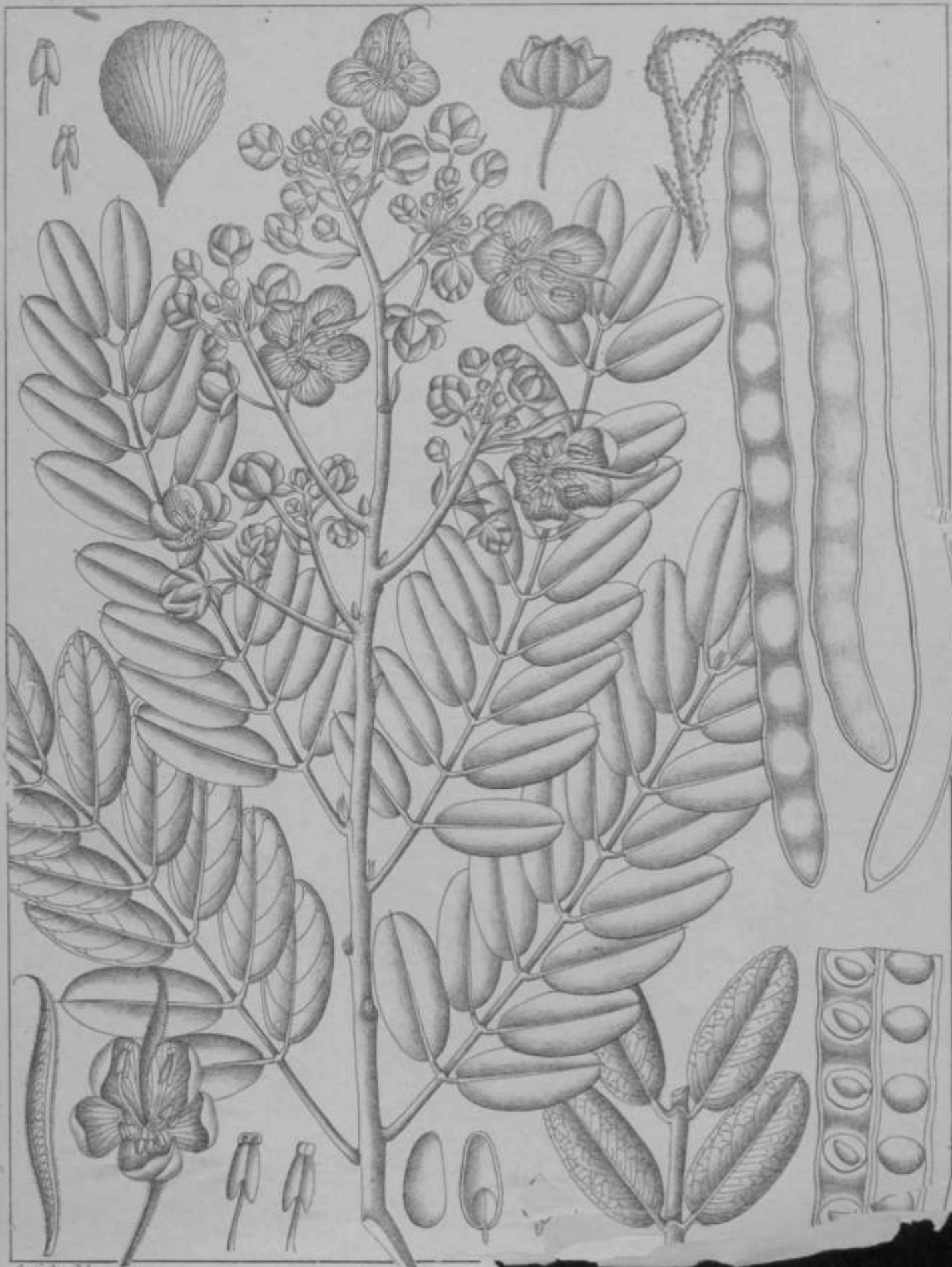
*Poinciana plataea* (Linn.)

POINCIANA ELATA. (Nat. order Leguminosae.)

POINCIANA. *Linn.*—GEN. CHAR. Sepals 5 equal or subequal united below into a very short cup-shaped somewhat persistent base, petals 5 tubiculate and imbricate or the upper one shaped differently from the others, stamens 10 free much longer than the petals, slightly villous at the base, anthers, uniform, cells dehiscing longitudinally, ovary sessile free many-ovuled, style filiform or abbreviated, apex slightly clavate, stigma truncate, legume elongate flatly compressed wingless 2 seeded several seeded intercepted internally between the seeds, seed transverse oblong albuminous, hilum shallow, testa hard. Cotyledons rather thick, radicle short straight exserted. Unarmed trees, leaves bipinnate, leaflets numerous small, stipules inconspicuous, stipules sessile, flowers showy corymbosely racemed at the apex of the branches.

POINCIANA ELATA. (L.) A middling sized very showy tree, 20-30 feet, bark prattly smooth ash-colored, branches numerous spreading much, leaves alternate bipinnate about 6 inches long, pinnules 2-3 pair opposite, leaflets 10-20 pair sessile opposite linear glabrous about 4 lines long by 1 broad, petiole grooved on the upper side, racemes terminal corymbiform few flowered, flowers large showy odoriferous yellowish, bracts small 1 flowered caducous, calyx villous on the outside, petals 5 of which the upper one is a little smaller and deeper colored, all nearly round and much curled at the margin, filaments ascending afterwards recurved, twice as long as the petals, thick and villous at the base, anthers versatile. *Roxb. Fl. Ind. ii, p. 355.*

*A very beautiful tree, rather rare in our jungles, though met with in the forests of both the eastern and western Coast; most abundant in a planted grove in Atterton, topography, gardens, native cemeteries, &c., the wood is yellow, tolerably close and even grained, easily worked and gives a smooth surface, warps slightly but never cracks; a cubic foot unseasoned weighs 54-68 lbs., and when seasoned 45 lbs., the specific gravity is 720, it is well suited for cabinet work.*



CASSIA FLORIDA, (Nat. order Leguminosae.)

CASSIA. *Lin.*— OFN CHAB. Sepals 5, somewhat unequal, much imbricate, the outer ones the smallest, scarcely connected at the base. Petals 5, spreading, nearly equal or the lower outer one rather larger. Stamens usually 10, free, either all nearly equal and perfect or 2 or 3 lower one larger or one longer (filaments, and 3 or 4 upper ones reduced to small stamens; anthers when perfect opening at the end in pores or slightly later). Ovary with several ovules, incurved, tapering into a short style. Fruit cylindrical or flat, indehiscent or 2-valved. Seeds oblong or obovate, transverse, with slender hilum, cotyledons flat or slightly folded, usually cordate; radicle short, straight. Tree, shrubs or herbs, leaves abruptly pinnate, ultimate leaflets opposite. Flowers yellow or very rarely reddish-purple or white, in axillary or terminal racemes or solitary. Bracts usually deciduous. Bractlets none.—*Cathartocarpus, Brm, Senna, Ostrya, Chamafiatub, Chimresenua, (Jimmiedista and Fistulii, DC. Abwis, Vrososperua and PsiSorliegma, Vag.*

CASSIA FLORIDA. (Vahl.) A middling sized tree, trunk pretty **straight** and covered with smooth olive colored bark, branches few spreading, leaves alternate pinnate 6-12 inches long, leaflets **4-14** pair short petioled opposite oblong entire somewhat emarginate with a bristly point, smooth shining, the exterior pair a largest, 1-3 inches long by 1/2-1 inch broad, petioles **smooth** channelled without glands, stipules minute subulate caducous, panicles terminal very upright erect, ovate composed of many alternate corymbiform racemes, peduncles pubescent, flowers numerous large bright yellow, pedicels subtended by an oblong-jointed concave long pointed bracteole, calyx segments unequal pale yellow roundish concave reflexed about half the length of the corolla, corolla with the upper petal small long clawed and obcordate, the other 4 neatly equal almost round, stamens 7 fertile differing much in size and 3 barren and small, legumes **linear** thin, swelled a little at the seeds smooth, both margins rounded 6-8 inches long, seeds nearly triangular oval of a dark brown color. *WA, Prod. p. 288. Senna Sumatrana, Roxb. Fl. Ind. ii. 71. 347.*

*This tree is common in a wild state in the jungles quite at the south of this Presidency and in Ceylon, and it is common everywhere as a planted tree in avenues, tops, groves, etc., of rapid growth and ornamental, the wood is of a yellowish brown color, sometimes beautifully marked with irregular blue streaks, close grained, hard and durable, but not stiff, works kindly with a smooth surface and stands a good polish. A cubic foot unseasoned weighs 68-70 lbs., and when seasoned 88 lbs., and its specific gravity is .92, it is very well adapted for furniture but seems to be little known or used in this Presidency, in Birmah it is used for mallets, helves and walking sticks, in Ceylon it is the principal fuel used in the Locomotives, and it is said to have as good caloric powers as any wood known in the island. In Ceylon it is called 'Manj', and in Tarn Manj konnc.*

