

*guineus*: a name first suggested for it by Mr. Jenyns in his 'Catalogue of British Vertebrate Animals,' and referred to as a synonym for the fourth species of *Syngnathus* in his 'Manual of the British Vertebrate Animals,' page 487.

The British *Syngnathi*, as suggested by Mr. Jenyns, consist of 6 species: 2 marsupial pipe-fish, *S. Acus* and *S. Typhle*, having true caudal fins; 4 ophidial pipe-fish, which may be again divided into 2 sections, the first of which contains 2 species, *S. æquoreus* and *S. anguineus*, having each a rudimentary caudal fin; the second section also containing 2 species, *S. Ophidion* and *S. lumbriciformis*, in which there is no rudimentary caudal fin, the round tail ending in a fine point.

In the recent works on British Fishes, one by Mr. Jenyns the other by myself, we had considered the figure of Bloch's *Ophidion* as representing the true *Ophidion* of Linnæus, which as here admitted is not the case: Mr. Jenyns has described the true *Ophidion* under the name of *lumbriciformis*, and I inserted the true *lumbriciformis* but omitted the true *Ophidion* altogether. I acknowledge with pleasure my obligations to M. Fries for setting me right.

Ryder Street, Feb. 18, 1839.

X.—*Descriptions of some new or rare Indian Plants.* By  
G. A. W. ARNOTT, Esq., LL.D.

[Continued from p. 23.]

BALSAMODENDRON, Kunth (*Burseraceæ*).

IN the 'Prodromus Floræ Peninsulæ Indiæ Orientalis', i. p. 176, Dr. Wight and I united this as a subgenus to *Protium*, and it still appears to me doubtful if the two be separated by sufficiently important characters: the habit is, however, very different. In consequence of the addition of several new species, the character given by Dr. Wight and me, will require to be slightly altered, as follows:

Calyx late vel tubuloso-campanulatus: torus disciformis in fundo calycis ovarium cingens, externe inter singula stamina verrucula elevata instructus: stamina octo: drupa ovata: nux obtusa angulata.

From this it is obvious that the shape of the calyx and nut

is not sufficient to distinguish *Balsamodendron* from the species we referred to the *Protium* of Burmann, and that the principal character consists in the position of the torus or disc.

All the East Indian species which I have seen have the calyx tubular-campanulate as in the Senegambia one (*Heudelotia*) and *Commiphora* of Jacquin, while it is broad and shallow in *B. gileadense*, and perhaps in the other two from Arabia: but, as these last are not sufficiently known, I cannot avail myself of that probable difference of structure to sub-divide the genus into sections. The following is a synopsis of all the species known:

1. *B. Berryi* (Arn.); spinescens, foliis longiuscule petiolatis glabris, foliolis 3 cuneato-obovatis crenatis, terminali lateralibus duplo majore, pedicellis unifloris brevibus, petalis calyce breviter tubuloso subduplo longioribus, fructu apiculato.—*Protium gileadense*. *Wight et Arn. Prod.* i. p. 177 (excl. syn.). *Wight, Cat.* n. 543.—*Amyris Gileadensis*. *Roxb. Fl. Ind.* ii. p. 246 (excl. syn.).

This was introduced to the Botanic Garden of Calcutta, by Dr. Berry, of Madras, so that in all probability the plants were obtained from the interior of the Peninsula, where it is a native; and not from Arabia, as Roxburgh supposed.

2. *B. Roxburghii* (Arn.); spinescens, foliis petiolatis glabris, foliolis 3, terminali ovali serrulato, lateralibus minutis, pedicellis unifloris brevibus.—*Amyris commiphora*. *Roxb. Fl. Ind.* ii. p. 244.—*A. Agallocha*. *Roxb. ? Herb. Beng.* p. 28.—*Commiphora madagascariensis*. *Jacq. H. Schoenbr.* ii. t. 249 (fide Roxb.). *Hab.* in Silhet, Assam, &c.

There can I think be little doubt of *Commiphora* being the same with the present genus, but I feel less certain that *C. madagascariensis* is the species described by Roxburgh. My principal objection arises from the distance between the localities where the two are said to be indigenous. As, however, no succeeding botanist appears to have received it from Madagascar, Jacquin may have been accidentally led into an error on that point.

3. *B. Wightii* (Arn.); spinescens, foliis sessilibus glabris, foliolis 3 subæqualibus cuneato-obovatis acute dentato-serratis, flori-

bus sessilibus fasciculatis, fructu subiter acuminato. *Wight, Cat. n. 2426.*

*Hab. ad Bellary, Wight (1834).*

4. *B. Africanum* (Arn.); spinescens, foliis longiuscule petiolatis pubescentibus, foliolis cuneato-obovalibus subrugosis obtuse inciso-serratis, terminali majore, floribus fasciculatis subsessilibus, petalis calyce tubuloso parum longioribus, drupa ovoidea acuminata.—*Heudelotia africana. Guillem. et Pierott, Fl. Senegamb. i. p. 150. t. 39.*
5. *B. Kafal* (Kunth); spinescens, foliolis 3, ovalibus dentato-serratis, junioribus villosis, senioribus glabris, drupa compressa mammillata. *DC. Prod. ii. p. 76.*
6. *B. Kataf* (Kunth); inerme, foliolis 3, ovalibus plus minusve acuminatis serratis glabris, pedunculis dichotomis.—*Amyris Kataf. Forsk. Descr. p. 80.*
7. *B. gileadense* (Kunth); inerme, foliis petiolatis glabris, foliolis 3 integerrimis obovato-oblongis, pedicellis brevibus unifloris, calyce latiuscule campanulato. *B. gileadense et B. opobalsamum. Kunth. DC. Prod. p. 76.—Amyris gileadensis et A. opobalsamum, Linn.*

Vahl, at the end of the second part of his 'Symb. Bot.' has shown that *A. opobalsamum* was described by Linnæus, not from specimens, but from a bad figure, and that it is not distinct from *A. gileadensis*. What *Balsamea meccanensis*, Gled., in 'Act. Soc. Nat. Cur. Ber.' iii. p. 127. t. 3. f. 2., may be, I have no means of determining. DeCandolle refers it as a variety with bipinnate leaves to the present species; but if it belongs to this genus, that structure must have arisen either from accident or cultivation, and in neither case can be considered as a permanent form.

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Brown has about twenty years ago shown that the Linnæan genus *Exacum* ought to be limited to the East Indian species which have all showy flowers; it is therefore somewhat strange, that in almost all the European Floras, those of Britain not excepted, that name is given to small slender filiform plants, with an appearance quite different from the typical species. To the European species Adanson had long since given the name *Cicendia*; they differ from *Exacum* by the funnel-shaped corolla, the segments of which become twisted after flowering into a kind of calyptra above the capsule,

and by the one-celled or at most imperfectly two-celled capsule. The Asiatic genus, of which I am about to define several species, may be thus shortly distinguished from the other genera of the *Gentianeæ*.

### EXACUM, L.

Sepale dorso carinato alata. Corolla rotata absque corona, circa capsulam marcescens: æstivatio dextrorsum contorta. Glandulæ epipetalæ vel hypogynæ nullæ. Stamina 4—5: antheræ immutatae porro dehiscentes. Ovarium complete biloculare. Stylus filiformis plus minusve adscendens. Stigma indivisum. Capsula valvulis introflexis complete bilocularis, placentis demum utrinque liberis.

The following is a *Clavis Analytica* of all the species I have seen:

Caules subsimplices, corymbi nudiusculi.

Stamina 4 ..... *E. tetragonum*, R.

Stamina 5.

Folia ovalia acuta vix acuminata, corollæ lacinia ovali-oblongæ acutæ... } *E. macranthum*, Arn.

Folia lanceolata utrinque attenuata }  
subundulata, corollæ lacinia obovales } *E. ceylanicum*, L.  
obtusiusculæ .....

Caules valde ramosi.

Stamina 5: inflorescentia foliosa.

Caules ramique late 4-alati: capsula globoso-ellipsoidea: flores magni ..... } *E. Wightianum*, Arn.

Caules ramique 4-goni vix alati: flores parvuli.

Folia oblongo-lanceolata acuminata: }  
cor. lacinia obovatæ; capsula ovata } *E. courtallense*, Arn.  
oblonga .....

Folia ovata acuta: cor. lacinia oblongo-lanceolata: capsula oblongo-ellipsoidea ..... } *E. Walkeri*, Arn.

Stamina 4: inflorescentia nudiuscula: capsula globosa: flores parvi..... } *E. pedunculatum*, L.

These may be more perfectly defined as follows:

1. *E. tetragonum* (Roxb.) caulibus subsimplicibus basi 4-alatis sursum 4-angulatis, foliis ovalibus vel oblongo-lanceolatis sessilibus, corymbo nudiusculo, corollæ laciniiis 4 oblongis acutis, pedunculis fructiferis rectiusculis.

*Hab.* ad oras Malabaricas.

Flores mediocres.

2. *E. macranthum* (Arn.) caulibus subsimplicibus teretiusculis, foliis subpetiolatis ovalibus acutis vix acuminatis, corymbo nudi-

usculo, corollæ laciniis 5 ovali-oblongis acutis, pedicellis fructiferis rectiusculis.

*Hab.* in montibus insulæ Ceylani.

Flores magni.

3. *E. ceylanicum* (Linn.); caulibus subsimplicibus tetragonis, foliis lanceolatis longe acuminatis basi in pseudo-petiolum attenuatis margine subundulatis, corymbo nudiusculo, corollæ laciniis 5 obovalibus obtusiusculis, pedicellis fructiferis subrecurvis.—*E. ceylanicum*. *Wall. Cat.* n. 4357, *b*.

*Hab.* Prope Colombo in insula Ceylano.

Flores magni.

4. *E. Wightianum* (Arn.); caulibus valde ramosis ramisque late alatis, foliis oblongo-lanceolatis acuminatis subsessilibus, corymbo folioso, corollæ laciniis 5 ovalibus acutis vel acuminatis, pedicellis fructiferis valde recurvis, capsula globoso-ellipsoidea.—*E. ceylanicum*. *Wall. Cat.* n. 4357, *a*. (et forsán *c*.).

*Hab.* in Peninsulæ Indicæ montibus australioribus.

Flores magni. Capsula latitudine vix longior.

5. *E. courtallense* (Arn.); caule dichotome ramoso, ramis angustissime 4-alatis, foliis oblongo-lanceolatis acuminatis, inflorescentia foliosa, corollæ laciniis 5 obovalibus obtusiusculis, pedicellis fructiferis rectiusculis, capsula ovato-oblonga.

*Hab.* ad Courtallum in Peninsula Ind. Or.

Flores subparvi. Capsula versus basin quam apicem latior.

6. *E. Walkeri* (Arn.); caule dichotome ramoso, ramis angustissime 4-alatis, foliis ovatis acutis vel acuminatis, inflorescentia foliosa, corollæ laciniis 5 oblongo-lanceolatis, pedicellis fructiferis rectiusculis vel leniter arcuatis, capsula oblongo-ellipsoidea.

*Hab.* in insulæ Ceylani montibus.

Flores subparvi. Capsula revere ellipsoidea,  $1\frac{1}{2}$ —2-plo longior quam lata.

7. *E. pedunculare* (Linn.); caule erecto ramoso tetragono, foliis lanceolatis, corymbis nudiusculis, corollæ laciniis 4 ovalibus, capsula globosa.—*E. pedunculare*. *Wall. Cat.* n. 4359.—*E. carinatum*, *Roxb.*—*E. sulcatum*, *Roxb.*

*Hab.* in insula Ceylang, et per omnem fere Hindoostaniam.

Flores parvi.

In addition to these Roxburgh mentions an *E. bicolor*, and Wallich *E. teres*, *stylosum*, *pteranthum*, and *E. grandiflorum*, the last from the Peninsula (and perhaps the same as *E. Wightianum*), with none of which I am acquainted.

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This genus occurs principally in the south-west parts of India: it does not appear to be found in Java.

LORANTHUS, L. (*Loranthaceæ*).

*L. lageniferus* (Wight); corolla longe tubulosa æqualiter 5-fida, antheris erectis, involucro campanulato magno colorato circa flores paucos subcapitados. *Wight, Cat. n. 2437. Hook. Ic. Pl. t. 229, 230.*

*Hab.* in Malabaria; *Wight.*

Lignosus glaber parasiticus. Folia opposita petiolata, petiolo 2—4 lineas longo, ovato-lanceolata seu elliptico-oblonga, obtusa basi rotundata, plurinervia, crassa, coriacea. Pedunculi fasciculati ad ramos annotinos orti, brevissimi, apice involucrum sanguineum gamophyllum campanulatum magnum 4—5 lobum ferentes. Flores 4—5 in fundo involucris subsessiles. Calycis limbus cupularis membranaceus repando-5-dentatus. Corolla pulverula tubulosa, involucrum duplo superans, apice supra medium quinquefida, versus laciniarum basin per æstivationem inflatim annulata, laciniis linearibus demum reflexis. Antheræ erectæ.

Sin *Involucratos* DeCandollei, seu *Lepeostegeres* Blumii, bracteis quandoque coalitis gaudere posse putes, tum hæc nova ac pulcherrima species cum iis collocari debet: sin non, ad novam finitimamque inter *Symphyanthos* subsectionem pertinebit facillime diagnosi supra data limitatam.

This is perhaps the most beautiful of the genus: its blood-red involucres are about an inch long and 4 to 6 lines across.

POLYCARPÆA, Lam. (*Paronychiaceæ*).

1. *P. corymbosa* (Lam.); suffruticosa vel herbacea, caulibus plerumque albo-tomentosis, foliis ex oblongo-lanceolatis in linearia vel etiam setacea fasciculatis, floribus cymose-corymbosis, sepalis scariosis lanceolatis acuminatis enerviis, petala subovalia obtusa capsulamque 2—3-plo superantibus.—*a*, radice simplici uniuersali, caule simplici vel ramis elongatis erectis simpliciusculis.—*P. corymbosa*, *Lam. Wight, Cat. n. 1172.*—*β*, caulibus dichotome ramosis, rarius (et tunc e radice lignoso multicipiti pluribus) simpliciusculis.—*P. spadicea*, *Lam. Wight et Arn. Prod. Fl. Penins. Ind. Or. i. p. 357.*—*a*, foliis oblongo-lanceolatis obtusiusculis, corymbis densissimis. *Wight, Cat. n. 1168.*—*b*, foliis approximatis oblongo-linearibus, stipulas vix superantibus, corymbis densis. *Wight, Cat. n. 1169.*—*c*, foliis linearibus sub-

latisve plus minusve distantibus, corymbis laxiusculis, ramulis albo-tomentosis, sepalis albis. *Wight, Cat. n. 1170.*—*d*, caulibus ramulisque dense albo-tomentosis, foliis subulatis subdistantibus, corymbis laxiusculis, sepalis aurantiaceis.—*P. aurea, Wight, Cat. n. 2443.*—*e*, ramulis tenuibus glabriusculis, foliis setaceis subulatisve, corymbis laxis gracilibus. *Wight, Cat. n. 1171.*

In compliance with Dr. Wight's lately expressed wishes, I now unite *P. corymbosa* and *P. spadicea* of authors, and certainly he has had most ample opportunities of examining them in all situations and under various appearances. At the same time there is in general a peculiar habit about *P. corymbosa*, by which it can be distinguished from all forms of the other species: this, however, cannot so easily be expressed in words. In *P. corymbosa* the root is always simple, and apparently either annual or biennial: it is occasionally so in *P. spadicea*; but what is the case? the stems are dichotomously branched, which they seem never to be in the other species. Again, in *P. spadicea* the plant is usually, perhaps always, if not removed, suffruticose, while I have seen no tendency to that in *P. corymbosa*. The broad-leaved specimens, which Dr. Wight and I referred to *P. spadicea*, appeared at first sight to have simple stems; but there are numerous fascicles of leaves and rudimentary branches in the axils of the leaves, so that these stems must be considered as the primary ones, or axes, of a branched form. The proportions of the petals and sepals are nearly the same in all the varieties.

2. *P. diffusa* (Wight); suffruticosa ramosissima laxa diffusa glabriuscula, foliis fasciculatis linearibus, floribus cymoso-corymbosis, sepalis scariosis ovato-lanceolatis acuminatis enerviis, petalis sepala subæquantibus, stamina capsulamque acutam parum superantibus. *Wight, Cat. n. 2442.*

*Hab.* Prope Tuticoreen (Maio 1835), *Wight*.

3. *P. spicata* (Wight); glabra, radice ad collum multicipiti, caulibus plurimis gracilibus diffusis foliorum pedunculorumque fasciculos distantes 1—2 gerentibus, foliis radicalibus caulinisque fasciculatis glaucis subcarnosis spathulato-oblongis acutiusculis, floribus imbricatis spicatis, spicis paucis ad pedunculi apicem fasciculatis, sepalis scariosis dorso uninerviis, petala

subulata multo superantibus, filamentis basi dilatatis uno cum corollæ basi in annulum circa capsulam coalitis. *Wight, Cat.* n. 2441.

*Hab.* in montibus Peninsulæ australioribus, *Wight*.

[To be continued.]

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XI.—*Observations on the Tortoise or Shield Beetles, commonly denominated Cassida by Linnæus, with the Characters of Six New Genera.* By the Rev. F. W. HOPE, F.R.S., F.L.S., F.Z.S., and Member of various Foreign Societies.

[With a Plate.]

OF late years, amongst Coleopterous Insects, the *Adephaga* have engaged much of the attention of entomologists, probably because they stand foremost in the artificial arrangement of modern authors; there are however some remarkable exceptions to the contrary, such as the *Curculionidæ* now in progress of publication by the illustrious Schönherr, the *Cetoniadæ* and *Buprestidæ* by Gory and Percheron, and also the *Heteromera* by Solier. Other groups, however, have been comparatively neglected, and particularly the *Cassidoidea*. I purpose therefore in the present paper to examine the group, and suggest the adoption of some new genera, to be classed under the family of *Cassidæ*, so named by Dr. Leach. *Cassida* of Linnæus is very rich in species. It presents us with singularly grotesque and varied forms, and if we look more particularly to the larvæ, no less remarkable will they be found in their earlier stages than in their complete development. The larvæ sometimes assume the appearance of vegetation, some imitating in that state the squamæ of the fir cones, others again the filamentous appearance of plants and lichens. The entire group which I term *Cassidoidea* is composed of several families and is confined to no particular country. Several of the forms which predominate in the New World have not their counterpart in the Old World, at least as far as we know at present. The European species with their larvæ and habits have been ably described by Ræsel Reaumur, DeGeer, and others. Our indigenous British species early attracted the attention of my friend the Rev. Wm. Kirby, three of which, with their



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