

XI. *A Commentary on the Fourth Part of the Hortus Malabaricus. By*
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MAO, seu MAU, p. 1. tab. 1 et 2.

THE word *Mange*, which, the author says, is the name of this tree among the Indians, is of Malay origin, and was introduced by Garcias ab Horto, Acosta, and other early writers. These absurdly applied the *Mangka*, or *Manga*, of the Malays to the fruit, and called the tree *Mangifera*, which has been copied by modern botanists, although Rumphius properly called the genus *Manga*. His specific name *domestica* has been changed with equal want of propriety; for the name *indica* is equally applicable to every species of this genus. The Sanscrita name *Anra*, corrupted in the vulgar dialects of Gangetic India into *An*, is the source of the word *Ambo*, used by the Brahmans of Malabar.

For one circumstance in Rheede's description I cannot account; and, as there can be no doubt that he knew the tree perfectly, and meant to describe it, this circumstance must be attributed to one of those errors into which even the most accurate are liable to fall. He says, "*folia bina, terna, aut quaterna simul ex eodem pediculo ramulis inhærent.*" This, converted into Linnæan language, would imply that they are *folia composita*; but this is perfectly erroneous. Another error, respecting the *stamina*, induced Linnæus to place this tree in the class *Pentandria*. Rheede says, *flores—quinque intus albicantibus fibris, flavescentibus apicibus dotatis—præditi*. Now in ninety-nine flowers out of a hundred only one filament has an *anthera*, and I have never observed one flower in which all the five *stamina* were complete.

ADA MARAM, p. 5. tab. 3 et 4.

Maram annexed to *Ada* signifies tree; the Malabar name therefore is *Ada*,

or *Saros*. Rheede says that it grows in the woods of Malabar; but so far as I have observed, it seemed to me to have been always planted, and reared with care in the neighbourhood of villages or in gardens; and I suspect that it has been introduced from the great Oceanic Archipelago, where it would seem to be a spontaneous production, being, I suppose, the *Catappa silvestris* of Rumphius (see my *Commentary on Herb. Amb.* i. 175.). Both *Ada* and *Saros*, however, may be Malabar words peculiar to this plant, which would seem to imply its being indigenous; but *Jibe*, the name given to it by the Brahmans in Malabar, is also peculiar to that country; nor does there seem to be any Sanscrita name for this plant, which would imply its being an exotic lately introduced. At any rate, that it is so in the North of India I have no doubt, because in the vulgar dialects spoken there it is called *Budam*, or the *Almond-tree*, on account of its kernels being like those of the almond. This, although a very slight affinity, seems to have at first satisfied Nieuhof, Ray and Plukenet, who called the tree *Amygdalus indica* (*Alm.* 28.). Afterwards, indeed, on account of an absurd resemblance which he imagined to exist between its fruit and that of his *Prunifera Fago similis arbor Gummi Elemi fundens, figura et magnitudine Olive ex Insula Barbadosi* (*Alm.* 306; *Phyt. t.* 217. *f.* 4.), the last-mentioned author considered the *Ada maram* as nearly allied to this plant (*Mont.* 156.), which, although by no means the *Amyris Elenifera* of modern botanists, is certainly not the *Ada maram*; nor, if it produces *Gum Elemi*, is it likely to be even of the same natural order, none of the *Combretaceæ* producing odorous resins.

The elder Burman probably mentioned this tree under the following name, *Arbor indica, amara, nucleis Amygdali facie, Katappas Lusitanis, Samandara zeylonensibus*, as I shall endeavour to show when I treat of the *Hagam* (*Hort. Malab.* vi. 37.).

Rumphius (*Herb. Amb.* i. 175.) described two kindred species, the *Catappa domestica* and *silvestris*; and in the Appendix (176.) he notices the strong affinity which these have to the *Ada maram*, without mentioning to which of his kinds it is nearest. I have already stated that I think it is his *C. silvestris*. It was not introduced into the modern system until Linnæus published the *Mantissa*, in which he improperly called it *Terminalia Catappa* (see my *Commentary on the Herb. Amb.* i. 175.), a name retained by more modern botanists (*Enc.*

Méth. i. 348.; *Willd. Sp. Pl.* iv. 967.; *Hort. Kew.* v. 441.). I must here caution the young botanist against relying on the specific character given by these authors, however respectable. The leaves of the *Ada maram*, as well as of the *Catappa domestica*, have in general edges quite entire; and the real difference between them consists in the former being pubescent, and the latter smooth.

PANEM PALKA, seu PANAM PALCA, p. 9. tab. 5.

This tree, according to Commeline, was well known to John Bauhin, although it is alleged that his brother mistook its fruit for that of a *Palm*. Plukenet called it *Nux Myristica spuria* (*Alm.* 265.); and the elder Burman, copying Herman, called it *Nux Myristica, oblonga, Malabarica* (*Thes. Zeyl.* 172.). Under the name of *Myristica fructu inodoro*, Linnæus (*Fl. Zeyl.* 588.) placed it among his *Amihilate*, the explanation of which (“sunt plantarum zeylonensium nomina, quæ soni prætereaque nihil,”) seems very little applicable to a plant, the female of which has been described and figured excellently by Rheede. As, however, this author did not mention the male, Linnæus, with the sexual system, was no doubt at a loss.

Among the more recent botanists this tree was first taken up by Thunberg (anno 1782), who called it *Myristica tomentosa*. M. Lamarek, overlooking this, or uncertain of what plant Thunberg meant, called it *Myristica malabarica* (*Enc. Méth.* iv. 388.), and distinguished it from the *Nux Myristica Mas* of Rumphius, with which Burman in his observation (*Herb. Amb.* ii. 25.) had confounded it. Rumphius himself, although he admitted a great similarity, pointed out several differences, which should have prevented Burman's mistake, especially as the latter had probably mentioned the *Nux Myristica Mas* of Rumphius under Herman's name, *Nux Zeylanica, Moschatæ rotundæ similis, oblonga* (*Thes. Zeyl.* 172.), which is probably the *M. Philippensis* of M. Lamarek.

Whether or not Gærtner could have seen M. Lamarek's account of this tree, first published in the Memoirs of the French Academy, I know not; but in the same year (1788), overlooking also the account of Thunberg, he described the fruit of the *Panem Palca* by the name of *M. dactyloides* (*De Sem.* i. 195. t. 41. f. 2.). Willdenow (*Sp. Pl.* iv. 870.) restored Thunberg's name, *M. tomentosa*; but falls into Burman's error in considering the *Nux*

Myristica Mas of Rumphius as the same. As he quotes both, I cannot take upon myself to determine which he really meant. If Thunberg did the same, the name *tomentosa*, being uncertain, should be altogether abandoned, as both M. Lamarck and Gærtner seem to have properly enough done.

SAMSTRAVADI, SEU SAMSTRAVARI, SEU CAIPA TSJAMBU, p. 11. *tab.* 6.

The second name, which is that on the plate, is evidently an error of the engraver. The third implies the plant to be a species of *Tsjambu* or *Eugenia*, an opinion adopted by Commeline on no other authority than that of the natives, and these not the men of science; for the Brammans call it *Sada Pali*, which Rheede says implies *frugifera arbor*. The vulgar Malabar generic name is not *Vadi*, as Burman would have it (*Fl. Ind.* 115.) by printing *Samstru vadi*. *Samstravadi* is evidently one word, and the prototype of a genus, as the following plant is called by the same name, with the specific term *Tsjeria* prefixed. Jussieu was therefore scarcely justifiable in calling (*Gen. Plant.* 361.) this genus *Stravadium*, which consists only of half a word.

Plukenet (*Mant.* 137.) suspected, but without being certain, that the *Samstravadi* might be his *Nuciprunifera Arbor, foliis densioribus, subtus argenteis floribus in praelongam spicam dispositis, fructu tetragono*; but, although nearly allied, the plants are no doubt different, as he might have concluded from Rheede's description, "folia superne colore atro-viridi splendentia, inferne viridi dilutiora."

Linnæus in the *Flora Zeylanica* (191.), still following the Hindu arrangement, called the plant of Rheede *Eugenia foliis crenatis, pomis ovatis, racemo longissimo*, which in the first edition of the *Species Plantarum*, and in Burman's *Flora Indica* (115.), became the *Eugenia racemosa*; but now the *Butonica sylvestris alba* of Rumphius (*Herb. Amb.* iii. 181. *t.* 116.) was added as synonymous. Although in the explanation of the plate Burman says that it represents the *Butonica sylvestris alba*, yet Rumphius himself called no plant by this name, but in the places quoted describes and figures the *Butonica terrestris alba*, a species totally different from the *Samstravadi*. Willdenow, however, (*Sp. Pl.* ii. 966.) leaves the synonyms just as he found them.

M. Lamarck (*Enc. Méth.* iii. 197.) continues to call this plant *Eugenia racemosa*, but notices its affinity to the *Barringtonia* or *Butonica*; and although

he properly rejects the *Butonica terrestris alba* as synonymous, he falls into an error equally great in calling it the *Butonica sylvestris (terrestris) rubra* (*Herb. Amb.* iii. 181. t. 115.) of Rumphius; for European botanists seem to have thought it necessary, as Rheede had described two *Samstravadis*, that these should be the same with the two *Butonicas* of Rumphius; whereas the latter does not describe the *Samstravadi*, nor mention any plant by the name of *Butonica sylvestris*; nor does Rheede notice the *Butonica terrestris rubra*. M. Lamarek saw specimens of his plant; and from the account which he gives of the calyx, it was evidently the *Samstravadi* of Rheede. Willdenow, on the contrary, says nothing to enable us to judge whether his specimens belonged to the *Samstravadi* or to the *Butonica terrestris alba*.

Jussieu was the first, as far as I know, to point out a tolerably correct arrangement of the *Samstravadi*, by separating it from the *Eugenia* and placing it (*Gen. Plant.* 361.) in the same genus with the *Butonica* of Rumphius and Lamarek, the *Barringtonia* of Forster and the younger Linnæus, and the *Commersonia* of Sonnerat, which the elder Linnæus had placed among the *Guttiferæ* in the genus *Mammea*. Perhaps M. Jussieu should have taken the genus of Rumphius as it stood, and included in it not only his three *Butonicas*, but the two *Samstravadis* of Rheede; but Jussieu considered the *Tsjeria Samstravadi* and the *Butonica terrestris* as forming a distinct genus from the *Butonica*, and called this genus *Stravadium* (*Gen. Plant.* 361.).

Dr. Roxburgh however (*Hort. Beng.* 58.), as I have above proposed, includes in the same genus both the *Butonicas* of Rumphius and the *Samstravadis* of Rheede, calling the plant, of which I am now treating, *Barringtonia racemosa*; but he does not quote Rheede, deterred probably by the following words in the description, "Arbor est vastæ magnitudinis caudice crasso," while, I must confess, that the plant which Dr. Roxburgh and I knew, is only a small tree; but I cannot on this account call it a different species.

When I returned from Ava, I sent to England both specimens and a drawing of the *Samstravadi*, which were given to Sir Joseph Banks. A copy of the drawing has been lodged in the Library of the India House, where I have also placed specimens from India Proper. In deference to M. Jussieu I have classed it in the Catalogue with his second division of the order of *Myrti*; but I suspect that it might with more propriety be arranged with the second division of

the *Guaiacaneæ*, as will appear from the following description. The natives of Ava call it *Kiin gri*, the first word being the generic term, and *gri* signifying *great*.

Arbuscula pulchra. *Folia* sparsa, apices versus ramulorum congesta, basi obtusa obovata, acuta, ultra pedem longa, costata, venis reticulata, nuda, serrata, petiolata.

Racemi longissimi, penduli. *Flores* ex albido rubicundi, magni, speciosi, calycibus coloratis, striatis.

Calyx foliolis concavis obtusis 2- seu 3-partitus, persistens, intus disco integro mellifero ad basin vestitus. *Petala* 4 seu 5 patentia, obtusa, concava, obliqua. *Filamenta* plurima filiformia, petalis longiora, basi coalita in annulum discum calycis cingens. *Antheræ* parvæ. *Germen* inferum turbinatum. *Stylus* longitudine staminum filiformis. *Stigma* simplex.

Bacca molliuscula, tetragono-ovata, calyce coronata, obsolete quadrisulca, unilocularis. *Semen* unicum, oblongum, magnum. *Perispermum* forma seminis magnum. *Embryo* centralis, ovalis, dum non germinaverit absque partium distinctione indivisus.

TSJERIA SEU SJERIA SAMSTRAVADI, p. 15. tab. 7.

In the preceding commentary I have already made several remarks applicable to this plant, which the Brahmans call *Gove-sada-pali*, using the last two words as a compound generic name, and the words, therefore, should have been printed *Gove Sada-pali*.

Notwithstanding the utmost affinity between this and the preceding, Comeline could trace scarcely any resemblance to the *Eugenia*, in which, not having been misled by the native nomenclature, he judged properly. Ray, however, more consistently with his admitting the *Samstravadi* to be an *Eugenia* or *Jambos*, allowed the *Tsjeria Samstravadi* to belong to this genus: but Plukenet more cautiously called it *Nuci pomifera Arbor Orientalis Castaneæ equine foliis, fructu longo corticoso crasso, tetragono, summo apice (Pomi in modum) umbilicato, nucleum nudum angulosum includente (Alm. 266.)*, in which he entirely overlooked the leaves of this being simple, and those of the Horse Chestnut being compounded.

Although neither Rumphius, nor his editor Burman, considered either species of *Butonica terrestris* as the same with the *Tsjeria Samstravadi*; and although Linnæus in the *Flora Zeylanica* (190.) quoted the latter alone, with the synonyma of Ray and Plukenet, for his *Eugeniu foliis coronatis, pedunculis terminantibus, pomis oblongis acutangulis*; yet in the *Species Plantarum*, copied by the younger Burman (*Fl. Ind.* 114.), he introduced, as synonymous with the *Tsjeria Samstravadi*, the *Butonica terrestris rubra*, adding to *Eugenia* the specific name *acutangula*. This arrangement was of course followed by Willdenow (*Sp. Pl.* ii. 996.). M. Lamarck, however, observing, I presume, that the fruit of the *Butonica terrestris rubra*, as represented by Rumphius (*Herb. Amb.* iii. t. 115.), has no great resemblance to that of the *Tsjeria Samstravadi*, being too much attenuated at the ends, rejected this quotation, and considered the *Butonica terrestris alba* (*Herb. Amb.* iii. t. 116.) as the *Tsjeria Samstravadi*, the form of the fruit in the figures of these plants, by Rheede and Rumphius, having a great resemblance. I must, however, observe, that Rheede says of the *Tsjeria Samstravadi*, "Flores purpurei;" and he represents the flowers as disposed in racemes; while of the *Butonica terrestris alba* Rumphius says, "petiolis (pedunculis communibus) insident capitula viridia sese in bina ternave crassa petala (calycis lacinias) aperientia, in quorum centro quatuor alia alba et extensa conspiciuntur petala, restans floris pars in medio repleta est albis staminibus ad basin rubescentibus, antheras fuscas gerentibus." Further, he not only represents the flowers and fruit as disposed in spikes, but says, "pomula sessilia, quum priora (id est, fructus *Butonice terrestris rubrae*) ex pedunculo (pedicello) dependeant." We may safely, I think therefore, infer that, notwithstanding the similarity of the fruits, the *Tsjeria Samstravadi* and *Butonica terrestris alba* are not the same plant. In fact, neither species of the *Butonica terrestris* seems to have been described by Rheede, nor either species of *Samstravadi* to have been described by Rumphius; as we may infer not only from the circumstances above mentioned, but also from the form of the leaves as represented by the two authors.

The variations of opinion on the subject, among the best botanists, seem to have deterred Dr. Roxburgh from quoting either author for his *Barringtonia acutangula* (*Hort. Beng.* 52.), although I have no doubt that it is the *Tsjeria Samstravadi*. From Ava, where it is called *Kiin ngæh* (little), I sent speci-

mens to Sir Joseph Banks under the name adopted by Dr. Roxburgh; and I have since given specimens to the library at the India House under Jussieu's name of *Stravadium acutangulum*; for, although I cannot approve of so violent a corruption, I must yield to his superior authority. In the dialects spoken in Gangetic India, where it is one of the most common trees, it is called *Ijjal* or *Hijjal*.

Arbor magnitudine mediocris. *Rami* petiolorum cicatricibus exasperati. *Folia* sparsa, ramulorum apices versus approximata, obovata, apice nunc obtusa tunc acuta, basi cuneata, nitida, nuda, costata, venis reticulata, utrinque viridia. *Petiolus* brevissimus, supra planus, glaber, non stipulaceus.

Racemus terminalis, simplicissimus, pendulus, foliis longior, nudus, glaber.

Flores sparsi, parvi, filamentis coccineis rubentes.

Calyx superus, laciniis erectis obtusis æqualibus 4- seu 5-partitus. *Petala* sæpius quatuor revoluta, oblonga, basi cohærentia, ad staminum columnam adnata. *Filamenta* plurima, longissima, filiformia, basi coalita. *Antheræ* parvæ, subrotundæ. *Germen* inferum, tetragonum. *Stylus* longitudine et figura staminum simplex. *Stigma* indivisum.

Bacca sicca, oblonga, tetragona, calyce coronata. *Semen* unicum, maximum, oblongum, circinatum.

I have not noticed the structure of the seed, as the description was taken in Ava, before I had seen the work of Gærtner.

MALLA KATOU TSJAMBOU, SEN M. CATU TSJAMBU, p. 17. tab. 8.

Commeline joins the vulgar, Hindus, Portuguese and Dutch, in considering this as a *Jambu*, or *Eugenia*, very nearly allied to the plants now called *E. Jambos* and *E. malaccensis*; while the Brahmans seem to err as much in calling it *Mal Ambetti* (*montana Mangifera fæmina*). It must be admitted that the figure represents the plant less like the *Eugenia* than it ought, because the leaves have been drawn as if alternate; but from the description we learn that this is erroneous ("Folia geminata brevibus petiolis decussato ramulis inhærent"). So far, therefore, as to its leaves, it might be an *Eugenia*; but then the flower is divided into five or six parts, the latter seeming to be the natural number, as the style is divided into three; and besides, some

individuals would appear to be entirely female, as that described by Rheede, who does not mention any stamina. Both circumstances are incompatible with its being an *Eugenia*.

Plukenet was as unfortunate as Commeline in comparing this plant to his *Arbor Indica Pyri densioribus et subrotundis foliis, fructu Nucis Moschatæ magnitudine summo vertice coronato* (*Mant.* 23. pl. 3. t. 336.), which is pretty evidently a *Gardenia*, and quite different from the *Malla Katou Tsjambou*.

The elder Burman, in his observations on Rumphius (*Herb. Amb.* i. 128.), thinks that this is the *Jambosa silvestris alba*, which again he considers as a variety, or rather as the female plant, of the *Malacca Schambu*, that is, of the *Eugenia Jambos*. In both opinions he is probably wrong; for the *E. Jambos* has no flowers merely female, nor is the *Jambosa silvestris alba* the same with the *Malacca Schambu*, as I have endeavoured to show (*Linn. Trans.* xiii. 482.). It is, however, very possible that the *Malla Katou Tsjambou*, as the same Burman in another place alleges (*Thes. Zeyl.* 125), may be his *Jambos sylvestris et montana fructu Cerasi magnitudine*, which is the *Maharatambola* of the Ceylonese; but it cannot be the *Jambosa silvestris parvifolia* of Rumphius (*Herb. Amb.* i. 129.; ii. t. 40.), with which Burman there joins it, because that is a real *Eugenia* with hermaphrodite flowers; and the *Malla Katou Tsjambou*, or *Maharatambola*, on account of its diœcious flowers, terminal panicles, and trifold style, notwithstanding the authority of Linnæus (*Fl. Zeyl.* 501.), I cannot consider as belonging to this genus. It seems, indeed, to have a greater resemblance to the genus *Scopolia* of Forster, as described in the *Eucyclopédie Méthodique* (vii. 14.; *Ill. Gen.* t. 860.).

KATOU TSJEROE, SEU CATTU TSJERU, SEU C. CHERU, p. 19. tab. 9.

Katou and *Rana*, the specific names used by the vulgar and learned of Malabar, have the same meaning, that is, signify anything wild or uncultivated; while a species that is planted round the corn-fields, and described in page 20, is considered the prototype of the genus called *Tsjeroe* or *Cheru* by the vulgar, and *Bibo* by the learned. It seems to be from a very considerable affinity between this tree and the *Anacardium occidentale* that the natives of India, according to Clusius (*Enc. Méth. Suppl.* i. 753.), gave to the latter the name of *Bybo*, evidently the same with *Bibo*, used by the Brahmans of Malabar.

Commeline, however, does not venture to compare this with any plant then known; and it was with uncertainty that Plukenet quoted it for his *Prunifera arbor seu Nuciprunifera folio dodrantali longitudine, laevi mollitie p̄redito* (*Alm.* 306.; *Phyt. t.* 218. *f.* 1.), a West Indian plant that I cannot trace in modern authors, unless it be the *Achras Sapota*, which, according to the *Hortus Kewensis* (ii. 312.), is called the *Bully-tree*, if that be the same with the *Bully-Bay* used in Barbadoes according to Plukenet. Should this be the case, the West Indian plant can have no affinity with the *Tsjeroe*.

M. Lamarck thought that the *Tsjeroe* might be a *Mangifera*, and it is accordingly mentioned (*Enc. Méth. Suppl.* iii. 584.) under the name of *Mangifera? racemosa*, M. Poiret justly doubting of its being a real *Mangifera*. This is the only notice, so far as I know, that was taken of this tree by modern botanists, until I visited Chatigang in 1797, and Mysore in 1800. On my return from the former, I gave young plants to Dr. Roxburgh; and on my return from the latter, I showed him a drawing and specimens, which were afterwards given to Sir J. E. Smith, under the name of *Holigarna Vernix*; but Dr. Roxburgh called it *Holigarna longifolia* (*Hort. Beng.* 22.). The plant, which I saw, seems to be that which Rheede calls *Tsjeroe*, or *Bibo*, without prefixing a specific name, and differs from the *Cattu Tsjeru*, or *Rana Bibo*, of which he gives a figure, in having much shorter racemes, and these not at the end of the branches, but from their sides, and also in a singular small tooth-like process on each side of the *petiolus*. Dr. Roxburgh describes another species from Silhet, of which I have given specimens to the library at the India House. This genus, remarkable for the caustic nature of its juice, which is used as a varnish, I cannot reduce to any of Jussieu's natural orders. It comes nearer the *Rhus* than to any Linnæan genus; but has the germen inferum; on this account, as well as its caustic juice, it seems nearly allied to the *Rak* of Japan (*Kæmpf. Amœn. Exot.* 793.), and to the *Arbor Vernicis* of Rumphius (*Herb. Amb.* ii. 259. *t.* 86.), which M. Lamarck (*Enc. Méth.* i. 350.) calls *Terminalia Vernix*. I should, indeed, have no doubt of their belonging to the same genus, did not Rumphius say, "flores plurimis staminibus rubris referti," which, if accurate, would show an essential difference between his plant and both the *Bibo* and *Terminalia*. In fact, the two latter have no sort of affinity, while the number of styles and the position of the germen distinguish the *Bibo* most

clearly from the *Mangifera*. I shall now give the description, which I took in Mysore.

HOLIGARNA LONGIFOLIA. *Hort. Beng.* 22.

Tsjiero sen Bibo. *Hort. Malab.* iv. 20.

Chern Tanlavæ.

Biba Concanæ. *Buchanan's Mysore*, iii. 186.

Holigarna Carnatæ.

Habitat in Indiæ sylvis montosis, humidis.

Arbor verniciflua, succo caustico, venenato, recente albo seu hyalino, exsiccato nigricante scutens. *Rami* cicatricibus obovatis exasperati. *Folia* alterna, apices versus ramulorum conferta, oblonga, cuneata, acuminata, margine revoluta integerrima, costata, venis reticulata, glabra, junioribus tamen subtus pubescentibus. *Petiolus* semiteres, brevissimus, denticulo subulato patente utrinque apicem versus instructus, non stipulaceus.

Racemi infrafoliacei, sparsi, simplicissimi, adscendentes, folio breviores, undique pilis ferrugineis tecti. *Flores* diœci, pedicellati, parvi, sparsi, vel aliquando fasciculati, albi. *Squamæ* in racemo et pedicellis vagæ.

Masculini floris calyx minimus, quinquelobus. *Petala* quinque, ungue lato fere coalita, intus barbata, calyci inserta. *Filamenta* quinque petalis alterna et longiora, patentia. *Antheræ* cordatæ.

Fœminei floris calyx brevissimus, cyathiformis, fundo setosus, ore obsolete quinquangularis. *Petala* quinque, linearia, intus villosa, ungue lato subcoalita, calyci inserta. *Filamenta* quinque, subulata, brevissima, perigyna, petalis alterna. *Antheræ* simplices, nescio an fertiles? *Germen* magnum, inferum, compressum. *Styli* tres, erecti. *Stigmata* crassa.

Drupa compressa, monosperma.

TANI, p. 23. tab. 10.

In the Hindwi dialect I cannot trace the name *Gottinga*, said to be used by the Brahmans of Malabar for this tree. According to Rheede, the vulgar inhabitants of Malabar reckon this the prototype of the genus *Tani*, which, however, is very unnatural, as this species has no affinity to the following plant, which is also called *Tani*, with a specific name prefixed. As I under-

stood the natives of Malabar, it is the fruit which is called *Tani*; for they called the tree *Tani Cai Maram* (*Tani fructus arbor*), Buchanan's Mysore, ii. 342.

The plant of C. Bauhin (*Fructus in insula S. Mariæ, pyra majora referens intus muculentum*), with which Commeline compares this, can scarcely be the same, on account of the size and mucilaginous quality of its fruit, and is probably rather a *Mabolo* or *Diospyros* than a *Myrobalanus*, although Plukenet rather thinks it a *Syalita* (*Dillenia*), which, however, he confounds with the (*Artocarpus*) Bread fruit (*Mant.* 124.). In his Index he mentions the *Tani*, but without a reference to the part of his work where it is to be found, nor have I been able to discover the place.

Commeline afterwards called the *Tani* a *Prunus*, in which gross error he was followed by Ray and the elder Burman (*Thes. Zeyl.* 197.); the latter, indeed, was still further in the wrong, because he confounded it with the *Dematha* of the Ceylonese, which is the *Gmelina asiatica*, as Linnæus, in rejecting Burman's synonyma, rightly observes (*Fl. Zeyl.* 230.).

Gærtner considered the *Tani* as the same with his *Myrobalanus Bellirica* (*De Sem.* ii. 90. t. 97. ubi errore *Bellirina* dicitur), and certainly the fruits of the two plants are extremely similar; but the form of the seed and loculamentum is different, in that of Rheede being circular, and in that of Gærtner being angular. Whether or not the latter was right, in considering his plant as the *Myrobalanus Bellirica* of Blackwell and Breynius, I cannot say, not having it in my power to consult these authors; but he says that Blackwell's figure is bad, or, in other words, does not entirely resemble his plant. M. Poiret (*Enc. Méth.* vii. 576.) seems doubtful whether Gærtner was right in quoting the *Tani* for his *Myrobalanus Bellirica*, and in the Supplement (iii. 707.) to the *Encyclopédie* states this doubt more fully. Dr. Roxburgh does not quote (*Hort. Beng.* 33.) the *Tani* for the *Terminalia Bellirica*, which is a name not mentioned by Willdenow, although I suspect that Dr. Roxburgh's plant is what Willdenow calls *T. Chebula*, because he says, "foliis obovato-oblongis," while the *Chebula* of Dr. Roxburgh, the same with that of Retzius, has folia ovata. The *Tani* has folia obovata, and may therefore be the *T. Chebula* of Willdenow. In this case the *Tani* cannot be either the *M. Chebula* or *M. Bellirica* of Gærtner; the former on account of the difference in the form of their

fruits, and the latter for the reasons I have already stated: and besides, the flowers of the *T. Bellirica* of Retzius, which in the Hindwi dialect is called *Bahara*, have an abominable stercoraceous smell, while Rheede says of his plant "flores suaveolentes."

In the woods of Southern India (*Buchanan's Mysore*, i. 183.) I found a tree called *Tari* in the dialect of Carnata, and *Tani Cai Maram* by those of Malabar, as already stated, which therefore, I have little or no doubt, is the *Tani* of Rheede, although I have not noted the smell of its flowers, by which chiefly it is distinguished from the *Terminalia Bellirica*. Specimens were given to Sir J. E. Smith under the name of *Terminalia* or *Myrobalanus Taria*, and I shall here annex a description.

Arbor magna, ligno firmo, albido, non resinoso, durabili. *Ramuli* sulco e petiolo utrinque decurrente angulati, surculis novis pubescentibus nudi. *Folia* decidua, subopposita, apices versus ramulorum conferta, obovata, aliquando acuta, sæpius cum acumine obsoleto obtusa, margine cartilagineo integerrima, costata, venosissima, coriacea, eglandulosa; juniora pubescentia, adulta utrinque glabra. *Petiulus* compressiusculus, marginatus, glaber, supra medium glandula, ætate sæpe evanida, utrinque instructus, brevis, non stipulaceus.

Spicæ infrafoliaceæ vel axillares, petiolo longiores, pubescentes, laxæ, nudæ, solitariæ. *Flores* sparsi: superiores masculini; inferiores in eadem spica hermaphroditi.

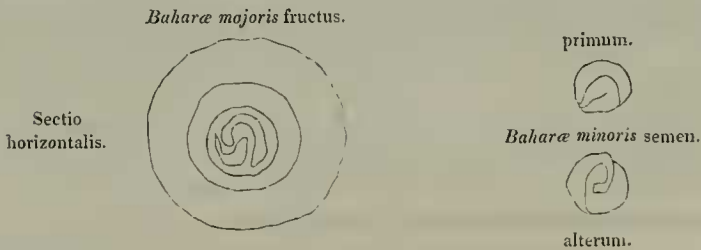
Drupa subcarnosa, angulis quinque obsoletis obovata. *Nux semine* esculento monosperma.

In the collection of specimens which I have given to the library at the India House, are those of several varieties of the *Terminalia Bellirica*, which, as I have said, I can scarcely distinguish from the *Tani* by any mark, except the smell of the flowers; for I found a very considerable difference in the form and pubescence of the leaves, in the shape of the nut and seed, and in the presence or absence of glands, in the different trees that were admitted by all to be the *Bahara*, the name by which the plant with fetid flowers is known in the Hindwi dialect. In some places the *Bahara* was distinguished into two kinds, the great and the small, on account of a difference in the size of the fruit. The

flowers of that with the small fruit are not so offensive as those of that with the large drupe, and therefore, in this respect, it approaches to the *Tani*; but then the fruit of the *Tani* is as large as that of the *Great Bahara*, or as Gærtner's *Badamia*, while the fruit of the *Small Bahara* is like that which, by an error of the engraver, is called *Bellirina* in the 97th table of Gærtner. On the whole, these plants require still further examination. I shall, however, describe the fruit of the large and small kinds of *Bahara*, the first taken at Domdoho, and the latter at Duriapur, both differing somewhat from the figure given by Gærtner; but I think, as I have said, that these fruits are subject to very considerable variations in the same individual tree.

BAHARA MAJOR.

Drupa Juglandis integræ magnitudine obovata, sessilis, umbilicata, junior pubescens, carnosa, obsolete pentagona, subæquilatera. *Caro* crassa, succo flavo scatens. *Nux* crassa, dura, circinata, cavitate quoque circinata. *Semen* forma cavitatis. *Integumentum* crassum, membranaceum. *Perispermum* nullum. *Cotyledones* crassæ, conduplicatæ, una alteram amplectante, ut in gemma obvoluta, et minime circumactæ ut in *Terminalium* pluribus.



BAHARA MINOR.

Drupa magnitudine nucis *Moschatæ* obovata, obsolete pentagona, subæqualis, carnosa, umbilicata. *Caro* crassa, succo, aqueo scatens. *Nux* crassa, dura, circinata, cavitate obsolete trigona, sed minime lobata ut in Gærtneri figura. *Semen* forma cavitatis. *Perispermum* nullum. *Cotyledones* crassæ, conduplicatæ; in uno fructu una alteram fovente; in altero, ut in Gærtneri fere figura, se invicem intercipientibus.

TSJEM TANI, p. 25. tab. 11.

The vulgar in Malabar, by a very rude attempt at classification, place this in the same genus with the preceding *Terminalia*; while the Brahmans err no less in calling it a *Morij*, that is, a *Pepper*, for which there seems no other ground but its having some aromatic quality. Commeline makes no attempt at classification, a prudence which Ray might as well have adopted, instead of calling it *Myxa pyriformis ossiculo trispermo*, by which absurdity he induced Plukenet to compare it with the *Prunus Sebestene similis Americana* of Herman (*Alm.* 306.), by no means an improvement.

Linnaeus, in the first edition of the *Species Plantarum*, followed by Burman (*Fl. Ind.* 16.) and by Willdenow (*Sp. Pl.* i. 187.), rightly considered it as a distinct genus, which he called *Rumphia*, and gave this the specific name *amboinensis*. This, however, was doing little more than freeing us from the error of Ray, for its affinities are not mentioned, and some difficulties attend the giving it a place, as Jussieu refers it with hesitation to his *Terebinthaceæ*, and doubts if it is not more nearly allied to the *Sapindi*. M. Poiret seems to adopt the former opinion without doubt (*Enc. Méth. Suppl.* vi. 352.). The specific name given by Linnaeus was probably with a view to express the connexion of Rumphius with *Amboyna*; but as it might also imply that the tree was a production of this country, where it has not yet been discovered, M. Lamarek changed the name into *tiliaefolia* (*Tabl. Enc.* 96.; *Ill. Gen.* t. 25.), which has been followed by M. Poiret (*Enc. Méth.* vi. 352.).

MAL NAREGAM, seu NARA MARAM, seu CATU TSJERU NAREGAM, p. 27. tab. 12.

Naregam, a generic term used for a good many plants, seems to be the same with *Narenggi*, used occasionally in the Gangetic dialects for plants of the genus called *Citrus* by botanists; although *Limbo*, evidently the same with the *Nimba* of the Brahmans of Malabar, is more common. All these terms, however, are applied to several plants having very little affinity to the *Citrus*, as is the case here. *Mal*, the specific name used in the text, signifies mountain; and *Rana*, employed by the Brahmans, signifies wild. The Dutch, therefore, rightly interpret the native name into *Wilde Citroenen*. Concerning the terms *Nara* and *Nani* I can give no explanation, only that they seem both

generic; but the specific name given on the plate consists of two words, *Catu*, implying forest (*sylvestris*), and *Tsjeru*, implying that the plant has an affinity with the *Tsjeru* delineated in the 9th plate. These names in the plate, however, seem to have been applied by mistake, as they are not mentioned in the text, and are given, only in a reversed order, to the plant delineated in plate 14, which has led to several mistakes, as will be soon mentioned.

None of the comparisons above mentioned are fortunate; yet they seem to have satisfied Herman and Commeline, who called the plant *Malus Limonia pumila sylvestris zeylanica*. Plukenet was, however, inclined to class it with a genus called by old botanists *Coru*; and thought that it might be the same with his *Coru Indorum Mali aureæ foliis, floribus albis*; *Parencoruttee Malabarorum* (*Mant.* 57.), justly observing, that it had more affinity to the *Prunus* than to the *Malus*, with which *Citrus* was then classed.

The elder Burman quotes this plant for his *Limonia Malus, sylvestris, Zeylanica, fructu pumilo*; but as he also quotes the *Limonellus* of Rumphius (*Herb. Amb.* ii. 107. t. 29.), and the *Malus Aurantia, fructu Limonis pusillo, acidissimo* of Sloane, there can be little doubt that he meant the species of *Citrus*, commonly called *Lime* by the English, which has no resemblance to the *Mal Naregam*. The latter, however, has a strong resemblance to Herman's *Limones pumili, Zeylanici, sylvestres, Dehighaha zeylonensis*, (*Thes. Zeyl.* 143. t. 65. f. 1.), which Linnæus left among the *plantæ barbaræ annihilatæ* (*Fl. Zeyl.* 606.).

The younger Burman quotes the *Catu Tsjeru Naregam* and his father's *Limonia Mulus, sylvestris, Zeylanica, fructu pumilo*, for his *Limonia acidissima*; but then, as the plant he meant had pinnated leaves, he quotes the 14th plate of Rheede, which delineates the *Tsjeru Catu Naregam*, and cannot have the smallest resemblance to the plant meant by the elder Burman. To this error he seems to have been led by Linnæus, who for his *Schinus foliis pinnatis, rachi membranaceo-articulato, spicis axillaribus solitariis* (*Fl. Zeyl.* 175.), afterwards called *Limonia acidissima*, quotes the *Tsjerou Katou Naregam*, Rheed. *Mal.* 4. t. 12., instead of the *Tsjeru Catu Naregam*, t. 14., and joins this to the *Limonia Malus, sylvestris, Zeylanica, fructu pumilo*, of the elder Burman, which is the *Walhedi* or *Jakuawa* of the Ceylonese, while the plant meant by Linnæus is the *Diwul* or *Giwul* of these people (*Thes. Zeyl.* 89.), a name most absurdly derived by Linnæus from the Swedish *diwul* (devil), because, forsooth, this

fruit, to use the vulgar nautical phrase, gives our seamen trading to India a *devilish flux*! How he fell into such a mistake I cannot say, as he might have read in Burman, “*Diwul* notat adstrictionem gutturis quæ sæpe causatur a fructibus immaturis. Hujus autem arboris fructus astringunt, unde in dysenteria valde commendatur.” It was on this quality that the genus *Coru* was founded, of which the *Diwul* is probably the prototype, as likely the same with the *Bolanga* (*Thes. Zeyl.* 31.), or *Balanghas* (*Thes. Zeyl.* 84.), that is, the *Feronia Elephantum*, which no doubt is very nearly allied to the *Limonia acidissima*; but both are very different from the *Mal Naregam*, at least in their foliage and general appearance. The *Dehi-ghaha*, which by Linnæus, as I have mentioned, was left in the *Flora Zeylanica* among the *Plantæ amihilateæ*, he afterwards in the *Mantissa* called *Limonia monophylla* (*Willd. Sp. Pl.* ii. 571.), while he adopted Burman’s *Limonia acidissima*, quoting, indeed, for the latter the *Catu Tsjeru Naregam*, but evidently meaning the *Tsjeru Catu Naregam*, as he quoted the 14th and not the 12th plate.

The *Catu Tsjeru Naregam* continued, therefore, really unnoticed by modern botanists, until it was joined by M. Lamarck (*Enc. Méth.* iii. 517.) with the *Dehi-ghaha* of Burman as synonymous with the *Limonia monophylla*. Its being of the same genus, however, with the *Tsjeru Catu Naregam*, the true prototype of the genus *Limonia*, is extremely doubtful; for, setting aside the difference of habit, it would seem to have its flower divided into four petals, many stamina united at the base, and a berry with one seed.

CATU SEU KATOU NAREGAM, p. 29. tab. 13.

Commeline agrees with the inhabitants of Malabar, vulgar and learned, native and foreign, in considering this as a species of *Citrus* or *Limonia*, than which I scarcely know an attempt at arrangement more rude. Plukenet seems to have made little improvement by comparing it with the *Granata Malus Zeylanica spinosa* of Herman, which he calls *Malus Puvica Zeylonensium, spinosa* (*Alm.* 240.), and *Malus Granata Zeylonensis aculeata* (*Phyt.* t. 98. f. 6.). Whether or not the plant of Herman is the same with that of Plukenet I cannot say; but, if it is so, I doubt very much of its being the plant of Rheedé, although no doubt both belong to the same natural order, that is, to the *Rubiaceæ* of Jussieu. Plukenet, indeed, quotes the *Catu Naregam* with doubt, in which

caution he is not followed by the elder Burman, who, without hesitation, not only joins the plants of Rheede, Herman and Plukenet, but unites with these the *Malum Granatum Delima* of Rumphius (*Herb. Amb.* ii. 94. t. 24. f. 1.), and the *Arbor Granata* of Grimm, which are no other than the common *Pomegranate*, and thus attributes all its virtues to the *Catu Naregam* (*Thes. Zeyl.* 111.).

These errors were too gross for subsequent botanists, among whom I have not been able to trace any notice of the *Catu Naregam*. It belongs, however, to that assemblage of plants called *Gardenia* by Linnæus, or rather by his editors, who have under this name included several very distinct genera. On account of the number of stamina, very uncommon in this natural order, the *Catu Naregam* comes nearest the *Gardenia Thunbergia* (*Willd. Sp. Pl.* i. 1226.); but it differs in being thorny, and, what is of more importance, in the structure of the fruit, that is to say, if the fruit of the *Gardenia Thunbergia* has actually four cells; but it is very possible that it may have only two, each being again divided by a process from the septum, separating the seeds in each cell into two masses enveloped by a congeries of pulp and membranes, so that the whole may readily be mistaken for four cells. But a fruit divided into two cells, each containing many seeds fixed to the septum medium by a longitudinal receptaculum, is what constitutes the real generic character of the *Randia* (*Gærtner De Sem.* t. 26.) not well distinguished from the *Genipa* (t. 190.) and *Tocoyena* (t. 190.). If the membrane lining the outer parietes of the fruit be indurated into a ligneous substance, we have the fruit of the *Posoqueria* (t. 195.) or *Ceriscus* (t. 140.), a distinction, perhaps, too minute to separate these plants from the *Randia*, as resting merely on a greater or less degree of induration in the same organ; but the true *Gardenias* (t. 193, 194.) are abundantly distinct, from the want of any division in the fruit, and from the seeds being annexed to the outer parietes instead of to a septum medium. The *Catu Naregam* has perhaps, therefore, the same generic characters with the *Gardenia Thunbergia*, and ought not, perhaps, to be separated from the genus *Randia*, as I have defined it, unless the number of stamina be considered sufficient; for the *Randias* have only half the number of stamina, and among the *Rubiaceæ* this is of considerable importance; but when the habit is so similar, and the number of species moderate, such a difference deserves

little attention. I have indeed found a tree which, were it not for the number of stamina, and for its flowers wanting odour, I should have taken to be the same with the *Catu Naregam*. I shall here describe it, partly in order to show that this difference in number is not accompanied by any difference of habit that could justify a separation of genus, and partly because this may be the very plant that Plukenet and Burman took for the *Catu Naregam*. Specimens have been given to the library at the India House.

RANDIA VIROSA.

Posoqueria drupacea. *Gartn. De Sem.* iii. 77. t. 195.?

Granata Malus Zeylanica, spinosa. *Burm. Thes. Zeyl.* 111.?

Malus Punica zeylonensium spinosa. *Pluk. Alm.* 240.?

Malus Granata zeylonensis aculeata. *Pluk. Phyt. t.* 98. f. 6.?

Laurifolia minor ex Java. *Pluk. Mant.* 115. ad *Alm.* p. 211. l. 3. referens, quæ ultima tamen forte est *Garcinia Mangostana*, Horto Malabarico perperam citato.

Bis (virosa) Moyen Bengalensium.

Habitat in Indiæ Gangeticæ dumetis.

Arbuscula *Vangueriæ* facie. *Rami* rigidi, non pubescentes. *Ramuli* brevissimi, ex anni præteriti foliorum axillis (foliis deciduis nudati), subquadriphylli. *Rami* nunc inermes; tunc spinis oppositis supra ramulorum axillas enatis, rectis, ramulos longitudine æquantibus armati. *Folia* opposita, approximata, oblongo-obovata vel cuneata, acuta, integerrima, glabra, subcostata, venosa. *Petiolus* brevissimus, marginatus. *Stipulæ* petioli longitudine interfoliaceæ, ovatæ, acutæ, diaphanæ.

Pedunculi terminales 1—3, uniflori, petiolo vix longiores. *Bractee* vix ullæ. *Flores* mediocres, lutei, inodori.

Calyx glaber basi longitudine tubi corollæ cylindraceo; limbo quinquepartito laciniis patentibus, linearibus, acutis, corolla vix brevioribus. *Corollæ* hypocateriformis tubus crassus, brevis, teres, ad medium intus pilis cinctus; limbus glaber, æstivatione imbricata obliquus, quinquepartitus laciniis obovatis, acutiusculis. *Antheræ* quinque ad corollæ incisuras adnatæ, oblongæ, acutæ, basi emarginatæ. *Germen* inferum, globosum, glabrum. *Stylus* longitudine tubi teres. *Stigma* exsertum, ovatum, sulcatum, bipartibile.

Pomum magnitudine fructus Juglandis subrotundum, calyce truncato umbilicatum, parietibus crassis intus in putamen tenue induratis biloculare. *Receptacula* e medio septi utrinque enata, membranacea, bifida. *Semina* plura horizontalia, bifariam in singulis pomi loculis nidulantia, pulpo carnoso tecta.

It must be observed, that the *Gardenia uliginosa* (*Hort. Beng.* 13.; *Hort. Kew.* i. 370.; *Willd. Sp. Pl.* i. 1228.) differs in no essential generic character from the preceding, and therefore I entirely approve of M. Poiret having called it *Randia uliginosa* (*Enc. Méth. Suppl.* ii. 829.), under which name I have presented specimens to the library at the India House. That the *Genipa* (*Gærtn. De Sem. t.* 190.) is to be considered as a different genus seems very doubtful. I did not examine the position of the embryo in the seeds of the *Randia uliginosa*, and therefore cannot say whether it is similar to that in the *Genipa*; but Gærtner's figure of the fruit of the latter is, on the whole, a good representation of that of the *Randia uliginosa*; and I must protest against such minute differences in structure, as Gærtner here relies on, being held as a sufficient ground for tearing asunder natural genera, a practice, I am sorry to say, now too common among botanists.

TSJEROU KATOU NAREGAM, seu TSJERU CATU NAREJAM, p. 31. tab. 14.

In the commentary on the *Mal Naregam* I have noticed the mistakes which have arisen from the carelessness of Rheede, or of his editors, in prefixing to the figure of that plant the specific names *Tsjeru* and *Catu*, which belong to this, with only the order reversed. The Brahmans of Malabar, as well as the vulgar, class this with the *Citrus*. With his usual want of care in the orthography of Indian words, Rheede in the plate not only spells the vulgar name differently from what he does in the text, but the name said to be given by the Brahmans in the plate is *Naringi* (*Orange*), while in the text it is *Cit Rana Nimba* (*alba, fera Citrus*). All these names, however, agree in classing it with the *Citrus*, while even Commeline condemns in some sort this arrangement, which was however adopted by Ray, who called it *Malus Limonia Indica fructu pusillo* (*Hist. Plant.* 1658.). Plukenet, who at first followed the same idea, and called it *Malus Limonia Lentisci foliis Zeylanica, fructu minimo, uvarum magnitudine æmulo* (*Alm.* 239.), afterwards (*Mant.* 125.) became sen-

sible of this error, and classed it with the *Coru*, of which, as I have said in treating of the *Mal Naregam*, the prototype is probably the *Feronia Elephantum* of modern botanists.

In commenting on the *Mal Naregam*, I have already mentioned the error into which the elder Burman fell by quoting this plant for the *Walhedi* or *Jakuawa* of the Ceylonese, which, from the synonyma of Rumphius and Sloane, seems to be rather the small-fruited *Citrus*, called *Lime* by the English. Linnæus seems to have been aware of this, and therefore joined the *Tsjerou Katou Naregam* with the *Diwul* or *Giwul*, although by an error, probably typographical, he quotes plate 12 in place of 14. On this subject I have in this commentary made already some remarks. The *Tsjerou Katou Naregam*, or *Diwul*, Linnæus in the *Flora Zeylanica* (175.) considered as a species of *Schinus*, thus placing it in the order of *Terebinthaceæ*; but from his synonyma we must reject those of Burman and Sloane, which belong to the small-fruited *Citrus*.

The younger Burman having become sensible that the *Tsjerou Katou Naregam* could not be a *Schinus*, the fruit of which is a drupa, formed a new genus, which he called *Limonia*, and in this he included this plant and another, since called *Triphasia*, and thus returned to the old system of placing it among the *Aurantia*, which shows how nearly the *Aurantia* and *Terebinthaceæ* are allied. The *Tsjerou Katou Naregam* may therefore be most justly considered as the real prototype of the genus *Limonia*, and is perhaps still the only species properly belonging to it, several, at least, of those since annexed by Linnæus and others having both a very different character and appearance. Burman, indeed, added as synonymous the *Anisifolium* or *Boa Balangan* of Rumphius (*Herb. Amb.* ii. 133. t. 43.), which, however, that excellent botanist merely says has the same habit (*foliatura*) with the *Tsjerou Katou Naregam*; and the elder Burman, in his explanation of the plate (43.), points out essential differences. We may infer, from Linnæus quoting the plant of Rheede alone for his plant, that it was this he meant; and as Burman's *Limonia acidissima* is the *Schinus* of Linnæus, it cannot be the *Anisifolium*, although Willdenow continues to join them (*Sp. Pl.* ii. 572.). Yet, that even he means the *Katou Naregam* alone, may be inferred from his describing the fruit "Bacca trilocularis, seminibus solitariis." The *Anisifolium* is now considered as forming a distinct genus, and is called *Feronia Elephantum* (*Enc. Méth. Suppl.* ii. 630.;

Hort. Beng. 33.), although the two plants have such a strong resemblance, that I return to the opinion of Plukenet, and doubt the propriety of separating them merely on account of some differences in their fruit; at least, if a generic character exists in both their fructifications sufficient to distinguish them from the other plants of the natural orders of *Aurantiae* and *Terebinthaceæ*; for, except in habit, the *Murraya* comes very near them, and may not be easily distinguished by characters common to them both. Specimens of both have been presented to the library at the India House.

Kœnig somehow took the *Anisifolium* to be the true *Limonia acidissima*, and the *Tsjerou Katou Naregam* was therefore called the *Limonia crenulata*; for he had discovered that the two plants were different; and this nomenclature is followed in the *Hortus Kewensis* (iii. 43.), and even in the *Hortus Bengalensis* (32.) and *Encyclopédie* (*Suppl.* iii. 44.); but in my opinion it is impossible to admit with propriety of such an innovation.

PAENOE, SEU PAENU, *p.* 33. *tab.* 15.

The Brahmans of Malabar call this tree *Doepoe*, or *Dupa*, rightly translated *Arvore Ensenza* by the Portuguese, who probably used its fine resin as incense. The resin however, as Commeline observes, is very similar to the gum Anime of America, and, in fact, is often sent to Europe as such; for, as Commeline observes, a similar resin is produced by several different trees, having probably little botanical affinity with each other, which is the case also with the resin now more commonly used as incense.

The *Paenoe* is one of the most ornamental trees in India, and in the province of Canara, where alone I have seen it, is usually planted in rows by the sides of highways, making remarkably fine avenues (*Buchanan's Mysore*, iii. 89.).

Ray, followed by Plukenet (*Alm.* 28.), was as usual very unfortunate in classing this tree, which he called *Amygdalæ affinis Indica fructu umbilicato, nucleo nudo, cortice pulvinato trifido tecto* (*Hist. Pl.* 1482.). Linnæus most justly considered it as a new genus, which he called *Vateria* (*Fl. Zeyl.* 204.), and in the *Species Plantarum*, he added the specific name *indica* (*Burm. Fl. Ind.* 122.)*.

* It is, however, probable that Linnæus mentions the same tree under a different name, *Kækuria ghaha* (*Fl. Zeyl.* 630.), which is the *Arbor Kækuria ghaha odorata ex qua fluit Gumm. Elemi* of the

Commeline, after stating the affinity of the gum-resin of the *Paenoe* to Gum *Anime*, had observed, “similis arboris meminit Reechus nomine *Copalli montana*. Ad hæc e Zeylan Insula simile adfertur gummi, quapropter et hæc arbor non male forsân eo referri potest.” On no stronger grounds, probably, Retzius considered this as the tree which produces Gum *Copal*, and called it *Eleocarpus copalliferus*, in which it is scarcely possible to say whether there is the greater want of care in tracing a substance used in the arts, or of skill in botanical arrangement, the *Paenoe* wanting every character by which the genus *Eleocarpus* is distinguished. Vahl, however, and Willdenow (*Sp. Pl.* ii. 1170.) adopt this name, but M. Poiret properly continues to call it *Vateria indica* (*Enc. Méth.* viii. 418.), as did Dr. Roxburgh (*Hort. Beng.* 42.). As Vahl says that his plant had all the generic characters of the *Eleocarpus* in its calyx, corolla, antheræ and fruit, we may safely conclude that it is totally different from the *Paenoe*, especially if it has a germen inferum, as Retzius is said to assert. Dr. Roxburgh alleges that the resin of the *Paenoe* is called *East India Copal*, and perhaps it may have passed for such at an Indian custom-house, where a skill in drugs is not very conspicuous; but Mr. Turnbull of Mirzapur informed me, that some he sent home for a trial would not sell for *Copal*, although it was allowed to be *Anime*. The real *Copal* and *Anime* are, however, American productions.

In 1806 I gave specimens and a drawing to Sir J. E. Smith; and I shall here give a description taken in Canara, where the tree is called *Dupada*. In Canara it is called *Cunglium*, and in the Hindwi dialect its name is *Gugulut*.

Arbor resinifera magnitudine Querci. Rami teretes. Turiones farina quasi aspersi. Folia alterna, magna, oblonga, utrinque obtusa, vel aliquando retusa, integerrima, glabra, costata, venosa. Petiolus teres, medio attenuatus, rugosus, nudus, brevissimus. Stipulæ geminæ, laterales, caducæ, sessiles, oblongæ, integerrimæ, obtusæ, farina aspersæ, brevissimæ.

Paniculæ axillares, folio longiores, ramosissimæ, laxæ ramis alternis, teretibus,

elder Burman (*Thes. Zeyl.* 28.), who properly quotes the *Paenu* (by error printed *Paeru*), but erroneously joins it with an American tree that produces Gum Elemi, and is figured by Plukenet (*Phyt. t.* 217. f. 4.). It must be also observed, that the quotation from Grimm respecting the *G. Elemi* probably refers to quite another plant, the *Kekuna* of the Ceylonese, which Burman calls (*Thes. Zeyl.* 166.) *Myrobalanus Zeylanica ex qua G. Elemi, fructu odore et sapore præstans.*

albidis, farinosis. *Bracteæ* stipulæformes, caducæ, geminæ ad singulas paniculæ divisiones, et ad singulorum pedicellorum basin. *Flores* alterni, pedicellati, albi, odorati, calycibus extra farinosis.

Calyx coloratus, persistens, patulus, laciniis oblongis obtusis ultra medium quinquefidus. *Petala* quinque, longitudine calycis sessilia, disci hypogyni lateribus inserta, calyce alterna, ovata, integerrima. *Atheræ* plurimæ, sessiles, disco insidentes, seta recurva terminatæ. *Germen* superum, ovatum, sulcatum, ovulis quinque fœtum. *Stylus* subulatus, staminibus longior. *Stigma* acutum.

For a description of the fruit I may refer to Gærtner's account (*De Sem.* iii. 53. t. 189.), to which I have nothing to add.

It would thus appear that the *Paeræ* does not belong to even the same natural order with the *Eleocarpus*, but is nearly allied to the *Vatica*, *Shorea*, *Dipterocarpus*, *Hopea* Roxburghii, *Dryobalanops*, and *Lophira*, which form a natural order, standing between the *Guttiferæ* and *Aurantia*; while the *Eleocarpus*, although placed by Jussieu among the latter, is, I think, more nearly allied to the *Tiliaceæ*.

NYALEL, seu NIALEL, p. 57. tab. 16.

With his too frequent want of care concerning native names, the author says that this tree by the Brahmans is called *Lassa*, which is usually applied to some species of *Cordia*; but in the plate the name given by the Brahmans is said to be *Rana Bori*, and *Rana* signifying *wilde*, the generic name is *Bori*, to which it will be found that two other plants (t. 40, 41.), having little affinity to this, are also referred.

Commeline compares the *Nayalel* to the *Sambucus Indica* of Bontius, an author whom I have had no opportunity of consulting. Plukenet compared both (taking them, I presume, to be the same) with his *Uvifera arbor Americana per funiculos e summis ramis ad terram usque demissis prolifera* (*Alm.* 394.; *Phyt.* t. 237. f. 5.); but I see no grounds for this comparison, for the leaves of Plukenet's tree are simple, and those of the *Nayalel*, like those of the *Sambucus*, are pinnated; nor does Rheede hint at its branches sending down roots like a *Ficus*, to which genus the American plant perhaps belongs.

M. Jussieu (*Gen. Plant.* 297.) and M. Poiret (*Enc. Méth. Suppl.* iv. 93.) thought that the *Nialel* perhaps belongs to the genus *Vitis*; but the habit is so different that, with all submission to such authorities, I cannot bring myself to this opinion, and rather think that it has a greater affinity to some of the *Aurantiaë*, such as the *Cookia* and *Murraya*; and especially to the *Lansium*, as I have mentioned in a Commentary on Rumphius (*Herb. Amb.* i. 151. t. 54.). It is remarkable that in the island of Ternate the *Lansium* is called *Lassa*, one of the names by which the Brahmans of Malabar know the *Nayalel*.

ANGOLAM, SEU ALANGI, p. 39. tab. 17.

Commeline does not venture any conjecture concerning this tree, and Plukenet (*Alm.* 31.), in quoting Ray's name, "*Arbor Indica baccifera fructu umbilicato rotundo Cerasi magnitudine dicocco*," makes no advance beyond what is stated by Rheede.

M. Lamarck was the first to introduce the *Angolam* into the modern system of botany, calling it *Alangium decapetalum* (*Enc. Méth.* i. 174.). He considered it as belonging to the order of *Myrti*, and nearly allied to the *Decumaria*; but Jussieu doubts of the propriety of this arrangement, and rather thinks that it should be placed in his 4th division of the *Onagrea*, in which I entirely coincide.

Willdenow (*Sp. Pl.* ii. 1174.) and M. Poiret (*Enc. Méth. Suppl.* i. 366.) allege, copying, perhaps, from Vahl, that the younger Linnæus had previously described the *Angolam* under the name of *Grewia salvifolia*; but Linnæus did not quote the *Hortus Malabaricus*, nor does his description agree with that of the *Angolam* either by Rheede or Vahl. What authority there may be for the allegation I do not know; I suspect that it may be some specimen of the *Angolam*, marked by mistake *Grewia salvifolia*, an accident very likely to happen, and therefore by no means a good test.

IDOU MOULLI, SEU IDU MULLI, p. 48. tab. 18.

Moulli, or *Mulli*, signifying Thorn, is rather the name of a class than of a genus, and the word *Idou*, or *Idu*, must therefore be either considered as generic, or the two words considered as forming a compound, like our English words Buck-thorn, Haw-thorn, Black-thorn, all signifying different genera.

The word *Elati-canto*, used by the Brahmans of Malabar, is of a similar nature, *Canto* signifying Thorn in the Hindwi dialect.

Commeline made no attempt to class this plant. Plukenet, having thought that he had a plant nearly allied to the *Wadouka* (p. 97.) of this volume, conceived that it might be the *Idu Mulli*, and called it *Wadouke Malabaricæ haul multum dispar, Frutex aculeatus e Maderaspatan* (*Alm.* 395.; *Phyt. t.* 69. *f.* 7.); but the figure which he gives seems to have little or no resemblance to either *Idu Mulli* or *Wadouka*. He afterwards (*Mant.* 133.) formed a more rational conjecture, and says, "*Myrobalano Bellericæ, ut nobis videtur Idu Mulli congener est, et nominari potest Myrobalanus Indica, Arbor spinis horrida, angustiore folio longo, fructu racemoso.*" Now, although from the number of stamina, as well as from the habit, this cannot be a *Myrobalanus* or *Terminalia*, I have little or no doubt of its belonging to the same natural order. At one time I thought that it might possibly belong to the genus called *Pyrularia* by Michaux (*Enc. Méth.* v. 745.), but which Willdenow has chosen, without any good reason, to call *Hamiltonia* (*Sp. Pl.* iv. 1114.). The appearance of the plants, however, differs so much, that I now think them likely to belong to different genera.

POERINSII, SEU PURINSII, SEU VERCOEPOELONGI, p. 43. *tab.* 19.

The Portuguese and Dutch names arise from the saponaceous quality of the fruit; but whether or not any of the Indian names allude to this quality I know not, all the Indian names for soap that I know being derived from the Portuguese, by whom, probably, this substance was introduced; nor is it yet common, except among persons employed by Europeans.

Commeline remarks, that the natives of hot climates (*Indi*) use various saponaceous fruits; but that the *Poerinsii* was of a genus totally unknown to botanists. Ray, in arranging the plants of the *Hortus Malabaricus*, threw no further light on the subject by calling it *Prunifera fructu racemoso parvo, nucleo saponario*, although J. Bauhin had given the name *Saponaria* to some American plants nearly allied to this; but the *Nux Portoricensis amplissimis foliis venosis et late virentibus*, with which Plukenet compares it (*Alm.* 265.; *Phyt. t.* 208. *f.* 2.), having simple leaves, can have no affinity with the *Poerinsii*, nor with the *Sphærule saponariæ* of J. Bauhin.

The elder Burman, on the authority of Commeline's *Flora Malabarica*, joins the *Poerinsii* with the *Saponaria arbor Zeylanica trifolia, semine Lupini* of Herman; but if Herman's specific character is not very bad, they must be different, the one having folia ternata, and the other folia pinnata; yet we can scarcely suppose Commeline to have been in such an error, and some of the leaves in the plate of Rheedee no doubt are represented as ternate. If this circumstance, which is borrowed from an imperfect specimen, be admitted, and if Herman's specific character be amended, the *Conghas* of the Ceylonese may be the *Poerinsii*; but to this I shall again have occasion to revert. Burman, although with doubt, quotes also as synonymous the *Arbor prunifera, sphaerulas saponarias ferens, tetraphylla, ex India Orientali* of Plukenet (*Alm.* 47.; *Phyt. t.* 14. *f.* 6.), which, as well as the *Poerinsii*, has pinnated leaves, but so different in form, that I cannot think them the same; and I shall afterwards describe a plant, which perhaps is that of Plukenet, and totally different from the *Poerinsii*. In the *Flora Zeylanica* (603.) the *Conghas* was left by Linnæus among the *Barbaræ amihilatæ*, which he could not attempt to arrange; nor does he quote for it the *Poerinsii*, deterred, probably, by observing that the leaves, when perfect, were really pinnated. When, however, he published the *Species Plantarum*, he joined the *Conghas*, that is, the *Saponaria arbor Indica trifolia* of Herman, and the *Saponaria arbor trifoliata semine Lupini* of the elder Burman, with the *Poerinsii*; and the name *Saponaria* having been given also to an herbaceous plant of the order of *Caryophylleæ*, the *Saponaria arbor* of old botanists was now called *Sapindus*, and the *Poerinsii* became *Sapindus trifoliata foliis ternatis* (*Burm. Fl. Ind.* 91.), although its leaves, when perfect, as may be seen in the figure, are pinnated. "Folia bina et bina sibi invicem opposita tenerioribus surculis (petiolis) proveniunt." At the same time, Linnæus and Burman (*Fl. Ind.* 91.) constituted another species of *Sapindus* called *Saponaria foliis impari—pinnatis, caule inermi*, for which the only authority is the *Saponaria* of Rumphius (*Herb. Amb.* ii. 134.); for the other authorities quoted, Browne, Sloane, Commeline, and Plukenet, all refer to an American plant, no doubt different from that of India, as any one may see by looking at the figure in Plukenet (*Phyt. t.* 217. *f.* 7.). Rumphius, in speaking of his *Saponaria*, says, "Similis Saponaria arbor descripta quoque occurrit in *Hort. Malab.* part. 4. fig. 19. nomine *Poerinsii*." This does not positively assert that

Rumphius considered them as the same, but only alike. In the descriptions of the two authors, however, I can perceive no essential difference; for although in the figure of Rheede some of the leaves are represented as ternate, or even as binate, yet others are represented as pinnate; and although he says that the pinnæ are opposite, yet in the figure some are represented as alternate. It must be observed, that in order to represent all the parts, Rheede's painter has selected the extremity of a branch containing flowers, young fruit, and leaves; and in such cases, the extremity of the young flowering branches will be rarely found to have perfect leaves, especially where these are pinnated, because in this state the leaf has not arrived at full growth, and will be afterwards elongated by the extremity of the rachis communis pushing out new pinnæ. Rumphius has unfortunately given no figure; but I am inclined to think that his *Saponaria* is the same species with the *Poerinsii*, and with the *Sapindus trifoliata* of Linnæus and Burman, although it may happen that these great botanists had actually specimens of a *Sapindus* with ternate leaves, and did not entirely borrow their ideas from the figure of Rheede. If the latter was the case, the name *trifoliata* being absurd for a plant having pinnated leaves, Willdenow, copying Vahl, has done properly in calling this species *Sapindus laurifolius* (*Sp. Pl.* ii. 469.), and in rejecting altogether the *S. Saponaria* as an Indian plant, the plant so called by Burman being identically the same with the *S. laurifolius*. Of this I have given specimens to the library at the India House. It must be observed that both Willdenow and M. Poiret (*Enc. Méth.* vi. 664.), copying Vahl probably, agree in quoting the *Flora Zeylanica* (603.) for the *Sapindus trifoliata*. This erroneous name was reserved for the *Species Plantarum*, and could not be given in the *Flora Zeylanica*, where no specific names are used. The *Conghas* is mentioned in the place alluded to; and if that has really ternate leaves, it is neither the *Poerinsii* of Rheede nor the *Saponaria* of Rumphius. This can only be determined by inspecting the herbarium of Herman; but in the mean time I must observe, that Dr. Roxburgh describes the *Schleichera trijuga* as the *Kunghas* of the Ceylonese (*Hort. Beng.* 29.), and that, therefore, very likely is the 603rd plant of the *Flora Zeylanica*.

It must be still further observed, that M. Poiret (*Enc. Méth. Suppl.* iv. 447.) refers the *Poerinsii* to the *Sapindus spinosus* of Linnæus, a plant of Jamaica distinguished "caule spinosissimo" (*Willd. Sp. Pl.* ii. 469.). How this great

error came into so excellent a work I cannot say; but that it is an error there is no doubt, as Rheede neither mentions spines in his description, nor represents them in his figure.

I shall here annex a full description of the *Sapindus* above alluded to, as probably being a plant described by Plukenet (*Phyt. t. 14. f. 6.*). This will besides show the real structure of its fructification, so as to render evident the distinction between it and *Euphoria*, *Scytalia*, *Molinæa*, *Schleichera*, and other kindred plants.

SAPINDUS EMARGINATUS. *Willd. Sp. Pl.* ii. 469; *Hort. Beng.* 29; *Enc. Méth.* vi. 664.

Arbor prunifera sphæricas saponarias ferens tetraphylla, ex India Orientali.
Pluk. Alm. 47.

Ritha *Hindice*.

Habitat ad Magadhæ pagos.

Arbor mediocris ramulis teretibus, pubescentibus. *Folia* alterna, abrupte pinnata, bi- seu tri-juga. *Foliola* opposita, oblonga, utrinque obtusa, apice subretusa, integerrima, costata, venis minute reticulata, supra pilis brevissimis raris, subtus densis longis pubescentia; inferiora breviora. *Rachis* teres. *Petiolus* communis brevissimus, pubescens, basi incrassato teres: partiales brevissimi, rachi crassiores. *Stipulae* nullæ.

Panicula terminalis, erecta, foliis brevior, conferta, ovata, constans e racemis pluribus multifloris, sparsis. *Pedicelli* sparsi, uniflori, ad medium squamula una vel altera bracteati. *Flores* albidæ, parvi.

Calyx pubescens, ultra medium quinquefidus laciniis obtusis, concavis, inæqualibus, fundo tectus disco hypogyno, quinquecrenato, plano. *Petala* quinque, obovata, crenis disci inserta, calyce breviora, simplicia, utrinque pilis intus longioribus criuita. *Filamenta* octo, pilosa, petalis breviora. *Germen* trilobum, tomentosum. *Stylus* trisulcus. *Stigma* acutum, simplex.

Drupæ carnosæ, tres (una vel altera nonnunquam abortiva), obovatæ, tomentosæ, absque receptaculo sibi parietibus intus membranaceis coadunatæ, supra mucrone communi brevi instructæ, luteæ. *Caro* crassus, spongiosus, saponaceus, e putamine facile secedens. *Putamen* nigrum, politum, subrotundum, compressum, ad latus interius derasum, crassum, corneum,

uniloculare. *Receptaculum*, vel commune vel proprium, nullum. *Semen* putaminis lateri deraso adhærens, forma loculi solitarium. *Integumentum* simplex, membranaceum. *Embryo* spiralis. *Cotyledones* crassæ, carnosæ, involutæ. *Radicula* infera.

Varietatem in Cicata legi pedicellis multifloris, paniculis folio majoribus.

Specimens of both varieties have been given to the library at the India House.

From the preceding account it would appear that the *Sapindus* of Gærtner (*De Sem.* i. 341. *t.* 70. *f.* 3.) differs very much in the structure of the nut, which is said to have two cells. I suspect, however, that Gærtner has mistaken a process running up between the bend in the embryo for a septum, as once happened to myself in examining a species of *Cussambium*. The nut, it must be observed, in these two genera is very much alike, as is also that called *Koon* by Gærtner (*De Sem.* *t.* 180.), so that it would be difficult to say to which of the two genera the latter belonged; yet the *Sapindus* and *Cussambium* are not very nearly allied.

ADAMBOE, seu CADELI-POEA, seu CADELI-PUA, *p.* 45. *tab.* 20, 21.

It must be observed that there is another *Adamboe* (*Hort. Mal.* xi. *t.* 56.); but it has no sort of affinity to the plant now under examination, being a species of *Convolvulus*.

It is to be regretted that modern botanists did not retain the fine name *Banava* bestowed on this plant by Camelli, and consider it as a new genus. Commeline classed it and the following plant with the *Pariti*, that is, the *Gossypium*; and Breynius, Ray and Plukenet considered it as an *Alcea*, which the two latter called *A. Indica arborea, pericarpio carnosu, in plura loculamenta partito* (*Alm.* 16.), a conjecture as unsatisfactory as that of Commeline. Herman improved nothing on his predecessors by calling it an *Althæa*; nor was the elder Burman more fortunate in calling it *Ketmia Indica, foliis laurinis, flore violaceo, spicato* (*Thes. Zeyl.* 137.). Linnæus in the *Flora Zeylanica* (533.) did not venture to refer it to any known genus, but placed it, as the others had done, among the *Malvaceæ*, by the Ceylonese name *Mustu-ghas*.

In the *Mantissa* Linnæus described a tree which he called *Munchhausia speciosa*; and M. Lamarck (*Enc. Méth.* i. 39.), deriving his information en-

tirely from Rheede, and still adhering to the supposition of its belonging to the *Malvaceæ*, described the *Adamboe* by the name of *Adambea glabra*. He afterwards (*Enc. Méth.* iii. 357.) was satisfied that the *Adambea* was in fact the *Munchhausia speciosa* of Linnæus, but belonged to the same genus with the *Lagerstræmia indica*, as Jussieu had hinted (*Gen. Plant.* 367.). He therefore called it *Lagerstræmia Munchhausia* (*Enc. Méth.* iii. 375.), which had, he alleged, been described by Retzius under the name of *Lagerstræmia major*. He now thought that this genus was more nearly allied to the *Salicariæ*, where it still remains in the system of Jussieu (*Gen. Plant.* 367.), although I suspect that it has a greater affinity to the *Myrteæ*, especially to *Sonneratia*.

Willdenow (*Sp. Pl.* ii. 1179.), although he admits that the *Munchhausia* and *Lagerstræmia* belong to the same genus, does not admit the *Adamboe* to be the *M. speciosa*, but alleges it to be the *Lagerstræmia Reginæ* of Roxburgh, or the *Flos Reginæ* of Rumphius, or the *Jarul* of the Bengalese, a plant with which I am perfectly acquainted: the *Jarul*, however, is a large forest-tree, while the *Adamboe* is but a bush, “septem circiter pedes alta;” nor did Dr. Roxburgh quote it for his plant (*Hort. Beng.* 38.). I am therefore persuaded, that from the *L. Reginæ* of Willdenow we must remove the synonyma of Lamarck, Ray and Rheede to the *L. Munchhausia*, as M. Lamarck has done.

It must be observed, that in the eastern parts of Bengal, and in Ava, where alone I have seen it growing spontaneously, the *L. Reginæ* has frequently on its trunk and larger branches a few strong straight spines, from one to three inches long. These seem to arise chiefly in old trees, growing in a favourable soil, and are considered by the natives as indicating a much finer timber than that produced by trees on which there are no spines. On this account the Bengalese add the specific name *kanta*, or ‘thorny’; but I do not think that these thorns constitute a difference of species in the sense adopted by botanists. I have given specimens of this to the library at the India House.

I have also given to the same collection specimens of a tree from the same country, which Dr. Roxburgh called *Lagerstræmia grandiflora* (*Hort. Beng.* 38.), but which I consider as belonging to a distinct genus, connecting in the strongest manner the *Lagerstræmias* with the *Sonneratias*. In 1798 I sent specimens of this to Sir Joseph Banks under the name of *Duabanga*, to which I now add the specific name *Sonneratioides*. In Tripura it is called *Duya-*

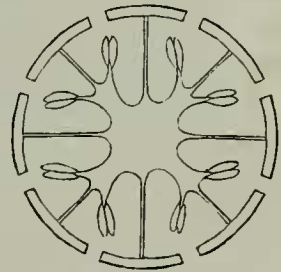
bangga, or *Banurhola*; in Camrupa it is called *Chokrosal*, and I shall here describe it.

Arbor magna. Rami verticillati, horizontales. Ramuli læves, glabri, tetragoni, petiolos communes mentientes. Folia opposita, horizontalia, disticha, oblonga, basi cordata, integerrima, acuminata, supra nitida, subtus nuda, costis subtus carinatis lineata, venosa, plana, pollices undecem longa, quatuor lata. Petiolus vix ullus. Stipulæ nullæ.

Paniculæ axillares et terminales, foliis breviores, ramis oppositis, angulatis, glabris, rigidis, apice pedunculiferis paucifloræ. Peduncululi proprii teretes, flore breviores, ebracteati. Flores magni, albi.

Calyx crassissimus, persistens, inferus, campanulatus, laciniis incurvis ovatis acutis ultra medium sexfidus. Petala sex, subrotunda, tenuissima, caduca, calyci ad incisuras inserta. Filamenta plura, subulata, perigyna. Antheræ oblongæ, incumbentes. Germen conicum, angulatum. Stylus compressus, erectus, calyce triplo longior. Stigma peltatum, margine lobato convexum.

Capsula subrotunda, calyci patenti insidens, magnitudine fructus juglandis, suboctovalvis, septis ad medium non pertingentibus suboctolocularis, centro concava. Septa e medio valvularum enata, alternis longioribus membranacea, binis lamellis conflata; lamellæ ad marginem interiorem loculos versus replicatæ, et in receptacula carnosiuscula incrassatæ. Receptacula unius septi cum iis adjacentium connata, loculos introrsum claudentia. Semina acerosa, pedicellata, plurima, conferta receptacula undique tegunt.



Capsulæ sectio transversa.

KATOU ADAMBOE, SEU KATOU CADELI POEA, p. 47. tab. 22.

Commeline, as I have already mentioned, considered this as a species of *Pariti*, or *Gossypium*, for no very good reason, “ quippe utræque sunt species *Malvæ* seu *Althææ arboreæ*.” The error of classing it with the *Malvaceæ* was, however, persisted in by several of the best botanists, and it was called by Ray *Alcæa Indica arborea, elatior, pericarpio carnosio, subaspera*. From whence

Ray derived his "pericarpium carnosum" I cannot say, unless it was from the appearance of the transverse section of the fruit in the figure of Rheede; but this merely represents an unripe fruit; the mature one is evidently a dry capsule, as may be seen from those parts of the figure that represent it dehiscent. Ray seems to have misled Plukenet, who quotes the *Katou Adamboe* for his "*Alcææ Indicæ arboreæ genus peculiare, foliis Beidel Ossaris, Alpini, fructu intus carnosus.*" (*Alm.* 16.)

M. Lamarck at first (*Enc. Méth.* i. 39.) considered this as a distinct species, and called it *Adambea hirsuta*. In this opinion Willdenow coincided; but knowing that the *Adambea* was of the same genus with the *Lagerstræmia*, he called this species *L. hirsuta*. M. Lamarck, indeed, afterwards (*Enc. Méth.* iii. 376.) retracted his opinion, and considered the *Katou Adamboe* as probably a mere variety of the *L. Munchhausia*; but he adds, "Nous ne pouvons l'assurer, ne le connoissant pas;" and, as I am in a similar predicament, I would willingly follow his example, was not a very great difference, besides the pubescence, pointed out by Rheede, who says, "flores præcedentis *Adamboe* (*Lagerstræmiæ Munchhausiæ*) ut et *Paretti* (*Gossypii*) floribus quoque similes; mediam tamen floris cavitatem et umbilicum quinque tantum stamina surrecta, candida rubicundis apicibus ornata occupant."

KARIN KARA, p. 49. tab. 23.

Commeline does not point out any plant to which this has an affinity; nor do I find that it has been mentioned by any botanist since, except by M. Poiret, who properly adopts *Tamagali*, the name given by the Brahmans, and considers it as having an affinity to the *Geoffræa*, in the flowers and fruit at least, although the habit is different (*Enc. Méth.* vii. 560.). Nor can I form any conjecture more satisfactory, being quite unacquainted with the plant, or with anything like it. The Malabar name implies an affinity with the *Elæocarpus* (*Perin Kara*), both belonging to the genus *Kara* of the natives, but the flowers seem so different, that this arrangement must be quite unnatural, although adopted not only by the vulgar, but by the Brahmans, who call both this and the following plant by the generic name *Gale*, or *Gali*.

PERIN KARA, p. 51. tab. 24.

In the plate the specific name is by mistake *Perin*. Commeline in his observation justly remarks, that this *Kara* is a quite different species (genus in the Linnæan sense) from the former, and that it is not an *Olive*, as the Portuguese and Dutch pretend. Botanically speaking, no doubt, he is right; but the fruit of the *Perin Kara* has a resemblance so strong to an *Olive*, both in appearance and in several qualities, that it must strike every one; and accordingly the fruit of the *Olive* by the Bengalese is called *Jolpayi*, the name which they give to the *Perin Kara*. Both Commeline in the *Flora Malabarica*, and Ray in his *History of Plants*, called it "*Olea sylvestris Malabarica fructu dulci*," a name by no means appropriate, as it is as much cultivated in India as the *Olive* is in Europe. Ray afterwards in the *Dendrologia* is said to have abandoned the idea of its being an *Olea*, and called it a *Prunus*, which was no improvement.

Plukenet in the *Mantissa* (175.) refers it, with doubt however, to page 355, line 26, of the *Almagestum*, which is, "*Sorbi Alpinae (forte) species Arbor Americana durioribus serratis foliis ex Insula Jamaicae*," which, he says, is represented in *t.* 318. *f.* 1. of the *Phytographia*; but this figure seems to represent a *Justicia*, and there is certainly here some typographical error: *t.* 318. *f.* 2. has a considerable resemblance to the foliage of the *Perin Kara*, and may be that which Plukenet meant; but if it is a *Sorbus*, it can have no affinity to the *Perin Kara*, and at any rate, as a production of America, it is probably not the same plant.

Burman (*Thes. Zeyl.* 93. *t.* 40.) considered the *Perin Kara* as the same with the *Weralu* of the Ceylonese, which Herman took for a *Laurus*; but Burman properly constituted it a new genus, and called the plant "*Elaiocarpus folio Lauri serrato, floribus spicatis*," and both are no doubt of the same genus, but I doubt much of their belonging to one species, for he says, "*nucleum crispum*;" but that of the *Perin Kara* is smooth; and this has rarely four divisions in the flower, while in the plant of Burman such seems to be the common number. Linnæus in the *Flora Zeylanica* (206.) changed the *Elaiocarpus* of Burman into *Elæocarpus*, and properly rejected the synonyma of Plukenet and Sloane, quoted by Burman, but he does not doubt of the *Weralu* and *Perin*

Kara being the same plant. In fact, however, he meant to describe the plant of Herman, because in the generic character he uses the words *nucleus crispus*, which are not applicable to the *Perin Kara*. In the *Species Plantarum* Linnæus gave the specific name *serrata*, which has been adopted by Burman (*Fl. Ind.* 120.) and Willdenow (*Sp. Pl.* ii. 1169.); and to the synonyma in the *Flora Zeylanica* was now added the *Ganitrus* of Rumphius (*Herb. Amb.* iii. 160. t. 101.), certainly very different from the *Perin Kara*, and probably from the *Weralu*. I think it, indeed, probable that Rumphius described the *Perin Kara* by the name of *Catiulican* (*Herb. Amb.* iii. 163.), of which he says, “ossiculum oblongum non excavatum, vel rugosum uti *Ganitri*, sed glabrum.” With these discordant plants M. Lamarek (*Enc. Méth.* ii. 604.) has joined the *Dicera dentata* of Forster, which, from the figure that he gives (*Ill. Gen.* t. 459. f. 1.), seems abundantly different. The only authority quoted in the *Hortus Kewensis* (iii. 301.) is the *Thesaurus Zeylanicus*; but the plant described in this being different from the *Perin Kara* in the collection of dried specimens presented to the library at the India House, I have called the latter *Elæocarpus Perincara*. I shall here describe its fruit, for by this part alone can the different species of *Elæocarpus* be rightly distinguished.

Drupa acida *Olivæ majoris* similis, supera, glabra, carnosa, subobovata, basi umbilicata. *Putamen* osseum, suturis tribus spuriiis læve, oblongum, utrinque attenuatum, paulo incurvum, abortu forte uniloculare, loculo ad unum latus propinquiore, angusto. *Semen* oblongum, utrinque acutum, non compressum. *Perispermum* album. *Embryo* centralis, erectus.

MANIL, seu MANYL KARA, p. 53. tab. 25.

Here is another species of the unnatural Malabar genus *Kara*, or *Gale*. All the names used in Malabar allude to its having been introduced from Manilla or China, into which, again, it may have been introduced by the Spaniards from America. On account of its having been thus imported from China, Commeline carelessly compares it to the *Pruno similis fructus Chinensis* of C. Bauhin, and to the *Lechya* of the Chinese.

Rumphius (*Herb. Amb.* iii. 20.), while he corrects the errors of Commeline, confounds the *Manil Kara* with his *Metrosideros macassariensis*; and Burman

in his observation is so convinced of their identity, that he copies the description of the *Manil Kara* in order to complete the defective account given by Rumphius. Willdenow, however, justly separates the plants of Rumphius and Rheede, calling the former *Mimusops Kauki* (*Sp. Pl.* ii. 326.), and the latter *Achras dissecta* (*Sp. Pl.* ii. 223.), which Willdenow says is the same with the *A. Balata* of Aublet.

The *Manyl Kara* by M. Poiret (*Enc. Méth.* iv. 434.) was called *Imbricaria Malabarica*; but he remarked, that the genus *Imbricaria* of Commerson could scarcely be considered as distinct from *Mimusops*. Afterwards (*Enc. Méth.* vi. 530.) he found that the *Manyl Kara* is not different from the *Achras dissecta* of Willdenow, and the *A. Balata* of Aublet; but he prefers the name given by the latter. In Gangetic India I have found near towns, and probably exotic, what I take to be the *Manil Kara*, and have given a dried specimen to the library at the India House. This tree is called *Kshirni* in the Bengalese dialect; and Dr. Roxburgh says that the *Kshirni* is the *Mimusops Kauki* (*Hort. Beng.* 25.), but he does not quote the *Hortus Malabaricus*. Unless there be here some mistake, the *Mimusops Kauki* of Dr. Roxburgh is not that of Linnæus, but the *Achras dissecta*, which is in fact a *Mimusops*. It is true that Mr. R. Brown (*Nov. Holl.* i. 531.) considers the *Mimusops hexandra* of Dr. Roxburgh as scarcely different from the *Achras dissecta*; but in the *Hortus Bengalensis* we have both a *Mimusops Kauki* and a *M. hexandra*, and this leads to a suspicion of there being some mistake about the *Kshirni*. Perhaps the plant that was so called to me may have been the *M. hexandra* of Dr. Roxburgh, and the name *Kshirni* may be applicable to both species. At any rate the *Manil Kara* cannot be the *M. Kauki* of Linnæus, if that has eight *stamina*, as Mr. Brown seems to suppose.

I must here observe, that concerning the genus *Mimusops* there seems to be a fatality of confusion; as Burman (*Thes. Zeyl.* 133.) for the *Kauken Indorum* quotes the *Elenzi* of the *Hortus Malabaricus*, and Herman, (*Mus. Zeyl.* p. 33.), and says that it is the *Murumal* of the Ceylonese; while Linnæus in the *Flora Zeylanica* (137, 138.) says that both species of *Mimusops* are called by the Ceylonese *Munamul*, or *Manghunamul*, and quotes p. 23. of Herman for the *Kauken* of Burman.

KARA ANGOLAM, p. 55. tab. 26.

Another species of *Angolam*, as Commeline remarks, has been already noticed (tab. 17.). It seems strange that the Brahmans of Malabar should not consider this as of the same genus, calling the one *Angolam*, and the other *Namidou*; but here I suspect some error in Rheedee, who in such matters was by no means careful.

Ray, in calling this plant *Prunifera Indica*, threw no light on its history; and, so far as I can learn, it continued unnoticed by authors until quoted by M. Lamarck (*Enc. Méth.* i. 174.), who called it *Alangium hexapetalum*. M. Poiret is of opinion that the *Diatoma* of Loureiro is not a different species (*Enc. Méth. Suppl.* ii. 469.; v. 551.). It must however be observed, that the stigma of the *Diatoma* is said to be divided into lobes, while that of the *Kara Angolam* is represented quite entire, which would imply a more material difference. I have even some suspicion that the *Diatoma* may be the *Kare Kandel* of the *Hortus Malabaricus* (v. t. 13.), to a consideration of which I shall have occasion again to return.

The "*Arbor baccifera Maderaspatana Mali Citricæ foliis, nonnihil scabris, fructu coronato, gemello, ad sinum foliorum, pediculis curtis insidente*" of Plukenet (*Amalth.* 24. t. 370. f. 1.), which M. Lamarck quotes, with doubt indeed, for his *Alangium hexapetalum*, cannot I think belong to this genus, the habit is so different, especially as Plukenet in general has a singular felicity in expressing this point.

Vahl and Willdenow (*Sp. Pl.* ii. 1175.) take the *Alangium hexapetalum* from Lamarck. Dr. Roxburgh in the *Hortus Bengalensis* has an *Alangium hexapetalum*, which he says grows there spontaneously. This, as he does not quote the *Hortus Malabaricus*, leads me to suspect that his plant may be the *Diatoma* of Loureiro, for I have never seen the *Alangium hexapetalum*. The *Alangium tomentosum* (*Enc. Méth.* i. 174.) is indeed very common in the woods everywhere south from the Ganges, and I shall here describe it. In the Hindwi dialect it is called *Dhela*.

Arbor magna. Ramuli teretes, pubescentes, brevioribus apice sæpe spinescen-
tibus. Folia alterna, ovato-oblonga, acuta, integerrima, costata, nervis

subtus reticulata, supra pilis brevissimis raris, subtus longioribus densioribus pubescentia. *Petiolus* brevissimus, teres, supra planiusculus, tomentosus.

Flores ex anni præteriti foliorum axillis sæpius gemini, gemma foliosa interposita subsessiles, odorati, subalbidi. *Bractew* squamaceæ.

Calyx superus, brevissimus, suboctodentatus. *Petalu* circiter octo, linearia, revoluta, imo calyci inserta. *Filamenta* plura, indefinita, extra germinis discum inserta, ad medium erecta, barbata. *Antheræ* lineares. *Germen* turbinatum, disco magno concavo intra calycem coronatum. *Stylus* staminibus longior, incrassatus. *Stigma* magnum, simplex.

Drupa nucis moschatae magnitudine ovalis, calyce cylindrico coronata, nigra, corticosa. *Cortex* mollis, crassus. *Pulpa* alba, mollis, nuci adhærens, dulcis. *Nux* ovata, acuminata. *Funis* umbilicalis e basi nucis ad seminis apicem decurrens. *Semen* ovatum, acuminatum, amarum. *Integumenta* gemina, tenuissima. *Albumen* forma seminis album. *Embryo* inversus, rectus. *Radicula* teres. *Cotyledones* foliaceæ, planæ, nerosæ, vmagnæ, tennes.

In the woods of Magadha I found a tree called *Cphota Gandai* in the Hindvi dialect, which, notwithstanding the difference of name, had a most striking resemblance to the above, only its leaves were larger, and smooth and shining on the upper side. I did not, however, see either flower or fruit. I have given a specimen to the library at the India House.

THEKA, SCU THEKKA, p. 57. tab. 27.

We have here four plants of a native genus called *Thekka* by the vulgar, and *Sailo* (erroneously on the plate *Saiko*) by the Brahmans of Malabar; but, as Commeline justly observes, they have no similitude, nor do any two of them belong even to the same natural order. The prototype of this genus produces one of the finest timbers for the shipwright or house-builder, on which account it seems early to have attracted notice; and, as Commeline mentions, was described by Bontius and Nieuhof, two early writers on the Eastern Archipelago, who compare it to the *Oak*, which, however, it resembles in the qualities of the wood alone. Plukenet mentions it merely by the

names of Rheede and Bontius ; but states (*Mant.* 178.) that it grows in the Island of Johanna, which would seem to show that it is an African as well as an Asiatic production. Plukenet, it must be observed, takes no notice whatever of this plant in the *Almagestum* ; much less does he compare it to the *Terebinthus*, as the elder Burman alleges in his note on Rumphius.

This latter author is the first after Rheede who gives an account of this tree, which he calls *Jutus*, from its Malay name *Jati*, signifying, as Rumphius observes, *durable*, and by no means, as Commeline imagined, the name of the *Oak*, a tree totally unknown to the natives.

After Rumphius, this valuable tree continued unnoticed by botanists, until the younger Linnæus published the *Supplementum*, in which he called it *Tectona grandis*, by a very forced and irregular derivation from *τεκτων*, *faber*, a word never, I believe, applied to the material on which the workman operates. In the modern rage, however, for Greek, the name has been generally received (*Willd. Sp. Pl.* i. 1088. ; *Hort. Beng.* 17. ; *Hort. Kew.* ii. 12.), although Jussieu (*Gen. Plant.* 121.), M. Lamarck (*Ill. Gen. t.* 136.), and M. Poiret (*Enc. Méth.* vii. 592.), most justly prefer the Malabar name *Theka*.

In the kingdom of Ava this valuable tree is called *Kim* ; but there is still more common another species of the same genus called *Ta-la-hat*, which, although very ornamental, is nearly useless. Its leaves, however, serve cabinet-makers for polishing their work. I shall here give a description of this tree, of which I sent to England specimens and a drawing, that were given to Sir Joseph Banks ; but a copy of the drawing is in the library at the India House. I shall here premise, that, although Jussieu places the *Theka* among the *Vitices*, I am with all submission inclined to think it more nearly allied to the *Borraginææ*, on account of the number of *stamina* and regularity of its *corolla*.

THEKA TERNIFOLIA.

Habitat in Avæ collibus sterilissimis.

Arbor inter minores. *Rami* hexagoni, obtusanguli ; juniores trisulci, lanati.

Folia terna, elliptica, integerrima, acuta, costata, venis reticulata ; supra papillosa, hispida, ad nervos pilosa ; subtus tomento albo, molli pubescentia. *Petiolus* brevissimus, semiteres, tomentosus, non stipulaceus. Inter tomentum pili nonnulli stellati.

Corymbi axillares, terni, folio longiores, patentes, ramosissimi, divisionibus inferioribus 3- seu 5-fidis, superioribus dichotomis; flore in dichotomia sessili. *Rami* tomentosi, rigidi. *Bracteæ* ad corymbi divisiones singulas binæ, lineares, pubescentes. *Flores* parvi, cœrulei, erecti.

Calyx monophyllus, persistens, superne ampliatus, laciniis reflexis, ovatis quinquefidus. *Corolla* monopetala, infundibuliformis; *tubus* longitudine calycis supra dilatatus, ore patente, quinquangulari intus pilosus: *limbus* reflexus, laciniis ovatis, obtusis quinquepartitus. *Filamenta* quinque, subulata, erecta, longitudine pilorum apici tubi inserta. *Antheræ* cordatæ. *Germen* in fundo calycis minutum. *Stylus* longitudine staminum teres. *Stigma* lobis acutis bifidum.

Nux calycis fundo aucto tecta, laciniis coronata, oblonga, lævis, quadrilocularis, tetrasperma.

KATOU THEKA, SEU CATU TEKKA, p. 59. tab. 28.

The specific names *Katou* and *Vuna* have the same meaning, properly enough translated "wilde" by the Dutch. The Brahmans of Malabar for this plant would appear to have two generic names, *Sailo* and *Papalou*, the first a very rude attempt at classification, uniting it with the *Theka robusta*. Concerning the name *Papalou* I know nothing.

I have already (*Lim. Trans.* xiii. 549.) mentioned the error into which Burman fell respecting this plant, which subsequent authors have not yet introduced into the system; but M. Poiret (*Enc. Méth.* v. 1.) makes some pertinent remarks on the subject. If the fruit is above the calyx, he thinks that it must belong to the order of *Verbenaceæ*; but like the *Theka* it has five stamina and a regular corolla, on which account it comes nearer the *Borraginææ*. M. Poiret, however, confesses that the fruit has every appearance of being crowned by the calyx, in which case it must belong to the order of *Rubiaceæ*, and it is nearly allied to the genus *Psychotria*, only it would seem to have but one seed, while the *Psychotrias* have two. But although the fruit is represented in the figure with only one seed, yet little reliance can be placed on this circumstance, many plants being subject to the failure of one seed, where the regular number in a complete fruit is two or more. On the whole, it is probable that this plant possesses the generic character of *Webera*, as given

by Willdenow (*Sp. Pl.* 1224.), although not that given by Gærtner, which is taken from the *Cupi* of Rheede, as I have observed in my Commentary on the *Hortus Malabaricus*, Part II. 37. t. 23. As Willdenow saw specimens of his *Webera corymbosa*, if he had an opportunity of examining the fruit, we may suppose that it possessed the generic character which he attributes to it. As in this case the *Cupi* of Rheede must have been quoted by mistake, we may perhaps be allowed to conjecture that the *Catu Tekka* is Willdenow's *Webera corymbosa*.

TSJEROU THEKA, seu TSJERU TEKA, p. 61. tab. 29.

This is another very dissimilar plant which the natives of Malabar include in the same genus with the *Theka robusta*. By some strange mistake Plukenet refers it (*Mant.* 26.) to his "*Arbuscula Barbadosensis amplexicaulis triphyllus*" (*Alm.* 48.; *Phyt.* t. 145. f. 4.). I have not yet found the *Tsjerou Theka* quoted in any subsequent author; but it is evidently a *Clerodendrum*, as that genus is defined by Jussieu (*Ann. du Mus.* vii.) and R. Brown (*Nov. Holl.* i. 310.). I found, however, in Mysore a plant which I have little doubt is the same, and which both Dr. Roxburgh and I consider as the *Volkameria serrata* (*Willd. Sp. Pl.* iii. 384.). In Nepal and in the northern parts of Bengal I have since found a variety of the same plant which, although it differs a good deal in appearance at first sight, is in every respect of its structure so similar, that I cannot consider it a different species. I shall here describe at length the plant of Mysore, and then notice the few points in which the plant of Nepal differs. Specimens of the former, together with a drawing, I gave to Sir J. E. Smith; and I have since presented specimens from Bengal to the library at the India House.

CLERODENDRUM SERRATUM.

Habitat ad sylvarum margines in Carnata.

Radix crassa, lignosa, amara. *Caulis* lignosus, duos pedes altus, erectus, sulco ex ima folii parte utrinque decurrente angulatus, lævis, simplex.

Rami pauci, breves, axillares, oppositi vel terni. *Folia* aliquando opposita, sæpius terna, subsessilia, oblonga vel elliptica vel cuneiformia, serrata, sæpius ovata, aliquando obtusa, glabra, costata, venosa, non stipulacea.

Panicula terminalis, erecta, folio longior, obtusa, densa. *Rami* oppositi ve.

terni, trichotomi, tomentosi. *Bracteæ* ovatæ vel oblongæ, acutæ, integerrimæ, pubescentes, persistentes, ad singulas paniculæ divisiones oppositæ vel ternæ. *Flores* magni, cœrulescentes, laciniarum intermedia saturatiore.

Calyx turbinatus, quinquedentatus. *Corollæ* *tubus* calyce duplo longior, crassus, teres: *limbus* patentissimus, quinquepartitus laciniis ovato-oblongis, secundis, intermedia longiore, concava, ad basin bisulca. *Filamenta* ex tubi apice didynama, subulata, parallelo approximata, basi pilis unita, fissuram versus petali summam declinata, dein incurva. *Antheræ* oblongæ. *Germen* superum, subrotundum. *Stylus* subulatus, staminibus longior. *Stigma* bifidum, acutum, lacinia superiore brevior.

Bacca depresso-turbinata, quadriloba, e quatuor coalitis composita, quadrilocularis, calyce infra obtecta. *Semina* solitaria, globosa, nonnullis sæpe abortientibus.

VARIETAS *α*.

Buya Tældar *Bengalensium*.

Huriya montanorum *Hindice*.

Habitat in Bengala boreali, et Nepala.

Frutex sex pedes altus, subscandens, ramis tetragonis.

BEN THEKA, SEU TEKA, *p. 63. tab. 30.*

Here is another species of the badly constructed Hindu genus *Theka*, or *Sailo*. *Ben*, the specific name, implies 'white.' In subsequent authors I cannot trace any mention of this plant, which seems to belong to the order of *Solanææ*.

IRIPA, *p. 65. tab. 31.*

In a commentary on the *Herbarium Amboinense* (i. 167.) I have said all that occurs to me as necessary concerning this plant, which is usually considered as the *Cynometra ramiflora* of Linnæus.

KALESJAM, SEU CALESANI, *p. 67. tab. 32.*

The latter name should probably have been engraved *Calesam*. *Kalesjiam* is a generic name common in India, but seems very irregularly applied; for I have found it given to one of the *Asclepiadææ*, as well as to the two following plants, which have a stronger affinity. The *Mourmouratarum* of the Brah-

mans is a word which I cannot trace, as in Sanskrita the tree is named *Jivala*, which the Bengalese corrupt into *Jiyal*; and in the Hindwi language the name is *Kashmulla* or *Kusambhar*.

Commeline justly remarks, that what Rheede calls the second kind of fruit must be considered as an excrescence similar to the gall-nut on the Oak, that is, as the work of an insect. Ray, as usual, gave this plant a new name, suitable to his ideas of arrangement; but no subsequent author, so far as I can trace, has attempted to class the *Kalesjam*, only M. Lamarek (*Enc. Méth.* i. 559.) considers it allied to *Brucea*, *Comocladia*, *Rhus*, and other genera among the *Terebinthaceæ*. In this I have no doubt of his being right; and I can scarcely think that it possesses characters sufficient to distinguish it from the genus *Rhus*. Dr. Roxburgh however, I believe, described it under the name of *Odina Woodier* (*Hort. Beng.* 29.), although he does not quote the *Hortus Malabaricus*; but I know his plant, which is very common in Bengal, and I have found it also in Kankana and in the adjacent parts of Karnata, in which latter country it is called *Godela*, under which name I gave specimens to Sir J. E. Smith, while I gave others to the library at the India House under both the name used by Dr. Roxburgh, and as the *Rhus Odina*, which I consider as the most proper designation. Under this I shall here give an account of the tree, taken from notes made in my journey to Mysore.

Arbor magnitudine mediocris, succo resinoso scatens. *Rami* cicatricibus obcordatis exasperati. *Folia* decidua, alterna, cum impari pinnata, apices versus ramulorum congesta, non stipulacea. *Pinnæ* oppositæ, bi- vel trijugæ, integerrimæ, latere posteriore ad basin latiore obliquæ.

Paniculæ utriusque sexus ante folia prodeuntes e gemma terminali, at post foliationem laterales, compositæ ramis sparsis, patentibus, pubescentibus. *Bracteæ* infra singulas paniculas, quasi petiolorum rudimenta, subulatæ. *Flores* fasciculati, parvi, intus lutei, extra rubicundi, dioeci; sed in planta foeminea flores nonnulli masculi sæpe intermixti.

Masc. Calyx quadrifidus, parvus. *Petala* quatuor, margine revoluto oblonga, concava, obtusa, ungui lato calyci inserta. *Filamenta* sex, septem vel octo subulata, petalis breviora, alterna epipetala, alterna hypogyna. *Rudimentum* germinis superi minimum. *Stylus* brevis. *Stigma* quadrilobum.

Fœm. *Calyx* et *corolla* maris. *Stamina* octo circiter sterilia. *Germen* superum, oblongum. *Styli* quatuor remoti, brevissimi. *Stigmata* simplicia. *Drupa* oblonga, compressa, punctis quatuor prope apicem notata. *Nux* solitaria, monosperma.

KATOU KALESJAM, seu CATU CALESJAM, p. 69. *tab.* 33.

Commeline considers this as having a greater resemblance to the *Sorbus* than to the preceding plant, with which it has been arranged by the people of Malabar, but in this he is I think mistaken, as this plant is one of the order of *Terebinthaceæ* very nearly allied to the genus *Schinus*. Ray and Plukenet, however, continue (*Abn.* 355.) to call this tree *Sorbus spuria Malabarica*, *Katou Kalesjam dicta*; nor do I find it mentioned in subsequent authors until it was quoted in the *Hortus Bengalensis* (33.) for the *Garuga pinnata* of Dr. Roxburgh, of which no description, so far as I know, has yet been published. I shall therefore here describe it, premising that in 1801 I collected specimens in Mysore, which I gave to Sir J. E. Smith under the name of *Ekeberga serrata*, while I have since presented to the library at the India House specimens from the North of India; for it is one of the most generally diffused trees in that country. In the Hindwi dialect of Kankana it is called *Mau*, a reduplication of which forms the word *Moemoe* used by the Brahmans of Malabar.

Arbor mediocris. *Rami* succo albido scatentes, cicatricibus obcordatis exasperati. *Folia* decidua, alterna, conferta, cum impari pinnata. *Foliola* novem circiter utrinque, oblonga, latere posteriore ad basin angustiore longiore obliqua, opposita, serrata, acuminata, costata, venosa, lateralibus subsessilibus, impari petiolato: insuper petiolo communi utrinque insidunt foliola duo vel tria minuta, falcata, quorum duo infima stipulas mentiuntur. *Petiolus* imam versus incrassatus, obsolete trigonus, foliolis longior, non stipulaceus.

Paniculæ plures, patentés, congestæ, terminales, ante folia prodeuntes; ramis subangulatis, pubescentibus, patentibus. *Bracteæ* squamiformes, caducæ, sparse.

Calyx deciduus, coloratus, ad basin intus disco hypogyno decemstriato vestitus, quinquefidus laciniis erectis acutis. *Petala* quinque oblonga, calyce paulo longiora, apice revoluta, ad calycis incisuras inserta. *Filamenta*

decem subulata alternis longioribus, pone disci crenas inserta. *Antheræ* oblongæ. *Germen* ovatum, quinqueloculare. *Stylus* teres longitudine staminum, et calycis. *Stigma* incrassatum, quinquelobum.

Bacca magnitudine nucis moschatae subrotunda, loculo uno vel altero tantum fertili succulenta. *Semina* solitaria, integumento duro nuciculosa. *Perispermum* nullum. *Cotyledones* foliaceæ, plicatæ, virides.

In the woods of the Gorakhpur and Shahabad districts (Cosala and Cicata) I found three trees very nearly allied to the above; but as I saw two of them only in leaf, I do not know whether they belong even to the same genus; yet at the same time they so strongly resemble the *Catu Calesjam*, that I am not sure whether they can be considered as distinct species. Specimens of them all have been given to the library at the India House; and I shall here give the accounts which I took on the spot.

GARUGA? PHARHAD *Hindice*.

Habitat in Cicatæ sylvis.

Arbor mediocris. *Ramuli* crassi, teretes, cicatricibus reniformibus notati, juniores pilis erectis mollibus hirti. *Folia* alterna, cum impari pinnata, 4—6-juga. *Pinnæ* oppositæ, oblongæ, serraturis magnis obtusis incisæ, acuminatæ, costatæ, venis plurimis reticulatæ, utrinque pilis plurimis longis erectis hirtæ, basi acutiusculæ; laterales costis anterioribus longioribus obliquæ. *Petiolus* non stipulaceus, foliolis imis longior, basi incrassatus, subanceps, pilis plurimis longis hirtus. *Rachis* hirtus, teretiusculus. *Petioli* partiales hirti; laterales brevissimi, terminalis brevis.

GARUGA? KENGKAR *Hindice*.

Habitat in Cosalæ sylvis.

Foliola quam in præcedente minus hirta, molliora, 9—12-juga. *Folia* nunc fere glabra, tunc hirsuta nunc foliolis falcatis instructa, tunc destituta, unde dubito an a planta Roxburghii satis distincta.

GARUGA? KHAMAR *Hindice*.

Habitat in Cosalæ sylvis.

Folia decidua, impari pinnata, 5—7-juga, cum foliolis nonnullis parvis falcatis sæpe deciduis, quorum duo ima stipulas mentiuntur. *Foliola* oblongo-

ovata, latere posteriore angustato obliqua, acuta, serrata, costata, venis reticulata, subopposita; terminale pedicello elongato elevatum; novella pilosiuscula, sed ante maturitatem pili decidui.

Paniculæ ante folia erumpentes, facie terminales, sed foliis prodeuntibus novis infrafoliaceæ, ramosissimæ. *Rami* sparsi, angulati, divaricati, nudiusculi. *Bracteæ* squamiformes, vagæ, parvæ, caducæ. *Flores* odorati, e luteo rubescentes.

Calyx campanulatus, coloratus, intus disco decemcrenato vestitus, basi decemstriatus, quinquefidus. *Petala* quinque calycis laciniis duplo longiora, oblonga, disci apici inserta. *Filamenta* decem, crenis disci inserta subulata, alternis longioribus calycem æquantibus. *Germen* superum, stipiti crasso insidens, subrotundum. *Stylus* teres longitudine staminum. *Stigma* subrotundum quinquelobum.

Bacca calyce minuto emarcido insidens, magnitudine nucis Avellanæ turbinata, submucronata, quinquelocularis, loculis nonnullis semper fere abortientibus.

BEN KALESJAM, seu CALESAM, p. 71. tab. 34.

The specific name *Ben*, applied to this species of *Calesam*, signifies 'white,' as *Katou*, applied to the former, signifies 'wild' or 'forest,' both terms equally applicable to each plant. The name given by the Brahmans of Malabar to the *Ben Kalesiam* in the text is stated to be *Mourmoura*; but on the plate it is said to be *Zelara*, a difference which I cannot reconcile.

Commeline justly remarks, that what is represented as the fruit is not in reality such, but must be considered excrementitious, as he expresses it, that is, a growth proceeding from the plant owing to an operation of insects, as M. Poiret justly observes (*Enc. Méth. Suppl.* i. 613.). This is the only modern author who mentions the plant, and he conjectures it to belong to the order of *Sapindi*; but I think that I have found in fructification a species of *Schinus*, which, if different, is very nearly alike to the *Ben Kalesjam*. It must, however, be admitted that the *Sapindi* and *Terebinthaceæ*, to which latter the *Schinus* belongs, have a very strong affinity, and are rather distinguished by minute differences of fructification than by any great variety of general appearance. I shall now describe the plant above mentioned, as perhaps the same with the *Ben Kalesjam*. Specimens have been given to the library at the India House.

SCHINUS SAHERIA.

Ben Kalesjam. *Hort. Malab.* iv. 71. t. 34.?

Saheri *Hindice*.

Habitat in Magadhæ sylvis.

Arbor magna, ramulis crassis tomentosis. *Folia* alterna, cum impari pinnata.

Foliola 5—7-juga, opposita, petiolata, oblonga, acuminata, integerrima, supra nisi ad nervos nuda, subtus pilosa, costata, venis minute reticulata; lateralibus costis posterioribus abbreviatis subsemiovata; terminale basi acutum. *Petiolus* communis basi incrassatus, subangulatus, pubescens, mediocris, non stipulaceus. *Rachis* ad foliola nodosus, angulatus, pubescens. *Petioli* parciales, utrinque incrassati, canaliculati, pubescentes, brevissimi, terminali cæteris duplo longiore.

Paniculæ in ramulo novo infrafoliaceæ, vel ex axillis foliorum inferiorum, folio breviores, angulatæ, pubescentes. *Ramuli* alterni, breves, subquinquefidi, id est bis bifidi, bifurcatione primaria florifera. *Bracteæ* vix ullæ. *Flores* parvi, herbacei.

Calyx minimus, quinquefidus, concavus, disco decemcrenato tectus; crenis alternis latioribus, dorso emarginatis. *Petala* quinque ovata, pubescentia, patula, ungue lato perigyna, calyce alterna, crenis disci latioribus opposita. *Filamenta* decem disci margini inserta, basi lato subulata, petalis breviora, quinque petalis opposita cæteris paulo longiora. *Antheræ* cordatæ. *Germen* ovatum disco immersum. *Stylus* nullus. *Stigma* obtusum, pilosum.

The tree above described was probably a male; nor did I either see female flowers or fruit; but the latter is said to be an esculent berry. It flowers in spring; but the *Saheri*, which I saw in November, had “foliola serraturis magnis remotis incisa.” I do not think, however, that on this account we can venture to consider it as a distinct species; and the circumstance connects it more fully with the *Ben Kalesjam*, and the plants described under the name of *Garuga*. It must be observed, that in the figure of Rheede none of the leaves are represented with a terminal leaflet; but the three lower leaves are evidently broken off to allow room for the painter, and the uppermost even is, I suspect, imperfect. It is this circumstance, however, which has made me quote the figure with doubt.

In the woods of the Rungpur district, on the north side of the Brahmaputra, I found a tree which, in the catalogue of specimens presented to the library at the India House, I call *Schinus Bengalensis*, and which is very nearly allied to the above, as will appear from the following description.

Arbor magnitudine mediocris odore terebinthaceo. *Ramuli* pilis brevissimis herbaceis pubescentes. *Rami* teretes, cicatricibus parvis notati. *Folia* alterna, cum impari pinnata, 3—5-juga. *Foliola* subopposita, basi obliqua ovata, inæquilatera, acuminata, apicem versus serrata, omnia pedicellata, supra nuda, subtus pilis herbaceis raris pubescentia, venosa. *Petiolus* teres, pubescens. *Rachis* non alata.

Paniculæ axillares vel infrafoliaceæ, folio multo breviores, ramis alternis, teretibus, pubescentibus, paucifloris, divaricatis. *Flores* parvi, herbacei, omnes quos vidi pseudo-hermaphroditi, abortivi.

Calyx minimus, quinque-dentatus. *Petala* quinque ungue lato. *Filamenta* decem, perigyna, petalis breviora. *Antheræ* parvæ. *Germen* ovatum, superum, minimum, disco decemcrenato circumdatum. *Stigmata* tria obsoleta, crassa.

In the woods on the opposite side of the Brahmaputra I some months later found a tree in fruit, which the natives called *Niyar*, and which, if it be different from the preceding, is remarkably like it; and I must observe that in this, as well as in the *Saheri*, the chief difference between the tree with adult foliage and that in flower is, that the leaves of the one are entire, and of the other serrated. I shall here transcribe the notes taken on the spot. Specimens may be found in the library at the India House.

SCHINUS NIARA.

Niyar Bengalensium.

Habitat in Camrupæ orientalis monticulis.

Arbor præcedenti simillima, sed foliola angustiora sæpius integerrima.

Bacca corticosa, supera, pulpo viscido cum *Euphorie* consistentia esculento farcta, 1—4-locularis seminibus varie abortientibus. *Nuciculæ* solitariae, angulatæ. *Perispermum* nullum. *Cotyledones* foliaceæ, complicatæ, virides.

PONGA, seu PONGU, p. 73. tab. 35.

With his usual negligence respecting names, Rheede says in the letter-press that the Brahmans call this tree *Helay*, and in the plate that they call it *Calo Dumpu*. In one place he says that the Portuguese call it *Massao spinosa*, and in another, *Tsjaka do Mato*; and on this resemblance Commeline calls it *Jaca minor sylvestris Malabarica*. I must, however, say that the figure of the fruit, as represented dissected in the plate, has little resemblance to an *Artocarpus*, and seems to be composed of a number of one-leaved calyces, each terminated by spinescent divisions; nor is there any appearance either of sexual organs or seed.

Plukenet in my opinion was little more fortunate than Commeline, when he compared the *Ponga* (*Mant.* 42.) to his "*Cenchramidea arbor pilulifera, fructu tuberculis inaequali, ex granulis coniformibus in orbem glomerato, non capsularis*" (*Alm.* 92.; *Phyt. t.* 156. *f.* 3.), which has serrated leaves, and from its generic name *Cenchramidea*, as well as from its habit, should be a *Bubroma*.

The elder Burman erred much further in considering the *Ponga* as the same with the *Cussambium* of Rumphius (*Herb. Amb.* i. 157.), an opinion which it is strange the accuracy and acuteness of M. Lamarck (*Enc. Méth.* ii. 230.) should have allowed to be of any weight; for although he notices that the plants were essentially different, yet, giving too much credit to the opinion of Burman, he takes each leaflet of the *Cussambi* for a leaf, the leaves of the *Ponga* being simple, while those of the *Cussambi* are pinnated.

M. Poiret (*Enc. Méth.* v. 563.) is more fortunate in considering the *Ponga* as a *Papyrius* or *Broussonetia*, which I am inclined to think is actually the case; and I therefore suppose the figure of the dissected capitulum to represent the female flower before the singular receptaculum has elevated the seed. In the woods near Goyalpara, on the south side of the Brahmaputra, I have found, bearing ripe fruit, a species of this genus much in its foliage resembling the *Ponga*; but its fruit is much too small, and supported on too long foot-stalks to admit of its being the same species. In the catalogue of specimens presented to the library at the India House I have called it *Papyrius* seu *Broussonetia integrifolia*, a name equally applicable to the *Ponga*; but in order to distinguish them I shall here describe the plant, which I have seen.

Arbor mediocris, succo pellucido turgidus. *Ramuli* teretes, tomentosi. *Folia* alterna, oblonga, basi obtusa, acuminatissima, integerrima, costata, venis minutissime reticulata, supra nudiuscula, subtus pilosa. *Petiolus* brevissimus, teres, sulco supra exaratus. *Stipule* gemmaceæ, caducæ.

Flores non vidi. *Pedunculi* fructiferi axillares, sed folio deciduo plerumque nudati, sæpius ex eodem axillo quatuor bis bifidi, petiolo paulo longiores.

Bacca pisiformis, echinata, alba, composita e receptaculis circiter duodecem, receptaculo communi insidentibus, pulposis, apice umbilicato semina totidem gerentibus. *Semina* ovata, dura.

KARIIL, SEU KARIL, *p.* 75. *tab.* 36.

Commeline's arrangement, in calling it *Arbor prunifera*, is a very rude attempt at classification, which, however, seems to have been quite satisfactory to the botanists of the day; for Plukenet, in imitation of Ray, not only called this an *Arbor prunifera*, but "*Prunus pentaphyllus Malabarica fructu calyci insidente*" (*Alm.* 306.; *Phyt. t.* 218. *f.* 4.). He, indeed, changed the Indian name *Kariil* into *Karyl*; but there can be no doubt, from the figure, that the *Kariil* is meant.

The elder Burman (*Thes. Zeyl.* 170.) seemed to think that this was the same with the *Telabo* of the Ceylonese, a tree with a remarkably fœtid wood. Rheede does not mention any such quality; and it is not likely to exist in the *Karil*, as he says, "*odor radice terreus,—foliorum sylvestris.*" Burman, indeed, was so very careless in his synonyma, that little attention can be paid to his opinion. The *Telabo* by Herman had been called "*Nux Zeylanica folio multifido digitato, flore merdam olente,*" of which Plukenet gives a figure (*Phyt. t.* 208. *f.* 3.) representing the *Sterculia fœtida*, and as usual quotes (*Alm.* 266.; *Mant.* 137.) as synonymous all trees with an excrementitious smell, whether from Africa, Asia or America, or regardless of the part—flower or wood—which thus affects our senses. Burman, however, not only quotes for the *Telabo* the *Karil* of Rheede and Plukenet, but the *Telabo* of the latter, although he admits that Ray considered this as rather the *Cavalam* of Rheede (*Hort. Mal.* i. *t.* 49.), which is no doubt the *Sterculia Balanghas*, as different as possible from the *Karil*; for this latter evidently belongs to the order of *Verbenaceæ*, and Rheede says of his *Karil*, "*flores suaveolentes.*"

Linnaeus, however, in the *Flora Zeylanica* (349.) continued to confound the *Karil* with the *Telabo* or *Sterculia foliis digitatis*, which in the *Species Plantarum* became the *Sterculia fœtida* (*Burm. Fl. Ind.* 207.), an error continued by Willdenow (*Sp. Pl.* ii. 874.), but corrected by M. Poiret (*Enc. Méth.* vii. 431.). The *Karil*, however, is the only authority quoted for the *S. fœtida* in the *Hortus Kewensis* (v. 339.); and, unless this is an error, the plant in that noble garden cannot be a *Sterculia*. It is evident from the figure that the flower of the *Karil* is monopetalous and irregular, with one stylus; but the stamina are not noticed, and the fruit is evidently a drupa, covered at the lower part by the calyx, and containing a nut with one seed, probably by abortion. Whether or not, from the stamina having been unnoticed by Rheede, we may infer that he saw only female flowers, is uncertain, the separation of the male from the female organs being very unusual if not unknown in the order of *Verbeuceæ*. If its flowers are actually dicecious, I know no such plant; but I suspect that Rheede may have overlooked the stamina as being closely connected with the stylus, a circumstance not unusual in didynamous flowers. In this case I have seen two species nearly allied to *Vitex*, that very nearly resemble both each other and the *Karil*. These I shall now describe, being uncertain which I should reckon most nearly allied to the plant of Rheede.

The first I found in Ava, and sent to England specimens, which are probably in the collection of Sir Joseph Banks under the name of *Vitex leucoxy-lon*, although I am not sure that it is the same with the plant so called by the younger Linnaeus (*Willd. Sp. Pl.* iii. 392.; *Hort. Kew.* iv. 67.; *Hort. Beng.* 46.), for it is by no means remarkably like the *Vitex trifolia*.

Arbor elata. *Rami* tetragoni, obtusanguli, læves. *Folia* opposita, petiolata, ternata vel quinata. *Foliola* petiolata, elliptica, integerrima, acuta, supra nuda, subtus valde reticulata; exteriora minora. *Petiolus communis* semiteres, canaliculatus, mediocris, glaber, non stipulaceus: *partiales* breves, teretes, canaliculati.

Panicula axillares, dichotomæ, longitudine folii nutantes, nudæ. *Pedunculus* teres, glaber. *Bracteæ* vix ullæ. *Flores* cœrulescentes, magnitudine florum *Rosmarini*, incani.

Calyx quinquedentatus. *Corolla* quinquefida laciniis unilateralibus, obtusis;

quatuor subæquales; quinta major, colorator, concava, crenata, ad basin barbata.

Drupa turbinata, compressa, ad basin calyce pentagono tecta. *Nux* oblonga, abortu forte bilocularis. *Semina* solitaria, hiuc convexa inde plana.

The other plant, so nearly allied to the *Karil*, I found first in the north-west parts of Mysore, where it is called *Pounsi*; and afterwards in the north-east parts of Bengal. Specimens from the former I gave to Sir J. E. Smith, and from the latter to the library at the India House. Both sets of specimens I have marked *Vitex leucoxyton*, although there is the same objection to this being called by that name that I have mentioned when describing the former plant. I shall add a description of the *Pounsi* in flower, taken in Mysore, and of the fruit taken in Bengal.

Arbor mediocris ramulis compressiusculis, junioribus pubescentibus. *Folia* opposita, ternata vel quinata. *Foliola* petiolata, oblonga, apice nunc acuta, tunc obtusa, basi semper cuneata, integerrima, glabra, costata, venosa; exterius utrinque basi inferiore productiore obliquum. *Petiolus communis* semiteres, canaliculatus, pubescens, mediocris, non stipulaceus: *partiales* brevissimi, canaliculati.

Peduncululus axillaris, erectus, solitarius, teres, petiolo brevior, pubescens, dichotomus bifurcationibus floriferis. *Bractee* ad paniculæ divisiones minutæ, oppositæ. *Flores* subsessiles, albi.

Calyx erectus, quinqueidentatus. *Corollæ tubus* incrassatus, calyce duplo longior ore compresso, obliquo: *limbus* planus, profunde quinquefidus: *lacinie* quatuor superiores oblongæ, obtusæ, lateralibus paulo longioribus; ina maxima, medio barbata, rugosa, subunguiculata, reniformis, subcrenata. *Stamina* didynama, pilosa, parallelo-approximata, erecta. *Antheræ* parvæ, exsertæ. *Germen* superum. *Stylus* subulatus, situ et longitudine filamentorum majorum. *Stigmata* duo, acuta, æqualia.

Drupa olivæformis, calyce parvo integro plano suffulta, succulenta. *Nux* solitaria, oblonga, unilocularis, monosperma, sed hinc insculpta cavitate magna, substantia suberosa oppleta.

It is very probable that in the plant of Ava there may be a similar structure

of nut, as the cavity filled with a corky substance may have readily been mistaken for a *loculamentum* containing a seed. If such be the case, the fruit of these two plants will approach near in character to that of the *Gmelina*, and they will form a genus distinct enough from *Vitex*.

VIDI MARAM, p. 77. tab. 37.

Maram signifying 'tree', the Malabar name is *Vidi*. In the letter-press Rheede says that the Brahmans call it *Quarema*; but on the plate the name is *Salanti*. Neither name has any affinity to the *Bahuvaraka* of the Sanskrita, corrupted by the Bengalese into *Bahuari*; nor to *Lissaura*, the name by which several trees of this genus are called in the Hindwi dialect.

The older botanists under the name *Sebestena*, derived from *sepstan* of the Arabs, described a plant, of which some authors reckoned two varieties, the *Sebestena domestica* and *S. sylvestris*; and others, such as Plukenet, considered them as distinct species. He calls the former "*Prunus Sebestena domestica*" (*Alm.* 306.; *Phyt. t.* 217. *f.* 2.); and the *Vidi Maram* he calls "*Prunus Sebestena longiore folio Maderaspatensis*," referring to it the *Sebestena sylvestris* of C. Bauhin and Alpinus (*Alm.* 306.; *Phyt. t.* 217. *f.* 3.).

Rumphius (*Herb. Amb.* iii. 156.) considered the *Vidi Maram* as being his *Arbor glutinosa*; but the latter has only four or five divisions in the flower, while the *Vidi Maram* has six; and although Burman in his Commentary takes the *Arbor glutinosa* to be the *Sebestena*, Rumphius is far from countenancing such an opinion.

Linnaeus adopted the opinion of there being only one species of *Sebestena*, which he called *Cordia Myxa* (*Burm. Fl. Ind.* 53.; *Willd. Sp. Pl.* i. 1072.), applying the Arabic name *Sebestena* to an American plant. It must, however, be observed, that neither figure of Plukenet nor that of Rheede can be reconciled with the specific character given by Burman and Willdenow from Linnaeus; for in the figures the calyx is smooth, and the corymbus terminal, while in the definitions the calyx is said to be striated, and the corymbus lateral. M. Lamarek, therefore, justly suspected that the plant which Linnaeus actually saw, was not that of Egypt, nor of Malabar, but an American tree, which M. Lamarek calls *Cordia lutea* (*Ill. Gen.* i. 421.), while the *Vidi Maram* he calls *Cordia officinalis* (*Ill. Gen.* i. 420. *t.* 96. *f.* 3.). This, however,

he admits to be the same with the *Sebestena domestica* seu *Myxa* of Commeline. Their identity, however, I think very doubtful; for the nut in the figure given by Lamarck and Gærtner (*De Sem.* i. t. 76.), and probably belonging to the Egyptian plant, has only two acute angles, while that of the *Vidi Maram* is quadrangular. It must be further remarked, that Commeline in his note states that the *Vidi Maram* had not been described by any author, nor does he venture to class it further than by calling it an *Arbor prunifera*; while the *Sebestena domestica* had been described by many authors, unless we suppose the plant so called by Commeline to be different from that described by the Bauhins.

M. Poiret (*Enc. Méth.* vii. 40.), while he admits the difficulty of ascertaining what plant Linnæus meant by his *Cordia Myxa*, retains the specific character given by Willdenow, and enumerates three varieties. The first is the plant of Egypt, at least as described by J. Bauhin and Forskhal, for he quotes C. Bauhin with doubt. The second variety is the *Vidi Maram* of India, the *Cordia officinalis* of Lamarck, and the *Sebestena domestica* of Commeline; but, as I have said, the plant figured by Lamarck seems different from the *Vidi Maram*; nor do I know any ground for supposing the *Sebestena domestica* of Commeline to be different from that of C. Bauhin. M. Poiret's third variety is the *Cordia obliqua* of Willdenow (*Sp. Pl.* i. 1072.).

I am by no means satisfied that I have ever seen the plant described by Rheede; and I must say, that the form, the pubescence, and the margins of the leaves of the plants, which in various parts of Gangetic India are called *Latora*, *Lisaura*, *Bahuyari*, *Baboyar*, and *Dhovoli*, vary so much, even on the same tree, that no reliance can be placed on characters drawn from thence. The leaves of these are sometimes rounded, at others sharp-pointed; sometimes smooth, and at others hairy; sometimes quite entire, at others slightly indented. All, however, agree in having three principal nerves meeting a little above the base, and in generally having terminal corymbi; and all, therefore, in certain states, agree tolerably with the figure in Plukenet (*Phyt.* t. 217. f. 3.), and with the *Vidi Maram*; but then the flowers of the latter have six divisions, and the plants of Gangetic India have five only. Figure 3. of Plukenet has also six stamina, and is no doubt the *Vidi Maram*, as he alleges; but the flower of figure 2., representing the Egyptian *Sebestena*, seems

entirely different from the *Vidi Maram*, the divisions being still more numerous and much smaller. Near Rungpur I met with a tree in fruit, which the natives called *Kusiyari*, and which had a fruit with a lentiform nut exactly as represented by Gærtner, and its foliage very much resembled figure 2. in Plukenet, its leaves being round; but I did not see the flower; and it unfortunately happens that I obtained no description of the fruit of the *Latora*, *Lisaura*, *Bahuyari*, *Baboyar*, or *Dhovoli*, the plants of Gangetic India, which I should have thought most likely to be the *Vidi Maram*, were it not for the latter having six divisions in the flower. In Mysore, again, I met with a tree called *Jilla* or *Haduga*, which, with a lentiform nut, had flowers divided into six. This I take to be the *Cordia obliqua* of Willdenow (*Sp. Pl.* i. 1072.), and under this name I gave specimens to Sir J. E. Smith; but from the form of its nut I think it cannot be the *Vidi Maram*; and from its being very hairy, it cannot, I think, be the *Kusiyari*, which is quite smooth.

I cannot say what plant Dr. Roxburgh called *Cordia Myxa*; but as he does not quote the *Hortus Malabaricus* (*Hort. Beng.* 17.), and calls it *Buhooari* and *Lasoorā*, the same names with my *Bahuyari* and *Lisaura*, I think it probably is one of the plants belonging to Gangetic India that I have above mentioned; but whether or not it has a lentiform nut, like the *Kusiyari*, I cannot say.

In the *Hortus Kewensis* we have the *Vidi Maram* as the only authority for the "*Cordia Myxa* corymbis lateralibus, calycibus decemstriatis," neither of which characters belongs to the plant described by Rheedee, nor to any other *Cordia* that I have seen in India. In the catalogue of dried specimens presented to the library at the India House, I have attempted to reduce the specimens of the trees, called to me *Latora*, *Lisaura*, *Bahuyari*, *Baboyar*, and *Dhovoli*, to three species, *Cordia Latora*, *C. Baboar*, and *C. Lisaura*; but I am very uncertain whether they are sufficiently distinct from each other, as some of them I saw only in leaf, some in flower, and some in fruit. Neither am I certain but that some one of them may be the *Vidi Maram*, while another may belong to the *C. Myxa* of Dr. Roxburgh, if that be different from the *Kusiyari*.

PONNA, SEU PUNNA, p. 79. tab. 38.

In this work Commeline does not attempt to class the *Ponna*. It seems uncertain whether Plukenet was right in referring it to his "*Arbor Indica Mali*

Medicæ amplioribus foliis Maderaspatana" (*Alm.* 41. t. 147. f. 3.); for between two of the leaves in the very imperfect figure there is an appearance of stipulæ, as in the *Gardenia*; and in fact, the leaves in the figure are more like those of a *Gardenia* than those of the *Ponna*, which I do not recollect having seen near Madras, although it is common on the opposite coast of Malabar. Besides, if Plukenet was right in considering the "*Nux oleosa Dhumba Zeylonensibus dicta*," as the same with his "*Nux Bengalensis Juglandi folio, fructu orbiculari*," he has probably described the *Ponna* under that name, as *Domba* is its Ceylonese name. He indeed says that this *Nux Bengalensis* was procured from the Island of Barbadoes, nor can any leaf be more unlike that of the *Ponna* than the Walnut. In another part, however, he says, that he received the branch from the East Indies under the name *Ponakai*, that is, the fruit *Pona*, no doubt the same with *Ponna*. Notwithstanding, therefore, the unfortunate comparison of the leaves with those of the Wall-nut-tree, we may consider the *Nux Bengalensis Juglandis folio, fructu orbiculari* as the *Ponna*. It is true, that this tree is not a native of Bengal, nor is *Ponakai* a Bengalese word, but belongs to Malabar. The ship, however, that brought the specimen may have last come from Bengal. In the passage of Plukenet last quoted, he confounds the *Dhumba* and *Ponna* with the Red-wood of Barbadoes and several other American trees, especially the Log-wood. This is no doubt erroneous; but it is possible that the *Ponna*, as Plukenet alleges, may be the *Palma Maria*, used by Spanish seamen for masts, because the tree so used by our English seamen is called *Poon*, nearly the same word with the *Punna* of Rheede, which from its size and form is well suited for the purpose. The *Poon* used, however, by our seamen I have heard of as rather a production of the Eastern Archipelago than of Malabar; and I presume that it is the *Calophyllum angustifolium* of the *Hortus Bengalensis* (41.), called *Poon* by the Malays.

Rumphius (*Herb. Amb.* ii. 215.) considered the *Ponna* as the same with his *Bintangor maritima* (p. 211.), although he admits that there are some differences, especially in so far as the *Ponna* is not stated to be a maritime plant like the *Bintangor*. The fact however is, that although Rheede does not call it a maritime plant, yet he says, "provenit ubique in Malabar locis nimirum arenosis." Now in this province such places are found only along the shore; and it is there only where I have seen it growing spontaneously (*Buchanan's*

Mysore, iii. 135.). There is, however, a more essential difference which really exists between the two trees. The *Ponna* forms widely extended groves or avenues near villages, with immense stately erect stems, as Rheede says, “est-que vastæ magnitudinis, altitudine nonaginta, crassitie vero duodecim pedum mensuram circiter æquans.” The *Bintangor*, again, although its stem is very large, grows in a row along the edge of the shore, between the other trees and the sea, over which its stem hangs obliquely. “Arbor ipsa est vastissima, tam crasso constans trunco, ut fere nulla ipsi similem quoad crassitiem gerat, atque hic, uti dictum est, nunquam erigitur, sed semper inclinatur—ut vix sub ea decurrere quis possit, ac superior tantum trunci pars parum sese erigit, ita ut ejus viridis modo coma supra aquam sese extendat.” Besides, the leaves of the *Bintangor* are emarginated (“superius subrotunda ac parum fissa, seu bifida”), which is by no means the case with the *Ponna*. The divisions of the flower are also more numerous, and the flowers themselves larger in the *Bintangor* than in the *Ponna*, being composed of nine or ten leaves, and as large as the flower of an Apple-tree, while the leaves in the flower of the *Ponna* are eight in number, and the flower is no larger than that of the *Hepatica*.

The elder Burman, however, both in his Commentary on Rumphius and in the *Thesaurus Zeylanicus* (131.), had no doubt of the *Bintangor maritima* being the same with the *Ponna*. The synonyma, however, which he gives probably belong to the plant of Ceylon, no doubt the same with that of Malabar, because he says, “arbor est inter Canelliferas frequens,” that is, it grows in the sandy groves near the coast, like the *Ponna*, instead of lining the edge of the shore, like the *Bintangor*. Burman rejects the American synonyma adopted by Plukenet; and the only plant, except the *Bintangor* quoted by him, which seems to be different from the *Ponna*, is probably the *Focraha* of Madagascar, for it may be doubted whether a tree of Malabar is likely to be found in that island.

Older botanists, as Vaillant, rejecting the unmeaning generic names *Arbor Indica* of Plukenet, and *Prunifera seu Nucifera* of Ray, had called this tree *Kalophyllodendron*; but, this being barbarously long, Burman called the genus *Inophyllum*, and this species *I. flore octofido*; but Linnæus, with his usual spirit of innovation, changed the name given by his friend into *Calophyllum*, and in the *Flora Zeylanica* (201.) he called this species *C. foliis ovalibus*, omitting

properly the *Bintangor* of Rumphius, the leaves of which are not of this form. He retained, however, among the synonyma all the three plants of Plukenet, which have been already mentioned.

The younger Burman takes from the *Species Plantarum* the specific name *Inophyllum*, adds to the synonyma the *Bintangor* of Rumphius, and omits the only one of three species of Plukenet which I think belongs to the *Ponna*, that is, the *Nux bengalensis Juglandi folio fructu orbiculari* (*Alm.* 265.).

M. Lamarck (*Enc. Méth.* i. 553.) considers the *Ponna* as his *Calophyllum Inophyllum*; but this is not distinguished "foliis ovalibus," as Linnæus justly defines them, but "foliis obovatis." It is probable, therefore, that M. Lamarck actually described the *Focraha*, or *Fooraha*, of Madagascar, which he quotes as synonymous. The seeds of the *Ponna* indeed produce a lamp-oil; but I never heard of its producing, like the *Fooraha*, an odorous resin like the *Tacamaque* of Bourbon, the qualities attributed to which are totally different from those attributed by Rheede to the gum of the *Pumma*. M. Lamarck also joins to the *Pumma* the American *Calaba* described by Jacquin. Whether or not this is the Red-wood of Barbadoes, considered by Plukenet as the same with the *Pumma*, I cannot say; but I suspect it is on no better authority that the *Calaba* and *Pumma* are made one species. Linnæus, it must be observed, thought them different. Whether or not it is the *Calaba* or the *Fooraha* that M. Lamarck represents in his figure (*Ill. Gen. t.* 459.) I cannot say; but it certainly is not the *Pumma*. Its leaves, like those of the *Bintangor maritima*, which M. Lamarck places among the synonyma of his *Calophyllum Inophyllum*, are emarginate; but the flowers are totally dissimilar to those of both the *Pumma* and *Bintangor*, at least as represented in the figure with leaves (*a.*), which, if not taken from that work, strongly resembles the figure of the *Inophyllum flore quadrifido* of Burman (*Thes. Zeyl. t.* 60.). This, indeed, is quoted by Linnæus as representing the *C. Calaba*; but it certainly is totally different from the *Ponna*. Perhaps M. Lamarck intended that his figure should represent both his varieties, that marked *a.*, belonging to one variety, and those marked *b, c, d, e, f, g, h.*, belonging to the other variety; but no hint of this is given in the Supplement.

Willdenow makes little change on the synonyma (*Sp. Pl.* ii. 1159.) as they stood in the *Flora Indica* of Burman, only he omits that of the elder Burman

and the American tree of Plukenet, retaining, however, the *Bintangor*, and Plukenet's tree from Madras, which I think is probably a *Gardenia*. In his note, also, he changes the *Tacamaque* of M. Lamarck into *resina Tacamahaca dicta*; but the *Tacamahaca* of the *Encyclopédie* (v. 238.) is quite different from the *Tacamaque*.

In the *Hortus Kewensis* the *Bintangor*, as well as the tree of Plukenet, is properly omitted among the synonyma; and Dr. Roxburgh, who had received the *Bintangor* from the Eastern Islands, mentions it as a distinct species (*Hort. Beng.* 41.).

Gærtner (*De Sem.* i. 200. t. 43. f. 1.) omits both the *Ponna* and *Bintangor* among the synonyma of the *Calophyllum Inophyllum*, quoting alone Plukenet (*Phyt.* t. 147. f. 3.), who, as I have said, probably has given the figure of a *Gardenia*. Gærtner's description and figure, however, taken from a fruit in the collection of Sir Joseph Banks, no doubt belong to a *Calophyllum*, and are copied in Lamarck's figures marked *e, f, g, h*.

TSJEROU PONNA, seu TSJERU PUNNA, p. 81. tab. 39.

The name given by the Brahmans of Malabar to this tree in the letter-press is said to be *Cit (alba) Octi*, but in the plate it has been engraved *Undi*, probably by mistake. Both seem to be words peculiar to Malabar; for the tree is not a native of the North of India.

Ray and Plukenet (*Mant.* 57.) reckoned this tree a species of *Cornus*, for no other reason, that I can imagine, but that Rheede says, "fructus Cornis nostratibus cum figura tum magnitudine et substantia haud absimiles."

Herman had sent to Commeline, as the latter remarks in his note, the branch of a tree called by the Ceylonese *Kina*, which he considered as the *Tsjerou Ponna*, and he afterwards described a *Kina minor* (*Hin Kina* of the Ceylonese), both belonging, perhaps, to the same genus, although this is by no means certain. The elder Burman, however, considered the *Kina* as the same with the *Punna* of Rheede, and the *Hin Kina* as being the *Tsjerou Ponna*, in both which suppositions he was probably mistaken. He fortunately, however, gave an account and figure (*Thes. Zeyl.* 130. t. 60.) under the name of *Inophyllum flore quadrifido*, of what he thought the *Hin Kina* and *Tsjerou Ponna*. Neither his account, however, nor his figure agrees with those of

Rheede: the leaves in Burman are emarginate, those of Rheede are rounded; Burman says, "Petioli (pedunculi secundum Linnæum) ex alis foliorum oriuntur communiter solitarii trifidi;" but the flowers in the *Tsjerou Ponna* are evidently disposed in racemes, and are much larger than in the *Hin Kina* of Burman. Burman has increased the difficulty by annexing, as the same with the *Tsjerou Ponna* and *Hin Kina*, the *Calaba* of the West Indies described by Plumier, which, from the place of its growth, I suspect is neither the one nor the other.

Linnæus, in the *Flora Zeylanica* (202.), justly thought the *Domba*, or *Doba*, of the Ceylonese to be the *Ponna* of Malabar, while the *Kina* he considered as the *Tsjerou Ponna*, taking no notice of the *Hin Kina*, because probably he thought that both *Kina major* and *minor* formed only one species. Although he thus corrected one error of Burman, who did not consider the *Domba* as belonging to the same genus with the *Ponna* (*Thes. Zeyl.* 170.), he adopted Burman's erroneous synonyma for the *Tsjerou Ponna*, calling it the *Inophyllum flore quadrifido* of Burman, and the *Calaba folio Citri splendente* of Plumier, thus including in one species three plants, the *Kina* or *Tsjerou Ponna*, the *Hin Kina* or *Inophyllum flore quadrifido*, and the *Calaba*. His specific character, "*Calophyllum foliis ovatis obtusis*," is applicable to neither the plant of Rheede nor that of Burman, the former having "folia obovata," and the latter "folia emarginata," and was, therefore, probably taken from the American plant, which may have been that in M. Clifford's collection, from whence Linnæus first derived his knowledge of this *Calophyllum*; and on this account in the *Species Plantarum* he retained the American name *Calaba*, written *Caleba* by the younger Burman (*Fl. Ind.* 120.).

In treating of the *Punna*, I have already mentioned that M. Lamarck removed the *Calaba* of Jacquin and the *Inophyllum flore quadrifido* of Burman to his *C. Inophyllum*, and he thus leaves the *Tsjerou Ponna* to form a species by itself, in which I think he is perfectly right; but then he strangely gives it the American name *Calaba*, and he defines it as having "folia ovata," while the *Inophyllum* according to him has "folia obovata;" but in the figures of Rheede the only plant represented with *folia obovata* is the *Tsjerou Ponna*.

In Willdenow the *C. Calaba* of Linnæus is continued (*Sp. Pl.* ii. 1160.), comprehending the *Tsjerou Ponna* of Malabar, the *Hin Kina* of Ceylon, and

the *Calaba* of America; but he properly observes, that he possessed only the American kind, which was also probably the case with Linnæus; and he suspects, with reason, that the Asiatic plant is different.

MALLAM TODDALI, p. 83. tab. 40.

The Malabar genus *Toddali*, called *Bori* by the Brahmans, is very unnatural, this and the following species having only a very slight resemblance in the leaf, and none at all to the *Kaka Toddali* described in the next volume (p. 81.). In his note Commeline does not venture to class this species, although it has the utmost affinity and resemblance to a tree of the South of Europe which was well known to the early botanists, who called it *Lotus* s. *Celtis*.

Plukenet was equally unfortunate in tracing an affinity to the *Mallam Toddali*. When he first mentioned it in the *Almagestum* (237.), he quoted as synonymous the name given to it by Ray, who was no more successful than himself, calling it "*Buccifera Indica racemosa, florum staminulis, binis, &c.*" From this it would appear that Ray was not aware of Rheede having described a female plant alone, and of his having mistaken the styli for stamina. Plukenet afterwards (*Alm.* 329.) suspected, without, however, being certain, that the *Mallam Toddali* might be his "*Salvifolia arbor orientalis foliis tenuissime crenatis*" (*Phyt. t.* 221. *f.* 4.), which, indeed, is probably a *Celtis*, but certainly a different one from the *Mallam Toddali*, as it has *pedunculus solitarius, uniflorus*, and the leaves much too narrow.

Even Linnæus, when he published the *Hortus Cliffortianus*, erred far in classing the *Mallam Toddali* with the *Ulmus*, although this was no doubt some approximation to a true arrangement, both belonging to the same natural order. When, however, he published the *Flora Zeylanica*, he had become sensible that the *Mallam Toddali* was of the same genus with the *Celtis*, or *Lotus* of old botanists, and called it "*Celtis foliis oblique cordatis subtus villosis*" (*Fl. Zeyl.* 369.), adding to it the *Arbor Ghæduba dicta, s. Gædhumba*, of Herman and Burman (*Thes. Zeyl.* 26. 102.), although they had not perceived this to be the same with the plant of Rheede. Linnæus also included among the synonyma the tree of Plukenet, which I have mentioned as different, and an American tree described by Sloane, and perhaps by Plumier, although the latter was quoted with doubt.

The younger Burman by some strange error quoted the *Mallam Toddali* for the *Rhamnus Napeca* (*Fl. Ind.* 60.); but he also properly quoted it (*Fl. Ind.* 218.), when he adopted from the *Species Plantarum* the specific name *Celtis orientalis*. He there quoted Plumier without doubt, but left out the plant of Sloane, as he ought to have done with the other, and as has been done by M. Lamarck (*Enc. Méth.* iv. 138.).

This excellent botanist perceived a resemblance between the *Celtis orientalis* and the *Papyrius spurius* of Kæmpfer, which, however, I have not been able to trace in the 5th Fasciculus of the *Amœnitates Exoticæ*; nor does Thunberg quote Kæmpfer for his *Celtis orientalis* (*Fl. Jap.* 114.): M. Lamarck, indeed, quotes him with doubt. This is also done by Willdenow (*Sp. Pl.* iv. 996.), who leaves out the American plants quoted by Linnæus, and seems to doubt of Plukenet's, as he gives it only on the authority of Burman.

The *Mallam Toddali* may therefore be considered as the only authority for the *Celtis orientalis*; but it is doubtful whether the specimens which Willdenow possessed belonged to the same plant; for in the specific character he says, "folia subtus cana," while Rheede says, "folia superne atro-viridia, inferne subviridia." Dr. Roxburgh does not quote the *Hortus Malabaricus* for his *Celtis orientalis* (*Hort. Beng.* 21.); and the plant called *C. orientalis* in the botanical garden at Calcutta has *folia subtus scabra, ad nervos tantum majores pilosa*. Unless, therefore, several species have been included under the name *C. orientalis*, we must admit that it is a plant subject to very considerable variations; and I have given to the library at the India House specimens of five trees, all as varieties of the *C. orientalis*. Some at least of these may prove to be distinct species; but in the mean time I shall here give such an imperfect account of them as I was able to collect in travelling; for I had no opportunity of tracing each in all the stages of its growth. They are called *Jivani* in the Sanscrita, *Jibana* in the Bengalese, and *Tilayi* in the Hindwi dialects.

1. CELTIS ORIENTALIS, *α.*

Celtis orientalis. Willd. *Sp. Pl.* iv. 995.

Habitat ad pagos et sylvis Camrupæ.

Folia trinervia, supra scabra, subtus tomento cano, molli pubescentia.

2. CELTIS ORIENTALIS, β .

Chamari Tilayi *Hindice*.

Habitat in Magadhæ sylvis.

The bark of this tree is used for tanning, as implied by the Hindwi specific name. As the natives distinguish it by a proper name, it is perhaps a different species, distinguished from the *Mallam Toddali* by the female pedunculus having only about three flowers. I have not seen the male tree, unless it be the 4th variety.

Arbor mediocris. *Rami* flexuosi, subangulati, pilis brevibus incumbentibus tecti. *Folia* alterna, oblonga, semicordata, serrata, acuminata, trinervia, nervis et venis minute reticulata, supra pilis raris rigidis incumbentibus aspersa, cæteroquin fere nuda, subtus tomento albido brevissimo inter nervos incana. *Petiolus* brevissimus, canaliculatus, pubescens. *Stipulæ* lineares, caducæ.

Pedunculi axillares, gemini, longitudine petioli erecti, squamulosi, floribus circiter tribus minutis instructi.

Calyx quinquepartitus, germine adpressus, parvus. *Germen* superum. *Stylus* nullus. *Stigmata* duo plumosa.

Drupa globosa, grano piperis minor, stigmatibus deplumatis coronata, nigra, succulenta, calyce minuto suffulta. *Nux* dura, monosperma.

3. CELTIS ORIENTALIS, γ .

Celtis orientalis. *Enc. Méth.* iv. 138. excluso synonymo Plukenetii, cui pedunculus fœmineus uniflorus. *Burman Fl. Ind.* 218. exclusis synonymis Plukenetii et Plumieri.

Celtis foliis oblique cordatis serratis; subtus villosis. *Linn. Fl. Zeyl.* 369. exclusis synonymis suprascriptis et Sloanei.

Arbor Ghæduba dicta. *Burm. Thes. Zeyl.* 26. seu Gædhumba, 102.

Mallam Toddali. *Hort. Mal.* iv. 83. t. 40.

Janfung Garoensium.

Habitat in Camrupæ montosis.

Folia subtus tomento viridi pubescentia.

The inner bark of this tree, like that of the West Indian kind, consisting of

numerous reticulated fibres, forms a kind of natural cloth, used by the Garos for covering their nakedness.

4. *CELTIS ORIENTALIS*, δ.

Habitat ad Cosalæ pagos.

Of this I saw only male trees. It resembles much the second variety, only the leaves are rougher; and perhaps it is merely the male plant of the same species.

Cymæ geminæ, axillares, folio multo breviores, multifloræ, squamulosæ. *Flores* parvi, virides.

Calyx quinquepartitus. *Stamina* quinque laciniis calycis opposita.

5. *CELTIS ORIENTALIS*, ε.

Celtis orientalis. *Hort. Beng.* 21.

Habitat ad Indiæ Gangeticæ et Nepalæ pagos.

Folia subtus pallida, sed nuda.

In the woods of Magadha I found another tree called *Tilayi* in the Hindwi dialect; but it is, perhaps, the *Celtis Amboinensis* of Willdenow (*Sp. Pl.* iv. 997.), although this is by no means certain, for the sides of the leaves are seldom equal to the base, and it may be merely a rougher variety of the *C. orientalis*. It is, however, so rough, that the leaves are used by the natives for polishing horn. Specimens of this also will be found in the library at the India House.

Arbor parva. *Ramuli* flexuosi, pilis erectis hirti. *Folia* alterna, rigida, ovato-oblonga, basi emarginata sæpius subobliqua, acuminata, subquinque-nervia, serrata, venis minute reticulata, utrinque scaberrima, et pilis raris rigidis subhispida. *Petiolus* brevissimus, hirtus. *Stipulæ* geminæ, basi petioli insidentes, lineares, caducæ.

Cumæ fructiferæ axillares, geminæ, longitudine fere petioli patentés, multifloræ.

Drupa nigra, seminis Cannabini magnitudine, ovata, obtusa, stylis geminis coronata, calyce parvo quinquefido pubescenti eincta. *Nux* unica, dura, compressa, minuta.

In the woods of the northern parts of Bengal and Behar I have found a very

distinct species of *Celtis*, which may be the same that I sent to Dr. Roxburgh from Nepal in 1802, and that he called *C. tetrandra* (*Hort. Beng.* 21.); but of this I am not certain, because I have preserved no account of the plant which I sent. On this account, in the catalogue of specimens presented to the library at the India House, I have called this species *Celtis Acata*; for in the Hindwi dialect the tree is called *Akata* or *Kataya*, and in the Bengalese, *Sukati*. On account of there being only one female flower in the axil of each leaf, this may be the "*Salvifolia arbor orientalis foliis tenuissime crenatis*" of Plukenet (*Alm.* 329.; *Phyt. t.* 221. *f.* 4.), which may represent the *Akata* after the male flowers have fallen, and before the germen has greatly enlarged. As this plant has been confounded with the *Mallam Toddali*, I shall here describe it.

Arbor mediocris ligno, ut perhibent, duro. *Ramuli* bifarii, teretes, pubescentes.

Folia alterna, acuminata, venosa, supra glabra, subtus nuda, nunc semi-ovata trinervia, tunc subcordata trinervata, laterum altero ad basin multo angustiore obliqua, lateris angustioris margine integerrimo, latioris piloso serrato. *Petiolus* brevissimus, canaliculatus, pubescens. *Stipulæ* geminæ, laterales, lineares, caducissimæ.

Pedunculi uniflori, setacei, fasciculati, fasciculis in ramuli parte inferiore nudatis omnino masculinis; in superiore axillaribus, androgynis, flore unico hermaphrodito, pluribus masculinis. *Flores* parvi, virides.

Herm. *Calyx* tetraphyllus, foliolis concavis obtusis. *Filamenta* quatuor, maturitate elasticæ desilientia. *Antheræ* utrinque emarginatæ. *Germen* superum, oblongum. *Stigmata* duo pilosa, sessilia.

Masc. *Calyx* et *stamina* ut in hermaphrodito. *Pistillum* nullum.

Pedunculus fructiferus axillaris, solitarius, rigidus, subulatus, pubescens, petiolo duplo longior, ebracteatus.

Drupa pisiformis, succulenta, flava. *Testa* crassa, dura, forma drupæ. *Semen* unicum sulco hinc exaratum. *Albumen* nullum. *Cotyledones* foliaceæ, incurvæ, radiculam crassam teretem convolventes.

PERIN SEU PERIN TODDALI, p. 85. tab. 41.

This plant, although classed by both the vulgar and the learned of Malabar in the same genus with the preceding, in the eyes of systematic botanists, as

Commeline observes, has no affinity with it. There are, however, considerable resemblances, such as alternate, serrated leaves, with one side wider than the other; lateral stipules; small, herbaceous, axillary flowers, and drupaceous fruits. Such are the characters of the genus *Bori* of the Brahmans, of which this is the prototype, the name being the same with the *Bayer* of the Hindwi dialect. The European botanists of these old times, such as Ray, often classed together plants having less resemblance; but another species of this genus *Bori* has been mentioned in treating of the *Nyalel* (*Hort. Malab.* iv. p. 37.), which seems to have little affinity with the other two.

The *Perin Toddali* is so very nearly allied to the *Jujuba* or *Zizyphus* of the Levant, that its affinities were recognised, as Commeline remarks, by C. Bauhin, who called it *Jujuba Indica*, although the native name, *Bora*, *Bor*, or *Ber*, was also used by some both of his predecessors and contemporaries, as is more fully explained by Plukenet (*Alm.* 199.), who adopts the name given by C. Bauhin. Like the *Zizyphus* of the Levant, the Indian plant contains two, if not more varieties. The first, which grows spontaneously, and in Bengal is used for rearing the Lac insect, seems to be the *Jujuba Indica spinosa, folio et fructu rotundo* of Plukenet (*Alm.* 199.), to which this botanist should have referred the *Perin Taddali*. The second variety is cultivated for its fruit, and seems to be that called by Plukenet *Jujuba Indica spinosa, folio et fructu longiori* (*Alm.* 199.). Rumphius justly considered these as varieties, such as occur in plants that are much cultivated, and he included both under the name of *Malum Indicum* (*Herb. Amb.* ii. 117. t. 36.), because the external and esculent part of the fruit has a very considerable resemblance in consistence and taste to an apple. The names of Plukenet were adopted by the elder Burman (*Thes. Zeyl.* 132.), who gives the two varieties as two species, the plant of Rheede being the *Ilanda* of the Ceylonese, although Burman does not quote it, but mentions it under another plant, to which, however, he confesses the figure of Rheede cannot be reconciled.

Linnæus in the *Flora Zeylanica* (89.), with his usual eagerness for innovation, united the genus *Zizyphus* with *Rhamnus*; but although he mentions only the *Ilanda*, he does not quote the *Perin Toddali*, for what reason I do not know, unless it was that Burman had not joined them. The younger Burman (*Fl. Ind.* 60.), adopting from the *Species Plantarum* the specific name *Rhamnus*

Jujuba, quotes the synonyma properly for the plant described by Rheede. I have already mentioned the strange error of this author in quoting the *Mullam Toddali* for the *Rhamnus Napeca*, which he calls *R. Napæa*; but respecting this unfortunate plant, misled by his father's Commentary on the *Herbarium Amboinense* (ii. 121.), he falls into another gross error, quoting for it the *Jujuba Indica spinosa, folio et fructu longiori* of Plukenet (*Phyt. t. 216. f. 6.*); but no such plant is figured in that place, which represents the *Prunus Zeylanica spinosa, longiori folio viridi, fructus ossiculo orbicularis scrobiculis referto*, while the *Jujuba* above mentioned is the cultivated variety of the *Zizyphus Jujuba*.

Gmelin, it would appear, was dissatisfied with the Linnæan genus *Rhamnus*, and attempted to introduce our Indian plant as the *Mansana*; but Jussieu, having restored the *Zizyphus* of Tournefort (*Gen. Pl. 417.*), has been followed by Willdenow, who calls our plant *Zizyphus Jujuba* (*Sp. Pl. i. 104.*), without making any material change in the synonyma or mentioning the cultivated variety; and, strange to say, places the genus in the *Pentandria Monogynia*, although it has no stylus and two stigmata. Willdenow continues in the error respecting the plants of Plukenet referred to the *Zizyphus Napeca*, which was pointed out by M. Lamarck (*Enc. Méth. iii. 319.*). This excellent botanist considered the *Jujuba Indica spinosa, folio et fructu longiori* of Plukenet as probably the same with his *Zizyphus mauritiana*; in which case, I am persuaded that this can only be admitted as a variety of the *Perin Toddali*, improved by cultivation, such as the specimens which I have presented to the library at the India House under the name of *Zizyphus mauritiana*. This variety grows in the highest perfection near Patna, and is there called *Bara Bayer*.

Arbuscula ramis flexuosis, pulvere canis. *Folia* ovata vel oblongo-ovata, basi sæpius obliqua, serraturis minutis denticulata, apice sæpius acuta, at aliquando, summitatibus quasi erosis, obtusa, trinervia, supra glabra, subtus farina alba tomentosa. *Petiolus* brevissimus, tomentosus, supra planiusculus. *Stipulæ* geminæ, nunc marcescentes, tunc in aculeos indurascetes, quorum unus erectus, alter recurvus.

Pedunculus communis axillaris, multiflorus, sæpius bifidus, folio multo brevior. *Flores* parvi, virides.

Calyx planiusculus, laciniis ovatis quinquefidus, fundo tectus disco plano, pentagono, cujus anguli emarginati. *Petala* e calycis incisuris quinque minuta. *Stamina* totidem petalis opposita, e disci crenis enata. *Germen* superum, ovatum. *Stigmata* duo sessilia, acuta.

Drupa magnitudine Pruni damasceni oblonga, ad basin calycis rudimento umbilicata, ad apicem cum mucrone obtusa, consistentia fere Mali carnosae, acido-dulcis. *Testa* crassa, bilocularis. *Semina* solitaria.

In iisdem locis crescit varietas altera, *Penel Bayer* dicta, cui folia ovalia, obtusa; fructus multo major, apice acutiusculus; quam præcipue spectare figura Rumphii videtur.

KADALI, p. 87. tab. 42.

I cannot trace the name *Naqeri*, or *Nakeri*, given by the Brahmans of Malabar, to any name used in the North of India. The Malabar genus *Kadali*, or *Nakeri*, of which this is the prototype, was by Herman, Commelin, and other botanists of that time, considered as a kind of *Cistus*, to which it is now held to have very little affinity. Several older botanists had described it by the name *Pineka*, which might have been preserved. Some botanists were little satisfied, even then, with this arrangement, and Plukenet distinguished the *Kadalis* by calling them *Cisti pulpiferi*, a circumstance to which, perhaps, modern botanists should have paid more attention, and which should have prevented them from adding such an enormous mass of plants to the *Melastoma* of the elder Burman. He gave this name to the *Cisti pulpiferi*, because the pulp contained in the fruit stains black the mouths of those by whom it is eaten. *Melastoma* is therefore only applicable with propriety to the *Cisti pulpiferi*, the fruit of which, being a berry, when ripe bursts at the sides, on which account the Ceylonese call it *Bowithya*, and the Bengalese use the generic term *Phutika*, or *Phutki*, to distinguish it from the kindred plants, which have capsules opening by regular apertures at the summit. To these last the terms *Rhexia* and *Osbeckia*, according to the number of their stamina, should be confined; but, as these genera stand in Willdenow, no one can say where to look for any species. Dr. Jack is therefore perfectly justified in restricting the *Melastomæ* to such species as have a *pericarpium baccatum* (*Linn. Trans.* xiv. 1.).

The elder Burman, although accurate respecting the genus, referred the *Kadali* to an improper species, quoting it for his *Melastoma quinquenervia hirta major, capitulis sericeis villosis* (*Thes. Zeyl.* 155. t. 73.); for Rheedé says of his *Kadali*, “e pediculo ad apicem folii tres nervi crassiores transeunt:” and of the *Katou Kadali* he says, “folia *Kadali* foliis similia, at—per folii longitudinem non tres sed quinque nervi crassiores transeunt.” Burman ought therefore to have quoted the *Kadali* for his *Melastoma scabra trinervia* (*Thes. Zeyl.* 154. t. 72.).

Linnæus in the *Flora Zeylanica* (171.) not only adopted this error of Burman, and quoted the *Kadali* with three nerves for his *Melastoma foliis lanceolato-ovatis scabris quinquenerviis*, but he also referred the *Katou Kadali* with five nerves to his *Melastoma foliis lanceolatis trinerviis scabris* (*Fl. Zeyl.* 76.). In fact, Linnæus in the *Flora Zeylanica* describes three species of *Melastoma*, as does also Burman; but as two of the former have three nerves, while two of the latter have five, if we can depend on this character, Linnæus must have been mistaken in considering his three plants the same with those of Burman; and it remains to be ascertained which of the two plants with three nerves described by Linnæus is that of Burman, and also which of the plants with five nerves described by Burman is that of Linnæus. As the *Kadali* has only three nerves, it is only with these that we have here to do; and, as I have observed, it cannot be either the plant of Burman or Linnæus to which these authors have referred it, because both have five nerves. An observation of Burman may serve to explain which of the plants with three nerves most resembles it. He says, (*Thes. Zeyl.* 156.,) “descriptio in *Hort. Malab.* accuratior est, et plantæ nostræ magis convenit, quam figura ibi expressa, quæ glaberrima ibi depicta est, quum tota sit scabra et hirsuta, quod vitium sæpius in *Hort. Malab.* observavi.” Now Rheedé says, “Ramuli—lanuginosi et asperi—folia—aspera, exiguis spinulis horrida.” This description, upon which, as Burman says, we must rely, is applicable enough to the *Melastoma scabra trinervia* of Burman (*Thes. Zeyl.* 154. t. 72.), which, besides, has the flowers disposed in racemi like the *Kadali*, and of a similar size. Linnæus refers this plant to Burman to his *Melastoma foliis lanceolatis trinerviis glabris: margine hispidis*; but from the circumstances above mentioned, this would seem to be a mistake, and he should have quoted it for his *Melastoma foliis lanceolatis trinerviis*

scabris (*Fl. Zeyl.* 172.). In this further, Linnæus remarks, "calyces in racemos collecti, nec caulem terminantes ut in *M. foliis quinquenerviis*." The synonyma must be, therefore, almost totally changed, only it remains uncertain whether the *Hin Bothya* of the Ceylonese belongs to the *Kadali* or *Katou Kadali*, Linnæus giving it to the plant with three nerves, while Burman gives it to one with five. This can only be determined by an inspection of Herman's collection. In the mean time, we may consider as synonymous the following plants :

Kadali. *Hort. Malab.* iv. t. 42.

Melastoma scabra trinervia. *Burm. Thes. Zeyl.* 154. t. 72.

Melastoma foliis lanceolatis trinerviis scabris. *Linn. Fl. Zeyl.* 172.

Rumphius evidently described the *Kadali*, as he himself remarks, under the name of *Fragrarius niger* (*Herb. Amb.* iv. 137. t. 72.), which we may safely add to the synonyma ; for in its leaves it has only three nerves.

In the *Flora Indica* of the younger Burman (104, 105.) most of the errors of the *Flora Zeylanica* are followed, while the *Kadali* and *Fragrarius niger* are quoted for the *Melastoma Malabathrica*, which is the *M. foliis quinquenerviis* of the *Flora Zeylanica* ; and, still further, the same *Kadali*, joined with the *Fragrarius ruber* of Rumphius, which is probably not of the same genus or order, is also quoted for the *M. aspera*, the same with the *M. foliis lanceolatis trinerviis scabris* of the *Flora Zeylanica*. This latter opinion entirely coincides with mine ; and, if copied from the *Species Plantarum* of Linnæus, removes his authority for making the *Kadali* the *M. Malabathrica*, and we may quote among the synonyma of the *Kadali* the *M. aspera* (*Burm. Fl. Ind.* 105.).

Willdenow still, however, persisted in quoting the *Kadali* and *Fragrarius niger* for the *M. Malabathrica*, although the only real authority for this plant is the elder Burman (*Thes. Zeyl.* t. 73.).

The *M. aspera* of M. La Desrousseau (*Enc. Méth.* iv. 37.) is quite a different plant from that of Linnæus and Burman, being a native of Madagascar ; and under the *M. Malabathrica* (36.) he quotes both the *Kadali* with three nerves and the *Katou Kadali* with five nerves ; the latter, indeed, he quotes with doubt ; yet his plant, according to his description, has five nerves, and what he says is perfectly applicable to the *M. Malabathrica* in everything

except the inflorescence, which he calls a panicle, whereas it consists of from one to five terminal flowers, each supported by an undivided pedunculus. This difference, however, may have arisen either from his having used the term panicle without strictly attending to its definition, or from his having taken this part of his description from the figure of the *Katou Kadali*: he could not take it from the *Kadali*, where the flowers are evidently disposed in racemes. The figure of the *M. Malabathrica*, however, given by M. Lamarck (*Ill. Gen. t. 361. f. 1.*) represents only three nerves, while the inflorescence is not a panicle, but three terminal one-flowered pedunculi, a difference between the figure and description for which I cannot account.

In the *Hortus Kewensis* neither *Kadali* nor *Katou Kadali* is quoted for the *M. Malabathrica* (iii. 46.), which I consider is proper, neither being the plant described by the elder Burman. The only figure quoted in the *Hortus Kewensis* is in the Botanical Magazine of Mr. Curtis (No. 529.), where, indeed, the *Kadali* and *Fragrarius niger* are quoted; but then the figure, by the number of nerves and the size of the flower, sufficiently shows that the *M. quinquenervia hirta major* of the elder Burman (*Thes. Zeyl. 155. t. 73.*) is actually meant.

In the *Hortus Bengalensis* (33.), in general very accurate, the *Kadali* is quoted for the *M. Malabathrica*, which, therefore, should be added to the synonyma of the *M. aspera* of Burman; and the *M. aspera* of Dr. Roxburgh must be some other plant, which I have had no means of ascertaining; but it may perhaps be the following, or *Ben Kadali*.

Dr. Jack, in his valuable paper already mentioned (4.), quotes as usual the *Kadali* and *Fragrarius niger* for his *M. Malabathrica*; but the leaves of his plant have five nerves, and it is not therefore that of Rheede and Rumphius; nor, on account of its inflorescence, is it the plant of Burman (*Thes. Zeyl. t. 73.*), which I presume is Dr. Jack's *M. obvoluta*.

BEN KADALI, p. 89.

No figure is given of this plant; but as it is stated to be very like the preceding, we may infer that its leaves have three nerves, and therefore, as I have said, it may be the *M. aspera* of Dr. Roxburgh. It is evidently a very distinct species from the *Kadali*, and also from the *Melastoma Malabathrica* of Curtis, both of which have the alternate stamina much longer than the other five;

but Rheede says of the *Ben Kadali*, "filamenta decem—uniformia." It therefore belongs to Dr. Jack's division called *Stomandra* (*Linn. Trans.* xiv. 10.); but does not seem to have been described by him.

KATOU KADALI, p. 91. *tab.* 43., by mistake on the Plate called KALOU KADALI.

What I have said respecting the two last plants must be carefully kept in view while we consider this. Commeline in his *Commentary* looked upon it as the *Maha Bothya* of Herman, and it should therefore be the *Melastoma quinquenervia hirta major, capitulis sericeis villosis* of the elder Burman, and the *Melastoma foliis lanceolato-ovatis scabris quinquenerviis* of the *Flora Zeylanica* (171.), now called *M. Malabathricu*. I have, however, no doubt that Commeline was mistaken; and that, although the *Katou Kadali* has five nerves, it cannot, on account of its smaller flowers and of its paniculated structure, be the same with the *Maha Bothya* of Herman, and with the plant of Burman and Linnæus, although these authors no doubt have erred in joining their plant with the *Kadali*, which has only three nerves. Burman, indeed, was perfectly aware of Commeline's error, and therefore with great propriety considered the *Katou Kadali* as a distinct species from the *Maha Bothya*, and called it *Melastoma quinquenervia minor, capitulis villosis* (*Thes. Zeyl.* 154.), giving its synonyma rightly, so far as I know, except in joining with it a plant of Jamaica, now called *M. discolor* (*Willd. Sp. Pl.* ii. 599.). From Burman we also learn that the *Katou Kadali* is the *Hin Bothya* of Herman, which, together with Burman's *Melastoma quinquenervia minor, capitulis villosis*, Linnæus unaccountably joined with his *Melastoma foliis lanceolatis trinerviis scabris* (*Fl. Zeyl.* 172.), which is now called *Melastoma aspera* (*Willd. Sp. Pl.* ii. 583.). For this, however, Willdenow has properly omitted the synonyma of Herman and Rheede; and, as I have before observed, it is in reality the *Kadali* of the latter.

Plukenet (*Alm.* 106.) described a plant, which he called *Cistus Chamærhododendros* s. *Ledum orientale, pentaneuros, foliis brevioribus, ferruginea et molli lanugine villosis*. This, according to him, is the *Maha Bothya* of the Ceylonese; but he proposed the *Katou Kadali*, with doubt, as synonymous, not willing entirely to contradict Commeline, and yet seeming aware of the objections to his opinion. Plukenet's plant, it must be observed, is not called a *Cistus*

pulpiferus, his name for the genus *Melastoma*; but he uses the term *Cistus Chamærhododendros*, implying probably its having a capsule like the *Rhododendron*, and therefore its being an *Osbeckia* or *Rhexia*. But further, his plant is in fact only called *pentaneuros* by mistake; for in the figure referred to (*Phyt. t.* 161. *f.* 2.), it is represented with seven nerves, and in the *Phytographia* is called *Cistus Chamærhododendros heptaneuros*. It is therefore as different from the *Katou Kadali*, as that is from the *Kadali*.

M. Desrousseaux, however, (*Enc. Méth.* iv. 36.) seems to have entertained no doubt that the plant of Plukenet was the same with the *Katou Kadali*, and seems to consider them as the same with the *M. Malabathrica*, although he quotes them with doubt. If, indeed, it is insisted on that Rheede must have described the *M. Malabathrica*, then the only plant of his, that we can consider as such, must be the *Katou Kadali*, on which account I quoted it in the catalogue of specimens presented to the India House; but I am now convinced that the *M. Malabathrica* is not described in the *Hortus Malabaricus*, and that the *Katou Kadali* has not yet been properly introduced into the modern system of botany.

TSJEROU KADALI *p.* 93. *tab.* 44.

Commeline justly remarks, that this is also a species of *Cistus*, in the sense then adopted by botanists, that is, it is a *Melastoma*. Plukenet (*Mant.* 49.) called it "*Cistus orientalis pulpifer, Jujubinis foliis trinerviis, capsula parva.*" I cannot, however, discover that the *Tsjerou Kadali* has been mentioned by any subsequent writer.

OEPATA, *p.* 95. *tab.* 45.

Commeline is uncertain whether this may not be the *Anacardium*, meaning, no doubt, the *A. orientale*, and the seed of the *Oepata* has, no doubt, a certain resemblance to that nut; but even the fruits are entirely different in structure, nor have the trees any affinity. Plukenet, however, quoted the *Oepata* among the synonyma of the *A. orientale* (*Alm.* 28.). Linnæus continued in the same error, calling this plant *Avicennia* (*Fl. Zeyl.* 57.), for he perceived that it could not belong to the same genus with the *Kapa Mava* or *Arajou* of the West Indies, to which he had given the generic name *Anacardium*. Along with the *Oepata*, however, he quoted for his *Avicennia* the true *Anacardium* or *A. ori-*

entale, and that without any mark of doubt, although both Commeline and Plukenet had expressed uncertainty. That Linnæus, however, by his *Avicennia* meant the *Oepata*, and not the *Anacardium*, we may judge from his having placed it in the class *Tetrandria*.

Rumphius, under the name *Mangium album*, no doubt described (*Herb. Amb.* iii. 115. *t.* 76.) a species of *Avicennia*. Concerning this he says, “juxta regionum varietatem varias exhibens species seu varietates.” He then goes on to describe the kind most common in Amboyna, which, both from the figure and account, would appear to differ from the *Oepata*, to which, however, the kind growing in Macassar seems to have a greater affinity. Neither Rumphius nor his commentator Burman quotes the *Oepata*, nor hints at any similarity between the plants.

When the younger Burman published his *Flora Indica* (138.), Linnæus, under the name of *Bontia germinans*, had joined the *Oepata* and true *Anacardium*, not only in the same genus, but in the same species with the *Bontia* of Jacquin and Browne (quite different from the *Bontia* of Plumier), an American plant with hairy leaves. The *Oepata*, no doubt, belongs to the same genus with the *Bontia* of Jacquin; but Rheede's words, “folia glabra,” might have cautioned Linnæus against including them in one species; and a proper consideration of Rheede's account of the fruit might have shown that it could not be the *Anacardium*, then well known in the shops.

The younger Linnæus having described the *Anacardium* under the name of *Semecarpus Anacardium*, it might have been expected that the *Oepata* might have been separated; but Willdenow, having confused the name *Bontia* to the genus of Plumier, returned to the *Avicennia tomentosa* (*Sp. Pl.* iii. 395.), including in one species not only the *Bontia* of Jacquin, but the *Oepata*, and even the *Anacardium*. As, however, he retains in his specific character the term “folia tomentosa,” it is probable that his specimen belonged to the West Indian plant. Yet, as he quoted the *Oepata*, Dr. Roxburgh considered this as the *Avicennia tomentosa* (*Hort. Beng.* 46.); for, although he does not quote the *Hortus Malabaricus*, I know the plant which he received from Mr. Goodlad to have been the *Oepata*. This may possibly be the *Sceura marina* of Forskahl, quoted also for the *A. tomentosa* by Willdenow; for it is more likely that the plant of Arabia or Egypt should be the same with that of India than with that of

Jamaica; and, if we must have the *Oepata* to be found in the West Indies, it should be rather the *Avicennia nitida* than the *A. tomentosa*, for its leaves, if not shining on both sides, are at least smooth.

M. Lamarck (*Enc. Méth.* i. 330.) entirely rejects the Linnæan error of confounding the *Oepata* with the *Anacardium*; but he retains that of uniting it with the hairy-leaved plant of the West Indies; yet the figure which he gives (*Ill. Gen.* t. 540.) of the *A. tomentosa* is evidently very different from the *Oepata*, having the flower in racemes instead of panicles; nor does it even agree with his own specific character, “*A. foliis ovato-oblongis, subtus tomentosis,*” for the leaves are lanceolated; and I suspect that it, in fact, represents neither the *Oepata* nor the West Indian *Bontia*, although M. Poiret (*Enc. Méth. Suppl.* i. 539.) refers us to it for the *Avicennia tomentosa*. On the whole, the figure given by M. Lamarck bears a stronger resemblance to the *Mangium album* than to the *Oepata*, although its leaves are still narrower and sharper than even in the figure of Rumphius.

Mr. R. Brown for his *Avicennia tomentosa* (*Nov. Holl.* i. 518.) quotes neither Rheede, nor Rumphius, nor the *Bontia* of the West Indies; but he considers the *A. resinifera* (*Willd. Sp. Pl.* iii. 395.) as the same; and I suspect that this is the plant figured by M. Lamarck. We may therefore, on the whole, consider the *Oepata* as not yet introduced into the system of modern botany, on which account, in the catalogue of dried specimens presented to the library at the India House, I have mentioned it as follows:

AVICENNIA OEPATA.

Avicennia tomentosa. *Hort. Beng.* 46.

Avicennia. *Linn. Fl. Zeyl.* 57. (exclusis synonymorum tribus prioribus.)

Mangium album. *Herb. Amb.* iii. 115. t. 76?

Oepata. *Hort. Malab.* iv. 95. t. 45.

Sa-mæk ruæk-wum *Barmanorum.*

Habitat ad littora maris cœnosa in India et intra et ultra Gangem.

On my return from Ava to Calcutta, specimens and a drawing of the *Oepata* were transmitted to Europe, and given to Sir Joseph Banks, while a copy of the drawing remains at the India House. I shall here annex a description.

Arbor magna ramis glabris, fuscis, teretibus, oppositis, divaricatis; ramulis tetragonis. *Folia* opposita, elliptica, apice obtusa, basi acutiuscula, integerrima, venis reticulata, supra nitida, subtus nuda. *Petiolus* brevis, supra carinatus, apicem versus depressus, nudus, amplexicaulis, non stipulaceus.

Panicula terminalis, supra decomposito-trifida, ramis quadrangularibus, compressis, nudis. *Flores* terminales tres seu quatuor congesti, nudi, parvi, erecti, flavescentes.

Calyx octophyllus, foliolis duplice serie positus, ovatis, obtusis, concavis, imbricatis, interioribus longioribus. *Corollæ* monopetalæ tubus longitudine calycis crassus: *limbus* quadripartitus, laciniis obtusis, suprema brevior, latiore. *Filamenta* e corollæ incisuris quatuor, subulata, patentia, corolla breviora, duobus inferioribus brevioribus. *Antheræ* bisulcæ, oblongæ. *Germen* superum, ovatum. *Stylus* subulatus, staminibus brevior, adscendens. *Stigma* simplex, acutum.

Semen calyce minuto basi suffultum, nudum, compressum, ovatum, apice obliquo acutum. *Integumentum* coriaceum, pubescens, uno latere deliiscens. *Albumen* nullum. *Cotyledones* crassæ, magnitudine et forma seminis conduplicatæ, hinc radiculam versus auriculatæ. *Radicula* crassa, descendens, pilis albis barbata. *Plumula* bifida, glabra. *Plumula* et *radicula* e cotyledonum commissura hinc inter auriculas enascentes, et in sinu exterioris cotyledonum, interioris dorso tectæ, nidulantes.

Mr. R. Brown places this genus in the natural order which he calls *Myopoinæ*, confessing at the same time that it does not possess the true characters of these plants, and admitting that it is related to the *Verbenacæ*, with which it is classed by Jussieu. I must confess that, notwithstanding what my very intelligent and acute friend advances (*Prodr. Nov. Holl.* i. 533.), I think Rumphius was right in placing the *Avicennia* next to the *Ægiceras*, the plant, in my opinion, to which it has the greatest affinity; and I think, therefore, that it should have been rather placed among the *Myrsinæ* than among the *Myoporinæ*, should such natural orders be retained.

WADOUKA, p. 97. tab. 46.

In my commentary on the *Idou Moulli* I have mentioned the error into which Plukenet seems to have fallen concerning these plants. Commeline gives no opinion concerning this tree; nor, except the erroneous quotation of it by Plukenet, do I find it noticed by any subsequent author. Its fruit, as Rheede observes, has a considerable resemblance to that of the *Nyalel* (t. 16.); but the two trees in other respects have no affinity, and the *Nyalel* is as unknown as the *Wadouka*. The description and figure of the *Wadouka* seem to refer entirely to a female plant, which, from its habit, and from the structure of its fruit, especially of its seed, would appear to have an affinity to the order of *Capparides*, although there is no appearance of the germen being supported on a pedicel.

RAVA POU, seu PU, p. 99. tab. 47, 48.

Pu signifying a flower, *Rava* is the proper name of the plant. Neither this nor the *Marotina* given by the Brahmans has any connexion with the term *tristis* given by the Portuguese, and adopted by Commeline, who on this account classes it most improperly with the *Mania Pu Maram* (*Hort. Malab.* i. 35. tab. 21.), and places them both in the genus *Jasminum*, to which the *Rava Pou* has not the smallest resemblance.

Linnæus having founded a genus called *Nyctanthes*, placed in it not only both the *Mania* and *Rava*, but also some plants which have nearly the fructification of the *Jasminum* (*Burm. Fl. Ind.* 4.), and thus the *Rava Pou* was called *Nyctanthes hirsuta*.

M. Sonnerat, having figured a plant under the name of *Cadamba*, Jussieu considered it as the same with the *Rava Pou* and as a species of *Guettarda* (*Gen. Pl.* 230.). M. Lamarck adopted the same opinions, and considered the *Cadamba* and *Rava Pou* as identically the same with the *Guettarda speciosa* of Linnæus (*Enc. Méth.* iii. 53.). Willdenow, however, was of a contrary opinion, and insisted not only that the *Rava Pou* was different from the *Cadamba*, but that it is a *Jasminum*, which he calls *hirsutum* (*Sp. Pl.* i. 36.), as being the *Nyctanthes hirsuta* of Linnæus; for these two genera he admits to be the same. He supports his opinion by referring to a figure by some person named Browne; but I see no such figure quoted among the synonyma even in his

own work, much less in any other. I must, however, confess that M. Lamarck's figure of the *Guettarda speciosa* (*Ill. Gen. t. 154. f. 3.*) seems to me to differ materially from the *Rava Pou* both in the form of the leaf and inflorescence; nor is the *Rava Pou* quoted either in the *Hortus Kewensis* (v. 279.) or *Hortus Bengalensis* (86.) for the *Guettarda speciosa*, although it is usually referred to by the authors, where they do not know some evident objection. Still, I think, there can be no doubt of the *Rava Pou* being a *Guettarda*, and totally different from the *Jasminum hirsutum*, as established by our worthy President (vide *Enc. Méth. Suppl. iii. 713.*); but it may probably be a species of *Guettarda* not yet introduced into the modern system of botany, nor have I seen the plant.

ANAVINGA, p. 101. tab. 49.

Commeline does not venture to propose any arrangement for this plant. Plukenet retains the Indian name; and Ray might as well have done so, for by calling it a *Baccifera Indica* he adds nothing to our knowledge. The elder Burman made some advance in comparing it, although with doubt, to his "*Grossularia spinis vidua, baccis in racemo congestis, spadiceis, foliis crenatis, ovato-acuminatis*" (*Thes. Zeyl. 111. t. 48.*), which has, no doubt, a considerable resemblance; but as he ascribes to his plant many stamina, while Rheede defines their number to be six in each flower, we may consider them as certainly distinct. Still further, if Burman attended to the situation of the germen in comparing his plant to the *Grossularia*, it must belong even to a different order from the *Anavinga*, the calyx of which is evidently below the fruit. That Burman, however, paid any attention to this circumstance is doubtful; and I am inclined to think that his *Grossularia* is, in fact, nearly allied to the *Anavinga*, although certainly a different species. The Ceylonese name of Burman's *Grossularia spinis vidua*, &c., according to him, is *Æmbilla*, and Linnæus mentions three plants of this name (*Fl. Zeyl. 357. 403. 410.*), of which the last may possibly be that figured by Burman, although Linnæus considered it as his *Ceanothus* (*Fl. Zeyl. 28.*). At any rate, none of the three *Æmbillas* seems to be the *Anavinga*, which is not mentioned in the *Flora Zeylanica*, nor in the subsequent works of Linnæus.

M. Lamarck first introduced the plant into the modern systems of botany. From M. Sonnerat he received specimens of a plant, which he considered as

belonging to the same genus with the *Anavinga*, and which he called by this name. The plant of Rheede he has introduced from that author's description, and called *Anavinga ovata* (*Enc. Méth.* i. 148.). Jussieu, although he considers this genus as the same with the *Casearia* of Jacquin, prefers the name *Anavinga*; but Willdenow prefers *Casearia*, probably thinking that Jacquin, having preceded Lamarek, had the best title to give a name; but he should perhaps have recollected that Rheede preceded Jacquin. By Willdenow the *Anavinga* of Rheede is called *Casearia ovata* (*Sp. Pl.* ii. 629.); but neither he nor any recent botanist seems to have seen the plant.

In the woods of Gangetic India I have indeed found a tree nearly resembling the *Anavinga*, and in the Bengalese dialect called *Kanjial*. I have presented specimens of this to the library at the India House under the name of *Samyda Canziata*; for, until the fructification of all the species constituting the genera *Samyda*, *Casearia*, *Anavinga*, *Pitumba*, *Iroucana*, *Athenæa*, *Melistaureum*, *Guidonia*, *Lactia*, *Chætocrater*, and *Clasta* are more fully ascertained, I think it most prudent to include all under the Linnæan name *Samyda*; and these, with the *Aquilaria*, or *Agallochum*, and the *Gyrinops Walla* of Gærtner (*De Sem.* ii. 276. t. 140. f. 6.), form a very natural assemblage of plants, which Jussieu places among the *incertæ sedis*; but I think them nearly allied to the *Thymelææ*. They differ, however, in the following respects: *calyx* abbreviatus; *squamæ* corolliformes; *pericarpium* determinate dehiscens. I shall here describe the *Kanjiata* of the Bengalese, as observed in the Rungpur district (Camrupa).

Frutex sex pedes altus ramulis novis teretibus pilosis. *Folia* alterna, oblongo-ovata, latere anteriore latiore plerumque obliqua, costata, venosissima, serrulata; *adultæ* nuda, acuta; *juniora* obtusa, subtus pubescentia. *Petiolus* brevissimus, depressus: *adultus* nudus; *junior* pilosus. *Stipulæ* geminæ laterales, minimæ, deciduæ.

Pedunculi plures axillares, congesti, sed sæpius in ramis anni præteriti, ob folia decidua nudati, quasi infrafoliacei, breves, uniflori, teretes, pubescentes, squamula ad basin bracteati. *Flores* parvi, herbacei, extra pubescentes.

Calyx foliolis subrotundis, concavis, duobus exterioribus angustioribus, quinque-partitus, fundo vestitus disco concavo, ad marginem producto in

squamulas octo, clavatus, barbatus. *Filamenta* octo, disco inter squamulas inserta, longitudine calycis subulata. *Antheræ* parvæ. *Germen* superum, ovatum. *Stylus* crassus. *Stigma* truncatum.

In specimens which were collected in the woods of Gorakpur (Cosala), the plant was arboreous, and the stamina varied from five to nine.

It is evident that the *Anavinga* of Rheede differs somewhat, especially from the plant found in Rungpur. *Folia* basi acuta, serraturis paucis remotis incisa. *Flores* solitarii, vel pauci pediculo communi solitario insidentes, quadrifidi. *Stamina* sex. It is, however, to be remarked in both the varieties which I have seen, as well as in the *Anavinga*, that the number of stamina in no respect corresponds with the number of divisions in the calyx; and therefore Rheede is not to be suspected of inaccuracy in giving his *Anavinga* six stamina, as M. Lamarek is inclined to think (*Enc. Méth.* i. 148.).

Among the Indian plants, which I have referred to the genus *Samyda*, I have observed two very distinct kinds of fruit, which may form a ground for separating them into two genera. In the one, the seeds are indefinite in number; but whether or not this is the case in the *Kanjiala* above described I cannot say, not having seen the fruit. As the *Anavinga*, however, evidently has a fruit of this kind, I shall here describe some plants which also belong to this division, and of which I have given specimens to the library at the India House. In the other division, the seeds, as in the *Agallochum*, are of a definite number; but I shall have occasion to consider these when I come to treat of the *Tsjerou Kanneli* in the fifth volume.

I shall first describe a tree, in the Hindwi dialect called *Konijal*, which is a strong presumption that the *Kanjial* of the Bengalese, above described, has a fruit similar to the *Anavinga*, for the two names are the same.

SAMYDA PISCICIDA.

Casearia elliptica. *Willd. Sp. Pl.* ii. 623.?

Anavinga lanceolata. *Enc. Méth.* i. 148.?

Konijal *Hindice*.

Habitat in Magadhæ et Mithilæ sylvis.

Arbuscula ramulis subangulatis pubescentibus. *Folia* alterna, bifaria, supra

nuda, subtus pilosa, costata, venis minute reticulata, oblongo-ovata, sed forma varia, basi sæpius obliquiuscula et subcordata, apice sæpius obtusi-
 uscula, sed utrinque sæpe acuta, nunc serrata, tunc fere integerrima. *Petiolus* brevissimus, semiteres, pubescens. *Stipulae* geminae, laterales, caducæ, parvæ.

Pedunculi uniflori, axillares, congesti, folio caduco sæpe nudati, longitudine petioli. *Bractea* vix ullæ. *Flores* parvi, virides.

Calyx patulus, laciniis subrotundis concavis quinquepartitus, fundo tectus disco planiusculo, membranaceo, ore libero decempartito, laciniis linearibus, pubescentibus, calyce brevioribus. *Corolla* nulla. *Filamenta* decem, denticulis disci alterna, disci margini inserta, longitudine calycis subulata. *Anthera* parvæ, cordatæ.

Fructus piscicidus, magnitudine Pruni minoris, pedicello multo longior, nunc obsolete hexagonus, tunc sulcis sex profundis costatus, oblongus, calyci parvo insidens, unilocularis. *Parietes* crassæ, succulentæ, sublactescentes, maturitate trivalves. *Capsula* dehiscente semina, pulpo involuta, in centro permanentia. *Receptacula* tria angulis parietum alternis longitudinaliter adnata, carnosa. *Semina* plura in pulpo ramentaceo sanguineo horizontaliter nidulantia, receptaculis annexa. *Albumen* carnosum. *Embryo* erectus. *Cotyledones* subrotundæ, planæ.

SAMYDA GLABRA.

Lohajang *Hindice*.

Habitat in Magadhæ montosis.

Arbor ramulis obtusangulis, glabris. *Folia* alterna, bifaria, subovalia, utrinque sæpius acutiusecula, et apicem versus latiora, at forma varia, serrata, costata, venis minute reticulata, utrinque glabra. *Petiolus* brevissimus, compressus, nudus, canaliculatus. *Stipulae* geminae, laterales, caducæ, ovatæ, acuminatæ.

Flores non vidi. *Fructus* ex axilla folii anni præteriti nudatus, pedunculatus, solitarius vel geminus, sescunciam longus, flavus, nutans. *Pedunculus* crassus, teres, brevissimus.

Capsula calyci parvo, quinquefido, patulo insidens, oblonga, utrinque obtusa, obsolete trigona, parietibus succulentis trivalvis, unilocularis; semina post

capsulæ dehiscentiam pulpo involuta, in centro permanentia. *Receptacula* tria medio valvularum longitudinaliter adnata, carnosa, bifariam dentata. *Semina* plura in pulpo purpureo succulento ramentaceo nidulantia, receptaculorum denticulis insidentia, angulata. *Albumen* album. *Embryo* rectus. *Cotyledones* planæ.

CORONDI, seu COURONDI, p. 103. tab. 50.

Commeline mentions that this tree had been described by Zanoni under the name of *Corundi*, but gives no hint at its affinities.

Plukenet (*Alm.* 307.) described a tree of the West Indies, which the Caribs called *Maubain*, *Mombina*, or *Mommina*, and which, therefore, we might suppose to be a *Spondias*, although he is doubtful whether it be the *Hobos* or *Spondias Myrobalanus*; and he mentions it as different from the *Spondias Mombin* of Linnæus, of which he gives a figure in the *Phytographia* (t. 218. f. 3.). But in the *Mantissa* (156.) he considers his *Mombina* as the same with his *Mamee Indice Occid. Juglandis folio vinifera* (*Phyt.* t. 204. f. 2.), which, if the synonyma quoted are right, is a tree (*Mammea Americana*) having no sort of affinity with the *Spondias*; for it has simple leaves, while those of the *Spondias* are pinnated. The figure given by Plukenet is so imperfect that very little reliance can be placed on it; nor can I venture to affirm whether it represents the branch of a tree with simple leaves, or part of a compound leaf. The name *Juglandis folio*, however, clearly implies the latter, and it is probable that Plukenet's *Mombina* is therefore a *Spondias*, the more especially as he compares it to the *Cat Ambalam* (*Hort. Malab.* i. 93.), which escaped my notice when I treated of that plant (*Linn. Trans.* xiii. 532.). Plukenet also compares with his *Mombina* the *Courondi*, of which I am now treating; but this only shows his inaccuracy, the *Courondi* having simple leaves. We may, therefore, altogether reject Plukenet's comparison of the *Courondi* with his American plant as unsatisfactory.

M. Lamarek (*Enc. Méth.* ii. 160.) mentions this tree on the authority of Rheede, without being able to throw any light on its affinities, merely quoting a name given by Ray, and derived entirely, I suppose, from Rheede's account. M. Lamarek thinks it probable, that in the *Courondi* the germen is above the calyx; but of this I am doubtful, as in the drawing of the fruit there is not

represented the least vestige of a calyx towards the pedunculus. The leaves, being opposite, prevent me from considering it allied to the *Anavinga*, and on the whole it seems more nearly allied to the *Combretaceæ* than to any other order, unless M. Lamarck's conjecture of the germen being above is well founded, in which case it would approach nearer the *Laurinæ*.

BENGIERI, seu BENGIRI, p. 105. tab. 51.

Giri, corrupted from *Girimaso* of the Brahmans, would seem to be the generic name, and *Ben* to be a specific term. The Portuguese of Malabar have judged properly of its affinities, in classing it with the *Phyllanthus Emblica* (*Neli-ca*); for it evidently belongs to the order of *Euphorbice*, and possesses in an eminent degree the acrimony of this order, as expressed by the Portuguese and Dutch specific names. Few plants of the order, however, are less nearly allied to the *Bengiri* than the *Emblica*; nor is Commeline more fortunate than the vulgar Portuguese in classing it in the genus *Ricinus*. We may judge of the slow and gradual progress of improvement from these rude attempts at arrangement, by the name given to this plant by Plukenet (*Alm.* 320.), who calls it "*Ricinus Indicus Patsjoti Malabaricæ foliis, fructu majore rotundo hexagono, Nilicamaram (Emblica) æmulo.*"

No subsequent notice was taken of this plant, until I found it in Tripura, and sent it in 1797 to Dr. Roxburgh, who again transmitted it to Willdenow under the name of *Sapium Bengerium*; but Willdenow published it under the name of *Sapium indicum* (*Sp. Pl.* iv. 572.), adopted since by Roxburgh (*Hort. Beng.* 69.) and M. Poiret (*Enc. Méth. Suppl.* ii. 796.). I have found the tree very common in the Delta of the Ganges, and the Bengalese called it to me *Hurmaji*; but in the *Hortus Bengalensis* they are said to call it *Hoorooa*, I suppose a typographical error, the second *oo* having been printed in place of *m*. In 1801, I found it common in the woods of Malabar, specimens from which were given to Sir J. E. Smith under the name of *Sapium Hurmais*; others from Bengal, under the name adopted by Willdenow, have been placed in the library at the India House.

I have called it a *Sapium* in compliance with the systematic authors of the day, without taking into consideration the foundations on which this genus rests; for it is no doubt true, as M. Poiret justly remarks, that this genus

scarcely differs from the *Stillingia*; and there is also very little difference between it and *Euxcoecaria*, if with Willdenow we admit into the latter, species with male and female flowers on the same individual. I shall here annex a description.

Arbor inter minores ramis pendulis, teretibus, elevato-punctatis. *Folia* alterna, bifaria, lanceolata, serrata, acuta, glabra, venosa. *Petiolus* teres, canaliculatus, tenuis, brevissimus, nudus. *Stipulae* geminae, laterales, minimae, marcescentes.

Masc. *Florum amentum* vel potius racemus laxus, erectus, terminalis, foliis longior, sessilis. *Flores* foeminei ad basiu amenti masculini solitarii, pedunculati.

Masc. *Amentum* (*racemus*) laxe imbricatum squamis sparsis (bracteae), 4- seu 5-floris, bilobis, lobis utrinque reniformibus. *Flores* pedicello proprio squamis longiore instructi. *Calyx* proprius cyathiformis, obsolete tridentatus. *Corolla* nulla. *Filamenta* tria brevissima, e basi calycis enata. *Atherae* didymae lobis globosis. *Pistillum* nullum.

Foem. *Calyx* tripartitus, minimus, saepe vix conspicuus. *Corolla* nulla. *Germen* magnum, ovatum, superum, obsolete trigonum. *Stylus* brevissimus. *Stigmata* tria subulata, longissima. *Capsula* drupacea, magnitudine Sclopeti orbiculata, depressa. *Cortex* crassus, durus, succo lacteo scatens. *Putamen* osseum, trilobum, sexsulcum, triloculare. *Semina* solitaria, oblonga.

ARIA BEPOU, p. 107. tab. 52.

Bepou is the generic name in the vulgar language of Malabar, and *Nimbou* in that used by the Brahmans. This is no doubt the same with *Nim*, used in both the Hindvi and Bengalese dialects, and with *Nimba* of the sacred tongue; and must not be confounded with *Nimbo* or *Limbo*, from whence is derived the English word *Lemon*, used for various *Aurantie*. The confounding of these two words seems to have been the source of the error in Bontius complained of by Commeline.

This tree having been early known to botanists,—on account, probably, of its medical qualities, much celebrated among the natives,—Commeline has given us the names by which it was early known; and it is to be regretted that the

Sanscrita name *Nimbo*, or *Nimba*, used by Acosta, by Garcias ab Horto, and by John Bauhin, was not retained by moderns; for the names *Azedarach* and *Azadirachta*, applied to this and another species of the same genus, are both corruptions of the same Persian words, signifying the tree *Aza*, the first corruption having been adopted by Dodonæus, and the latter by Breynius. The similarity of the foliage of this tree and that of the *Ash* is so striking, as to justify C. Bauhin in having described it *Fraxino similis*; and it is not impossible that *Aza* and *Ash* may be the same word.

Plukenet, from a very superficial resemblance of its fruit to an Olive, calls the tree *Olea Malabarica fraxineo folio e Maderaspatana* (*Alm.* 269.), and gives a figure (*Phyt. t.* 247. *f.* 1.) representing the leaves especially, so that it cannot be mistaken. This plant of Plukenet, with several of the synonyma belonging to it, by the elder Burman was referred to his *Azedarach fructu polypyreno* (*Thes. Zeyl.* 40.), instead of to his *Azedarach foliis falcato serratis* (*Thes. Zeyl.* 40. *t.* 15.), which he properly says is the *Aria Bepou*.

Linnæus, adhering to the resemblance between the *Aria Bepou* and the *Ash*, has given the Greek name of the latter tree to the new genus; and the *Aria Bepou* in the *Flora Zeylanica* (161.) is called *Melia foliis pinnatis*. The errors respecting the synonyma into which the elder Burman fell are here properly corrected; but I cannot think it justifiable to give the Greek name of a well known European plant to an exotic genus. In the *Species Plantarum* the name *Azadirachta* was applied to the *Aria Bepou* (*Burm. Fl. Ind.* 101.), concerning which I have already given my opinion; nor has any change in name or synonyma since taken place.

I shall here give an account of a tree nearly allied to the *Aria Bepou*, which I found in moist woods both in Carnata and in the lower parts of Nepal, so that it probably extends all over India. Specimens from the former, with a drawing, were given to Sir J. E. Smith, and specimens from the latter to the library at the India House. As I have not seen the fruit, I cannot positively say that it is a species of *Melia*; but I have called it *Melia integerima*, and shall describe it as observed in the Western Ghats ascending from Cancana.

Arbuscula. *Folia* alterna, apices versus ramulorum conferta, pinnata. *Foliola*

cum impari quadrijuga, opposita, remota, petiolata, acuminata, integerrima, nitida, subcostata, venosa: lateralium latus anteriori posteriore et longius et latius; terminale ellipticum. *Petiolus* communis pubescens, basi incrassato teres, mediocris, non stipulaceus. *Rachis* teres, ad foliola nodosus. *Petioli* partiales canaliculati, breves, utrinque articulati; terminali productiore.

Pedunculus communis axillaris, solitarius, longitudine folii patens, ima parte incrassata teres, apicem versus tetragonus, nudus. *Cyma* erecta, composita radiis quinque, quorum quatuor laterales ancipites, corymbiferi, brachiati; intermedius tetragonus, iterum radiis quatuor umbellatus, vel aliquando brachiato-corymbosus. *Flores* parvi, albi, odorati. *Bractea* squamiformes, fugaces, involucriformes.

Calyx minimus, patens, laciniis obtusis quinquefidus. *Petala* quinque linearia, concava, apice acuto incurvo patentia, unguibus calycis medio inserta. *Urceolus* hypogynus, petalis paulo brevior, cylindricus, decemfidus, laciniis incurvis, bicornibus. *Antheræ* decem inter urceoli cornua insidentes, ovatae. *Germen* superum, depressum. *Stylus* brevis, incrassatus. *Stigma* truncatum.

In Nepalæ arbore pedunculi divisiones minus regulares, et potius ramis subumbellatis paniculatæ.

On the most careful examination I cannot discover any solid characters by which we can distinguish the *Melia Azedarach* from the *M. sempervirens* of the *Hortus Bengalensis*, and therefore I have no doubt that Linnæus and Lamarek were quite right in considering them as mere varieties, although the latter is a native of India Proper, and the other seems to extend from Persia to China along the sides of the great ridge of Emodus. In their native countries both are equally trees of a moderate size. If the West India plant mentioned by Willdenow is different from the *M. sempervirens* of India, that is, from the *M. foliis duplicato-pinnatis*, α . of the *Flora Zeylanica*, I have not seen it; and the *M. Azedarach*, β . of the *Species Plantarum* should be excluded from the synonyma.

In Indiæ australioris planta, *sempervirens* dicta, foliola lucida, bullata; in Chinensi planta, *Azedarach* a Roxburghio dicta, foliola plana, non lucida.

Prioris insuper foliola breviora, profundius incisa ; sed plus minus speciem non distinguit.

KARI BEPOU, seu BEPU, p. 109. tab. 53.

By the vulgar of Malabar this is reckoned to belong to the same genus with the preceding ; but the Brahmans, whether they call it *Karabou* or *Cari Beu*, think it different ; for the *Melia* they call *Nimbou*, evidently derived from *Nimba* of the Sanscrita ; so that the terminal *Bou* or *Beo* cannot be reckoned a generic name, as Rheede would seem to have thought.

Commeline appears to have entertained no doubt that this should be placed in the same genus *Nimbo* with the *Aria Bepou* ; and from Plukenet (*Alm.* 269.) I learn that both he and Breynius were of the same opinion, the latter calling it an *Azadirachta*, while Plukenet called it *Olea Malabarica Nimbo dicta fructu rotundiore*, although it must be observed that its fruit has not even the slight resemblance to an *Olive* which the fruit of the *Aria Bepou* possesses, but is evidently a berry ; and the filamenta being distinct, it cannot even belong to the order of *Meliæ*.

I find no notice of this plant in subsequent authors ; but were it not that Rheede describes it as a lofty tree, I should have little hesitation in considering it as the *Bergera Kœnigii*, which in the Tamul language, a dialect of that spoken in Malabar, is called *Kari Vepa* (*Hort. Beng.* 32.), evidently the same name with *Kari Bepu*. At any rate, there can be no doubt of both plants belonging to the same genus, which differs in no respect from the *Murraya exotica*, that is, the *Cumunium japonicum* of Rumphius (*Herb. Amb.* v. 29. t. 18. f. 2.) ; nor from the *Calchus paniculata*, that is, the *Cumunium javanicum* of Rumphius (*Herb. Amb.* v. 27. t. 27.). As I consider it thus absolutely necessary to unite three Linnæan genera, I would propose that the name *Camunium*, given by Rumphius to two of the three, should [be restored. Leaving these two to be treated of in a Commentary on the *Herbarium Amboinense*, I shall here confine myself to give an account of the *Bergera Kœnigii*, and to point out in what respects the *Kari Bepou* differs. The plant, which I call *Bergera Kœnigii*, I was assured by Dr. Roxburgh was pointed out to him by Kœnig himself, and it agrees sufficiently with the character given by Willdenow ; but if this author actually meant the *Papaju*

sylvestris of Rumphius, as I have said in a *Commentary* on the *Herbarium Amboinense* (i. 149. t. 53. f. 1.), his *Bergera Kœnigii* must be totally different, belonging to the order of *Araliæ*, while the *Kari Bepou* belongs to the *Aurantia*.

The *Bergera Kœnigii* of Roxburgh in the dialect of Bengal is called *Panœr*, and is common in all the eastern parts of that country, as I have seen it both in Tripura and Kamrupa, on which account I shall call it *Camunium bengulense, foliolis serratis, caule frutescente*.

Caulis fruticosus, 3—5 pedes altus. *Ramuli* virides, teretes, glabri. *Folia* alterna, internodiis longiora, cum impari pinnata. *Foliola* utrinque 5—8 sparsa, petiolata, serrata, glabra, venosa, pellucido-punctata: *terminali* lanceolato-ovato; *lateralibus posterioribus* angustatis, semiovatis; *inferioribus* brevissimis, obtusis; *superioribus* elongatis, acuminatis. *Petiolus* communis non stipulaceus, brevissimus, basi incrassato teres, pubescens. *Rachis* teres. *Petioli* partiales brevissimi, supra plani.

Corymbus terminalis, foliis brevior, erectus, compositus e ramis subtrichotomis, pubescentibus. *Bractee* ad corymbi divisiones minutæ. *Flores* albi, odorati.

Calyx minimus, inferus, quinquedentatus. *Petala* quinque patentia. *Filamenta* decem receptaculo hypogyno plano mellifero inserta, subulata, erecta; quorum quinque petalis opposita breviora. *Antheræ* oblongæ, compressæ, obtusæ. *Germen* oblongum. *Stylus* crassus. *Stigma* subrotundum, umbilicatum.

Bacca supera, pulposa, nigra, ovalis, utrinque obtusa, compressiuscula, ante maturitatem coriacea, et punctis glandulosis aspersa, bilocularis, loculorum uno sæpius sterili, et in fructu maturo fere evanescente. *Fumis* umbilicallis ex apice septi membranacei tenuis enatus, ad basin seminis descendens, ibique integumentum venosum dispersus. *Semen* hinc convexum, inde planum. *Integumentum* tenuissimum, membranaceum, embryoni laxè adhærens. *Embryo* forma seminis basin versus subito nonnihil attenuatus, viridis. *Cotyledones* carnosæ, glanduloso-punctatæ, apice transversim bifidæ; *interiore* plana, *exteriore* hinc convexa. *Radicula* teres, inversa, supera, inter cotyledones nidulans.

Now the *Kari Bepu* may be called *Camunium malabaricum, foliolis serratis, caule arboreo*; and from the following circumstances, mentioned by Rheede, may be considered as clearly different from the *Panzer* of Bengal: "*Arbor præcelsa atque speciosa plurimum, caudice præcrasso. Flores graveolentes. Fructus rotundi (globosi).*" I suspect that this may be the *Limonia arborea* of Dr. Roxburgh (*Hort. Beng.* 90.), which he found in the South of India, but never could procure for the garden at Calcutta. The chief doubt that may arise in considering the *Kari Bepou* as a *Camunium* is, that Rheede says, "*Fructus Aria Bepou fructibus similes,*" which would imply its being a *Drupa*; but in the figure there is no confirmation of this, but a great resemblance to the berry of the *Camunium*.

While I have thus endeavoured to show that the *Bergera* of Kœnig belongs to a genus long before known, I must state, that the *Bergera* of Roxburgh contains a plant forming a very distinct genus from the *Bergera* of Kœnig, but still allied to the *Kari Bepou*. I am not, however, sure that it is sufficiently distinct as a genus from the *Ekebergia indica* of Roxburgh (*Hort. Beng.* 33.). This plant I sent to Dr. Roxburgh from Tripura in 1797; and I have since found it in and near several of the hilly regions bordering on the Gangetic plains. I have given specimens to the library at the India House, and I shall now describe it.

BERGERA INTEGERRIMA. *Hort. Beng.* 32.

Ban Kongeha in Tripura	} <i>Bengalensium.</i>
Bosomut in Matsia	
Phriki in Camrupa	

Habitat in India Gangeticæ humidioris et Nepalæ dumetis.

Arbuscula ramulis teretibus, tomentosis. *Folia* alterna, cum impari pinnata.

Pinnæ alternæ utrinque 3—6, pedicellatæ, integerrimæ, acuminatæ, costis supra depressis lineatæ, vix venosæ, punctatæ: *juniores* pilosæ, adultæ glabræ; *inferiores* breviores, ovatæ; *superiores* latere posteriore angustato semiovatæ; *terminalis* deltoideo-ovata. *Petiolus* non stipulaceus, basi incrassato teres, foliolo longior. *Rachis* teres, plerumque pubescens.

Panicula terminalis, erecta, folio multo brevior, multiflora, ramosissima,

corymboso-fastigiata. *Rami* teretes, pubescentes, sparsi. *Bracteæ* vix ullæ. *Flores* odore hircino gravissimo subherbacei, pedicellati, fasciculati.

Calyx minimus, inferus, quinquedentatus. *Petala* quinque lanceolata, revoluta, acuta, integra. *Filamenta* decem lanceolata, receptaculi basi inserta; quinque petalis opposita breviora. *Antheræ* orbiculatæ, compressæ. *Germen* oblongum, receptaculo conico suffultum. *Stylus* teres, crassus. *Stigma* magnum, orbiculatum, depressum.

Bacca ovata, aurea, punctis oleiferis aspersa, glabra, coriacea, quinquelocularis septis membranaceis e pariete ad receptaculum deductis. *Loculorum* 4—2 sæpe deficientes. *Receptaculum* centrale, tenue. *Semina* in singulis loculis solitaria, magnitudine et forma loculi oblonga, utrinque acuta, hinc convexa, inde angulata, angulo ad receptaculum adhærentia. *Integumentum* simplex, membranaceum, tenue, facile secedens. *Albumen* nullum. *Embryo* semini conformis, inversus, læte viridis. *Cotyledones* foliaceæ, altera minore subrotundæ, ad se invicem adhærentes, plicato-fasciculatæ. *Radicala* teres, viridis, supera, plicis cotyledonum tecta.

This singular structure of seed I have found in the *Libanus Thwifera* of Colebrooke, and in a species of *Schinus*, both plants belonging to the *Terebinthaceæ*, which shows how nearly these are connected with the *Aurantia*, as these are again allied by the *Bepou* with the *Meliæ*.

KARI VETTI, *p.* 111. *tab.* 54.

This and the following plant, which, as Commeline justly remarks, have no affinity either in appearance or qualities, are included in one genus, not only by the vulgar of Malabar, but by the Brahmans, the former calling the genus *Vetti*, and the latter *Daliqui*, or *Dalaqui*. Neither Dutch nor Portuguese residents have fallen into such a gross error, and I suspect some mistake in procuring the native names.

Commeline does not hint at any affinity to the *Kari Vetti*; but Plukenet compares it to his "*Olea laurino folio Portoricensis, summo margine crenato*" (*Alm.* 269.; *Phyt. t.* 206. *f.* 6.). As his figure has neither flower nor fruit, little can be said on this subject. The leaves have a resemblance; but there

is no reason to suppose that the plants are the same, although they may belong to one genus.

In the woods near Goyalpara I found a tree called there *Silapoma*, which I think may very possibly be the *Kari Vetti*; but as I did not see the flower, I am by no means certain. When I presented specimens to the library at the India House, I considered it as perhaps a *Myginda*; but now I think that both it and the *Kari Vetti* may be the *Olea dioica* of Dr. Roxburgh (*Fl. Ind.* i. 105.), although he says that in Silhet (*Srihata*) his tree is called *Atta Jam*. Such differences in vernacular names are, however, not uncommon even at less distances than between Goyalpara and Silhet. I shall here describe the *Sila Poma*, so far as I had an opportunity of observing it.

Arbor elata ligno utili. *Ramuli* nudi, punctis elevatis asperiusculi, compressiusculi. *Folia* subopposita, oblonga, basi acuta, apice acuminata, mucronato-serrata, rigida, subcostata, venosa, glabra. *Petiolus* brevissimus, glaber, supra concavus, non stipulaceus.

Panicule axillares, solitariae, oppositae, folio deficiente saepe nudatae. *Rami* suboppositi. *Pedicelli* breves; laterales oppositi, terminales terni.

Drupa calyci minuto quadrifido insidens, magnitudine Pisi ovalis, acuta, carne tenui induta. *Nux* figura drupae fragilis, unilocularis. *Semen* unicum, magnum. *Albumen* carnosum. *Embryo* rectus. *Radicula* teres. *Cotyledones* ovatae, planae, parallelae.

The *Arbor vespertilionis* of Rumphius (*Herb. Amb.* vii. 17. t. 10.) and the *Parili* of Rheede (*Hort. Mal.* v. 5. t. 3.) have a great resemblance to this plant; but these I shall have further occasion to examine.

PE seu PEE VETTI, p. 113. tab. 55.

This other *Vetti* was conjectured by Commeline to be the same with the *Solanum somniferum antiquorum ex Creta insula* of Prosper Alpinus. He indeed admits, "quod *Pevetti* in justae magnitudinis excrescat arborem, at *Solanum somniferum antiquorum* humilis tantum sit arbuscula, seu potius frutex;" but he adds, "quod tamen pro loci natalis, aliorumque accidentium varietate contingere potest, uti in aliis stirpibus id observamus." The accuracy of such observations I in general very much doubt; and were there no

other reason, I should altogether reject, until demonstrated, the supposition of a tree found spontaneous in Malabar, being spontaneously produced in Crete under the form of a shrub.

Plukenet separates the *Pee Vetti* from the plant of Alpinus, but joins it with the *Solanum verticillatum* of J. Bauhin, and the *Solanum somniferum verticillatum* of C. Bauhin, and the *Solanum somniferum* of Parkinson, to which he annexes an American plant mentioned by Hernandez and Ray; and these now constitute the *Physalis somnifera*, said to be a native of Mexico, Crete, and Spain (*Willd. Sp. Pl. i. 1020.*), in which I suspect some mistake.

The elder Burman described a plant of Ceylon, which he called *Alkekengi somniferum Cydoniæ folio, flore et fructu rubris* (*Thes. Zeyl. 10.*). This, I think, I know well, and it is totally different from the *Pe Vetti*, which Burman enumerates among the synonyma, joining to it not only the synonyma given by Commeline, but those given by Plukenet; that is to say, he considers the *Solanum verticillatum* of Plukenet (*Alm. 352.*) as the same with the "*Solanum verticillatum virginianense latifolium molle, floribus obsolete rubris, baccis luteis*" of the same author (*l. c.*). It is probable that Burman was induced to do this by Plukenet's having included among the synonyma of both plants some that belonged to a plant of America, and some that belonged to the plant of Asia. The latter I know, and it is, no doubt, that found in Ceylon.

Linnæus in the *Flora Zeylanica* (96.) describes the plant of Ceylon under the name of "*Physalis caule fruticoso tereti, foliis ovatis integerrimis, floribus confertis,*" adding to it not only the *Pe Vetti*, but the plant of Southern Europe. He, however, quotes none of the American synonyma.

The younger Burman, however, copying probably the *Species Plantarum*, gives us the *Pee Vetti* and the shrubby plant of the *Thesaurus Zeylanicus* for the *Physalis flexuosa* (*Fl. Ind. 54.*), rejecting not only all the American synonyma, but those belonging to the plant of Southern Europe. Nor has any change been made since by Willdenow (*Sp. Pl. i. 1020.*). M. Lamarck, however, (*Enc. Méth. ii. 100.*) returned to the errors of the *Flora Zeylanica*, and makes the *Pee Vetti* not only the same with the *Physalis flexuosa*, but considers this as a mere variety of the *Physalis somnifera* of Europe.

In the *Hortus Kewensis* (i. 393.) the *Pe Vetti* continues to be quoted for the *Physalis flexuosa*, although there is not the smallest chance that the plant in

the noble collection of our King is anything but a shrubby *Physalis*, while the *Pee Vetti* "Arbor est justæ magnitudinis, candice crasso—Flosculi (masculini nempe)—sex teretibus acuminatis—ac extrorsum reflexis foliolis constantes. medium occupante stylo exiguo (filamentum) candido, capitulo (anthera) flavo.—Baccæ plano-rotundæ (depressæ) acuminatæ, decem cingulis sulcatæ, purpuræ, glabræ, nitentes, intus in decem loculamenta per membranaceas quasdam pelliculas distincta, in quibus totidem locuntur acini—crocei—ita ut singuli in singulis latitent cellis." This account is totally irreconcilable with the *Pe Vetti* being a *Physalis*, and an inspection of the figure shows this still further. The separate figure of the fruit does not represent an inflated calyx concealing a berry, but a small calyx supporting the base of a large fruit. The flowers also are evidently monœcious; the male, described by Rheede, having an open calyx deeply divided into six segments, and containing in the centre one filament, which supports the antheræ united into a capitulum. The female flowers, not noticed in the letter-press, have the divisions of the calyx erect, and these include the germen crowned by a projecting sharp-pointed stylus. Whether the fruit is actually a berry, or is merely a coloured capsule, I cannot say. If it is a berry, this circumstance, and there being only one seed in each cell, may induce some to separate the plant from the genus *Bradleja*; although it is evident that the *Pe Vetti* has the utmost affinity to this genus, which includes most of the *Agynejas*. I suspect, however, that the fruit is merely a coloured capsule, which, with the red covering of the seeds, usual in the *Bradleja* ("semina arido-baccata," *Gærtn. De Sem.* ii. 127.), may have readily induced Rheede to use the term *bacca*, botanical language being then less definite than it now is. In this case, the circumstance of the seeds being solitary in the *Pee Vetti*, would be quite too trifling to distinguish it as a genus from *Agyneja multilocularis*, which is a *Bradleja*, of which I have given specimens to the library at the India House, or from the *Agyneja coccinea*, of which my account was published by Colonel Symes in the account of his Embassy to Ava, and of which specimens were sent to Sir Joseph Banks.

To the above-mentioned library I have given specimens of two plants, or perhaps of two varieties of one species, both of which agree so far with the character of the *Physalis flexuosa* that I have little doubt of its being one of them, although both entirely want the character (ramis flexuosis) from

whence the specific name is derived, and which seems to have been very remarkable in the specimens, from which Linnæus took his account, “ramis bifariam valde flexuosis.” This character is not noticed in the *Flora Zeylanica*, although there can be no doubt that the same plant was meant. It is, however, retained in the *Hortus Kewensis*, where the plant is growing. This leads me to suppose that even in India there are several species of *Physalis* nearly allied to the *Solanum somniferum* of ancient botanists; and, in order to put a stop to any supposition of their being the *Pee Vetti*, I shall here describe those which I saw. Both varieties are called by the Bengalese *Sugunda*, and in the vulgar Hindwi dialect *Usgund*; but by writers on the *Materia Medica*, using a higher style, the name is written *Isganda*; and all these words are no doubt corruptions from *Aswagandha* of the Sanskrita. The plants grow in every part of India among impure rubbish near villages, such as that in which the *Hyoscyamus*, *Datura*, and other narcotic *Solanaceæ* delight, and probably possess analogous qualities. Their habit differs so much from that of the *Physalis* with esculent berries, that I doubt the propriety of including them in one genus.

The first variety or species which I shall mention I have called

PHYSALIS SUGUNDA.

Rudix forte perennis? *Caulis* lignosiusculus, erectus, duos vel tres pedes altus, ramosus, pubescens, teres, ramis rectis subdichotomis. *Folia* lanceolato-ovata, acuta, integerrima, costata, venosa, pubescentia; *inferiora* alterna; *superiora* sæpius geminata. *Petiolus* non stipulaceus, brevis, teres, supra planus, pubescens.

Pedunculi plures, axillares, conferti, uniflori, petiolo multo breviores, pubescentes, ebractcati. *Flores* parvi, absque macula in corollæ fundo herbacei, odore gravi pubescentes.

Calyx cylindricus, decemangularis, ore quinquefido, patulo. *Corollæ* calyce paulo longioris tubus incrassatus, brevis: *limbus* campanulatus, decemangularis, laciniis ovatis, patulis quinquefidus. *Filamenta* quinque e tubi parte inferiore enata, basi crasso subulata, longitudine corollam fere æquantia. *Antheræ* cordatæ. *Germen* superum, ovatum. *Stylus* teres, *Stigma* capitatum.

Calyx fructiferus maximus, inflatus, cordatus, acutangulus, ore clauso depressus. *Bacca* magnitudine Pisi subrotunda, glabra.

The kind which I found used by physicians is the same with what Dr. Roxburgh cultivated in the Botanical Garden as the *Physalis flexuosa*, although its branches are straight. It differs from the above description in the form of the calyx when the fruit is ripe, which in place of being depressed is shaped like an egg.

The plant of Ceylon, it must be observed, is described by Linnæus with a flexuose stem, and by Burman with red flowers, and is therefore probably different.

NOELI SEU NULI TALI, p. 115. tab. 56.

The generic name *Tali* is applied by the Hindus to several plants. With the addition of *Tiru* prefixed it is given to some species of *Convolvulus* (*Hort. Mal.* xi. 109. 111.); but in this sense the compound *Tirutali* forms the generic name, and the different kinds are distinguished by additional specific appellations. In the South of India I found *Tali* used as the generic name for the *Bombax Gossypum*, which has no sort of affinity with the *Nuli Tali*. Even the *Nela Tali* of Rheede (*Hort. Mal.* ix. 31.), so like in name to the *Noeli Tali*, has no sort of affinity to this plant, for it is the *Æschynomene indica*: nor are the *Watta Tali* of Rheede (*Hort. Mql.* v. 63.) nor *Pi Tali* of the Bengalese any more allied to the *Noela Tali*, both probably being species of *Rottleria*.

Commeline had no doubt of the *Noeli Tali* being a *Berberis*, not less different from it than almost any of the above-mentioned plants. Plukenet, however, adopted the same arrangement, calling it *Berberis Indica Aurantie folio* (*Alm.* 67.); but the elder Burman, justly considering that the flowers of the *Noeli Tali* had no sort of resemblance to those of the *Berberis*, constituted a new genus for it, and called it *Antidesma*, adding the specific character "spicis geminis" (*Thes. Zeyl.* 22. t. 10.). Among the synonyma he added a plant of Jamaica, which probably may be safely rejected; nor am I entirely satisfied that his plant is the same with that of Rheede, for the figures differ a good deal in the form of leaf, and considerable reliance may be placed on the accuracy of both; besides, the specific character "spicis geminis" used by Burman is neither justified by the description nor figure in Rheede.

Linnæus in the *Flora Zeylanica* (357.), if I understand him rightly, was sensible of this difference, but unable to point out the characters by which the two plants could be distinguished. He therefore, under the head *Antidesma*, gives two sets of synonyma separated by a line. In this, perhaps, he intended to refer the synonyma to the male and female plants, according as each author represented one or other. This, however, is not certain; and I rather am inclined, as I have said, to attribute the separation to his having been aware of a specific difference or variety. In the first set of synonyma is placed the *Antidesma* of Burman, and in the second the *Noeli Tali*. The synonyma of this are not unexceptionable, nor free from typographical errors, which may mislead. First, the *Noeli Tali* is said to be in *Hort. Mal.* p. 19. in place of p. 115. Secondly, for the "*Arbor Indica, ovali folio, flosculis plurimis in spicis summo ramulo dispositis acinifera*" of Plukenet's *Mantissa*, we are referred to t. 329. in place of 339. This figure, although it evidently represents an *Antidesma*, refers, in my opinion, to a species different from the *Noeli Tali*, and seems to me to represent the *Mathasura* of the Hindwi dialect, which I take to be the *Antidesma pubescens*, β . of Willdenow, if that be different from the *Antidesma paniculata*. Thirdly, Linnæus quotes among the synonyma of the *Noeli Tali* the "*Planta folia habens oblongo-rotunda*" of the elder Burman (*Thes. Zeyl.* 194.) and Herman, which the former says is the *Keratya* of the Ceylonese; and from the term "*folia oblongo-rotunda*," I rather suspect that this belongs to the *Mathasura* rather than to the *Noeli Tali*; and I do so the more especially, because Linnæus alleges that the *Æmbilla* of the Ceylonese (*Herm. Zeyl.* 19. 26.) is the same with the *Noeli Tali*; but the *Æmbilla* of Herman is only quoted by Burman among the synonyma of "*Grossularia spiuis vidua, baccis in racemo congestis, spadiceis, foliis crenatis, ovato-acuminatis*" (*Thes. Zeyl.* 112. t. 48.), which has no resemblance to an *Antidesma*; nor does he mention which of Herman's *Æmbillas* it is, although, from its having many stamina, it is, no doubt, the *Rhamnicastrum* of Linnæus (*Fl. Zeyl.* 410.), for which the latter, as well as for the *Antidesma*, quotes the *Æmbilla* 19. of Herman. We must therefore confine the *Noeli Tali* to the *Æmbilla* 26. of Herman, if Linnæus is right in quoting this, which I do not know. If he is right, then the *Noeli Tali* being the *Æmbilla* 26., and the *Antidesma* of Burman being the *Keratya* of the Ceylonese, the plants must be different. The

only synonyma, therefore, of the *Noeli Tali* given by Linnæus in the *Flora Zeylanica*, that can be admitted, are the *Æmbilla* 26., and the *Berberis Indica aurantii folio* of Comeline, Ray, and Plukenet. It must be further observed, that the *Antidesma* of Linnæus (*Fl. Zeyl.* 357.) has five stamina, and it therefore can neither be the *Noeli Tali* of Rheede nor the *Antidesma* of Burman, but is probably the *Arbor Indica, ovali folio, flosculis plurimis in spicis summo ramulo dispositis, acinifera* of Plukenet; and therefore I am still by no means certain that Burman was mistaken in considering his *Antidesma* and the *Noeli Tali* as the same.

Even after the publication of the *Species Plantarum*, matters were not improved in the *Flora Indica* of the younger Burman, for along with the pentandrous *Antidesma alexiteria* we have the triandrous *Noeli Tali* and *Antidesma* of Burman conjoined with the last-mentioned tree of Plukenet, which, having five stamina, is probably the plant really meant. Along with these, which probably form three distinct species, the younger Burman quotes the "*Berberi dumetorum, baccas similes ferens Arbor,*" Hermann's herb.; but I cannot trace any such plant in either the *Thesaurus* or *Flora Zeylanica*; nor do I know that any such now exists in Herman's collection. The younger Burman, mixing together the two sets of synonyma that are distinguished in the *Flora Zeylanica*, quotes also for the *Noeli Tali* the *Grossularia Zeylanica baccis minoribus acidiusculis* of his father (*Thes. Zeyl.* 112.). Here, like Linnæus, he leaves out the word *albis*, applied by the elder Burman to the berries of this plant: and we may safely reject this quotation; for Rheede says of the *Noeli Tali*, "*Baccæ pulchre rubentes.*" The *A. alexiteria*, therefore, as it thus stands, comprehends four species, nor can I say which was really meant.

M. Lamarek takes his account of the *A. alexiteria* entirely from Rheede, quoting no other authority than the *Noeli Tali*, nor marking that he had ever seen the plant. He also considers the *Antidesma* of Burman as quite distinct, calling it *A. zeylanica*. The figure which he gives of the *A. alexiteria* (*Ill. Gen. t.* 812. *f.* 1.) is taken from Gærtner (*De Sem. t.* 39.), and is confined entirely to the fruit; but as Gærtner quotes both the *Noeli Tali* and the *Arbor Indica, ovali folio, flosculis plurimis in spicis summo ramulo dispositis, acinifera* of Plukenet, and as these plants are quite different, it would be difficult to say which he meant. I can only observe, that the fruit figured by

Gærtner has no great resemblance to that of the *Berberis*, while Rheede says, "*Baccæ cylindrææ—Berberis fructibus persimiles.*" We may therefore conclude that Gærtner has not delineated the fruit of the *Noeli Tali*, and that therefore his *A. alexiteria* is different from that of Lamarck, whose account is taken entirely from Rheede.

M. Lamarck thinks that Rheede described merely a female tree of the *Noeli Tali*, and, therefore, that the three stamina which he mentions are in reality styli. This would obviate one objection to the *Noeli Tali* being the *A. alexiteria*; but as several *Antidesmas* have three stamina, this remains very doubtful, especially as Burman in his *Antidesma*, so nearly allied to the *Noeli Tali*, describes the flowers, "stamina habentes tria calyce longiora, apicibus ex duobus veluti globulos compositis," which evidently alludes to real stamina, and not to styli, although he says, "post flores *Baccæ* sequuntur *Berberi dumetorum* similes," just as Rheede, after describing the stamina of his plant, says, "flosculis succedunt baccæ." Any one may indeed be satisfied that the figure of Burman represents a male, while that of Rheede represents a female; but then, in the two separate flowers which the latter gives, the three stamina with their antheræ are evidently delineated quite differently from the female flowers on the spikes. We may therefore, I think, conjecture, that the *A. alexiteria* of M. Lamarck is the *Noeli Tali*, and not that of Gærtner.

This unlucky plant has led Willdenow into worse mistakes than any yet mentioned, as he quotes it both for his *Stilago Bunius* (*Sp. Pl.* iv. 714.) and *Antidesma alexiteria* (*Sp. Pl.* iv. 762.). The genus *Stilago*, first founded by the younger Burman (*Fl. Ind.* 16.), and for which he quoted the *Bunius sativus* of Rumphius (*Herb. Amb.* iii. 204. t. 131.), has hermaphrodite flowers; and I know a plant that entirely agrees with the character which he gives; but this is totally different from that given by Willdenow from Schreber; and I know that Dr. Roxburgh considered his *Stilago Bunius* and *S. diandra* as not really distinct from the *Antidesmas*, as differing merely in the number of stamina; and M. Poiret is of a similar opinion (*Enc. Méth. Suppl.* i. 403.). The fruit in both is in fact a drupa. Whether or not Burman was right in quoting Rumphius for his *Stilago*, I shall not here inquire. It suffices to state here that the plant of Rumphius, having leaves agreeably acid, cannot be the *Noeli Tali*, of which the leaves are insipid. If, therefore, the *Bunius sativus* of

Rumphius is the *Stilago Bunius* of Willdenow, the *Noeli Tali* should be expunged from the synonyma, and we should refer it to his *Antidesma alexiteria*; but then that would not be the *Antidesma* of the *Flora Zeylanica*, which has five stamina; and as this also is quoted, it is impossible to say which Willdenow meant. If, indeed, it were certain that the author of the *Hortus Kewensis* was right in quoting the *Tsjeriam Cottam* (*Hort. Mal.* v. 21. t. 11.) for Willdenow's *Antidesma alexiteria*, then this could neither be the *Noeli Tali* nor the *Antidesma* of Linnæus; nor could it even belong to the same natural order, as its flowers have petals.

In the *Hortus Bengalensis* (71.) the *Noeli Tali* is quoted for the *Stilago Bunius*, and I think that I have seen the female plant on the lower hills of Nepal, where it is called *Patleya Archal*. This tree, however, cannot be the *Stilago Bunius* of Willdenow, if he meant either the *S. Bunius* of Burman or the *Bunius sativus* of Rumphius. It is, however, at least very nearly similar to the *Antidesma* of the elder Burman, and should be, therefore, the *A. zeylanica* of Willdenow (*Sp. Pl.* iv. 763.) and M. Lamarek (*Enc. Méth.* i. 207.). On this account, in the catalogue of dried plants given to the library at the India House, I have called the specimens *A. zeylanica*. Here I shall describe it.

Arbuscula ramulis pubescentibus. *Folia* alterna, oblonga, utrinque angustata, sed basi nonnunquam obtusa vel etiam emarginata, apicem versus nunc dilatata, tunc ibi quam prope basin angustiora, apice acuminata, margine subrevoluto integerrima, glabra, costis depressis undulata, venis raris reticulata, insipida. *Petiolus* brevissimus, compressus, canaliculatus, nudus. *Stipulæ* geminæ, persistentes, lineares, acutæ, petiolo longiores, incurvæ.

Racemi fæminei axillares vel terminales, simplices vel ramosi, folio sæpe longiores, erecti. *Pedicelli* solitarii, sparsi, uniflori, flore breviores, rigidi.

Bractæ ad singulos flores solitariae, minutæ. *Flores* minuti, herbacei.

Calyx cyathiformis ore subquinqüedentato. *Germen* calyce multo majus, anceps, ellipticum. *Stigmata* duo acuta.

Neque fructum, neque florem masculinum vidi.

Before leaving this subject, I shall give an account of the *Arbor Indica*, ovali folio, flosculis plurimis in spicis summo ramulo dispositis, acinifera of

Plukenet (*Mant.* 22. t. 339. f. 1.). This, as I have said, was quoted by Linnæus for the *Noeli Tali*, from which it differs in having five stamina. It is, therefore, probably the plant which Linnæus actually described in the *Flora Zeylanica* (357., et *Nov. Gen. ad calcem* p. 14.). This plant of Plukenet was entirely left out by M. Lamarek; but by M. Poiret it is considered as a variety (β .) of the *Antidesma pubescens* (*Enc. Méth. Suppl.* i. 402.), an opinion adopted by Willdenow (*Sp. Pl.* iv. 763.), although both quote Plukenet erroneously, the one quoting the *Phytographia*, and the other the *Amaltheum*, while the plant is actually described in the *Mantissa*. I doubt very much, however, whether the plant of Plukenet, which in the Hindwi dialect is called *Mathasura*, be sufficiently distinct from what I consider as the *A. paniculata* (*Willd. Sp. Pl.* iv. 764.; *Enc. Méth. Suppl.* i. 402.; *Hort. Kew.* v. 384.; *Hort. Beng.* 72.), the male of which by the Bengalese is called *Amri*, and the female *Abutenga*. Specimens of both the *Mathasura* and the *Amri* or *Abutenga* have been given to the library at the India House; and I shall here describe the latter, to show how well it agrees with the figure in Plukenet.

Arbuscula ramulis teretibus pubescentibus. *Folia* austera, alterna, ovalia, utrinque obtusa, basi aliquando retuso subcordata, integerrima, costata, venis reticulata, utrinque pubescentia. *Petiolus* brevissimus, pubescens. *Stipulæ* geminæ, laterales, caducæ, lineares, acutæ, petiolo longiores.

Flores dicæci, herbacei. *Mase. Pedunculi communes* axillares vel terminales, solitarii, brevissimi, axillari sæpius bifido, terminali trifido. *Spicæ* filiformes, folio longiores. *Flores* sparsi.

Calyx minimus, hirsutus, 4—6-partitus. *Glandulæ* in calycis fundo laciniis numero æquales, hirsutæ, crassæ, minimæ. *Filamenta* totidem glandulis alterna, longissima. *Antheræ* bilobæ, apice dehiscentes. *Rudimentum germinis* in calycis fundo.

Fœm. *Racemi* axillares simplices, vel terminales ramosi, folio breviores, erecti, pubescentes. *Pedicelli* sparsi, solitarii, uniflori, brevissimi. *Bractea* ad pedicelli basin minuta.

Calyx concavus, ore obsolete quinquentato minimus. *Germen* superum, ovatum, compressum. *Stylus* vix ullus. *Stigmata* (4—6) sæpius quinque, acuta, simplicia.

Drupa nigra, sicca, magnitudine grani Piperis, ovalis vel orbiculata, compressa.
Nux compressa, rugosa.

In the *Mathasura* the leaves have often a sharp point, as represented in Plukenet; but I see no other difference, and doubt of this being a circumstance sufficient to distinguish them as species.

POUTALETSE, p. 117. tab. 57.

Commeline considered this as a species of *Ligustrum*.

Plukenet compared to it a plant, which he called "*Poutaletsie Malabararum similis Arbuscula Maderaspatana*" (*Alm.* 305.; *Phyt. t.* 54. *f.* 1.), which seems to me very different even as to genus, the corolla in Plukenet's figure being divided into five.

The elder Burman proposed as a query, whether or not the *Poutaletsje* was the *Manithonda* of the Ceylonese, which he calls *Ligustrum indicum* s. *Alcama* (*Thes. Zeyl.* 142.). This Linnæus in the *Flora Zeylanica* (135.) called *Lawsonia ramis inermibus*, concerning which error I had already had occasion fully to explain myself (*Linn. Trans.* xiii. 509.).

M. Poiret (*Enc. Méth. Suppl.* iii. 39.) having given up the *Poutaletsje* as a *Lawsonia*, has been obliged to return to the opinion of Jussieu (*Gen. Plant.* 222.), and adopts without reserve (*Enc. Méth. Suppl.* iv. 374. 546.) what the most distinguished botanist of France proposed merely as a query. He has not, however, given it a specific name nor character; and indeed seems to think that the genus *Petesia* (to which Jussieu referred it) should be altogether abandoned. With all due deference to the opinion of so great a botanist, I doubt of this plant belonging to the order of *Rubiaceæ*. I see no appearance whatever in the figure, nor the smallest hint in the description, of stipulæ; and if these are wanting, we may safely consider the *Poutaletsje* as a *Callicarpa*.

MODAGAM, p. 119. tab. 58.

This and the following belong to one Malabar genus, and have a considerable general resemblance; but, as Commeline remarks, they have no affinity in the view of European botanists. Both the vulgar and Brahmans consider this as the prototype of the genus, called by the latter *Corotha*. I cannot find this plant mentioned in any subsequent author. Rheede mentions a resem-

blance in its flower to that of the *Rhododendron*, and, in fact, I see nothing in the account of its fructification to oppose the opinion of its being an *Azalea*; and by the older botanists *Rhododendron* and *Azalea* were not distinguished. It must, however, be confessed that the general appearance of the *Modagam* is very different.

BELLA, seu BELA MODAGAM, p. 121. tab. 59.

Plukenet was doubtful whether or not this, which Ray called a *Prunifera Indica*, was the *Takkada* of the Ceylonese (*Alm.* 361.); but the elder Burman had no doubt, and called the plant "*Arbor exitiosa, marina, lactescens, Indica, Takkada vocata, fructu Cerasi magnitudine, incarnato, striato*" (*Thes. Zeyl.* 29.). Burman further notices, in his observation on Rumphius (*Herb. Amb.* iv. 118.), that his *Takkada* cannot be considered as different from the *Buglossum litoreum* (*Herb. Amb.* iv. 116. t. 54.); but although Burman considered this as the same with the *Bella Modagam*, Rumphius only says that the two plants should be compared together, and justly adds, "Malabarica vero describitur esse montium incola, quum nostra planta nullibi nisi in litoribus occurrat." Further, Rheede says of the *Bella Modagam*, "Arbor est speciosa et præcelsa plurimum;" while Rumphius says of the *Buglossum litoreum*, "hic frutex truncum gerit brevem, incurvum, vulgo pedem crassum."

In the *Flora Zeylanica* (313.) Linnæus mentioned a plant no doubt very nearly allied to the *Bella Modagam*, and which he called *Lobelia frutescens, foliis ovali-oblongis integerrimis*, and for which he quotes no Indian authority, except a drawing of Herman. This, no doubt, represented the plant that Linnæus then meant; and the term "frutescens," which he applies to it, would seem to exclude the *Bella Modagam*. Linnæus at the same time, however, quoted an American plant described by Plumier and Catesby, which is likely different from that drawn by Herman; although in the *Flora Indica* (186.) Burman calls the plant *Lobelia Plumieri*, as having been discovered by this botanist. It must be also remarked, that the younger Burman does not here quote the *Takkada* described by his father, although from the vicinity of Ceylon to Malabar, and from the similarity of their vegetable productions, it might be expected to be the same with the *Bella Modagam*.

It would appear that some time after this the plant of the *Flora Zeylanica*

was no longer considered by Linnæus as a *Lobelia*, but called *Scævola Lobelia*; for he transferred the name *Lobelia* of Plumier to the *Rapuntium* and *Trachelium* of Tournefort, with which he had originally confounded it; and thus, with his usual spirit of innovation, gave the name *Scævola* to the original *Lobelia*. There is also room to suspect that his *Scævola Lobelia* is neither the plant of Herman nor that described by Plumier; for Mr. R. Brown (*Fl. Nov. Holl.* i. 583.) assures us, that the *Scævola Lobelia* of the Linnæan Herbarium is the *Scævola Kænigii* (foliis obovatis apice subrepandis), while the plant of Herman in the *Flora Zeylanica* is defined “foliis ovali-oblongis integerrimis,” which terms are also applicable to the *Lobelia Plumieri*, to which we shall again have occasion to return.

Gærtner, adhering to the genus *Lobelia* as founded by Plumier, called the *Bella Modagam*, *Lobelia Taccada* (*De Sem.* i. 119. *t.* 25. *f.* 5.); but he considers the *Buglossum litoreum* as the same plant, and probably described it alone; for he says, that the figure of the drupa in the *Hortus Malabaricus* does not exactly agree; and he points out most essential differences in the American plant.

Dr. Roxburgh, under the name *Scævola Taccada* (*Hort. Beng.* 15.), I have no doubt described Gærtner’s plant, and I have given to the library at the India House specimens from his garden; but the plant is not a tree, was sent from the Eastern Islands by Mr. W. Roxburgh, and agrees entirely with the description of the *Buglossum litoreum*, although the figure of the *Bella Modagam* is also very like, and is quoted by Dr. Roxburgh. This likeness, however, consists chiefly in the foliage, liable to considerable variation; and the size of the *Bella Modagam*, and its being a mountain plant, seem to me insuperable objections to our considering it as Dr. Roxburgh’s *Scævola Taccada*.

M. Lamarck (*Ill. Gen.* ii. 70.) considers the American and an Indian plant different, calling the former (no doubt Plumier’s *Lobelia*) *Scævola Plumieri* (*t.* 124. *f.* 1.), and the latter *Scævola Kænigii* (*t.* 124. *f.* 2.), in imitation, probably, of Vahl; and this last is, no doubt, the same with the *S. Lobelia* of the Linnæan herbarium, as described by Mr. R. Brown. This Indian plant, M. Lamarck says, is the same with the *Lobelia Taccada* of Gærtner, from whom he no doubt has copied the delineations of the fruit marked *b*, *c*, *d*, *e*, *f*, *g*, *h*, and *i*; but then at *a* is represented the branch of a plant, agreeing with Mr. Brown’s account, but quite different from either the *Buglossum litoreum*

or *Bella Modagam*, and therefore, probably, from the *Lobelia Tuccada* of Gærtner, which, perhaps, is the *Takkada* of the elder Burman, and probably the plant figured by Herman (*Fl. Zeyl.* 313.).

Willdenow quotes no new authority for the *Scævola Kœnigii* but Vahl and Lamarck; and his *Scævola Lobelia* comprehends the *Lobelia* of the *Flora Zeylanica* (313.), the *Buglossum litoreum*, the *Takkada* of Ceylon, if that be different, and the American plant figured both by Plumier and Lamarck; nor is it possible to say which he meant. What is more to our present purpose, he leaves out the *Bella Modagam*, from which we may infer, that he considered it different from these above mentioned; and the same inference may be drawn from M. Poirer's silence (*Enc. Méth.* vii. 145.).

Finally, this latter botanist concluded (*Enc. Méth. Suppl.* v. 278.) that the *Scævola Lobelia* of Linnæus, meaning the *Lobelia* of Plumier, although nearly allied to the *Takkada* of Ceylon, is a different species; and that the *Takkada* of Ceylon is that of Gærtner, and is the same with the *Bella Modagam* and *Buglossum litoreum*. To the latter opinion I have no objection; but I have already stated reasons for thinking that the *Bella Modagam* is different. It would thus, I think, appear that we have at least three Indian *Scævolas* that have been confounded together, and continue to be so in the best authorities.

1. *Takkada frutex Zeylonensiuni.* *Pluk. Alm.* 321.

Arbor exitiosa, marina, lactescens, Indica, Taccada vocata, fructu Cerasi magnitudine, incarnato, striato. *Burm. Thes. Zeyl.* 29.

Buglossum litoreum. *Herb. Amb.* iv. 116. t. 54.

Lobelia frutescens, foliis ovali-oblongis integerrimis. *Linn. Fl. Zeyl.* 313.

Lobelia Plumieri. *Burm. Fl. Ind.* 186.

Lobelia Taccada. *Gærtn. De Sem.* i. 119. t. 25. f. 5.

Scævola Taccada. *Hort. Beng.* 13.

It is by no means yet certain that the *Buglossum litoreum* is exactly the same with the *Takkada* of Ceylon, although both are maritime plants.

2. *Scævola Lobelia.* *Linn. Herb.* ex auctoritate R. Brown.

Scævola Kœnigii. *Lamarck, Ill. Gen.* ii. 70. t. 124. f. 2., a. *Brown, Prodr. Fl. Nov. Holl.* i. 583. *Willd. Sp. Pl.* i. 956.

3. *Bella Modagam*, remaining yet to be introduced into the modern system of botany.

TONDI TEREGAM, p. 123. tab. 60.

The plants composing the Malabar genus *Teregam* have no botanical affinity, three of them being *Fici* (*Hort. Mal.* iii. 79. 81. 83.), to which this has no resemblance in the eyes of a botanist; although the Brahmans also notice an affinity between it and the *Vatti* (*Ficus bengalensis*, Linn.), calling it by the generic name *Kara-vatti*, or Wild Banyan-tree.

Commeline abstains altogether from classing this *Teregam*; nor does M. Poiret venture a conjecture, although he describes the tree from Rheede (*Enc. Méth.* vii. 697.), and I find no other notice taken of it by modern botanists. In my opinion, it evidently appears to be of the same genus with the *Illa* of the Ceylonese, which is the original *Tomex* of Linnæus (*Fl. Zeyl.* 59.); for he says, “Tota structura fructificationis ad *Callicarpam* accedit, neque repugnat facies; sed petala quatuor distincta, filamenta receptaculo inserta, fructus cum in hac ignotus sit, conjungere genera non audeo.” Now this agrees in every point with Rheede’s account and figure, in which there is not only no appearance of a tube in the corolla, but the stamina are represented as remaining after the petala have fallen, which shows that they are inserted into the receptaculum. The species, it must be allowed, are abundantly distinct, the *Illa* having the leaves entire, while those of the *Tondi Teregam* are serrated. Linnæus, however, when he published the *Mantissa*, alleged that the *Illa* is a *Callicarpa*, having found a *Callicarpa*, which he took to be the same, and this is now generally called *Callicarpa lanata* (*Willd. Sp. Pl.* i. 620.; *Roxb. Fl. Ind.* i. 406); only the *Cornutia corymbosa* having been called by M. Lamarck (*Ill. Gen.* i. 293.) *Callicarpa lanata*, the *Illa* by M. Poiret has been called *Callicarpa Tomex* (*Enc. Méth. Suppl.* ii. 32.). Whether or not these changes, subsequent to the publication of the *Flora Zeylanica*, have been judicious, I cannot say. All the species of *Callicarpa* that I have seen have the corolla very decidedly monopetalous; while both Linnæus and Rheede, in describing the *Illa* and *Tondi Teregam*, agree in mentioning four petala. That the plant now called *Callicarpa lanata* has really a monopetalous corolla I know from Dr. Roxburgh’s account, for he, describing from fresh specimens, may be safely trusted. He says, “tube of the corol bent to one side.” This

irregularity in the corolla leads me to suspect that the *Callicarpa lanata* of Dr. Roxburgh is in fact the *Cornutia corymbosa* (*Enc. Méth.* i. 54.), afterwards called by M. Lamarck (*Ill. Gen. No.* 1500.) *Callicarpa lanata*; and that the *Callicarpa Tomex* of M. Poiret, who never saw the plant, is exactly the same. In this case M. Lamarck is probably right in quoting the *Tomex* of the *Flora Zeylanica* with doubt; and I suspect that the plant described by Linnæus in the *Mantissa*, by Vahl, by Gærtner, and by Roxburgh, is not the *Illa*, or original *Tomex*. Until, however, the fruit of this or of the *Tondi Teregam* is known, we had better adopt the original caution of Linnæus, “conjungere genera non audeo.”

RAMENA PU, seu POU MARAM, p. 125. tab. 61.

I find no notice taken of this tree by any botanist, until Dr. Roxburgh received from Malabar a tree, which he took to be the same, and called it *Sterculia guttata* (*Hort. Beng.* 50.). It seems to differ very little, if anything, from the *Clompanus minor* of Rumphius (*Herb. Amb.* iii. 169. t. 107.), usually quoted for the *Sterculia Balanghas* (*Willd. Sp. Pl.* ii. 872.), for which, as I have said (*Linn. Trans.* xiii. 530.), the *Cavalum* of Rheede is usually quoted; but M. Poiret quotes both with doubt (*Enc. Méth.* vii. 429.). For this he assigns no reason, nor has he seen the plant; while Dr. Roxburgh considered the *Cavalum* as his *S. Balanghas* (*Hort. Beng.* 50.).

From the account given by the natives to Rheede concerning the fruit of the *Ramena Pu Maram* (testantur tamen Malabarenses nonnunquam baccas ferre hanc arborem oblongo-rotundas, flavo-purpurascetes), we may perhaps be induced to think that its fruit is small, and contains only a few seeds; in which case it is not likely to be the *Clompanus minor*, the fruit of which could never have been mistaken for a berry: but the case may be different with that of the *Sterculia guttata*; for although I did not see the fruit, I consider it as the “*S. macrophylla* capsulis dispermibus” (*Enc. Méth.* viii. 432.). I however have given specimens to the library at the India House of both the *S. Balanghas* and *S. guttata* of Dr. Roxburgh, with which the learned may satisfy themselves concerning the proper synonyma.