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XI.—*New or little-known Mollusca of the Indo-Malayan Fauna.*
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(With Plates V, VI, & VII.)

Mr. A. R. Wallace in his very interesting new work—‘Island Life’—devotes a chapter to the Madagascar Group, and he comes to the conclusion that the presence there of the numerous and important Indo-Malayan forms cannot be accounted for by a former continental land connection, for which the term “Lemuria” has been suggested by an eminent zoologist. If I understand rightly, the distinguished author accounts for the presence of these forms by their introduction from Europe, and from consequently Asia, before the separation of Africa by the sea in early Tertiary times ; in another passage, he suggests the probable submergence of many large islands, whose former position is indicated at the present time by the banks and reefs of the Cargados, Chagos, Maldives, &c., to account for the “transmission of organisms from the Indian Peninsula.”

As Mr. Wallace twice alludes to my papers on the Mollusca of the Seychelle Islands (pp. 405 and 415), which I wrote so long ago as 1868-9, I now wish to add a few remarks. Speaking solely from the conchological point of view, I would submit that there is certainly no necessity for presuming the existence of a continent, “Lemuria ;” on the contrary, an archipelago, thickly studded with large islands, such as appears to be unmistakeably indicated in

this region, presents several points of greater probability judging from the character of the existing landshells, and I would question the former immediate land connection with the Indian Peninsula. I think I can point out several remarkable features, which tend to show that this archipelago probably received its Mollusca rather by a close connection with the Nicobars, Sumatra, Java, &c., and thus of course with the Malayan Peninsula. It is scarcely necessary for me to mention that the Mollusca of the Madagascar and Mascarene province give no support to the theory of an ancient emigration from Europe, so few fossil landshells of pretertiary times being known; the entire absence of the genus *Helicina* from the tertiary deposits of Europe as also from India proper and Ceylon at the present time, I consider very significant, as the genus from its well-marked characters, its robust substance, and local abundance could hardly have escaped attention. I showed in 1869 that the Seychelles possess a species (*H. theobaldiana*, Nevill) only just separable from others found in the Nicobars and adjoining Islands; M. Morelet again has lately described a most remarkable extinct subfossil form from Mauritius as *Helicina undulata*: this species is closely allied to the *Trochatella mouhoti* of Pfeiffer from Cambodia, which, Dr. Dohrn has justly shown, cannot be classed with the West Indian species of *Trochatella*, but must be referred to *Helicina*; for these two species I suggest the new subgeneric division *Pseudotrochatella*; the group has its nearest known allies in some Philippine forms. It will be important to endeavour to find out whether there are any fossil or subfossil forms of *Helicina* to be found in Madagascar itself. The remarkable "Malagash" section of *Megalomastoma*, called *Hainesia* by Pfeiffer (= *Mascaria*, Angas), seems to me much more closely allied to the Malayan and Philippine section *Coptocheilus* of Gould than with the extinct European Tertiary forms.

Omphalotropis is undoubtedly a most significant feature of the shell-fauna of the Mascarene Islands, the genus not being known from Madagascar, the Comoro, or Seychelle Islands; it has also never been established as found fossil in Europe, or living in India or Ceylon; there is, however, one tertiary fossil to which I would call the attention of conchologists—the *Cardiostoma trochulus* of Sandberger ('Vorwelt,' pl. XII, fig. 8), which I consider perhaps referable to *Omphalotropis*? Besides the Mascarene Group, the genus is found in great abundance and variety in the Polynesian Archipelago and can, according to my theory, be fairly traced from the one region to the other. Excluding the allied New-Zealand genus *Realea*, several species have been described from New Caledonia, one from the Solomon Islands, two from Ceram, one from Shanghai, one (*O. strictus* of Gould from the Loo Choo Islands) has been lately re-discovered by Surgeon-Major R. Hungerford at Hongkong living on stone

walls at 300 feet above the sea, two from Borneo, one from Amboyna, one from the New Hebrides, one from the Pelew Islands, three from the Nicobars, and two (possibly more) from the Andamans. I can scarcely believe the genus does not occur in Sumatra or Java, though it has not yet been recorded from either, or indeed from the Malayan Peninsula.

Another remarkable "Indian" type is the *Cyathopoma blanfordi*, H. Adams, which was first discovered by myself at a considerable elevation on Mahé one of the Seychelles. This is undoubtedly an exception to my theory that the "Indian" forms of the Madagascar province show a closer connection with Sumatra, &c. than with India proper: species of *Cyathopoma* (*sensu lato*) being numerous in South India and Ceylon, and also existing on the Bombay and Golconda Hills, as well as at Darjiling, in Assam, and a single species, (fide cl. Theobald) in the Shan States; the genus hitherto not being known from any other region. But elsewhere in this paper I have endeavoured to prove that the genus *Diadema* of Pease from the Pacific Archipelago is not really separable, and I can also confirm the validity of Benson's species *Cyathopoma tignarium* from the Andamans, which Mr. W. T. Blanford has lately called in question, as I have received several living specimens from my energetic correspondent Mr. F. A. de Roepstorff, who has also sent me a single specimen of the true *Omphalotropis disterrina*, Benson, as justly discriminated from its much commoner ally by Mr. Blanford, who has named the latter *O. andersoni*. The occurrence of *Cyathopoma procerum*, Blanford, at Beypore, close to the sea, is also worthy of note, in regard to the geographical distribution of the genus.

As well as I can judge, there is no fossil represented in Sandberger's 'Vorwelt,' which presents any resemblance to *Cyathopoma*. The genus is of such small size that it may have been easily overlooked hitherto in the Malayan province;—Blanford's genus *Cyclotopsis*, I consider as on an altogether different footing; I regard it as a strictly African genus, of which two species have made their way to India, two others to the Comoro Islands, and one (*C. conoideum*, Pfeiffer) to Mauritius; Sowerby's habitat "Seychelles" for this last is undoubtedly erroneous and should be altogether ignored. The two large Seychelle species of *Stylodon* (*Helix*) have their nearest ally in *H. cepoides*, Lea, of the Philippines, and are all three evidently allied to the species of *Phania*, Albers (*pars* = *Eucochlias*, Theobald), of which forms are known from Formosa (*H. swinhoei*), Tavoy (*H. saturnia*), Solomon Island, Cambodia, Moluccas, Khasi Hills, &c.

Mr. Wallace in Vol. II, p. 538, of his 'Geographical Distribution of Animals,' 1876, Prof. Sandberger in his 'Land &c. Conchylien der Vorwelt,'

and Prof. A. Nicholson in his 'Manual of Palæontology,' 1879, have all omitted to take cognizance of the four highly interesting and important species of fossil *Helix* described by Dr. Stoliczka in his Cretaceous Fauna of South India, Vol. II, 1867, three as species of *Anchistoma*, Klein (more correctly *Gonostoma*, Helder) and one as a species of *Macrocyclus*, Beck.

All of the above works therefore must be amended, to the effect that indubitable species of true *Helix* are known from the Upper Cretaceous. I have carefully examined all the specimens of these Cretaceous *Helicidae*, so excellently figured by Dr. Stoliczka, and am of opinion he was quite right in referring three of the species to the subgenus *Gonostoma* (= *Anchistoma*), and I think it will interest Mons. Bourguignat and other conchologists to find the ancestors of this, both in tertiary and recent times, essentially European group, in so ancient a geological formation as that of the Cretaceous rocks of South India. I consider Dr. Stoliczka to have been less happy in his remarks as to the affinity of these forms with our present Indian subgenera *Plectopylis* and *Corilla*, which seem to me entirely different groups. The fourth of these Cretaceous forms, the *Macrocyclus carnatica* of Stoliczka, is certainly not a species of true *Macrocyclus*, the type species of which is the South American *H. laxata*, Fér., now said by Mons. Fischer to form a section of typical *Helix*. Dr. Stoliczka's species evidently belongs to what is now known as *Patula*, Helder, but to which of the sections, it is impossible to say until better specimens are forthcoming.

In addition to the above recorded instances of landshells of proved greater antiquity than the Tertiary Period, I am indebted to Dr. Feistmantel for pointing out that three well preserved species have been described from the Coal Measures of Nova Scotia by Dr. Dawson, *Dawsonella meeki*, *Zonites* (*Conulus*) *priscus*, and *Pupa* (*Dendropupa*) *vetusta* (from "the hollow trunk of an erect Sigillaria"), copies of the figures of the two latter being given in Nicholson's Manual; these are doubtless the forms of *Helicidae* alluded to by Wallace in his above quoted work from the Carboniferous? Dr. Stoliczka, *l. c.*, page 6, also writes "Except the *Boysia Reussii*, which was in 1859 described by myself from a Cretaceous freshwater deposit in the North-Eastern Alps, I am not aware that any species of true *Helicidae* have been noticed from deposits lower than the Eocene strata." Pfeiffer does not record this so-called *Boysia*, nor indeed any of the above-mentioned Cretaceous Helices; it is, however, a very well characterized form, I should consider from the figure, possibly correctly referred to *Boysia*; it was found in tolerable abundance and is well figured in the Sitz. K. Ak. Wien, XXXVIII, 1859. This *Boysia reussii* has been latterly referred by Professor Sandberger to the genus *Strophostoma*,

Deshayes, and is consequently mentioned as the most ancient species as yet discovered of the *Cyclostomacea*, in his magnificent work, insufficiently studied by Conchologists, on the Land und Süsswasser Conchylien der Vorwelt, 1870-5.

HELICARION [AUSTENIA] MAGNIFICUS, G.-Austen and Nevill, Pl. V, Fig. 23.

Nevill, J. A. S. B., 1877, Momein [Yunnan], p. 24, diam. 46, axis $11\frac{1}{2}$ mil., as *Helicarion magnificus*, "coll. J. Anderson"; Nevill, Handlist I, 1878, p. 16, as *Helicarion* [*Austenia*] *magnificus*; Godwin-Austen, P. Zool. S. 1880, as *Girasia magnifica*.

I am quite unable to agree with Colonel Godwin-Austen, in referring this species to *Girasia*; if I were persuaded that it was the case, I should not hesitate in uniting *Girasia* and *Austenia*. However, I consider both well characterized, if not as distinct genera, at least as well marked sections of *Helicarion*, not only as regards their shells but also on account of the differences in the animals themselves. *Austenia* has a less "helicoid" and more "slug-like" shell than true *Helicarion*, but is still always distinctly convoluted and of firm though fragile texture. Pfeiffer and the old school would have called them *Vitrina*. *Girasia* has merely a membranaceous shell scarcely if at all convoluted, more or less rudimentary; old authors considered them as "slugs" and not as *Helicidae* at all.

HELICARION [AUSTENIA] RESPLENDENS, Nevill, Pl. V, Fig. 24.

J. A. S. B., 1877, Sawady and Bhamó, coll. J. Anderson, M. D.

GIBBUS LYONETIANUS, Pallas.

Spicil. Zool. 1780, as *Helix lyonetiana*.

Besides the typical specimens which I have already recorded in my 'Handlist of Mollusca in the Indian Museum,' the following forms seem worthy of record:—

var. ANTONI, Pfeiffer.

Zeits. Mal. 1847, as *Gibbus antoni*, from Mauritius [not *Pupa antoni*, Küster, 1844, from Berbice]; = *Pupa grateloupiana*, Pfr. 1868, from Mauritius.

There are two specimens in the Museum, collected by myself in the "Bois Sec," Savanne District, Mauritius. The above local name in my 'Handlist' was unfortunately changed, during my absence on furlough in Europe, to "Dry Forest," a name of no meaning!

var. SINISTRORSA, nov.

In 1878 I noticed a reversed specimen in the museum at Lyons; shortly afterwards I was fortunately successful in purchasing a second specimen for the Indian Museum, out of the collection of the late Lombe Taylor.

GIBBUS DUPONTIANUS, G. Nevill, Pl. VI, Fig. 1.

J. A. S. Beng., 1870, p. 411, and *l. c.*, 1871, p. 7, also Handlist p. 9, [sine descr.]; P. Zool. S. 1868, p. 260, animal described as that of "*G. versipolis*"; = *P. versipolis*, Pfr. var. [not of Férussac].

T. aperte rimata, subcylindrica, sat solidiuscula, flavido-cornea, oblique confertim fortiter sulcata, costis latis, flexuosis; spira cylindrica, in conum perobtusum terminata; anfr. 7, convexiusculi, ultimus precedentibus vix major; apertura subverticalis, ovalis, sine dente parietali; perist. late expansum, pallide luteum, marginibus callo lævi junctis.

Long. $14\frac{1}{2}$, diam. $6\frac{3}{4}$ mil. Savanne District, Mauritius.

The number of whorls, different sculpture, absence of parietal tooth, light yellow colouration, &c., easily distinguish this species from its nearest ally *G. bacillus*, Pfr.; the animal is also different, as can be seen by reference to the Proc. Zool. Soc. 1868, p. 259 and 260 (*G. bacillus* and *G. versipolis*); it is perhaps Pfeiffer's Mauritian variety of *P. versipolis*, but is certainly not Férussac's species from Bourbon (= *P. funicula*, Val.), as already pointed out by M. Morelet and myself.

ENNEA (HUTTONELLA) MOERCHIANA, Roepstorff, MS.

Deeply, openly umbilicate, the umbilicus partly covered by the deflected last whorl; cylindrically ovate in shape, almost exactly like a gigantic *E. stenopylis*; arcuately ribbed, ribs thick and rather distant; white, solid, with obtusely conoidal apex and distinct suture; whorls $6\frac{1}{2}$, convexly tumid, narrow, the 4th and 5th of equal breadth, the last not so broad and very little higher, rounded at base and brought round in front, so as to bring the aperture almost into the centre, or axis, of the shell, much as in *E. stenopylis*, thus partially covering the umbilicus; aperture vertical, contracted, quadrate, peristome anteriorly strongly sinuate, then very broadly reflected, quite straight, not oblique as in its ally, the columellar and basal margins more broadly reflected and boldly, evenly rounded instead of the former being nearly perpendicular as in *E. stenopylis*, margins joined with a callosity, nearly straight, in the centre provided with a well developed prominent, perpendicular tooth (or fold), another strong, but less prominent fold within the outer lip, at base of the above mentioned "sinus," that is where the peristome becomes markedly reflected, behind which there are some ten ribs so closely crowded together as to give almost the appearance of one very broad "varex," these ribs partially block up the umbilicus.

Long. (vix) 5, diam. max. $2\frac{3}{4}$ mil.

I have much pleasure in adopting, for this remarkable form, Mr. de Roepstorff's MS. name in honour of his late friend Dr. Moersch of Copen-

hagen, who contributed several excellent papers towards our knowledge of the Mollusca of the Nicobars.

Type, Indian Museum; centre of Great Nicobar, coll. F. A. de Roepstorff, Esq.

Genus NANINA, Gray.

P. Zool. S. 1834, types *H. nemorensis*, Müll. [*Xesta*], *H. javanensis*, Fér. [*Xesta*], *H. exilis*, Müll. [*Hemiplecta*], *H. citrina*, Lin. [*Xesta*], *H. monozonalis*, Lin. [*Xesta*], *H. clairvillia*, Fér. [*Hemiplecta*], *H. vitrinoides*, Desh. [*Macrochlamys*], *H. juliana*, Gray [*Xesta*] and *N. striata*, Gray [*Hemiplecta*]; type restricted, Gray, P. Zool. S. 1847, p. 169, *Helix citrina*, Lin.; = *Xesta*, Albers, 1850, type *H. citrina*, Lin.; = "*Phereporae*," Desmoulins, Bull. Soc. Lin. Bord. III, 1829 [name inadmissible]; pars? = *Stenopus*, Guilding, Zool. Journ. III, 1828, type *S. lividus*, Guild. = *Guppya*, Mörch, J. de C. 1867, [as *Stenopus* had been previously used for a genus of Crustacea].

The type of Gray's *Nanina* is therefore *H. citrina* and not *H. vitrinoides* [*Macrochlamys indica*, Bs.], as supposed by some authors.

Benson himself distinctly admits the validity of Gray's *Nanina*, over his MS. name of *Tanychlamys* or *Macrochlamys* (see Proc. Zool. Soc. 1834, p. 89, J. A. S. B., 1836, and later on in the Annals and Mag.); had my Indian conchological friends referred to these papers, or to the J. A. S. B., 1832, p. 13, for the original and casual mention, in a footnote, of Benson's MS. name *Macrochlamys*, I am sure they would never have attempted to introduce so retrograde and useless a change, utterly unwarrantable in every way. Here is Benson's mention of the name in full,—“Those (*Pterocyclus* sp.) which I found, were, with several specimens of a *Cyclostoma*, a reversed *Carocolla* and *Macrochlamys* ;”—then follows a foot-note,—“A new genus of the *Helicidae* separated by me from *Helix*, in consequence of the wide departure of the animal from the type of that genus.” With this and a mere repetition of the name on page 76, ends the so-called description of *Macrochlamys* in 1832, although never claimed as such by Benson himself.

Many authors (Benson included) speak of his genus *Tanychlamys* as having been described in the Proc. Zool. Soc. 1834, but as far as I can trace this is not strictly the case. Benson appears to have sent a paper to the society containing an excellent description of the section, with the name *Tanychlamys* attached; the editor, however, changed it to *Nanina*, stating that it had been found to be the same as Gray's genus described a few pages previously; in the description the editor casually mentions that the form described was the *Tanychlamys* of Benson, MS. It is very doubtful if *Stenopus* is a section of *Nanina* at all; in any case the former can have no claim, as the name had previously been used for a genus of *Crustacea*, as has been pointed out by Mörch.

The fact of the name *Nanina* having been employed by Risso in 1826 is I consider of no importance, as it has long ago been pointed out that he

used the name for the immature state of his own genus *Cyclops*; his name *Nanina* was therefore null and void and should not bar Gray's genus.

As Colonel Godwin-Austen has lucidly explained, though he draws a wrong conclusion, *Nanina*, Gray, is not the same as *Ariophanta*, Desmoulins, but equals the latter's group "*Phereporae*"; it would never do to adopt the specially separated section or subgenus of *Ariophanta* for the whole group, any more than to replace Draparnaud's *Pupa* (1801) by the sectional name *Vertigo* of Müller (1788), which was specially introduced for the forms with two tentacles only. By the method now universally adopted by all the leading conchologists, all parties seem to me fairly treated. Gray has his genus *Nanina* employed in a wide and comprehensive sense, as he intended. Desmoulins and Benson have their names employed for their respective strictly limited sections as they both originally intended. Benson did not include *Ariophanta* in his *Macrochlamys*, as he calls it *Carocolla*, nor did Desmoulins do so in the reversed case.

NANINA [MACROCHLAMYS] PSEUDOVITRINOIDES, n. sp.

J. A. S. B., 1832, pp. 13 and 76, as *Macrochlamys indica*, sine descr. (not *H. indica*, Pfr.); *H. vitrinoides*, Gray, P. Zool. S. 1849, pl. 2, f. 1-3, *cum anim.* [not *H. vitrinoides*, Desh.]; = *H. petrosa*, Bs., *pars*, [not of Hutton].

This is the common "snail" throughout the plains of the Gangetic Delta, quite distinct, both as regards shell and animal, from its close ally *N. petrosa*, Hutton, the type of which was from Mirzapore and which takes the place of the former in the higher regions of Lower Bengal; the two species were confused together by Mr. Benson under the name of *N. indica*, which he afterwards united to Hutton's *N. petrosa*; he could have seen but few specimens of our Calcutta form and those probably not living ones; Mr. Hanley does not represent our species in his invaluable Con. Indica, but gives a very fair figure of *N. petrosa*. The two varieties of *N. petrosa* recorded in my Handlist must be altogether eliminated; I am indebted to my friends Colonel Mainwaring and Mr. J. Caldwell for other specimens from Lucknow and Monghyr of *N. petrosa*, and to Mr. J. Wood-Mason for a fine series of *N. pseudovitrinoides* from Silhet.

I think Pfeiffer's Pl. 110, figs. 10-12 of the Conch. Cab. II, [not figs. 13-15] represents *N. pseudovitrinoides*.

NANINA [MACROCHLAMYS?] SIKRIGALIENSIS, G. Nevill.

I described this species, from Sikrigali in Behar, in my Handlist page 28; unfortunately the name was misprinted *N. sikrigallensis*! I may also take this opportunity of recording that species No. 73, page 28, *l. c.*, should be *N. cordemoyi*, not '*condemoyi*' as printed. The species being called after Mons. Jacob de Cordemoy, a distinguished Mascarene botanist.

Subgenus ACUSTA, Albers.

In my Hand-list, p. 45, I have erroneously classed this group as a subgenus of *Nanina*. It is, however, a subgenus of *Helix*, not of *Nanina*; I overlooked a note to that effect by Prof. von Martens, Moll. Ost-Asien, describing the jaw, &c.

TROCHOMORPHA PERCOMPRESSA, Blanford, Pl. V, Fig. 22.

Proc. Zool. Soc. 1869, p. 448, Bhamó, "coll. J. Anderson."

I know of no other specimen but the type, of which I now give a figure.

HELIX (AEGISTA) PERPLANATA, G. Nevill, Pl. V, Fig. 21.

J. A. S. B., 1877, p. 19, Mimboo, Upper Burma, diam. $17\frac{1}{2}$, axis $4\frac{1}{2}$ mil.

I now give a figure of the type of this species, which is closely allied to the Indian *H. tapeina* on the one hand and to the Chinese *H. trichotropis* on the other. It was discovered by Dr. Anderson at Mimboo, near the Yunnan frontier. In my Handlist, I have classed this group under the subgenus *Plectotropis*, Martens (1860, type *H. elegantissima*, Pfr.), but I now consider that it is not separable from the previously described *Aegista*, Albers (1850, type *H. oculus*, Pfr.); Prof. Martens has lately given an important tabular arrangement of *Aegista* (restr.) in his 'Conch. Mittheilungen', Bd. I, Heft. 5-6, with figures and descriptions; I fancy, however, the professor has overlooked an important locality I have recorded for *H. trichotropis*, viz., Upper Burma; perhaps, too, the localities recorded for *H. setocincta* "Sando and Ava" are printer's errors for those given by A. Adams as "Sado and Awa-Sima"; at any rate, I do not suppose Ava in Upper Burma or Sanda in Yunnan are intended.

Subgenus ACAVUS, Montfort.

The specimens of some of this group in the Indian Museum are incorrectly registered in my Hand-list, page 8; the entries should be corrected as follows:—

HELIX (ACAVUS) HÆMASTOMA, Linnæus.

Syst. Nat. X, 1758; Reeve, Con. Ic. fig. 366 and Conch. Indica, pl. 127, fig. 2.

30 Ceylon; coll. H. F. Blanford and G. Nevill, Esqrs.

var. MELANOTRAGUS, Born.

Index and Test. Mus. Vindob. 1780, as *H. melanotragus*; Reeve, l. c., fig. 366 C. and Conch. Indica, pl. 127, fig. 3.

10 Ceylon; coll. H. F. Blanford and G. Nevill, Esqrs.

HELIX (ACAVUS) SUPERBA, Pfeiffer.

Zeits. Mal. 1850, Ceylon ; Reeve, *l. c.*, fig. 368.

2 Ceylon ; coll. H. Nevill, Esq.

var. ROSEOLABIATA, nov.

Hanley and Theob., *Con. Indica*, pl. 127, fig. 4, as *H. superba*.

6 Ceylon ; coll. H. Nevill, Esq.

A variety very different from Pfeiffer's type, a fact apparently not noticed by Mr. Hanley.

HELIX (ACAVUS) PHOENIX, Pfeiffer.

Malak. Blät. 1854, for *Conchyl. Cab.*, fig. 1134 and *Ed. nov. t. 3*, fig. 9-10 ; also Reeve, fig. 376, (as *H. melanotragus*, var.) and *Conch. Indica*, pl. 127, fig. 6.

10 Ceylon ; ex c. H. F. Blanford and G. Nevill, Esqrs.

HELIX (ACAVUS) GREVILLEI, Pfeiffer.

Proc. Zool. Soc. Lond. 1856, Ceylon and *Novit. Conch.*, t. 30, fig. 6-7.

3 Ceylon ; coll. H. Nevill, Esq.

Subgenus CORASIA, Albers.

According to Prof. C. Semper (*Reise Philippinen*, 1874), should be a section of *Cochlostyla*, not of *Helix*, as given in my Hand-list, p. 114. The same is recorded, *l. c.*, of the subgenera *Axina*, Albers, and *Callicochlias*, Hartm. (emend.).

The type species of *Axina* was not, however, examined ; so I still consider this last as doubtful.

AMPHIDROMUS MASONI, Godwin-Austen.

Journ. As. Soc. Beng., 1876, Dihiri Parbat at 2000 ft.

This is my species No. 19, p. 127, of Hand-list, where I have erroneously recorded the species as *A. daflaensis*.

Subgenus BEDDOMEA, G. Nevill.

Hand-list, 1878, p. 127, type *Bul. ceylanicus*, Pfr.

The animal of the type species of this very distinct and well-marked group was described by E. L. Layard (*Ann. Mag.* 1853), as "of a brilliant green colour, visible through the shell ; it feeds on the Coffee Plant." The group is recorded in Pfeiffer's *Nomenclator* (ed. Clessin), 1879, as part of the section *Phengus* of the genus *Cochlostyla* !

BULIMINUS (CERASTUS) JICKELIANUS, G. Nevill, Pl. VI, Fig. 2.

Hand-list, 1878, p. 133, Wadela Plateau, Abyssinia.

Shell imperforate, or scarcely superficially rimate, elongately oblong, moderately solid, longitudinally subobsoletely and obliquely striate, the striae distinct near the suture and also near the peristome; spire conically elongate, rather acutely pointed; whorls $6\frac{1}{2}$ or 7, the first $4\frac{1}{2}$ scarcely convex, increasing regularly and slowly, the last two distinctly convex, increasing rapidly, the last one unusually attenuately produced; aperture somewhat everted, compressed, considerably higher than broad, columella broadly reflected, somewhat oblique.

Long. 34, diam. 15; apert. alt. 15, lat. 10 mil.

HAB. Wadela Plateau, Abyssinia; coll. W. T. Blanford, Esq.

Type, Indian Museum, Calcutta.

The dimensions of *B. olivieri*, Pfr., as originally described are—

Long. 27, diam. 14; apert. alt. $14\frac{1}{2}$, lat. 8 mil.

From this latter species, *B. jickelianus* can be distinguished by the more pointed spire, less convex whorls, the last one especially being much less globose; by the more or less obsolete sculpture, more oblique columella, more everted aperture, closed umbilicus, &c.

Genus STENOGYRA, Shuttleworth.

Bern. Mitth. 1854; type, restr. H. and A. Adams, 1855, *Helix calcarea*, Born.

Subgenus GLESSULA, Martens.

Albers Heliceen, II, 1860, type *Achatina gemma*, Benson.

A genus of the family *Cionellida* in Pfeiffer's Nomenclator (ed. Clessin), a classification which I consider altogether unjustifiable. I am afraid the group will prove not separable from *Subulina*, Beck, the type of which is the West Indian *Helix octona*, Chemnitz, in which case the latter name must have priority. Be this as it may be, *Ach. paritura*, and *involuta*, Gould, *darnaudi* and *sennaarensis*, Pfr., as well as several other species, all from Africa—both East and West coasts—certainly belong to *Glessula*.

STENOGYRA (GLESSULA) OREAS, Benson, MS. Pl. V, Fig. 11 (Copy).

Reeve, Conch. Icon. 1850, fig. 113, as *Achatina oreas*, Nilgiris, long. $15\frac{1}{2}$, diam. $7\frac{1}{2}$ mil., anfr. 7 (ex icone); not *Ach. oreas*, Pfeiffer (as of "Benson"), or of Nevill, Hand-list I, p. 168.

I am indebted to Colonel Beddome for a single specimen of the true *St. oreas*, from Travancore. Anfr. 7; long. $14\frac{1}{2}$, diam. $7\frac{1}{4}$ mil.

Mr. Hanley in his valuable and careful notes in the *Con. Indica*, p. 34, has already noticed the confusion of two distinct species under this name.

STENOGYRA (GLESSULA) PSEUDOREAS, n. sp.

Pfeiffer, *Mon. Helic.* III, 1853, as *Achatina oreas*, Benson, MS. Nilgiris—anfr. 7 (?), long. $12\frac{1}{2}$, diam. 5 mil., not *Ach. oreas*, Reeve (as of Benson) 1850; Nevill, *Handlist*, I, p. 168, as *St. oreas*.

Nilgiri specimens collected by Mr. Blanford (which I take for my type) measure—long. 11, diam. 5 [vix] mil. and are of six whorls only.

var. *SUBDESHAYESIANA*, nov.

Anfr. 6; long. 11, diam. $4\frac{1}{4}$ mil. Type var. from the Anamullays, coll. Colonel Beddome; also from the Pulney Hills, coll. Rev. Fairbank.

STENOGYRA (GLESSULA) JERDONI, Benson, MS. Pl. V, Fig. 14 (Copy).

Reeve, *Conch. Icon.* 1850, as *Achatina jerdoni*, Nilgiris—anfr. 7 to 8, long. 16, diam. 6 mil. (*ex icone*).

Pl. 78, fig. 10 of the *Con. Indica* represents a smaller form, of only 14 mil. and with the spire more produced and the last whorl a little less convex.

STENOGYRA (GLESSULA) NILAGIRICA, Benson, MS. Pl. V, Fig. 15 (Copy).

Reeve, *Conch. Icon.* 1850, fig. 87, as *Achatina nilagirica*, anfr. 10, long. 28, diam. 9 mil. (*ex icone*); *Con. Indica*, Pl. 35, fig. 6, as *Ach. perotteti* (not *Ach. perotteti*, Pfr.).

I have no doubt of the distinctness of Reeve's *A. nilagirica* and Pfeiffer's *A. perotteti*, despite the fact that the former has been classed as a variety of the latter by Dr. Pfeiffer; I have now given copies of the original type figures of both, which I think will convince most conchologists who have studied the genus. I have never seen a specimen of the true typical *St. nilagirica*, described by Reeve as "finely crenulate at the suture, then striated" &c. Colonel Beddome has, however, sent me specimens of what I consider a variety, though a very distinct one.

var. *KURNOOLENSIS*, nov.

Anfr. 11; long. 30, diam. $9\frac{1}{2}$ mil.

Distinguished from both *St. nilagirica* and *St. perotteti*, not only by its greater size and more numerous whorls, but especially by the (throughout) regular and prominent striation, not crenulate at the suture; from *St. vadalica*, Blanford, which it perhaps even more closely resembles, in general aspect at any rate, by the more abruptly tapering apical whorls, more arched columella, &c.

Nullaymullay mountains, Kurnool District, at 2500 ft.

STENOGYRA (GLESSULA) PEROTTETI, Pfeiffer, Pl. V, Figs. 17 and 17 a (Copies).

Rev. Zool. 1842, Nilgiris—anfr. 8, long. 22, diam. 9. mil. (not of Reeve, the Con. Indica, or Conch.—Cab. II, Pl. 26, figs. 16-17, as *Achatina perotteti*).

I have already remarked, under the preceding species, regarding the confusion of this species with Reeve's *St. nilagirica*; I have given copies of Dr. Pfeiffer's two original figures; he describes the sculpture as "ad suturam striati." The specimens from Neddoowutton in the Nilgiris, recorded in my Handlist, are the only ones I have seen of this species and they are unfortunately in bad condition.

STENOGYRA (GLESSULA) BENSONIANA, Pfeiffer.

Pl. V, Figs. 16 and 16 a (Copies).

Zeits. Malac. 1851, Nilgiris, anfr. $8\frac{1}{2}$, long. 18, diam. $6\frac{1}{2}$ mil.; Conch.-Cab. II, Pl. 26, figs. 12 and 13.

I have thought it desirable also to give copies of the original figures of this species, as the one given in the Con. Indica is quite unrecognizable. Besides, Dr. Pfeiffer's figures seem to me to show only $7\frac{1}{2}$ whorls, whereas he describes it as having $8\frac{1}{2}$, he also speaks of the suture as being "*confertim denticulata*." The Museum specimens from Kotagherry have only 7 whorls—long. 17, diam. 6 mil.; I have lately also received from Colonel Beddome five specimens from the Sispara Ghat, three of these agree well with type figures, the other two are a slight variety with rather more convexly rounded whorls.

STENOGYRA (GLESSULA) FACULA, Benson, Pl. V, Fig. 18 and 18a. (Copies).

Ann. Mag. 1860, Nilgiris, anfr. $7\frac{1}{2}$, long. 18, diam. 8 mil. for *Achatina perotteti* of Reeve, fig. 102 (not of Pfr.).

The only specimens in the Museum that I can consider as referable to this species are three from the Pulney Hills—anfr. 9; long. 18, diam. $7\frac{3}{4}$ mil. In sculpture they agree with Benson's description, "*irregulariter striatula*" &c.; anfr. ult. "*antice leviter remote plicato-striato*." Mr. Hanley himself points out that his representation of this species in the Con. Indica is not an accurate one.

STENOGYRA (GLESSULA) OROPHILA, Benson, MS. Pl. V, Fig. 19 (Copy).

Reeve, Conch. Icon. 1850, fig. 105, anfr. 7, long. 14 mil., as *Achatina orophila*, Nilgiris and Colombo; fide Pfr. = his *A. ceylanica*.

I give a copy of Reeve's original magnified figure of his *A. orophila*, as I am by no means convinced Dr. Pfeiffer is right in uniting it to his *A. ceylanica*; to judge from the figures, I should say they were quite distinct species. It may be that Reeve confused two distinct forms, the one

figured (probably from the Nilgiris) a good and distinct species, the other from Ceylon a mere variety of *St. ceylanica*, which may have been sent, or shown, to Dr. Pfeiffer as *A. orophila* and caused him to unite the two species. I have not myself seen any species of the group, *St. nitens*, *ceylanica*, *punctogallana* &c., from Continental India; the very distinct *St. oreas* and *pseudoreas* are the nearest I know of. *Ach. orophila* is not mentioned in the Con. Indica.

STENOGYRA (GLESSULA) AMENTUM, Benson, MS. Pl. V, Fig. 20 (Copy).

Reeve, Conch. Icon. 1850, fig. 82, Howrah, as *Achatina amentum*, anfr. $8\frac{1}{2}$, long. 30, diam. 11 (*ex icone*); Benson, Ann. Mag. 1860, Nerbudda Valley, long. 24 mil.; Pfeiffer, Mon. III, anfr. 9, long. 22, diam. 7 mil.; Con. Indica, pl. 85, fig. 3.

Dr. Pfeiffer in his *Monogr. Helic.* has apparently overlooked Benson's important notice of this species as above quoted. Mr. Hanley's excellent figure of *Ach. amentum* is doubtless from a Nerbudda Valley specimen, with which it agrees exactly in measurements; long. 24, diam. 9 mil.; it appears to be a smaller and slightly different variety from the type Howrah form. I have already recorded that this rare species has also been found at Ganjam by my friend Mr. Valentine Ball of the Geological Survey; it has not, however, been found again in the immediate vicinity of Calcutta.

STENOGYRA (GLESSULA) SUBFUSIFORMIS, Blanford, Pl. V, Fig. 13.

P. Zool. Soc. 1869, Ponsee in Yunnan at 3300', anfr. 8, long. $17\frac{2}{3}$, diam. $5\frac{2}{3}$ mil.

I give a figure of the unique type of this very distinct species, for which the Museum is indebted to Dr. J. Anderson's very successful researches during the first Yunnan Expedition. It is the most northerly species of *Glessula* as yet known, no other species having been described from China or Japan; there are three or four species known from the Philippines, Borneo, and Sumatra; in the main, however, the group appears to be essentially an Indo-African one. No species is as yet known from the Andamans, Nicobars, Seychelles, or Mascarene Islands; evidently *Glessula* is a continental rather than an insular genus.

STENOGYRA (GLESSULA) BLANFORDIANA, G. Nevill, Pl. V, Fig. 12.

Journ. Asiat. Soc. Beng. 1877, p. 26, Ponsee in Yunnan.

Shell ovately turreted, solid, of a dark brown colour, two apical whorls smooth, the others sculptured with raised, coarse, longitudinal, nearly perpendicular striæ, much crowded together and slightly flexuous on the last whorl; spire turreted, with very obtuse apex and excavated suture; whorls six, scarcely convex, the last one rounded at base; aperture vertical,

subquadrilateral, with a much thickened white peristome; columella broadly reflected, thickened, white, curved, forming an acute tooth, with a well developed incised notch at its base.

Long. 7, diam. 3 mil.

HAB.—Ponsee (type); also from near Bhamô. This species closely resembles *Glessula peguensis*, Blanford, but is less convex, that is, more slender, and of thicker texture; it can also be easily distinguished by the characteristic, crowded, well-developed, nearly perpendicular, longitudinal striation, varying slightly in direction on each whorl, much as in many species of *Pomatias*. The columella also is peculiar.

Type, Indian Museum, Calcutta.

STENOGYRA (GLESSULA) BOLLAMPATTIANA, Beddome.

Con. Indica, Pl. CLVI, fig. 1, as "*Achatina bottampotana*," Beddome, MS.

Long. $25\frac{1}{2}$, diam. 10 mil.; whorls 7, of unusually solid substance.

I am much indebted to Colonel Beddome for typical specimens of this very distinct and rare species, also for kindly informing me that it is found on the Bollampatty Hill, near Coimbatore at 7000', and that the name should be spelt as I have now given it, Mr. Hanley having misread the original label.

BALEA DOHRNIANA, n. sp.

Shell of seven gradated, cylindrical whorls, increasing very gradually, the last one proportionately very short, apex obtuse; brown, irregularly and indistinctly mottled with blue; almost smooth, the somewhat irregular, rugose striæ being nearly obsolete, even under a lens, except immediately behind the peristome; aperture markedly everted, as broad as high, chestnut-brown within; peristome broadly reflected, white, thickened, regularly rounded below, columella broad, nearly straight, margins of aperture joined with a distinct callosity, no parietal tooth. Long. $10\frac{1}{4}$, diam. $3\frac{3}{4}$ mil.

HAB.—Peru.

The only other species I know of from Peru, or indeed from South America, is the *B. peruviana* of Philippi, which, however, has 8 to 9 whorls and measures long. 13 to 14, diam. 3 mil.; I have named this interesting form, for which I am indebted to my friend Mons. P. Joly of Algiers, in honour of Dr. Henry Dohrn of Stettin. There are several very interesting new forms of *Clausilia* obtained by the same collector, in Mons. Joly's collection.

Type, Indian Museum, Calcutta; also in coll. Joly and Dohrn.

BALEA PYRENAICA, Bourguignat.

Rev. and Mag. Zool. 1857, Pyrenees, long. 12, diam. 3 mil.

var. LUCHONENSIS, nov.

Vix perforata, anguste fusiformi-turrita; anfr. 8—9 convexiusculis, ultimo vix majore, basi rotundato; apertura oblonga, superne haud coarctata, peristomate expanso, marginibus callo valido, haud tuberculato, junctis.

Long. 9, diam. $2\frac{1}{4}$ mil.

HAB.—Bagnères de Luchon, Pyrenees.

Type var., Indian Museum, Calcutta; coll. G. Nevill, Esq.

VERTIGO PRASLINENSIS, n. sp.

Nevill, Proc. Zool. Soc. 1869, p. 65, as "*Carychium*, n. sp.?"

Shell resembles *Pupa liénardiana*, Crosse, from Rodriguez, but the spire is less produced and there is no trace of the conspicuous parietal tooth; apex remarkably obtuse; $4\frac{1}{2}$ whorls which increase very rapidly, the first three more or less cylindrical, the last one moderately convex; smooth, even under the lens no trace of sculpture is discernible; aperture triangular, regularly rounded at base, external margin somewhat obsoletely sinuate; a strongly developed, transverse columellar tooth, three other palatal teeth, equidistant, the middle one the largest, no parietal tooth.

Long. 2 mil.

HAB.—Island of Praslin, Seychelle Group.

Type, Indian Museum, Calcutta.

SUCCINEA LONGISCATA, Morelet.

Moll. Portugal, 1845, pl. V, fig. 1; Baudon, Journ. Conch. 1877, pl. XI, fig. 2, as *S. elegans*, var. *longiscata* and subvar., l. c. 1879, pl. XI, fig. 6, as *S. elegans*, var. *longiscata*, subvar. *Folini*; Bourguignat, Esp. Franc. *Succinea*, p. 20, from Troyes, (as possibly introduced).

The Museum is indebted to Dr. J. Anderson for numerous specimens, preserved in spirit, from Mount Hermon in Palestine of this well characterized and very distinct species. How so many conchologists can have confused it with *S. elegans*, Risso or *S. pfeifferi*, Rossm. seems to me almost incomprehensible. Probably in most instances they had not seen the real species at all, or only examined some wretched isolated specimen. The species has only been hitherto recorded from Portugal, Algiers, Biarritz, and Troyes (?); this indubitable Palestine habitat is therefore very important, more especially as no well authenticated species has been as yet identified from Asia Minor, though the genus has been long known to occur there.

These Mount Hermon specimens are perfectly undistinguishable from numerous specimens I possess from Maison Carrée in the Province of Algiers; the latter again I carefully compared with typical Portuguese specimens

in the collections of MM. Morelet and Crosse and found to be unmistakeably of one and the same species. The variety, so well described and figured by Baudon in the Journ. de Conch. 1879 as var. *Folini*, differs but very slightly, scarcely sufficiently to justify its separation, even as a variety, this was evidently also the opinion of M. Baudon when he wrote, *l. c.* 1877 p. 173, "J'ai reçu de MM. Bérillon and de Folin de nombreux specimens de *S. longiscata* des Basses Pyrénées parfaitement semblables au type de Morelet." I found the variety *Folini* tolerably abundant both at Biarritz and Bayonne. The differences between *S. elegans* and *S. longiscata* are well shown by M. Baudon's excellent figures, *l. c.* 1879, Pl. XI, fig. 6 and fig. 5; the former being *S. longiscata* and the latter *S. elegans*.

SUCCINEA YARKANDENSIS, n. sp. Pl. V, Fig. 10.

Moll. Yarkand Mission, 1878, as *S. pfeifferi*, Rsm., var.

Shell oval, comparatively somewhat thick, of a bright amber colour, last whorl throughout closely, regularly, and undulately striated, striæ though distinct somewhat superficial, or not deeply incised; spire shortly produced, strongly twisted, abruptly and strikingly bent back, apex somewhat obtuse; whorls $2\frac{1}{2}$, the last very large in proportion, narrowly produced, that is not tumid or ventricose; aperture considerably everted, very long in proportion to its breadth, margins joined by a small amber coloured callosity, columellar margin not thickened, nearly straight, beautifully gradually rounded at base.

Long. 11, diam. 6; apert. alt. $7\frac{1}{2}$, lat. 4 mil.

HAB.—Yarkand and Sasak Taka (Kashgar); coll. Dr. Stoliczka. Since I wrote my account of the Mollusca of the Yarkand Expedition, I have been able to collect and carefully examine numerous forms of the European *Succineæ*, and have also had the advantage of studying the excellent and elaborate monographs of the French species by MM. Bourguignat and Baudon (J. de C. 1877 and 1879); I now consider this Yarkand form as a distinct and well characterized species, nearest allied to *S. contortula*, Baudon; the few whorls, the remarkable way in which the spire is abruptly bent back, the distinct and regular, though superficial, striation, especially noticeable near the columellar margin, the everted aperture, &c. all enable the species to be distinguished at a glance from others of the group of *Suc. pfeifferi*.

Type, Indian Museum, Calcutta; also in coll. von Martens and Bouvier.

Genus HYALIMAX, H. and A. Adams.

Gen. Moll. II, 1855, as subgenus of *Limax*, type *Limax perlucidus*, Quoy (insufficiently described); ampl. Fischer, J. de C. 1867, as genus allied to *Succinea*.

In my Hand-list I attributed this genus to Prof. Fischer, which was scarcely strictly accurate. I am indebted to Mr. Wood-Mason for the generic identification of a new slug, lately found at the Andamans by Mr. de Roepstorff, undoubtedly belonging to *Hyalimax*. This, I consider, a very important discovery, especially as bearing upon my statement, in the introduction to this paper, of the remarkable affinities between the land Mollusca of the Mascarene Islands &c. and those of the Andaman and Nicobar groups &c.

Hyalimax is not known from Continental India or Ceylon; whereas three species are known from Mauritius and Bourbon, one from the Nicobars, described by Mörch in 1872 as *Hyalimax reinhardti*, and finally the new Andamanese form, now for the first time recorded. I trust Mr. Wood-Mason will shortly carry out his present intention of giving us a detailed description of this curious "slug." I should not be surprised if *Parmella* of Mr. H. Adams, described from the Fiji Islands in the P. Z. S. for 1867, prove to be an allied form to *Hyalimax*?

LIMNAEA PHILIPPINENSIS, n. sp.

Shell scarcely rimate, small, horn coloured, conically globose, longitudinally striate under the lens; spire short, apex rather pointed; whorls four, the upper ones very small, scarcely convex, the last one very large in proportion, tumidly ventricose; aperture ovate, large, proportionately unusually broad, margins joined by a thin callosity, outer margin boldly, convexly rounded; columella straight, very slightly twisted, broadly reflected, rounded at base.

Long. $8\frac{1}{2}$, diam. $5\frac{1}{2}$; apert. alt. $5\frac{3}{4}$, lat. 4 mil.

HAB.—Lucban, Luzon (Philippines), coll. R. Hungerford Esq.

This is a small species of the group of *Limnaea peregra*, closely allied to the next species, of which indeed some conchologists may prefer to rank it as a geographical variety. Both perhaps are geographical races, or subspecies, of *L. ollula*, Gould, P. B. S. 1869 from Hongkong, sent me from that place and also from Swatow by Surgeon-Major Hungerford, which again = *L. pervia*, Martens.

LIMNAEA ANDERSONIANA, Nevill, Pl. V, Fig. 9.

J. Asiat. Soc. Bengal, 1877, p. 26, Yunnan at 4000 ft.; var., Nevill, Moll. Yarkand Exp. 1878, p. 9, Yarkand, not the var., *l. c.* from North Tangitan and Kashgar, which is *L. pervia*, Mart. (= *L. ollula*, Gld.).

LIMNAEA YUNNANENSIS, NEVILL, Pl. V, Fig. 8.

J. Asiat. Soc. Bengal, 1877, p. 27, Sanda in Yunnan.

PHYSA HUNGERFORDIANA, n. sp.

Shell convexly ovate, imperforate, moderately thick, scarcely transparent, somewhat obsoletely striate, striæ close, regular, slightly flexuous; yellowish brown, generally covered with a dark coloured deposit; spire turretedly produced, suture excavated, apex somewhat obtuse; whorls $3\frac{1}{2}$, increasing rapidly, convexly swollen; aperture narrowly produced, as broad above as below, outer margin gradually rounded; columella somewhat reflected or thickened, twisted, bent a little backwards at base.

Long. $13\frac{1}{2}$ to $14\frac{1}{2}$, diam. $7\frac{1}{2}$; apert. alt. 8, lat. 4 mil.

HAB.—Lucban, Luzon; coll. R. Hungerford Esq.

The only other Philippine, or indeed Malayan, species except *Ph. moluccensis*, Lesson, is *Ph. philippiana*, Martens, Malak. Blät. 1867; long. 19, diam. 12 mil.

Küster's Pl. I, figs. 18—20 will give a rough idea of the general shape of *Ph. hungerfordiana*.

ACMELLA HUNGERFORDIANA, n. sp. Pl. VII, Fig. 11.

Shell, in shape like *Acm. moreletiana*, Nev., but a little less turreted, deeply but narrowly umbilicate, smooth, polished, hyaline, so transparent that often the axis can be traced nearly up the apex. Spire regularly conically pointed, suture excavated, narrowly marginate, or rather shelved, below, apex somewhat acute; whorls 6, increasing very gradually and regularly, the last one convexly globose, faintly depressed near the very characteristic, profoundly excavate, though narrow, umbilicus; aperture ovately rounded, outer margin regularly convexly rounded; columella acutely angled about the middle (at the umbilicus), then straight and gradually rounded at base.

Long. $3\frac{1}{2}$, diam. $2\frac{3}{4}$ mil.

HAB.—Guimaras (Philippines), living on the ground, amongst dead leaves, &c., in company with *Cyclotus pusillus*, Sow., var. nov., *Nanina caducior*, Rv., species of *Cyclophorus* and *Pupina*, &c.; coll. Surgeon-Major R. Hungerford.

This very interesting shell is the finest and largest species of the genus, yet described; it presents many interesting points of resemblance to my *Acm. moreletiana*, Proc. Zool. Soc. London, 1879, Pl. 59, fig. 4, from Batti Malve (Nicobars).

Type, Indian Museum, Calcutta; also in coll. Dohrn and Hungerford.

CYCLOTUS PUSILLUS, Sowerby.

P. Z. S. 1843, Luzon and Negros.

var. NANA, nov.

Differing from the type by its considerably smaller size, non-reflected peristome and comparatively slightly more developed spiral sculpture; the

living animal covers its shell with a thick coating of mud, arranged in a quasi-symmetrical manner, as I have also seen in species of *Succinea* *Pterocyclus*, &c.; the operculum externally is distinctly concave.

Diam. $6\frac{1}{4}$, alt. $4\frac{1}{4}$ mil.—Cebu.

Diam. $5\frac{3}{4}$, alt. 3 mil.—Guimaras.

Pfeiffer records typical *C. pusillus*, ex coll. Cuming, as diam. 11, alt. 6 mil.

HAB.—Cebu (type var.) and Guimaras. This small *Cyclotus* was found tolerably abundantly by Surgeon-Major Hungerford, living on the ground, in company with species of *Pupina* and *Acmella*, &c.

Genus CYATHOPOMA, Blanford.

Colonel Beddome has already pointed out, and I believe it is now generally accepted as correct, that *Jerdonia* and *Mychopoma*, Blanford, can only be retained as sections or subgenera of *Cyathopoma*. Hitherto the genus has been supposed to have a very limited range, but this is not so in fact, as it extends as far as the Pacific Archipelago where the species are known under the name of *Diadema*, Pease (= *Garettia*, in Catal. Paetel and Mus. Godef.); the type species of Pease's *Diadema* (*Pterocyclos*?) *parvus*, Pease, 1865, from the Hervey Islands, is, as regards its shell, a true *Cyathopoma*, being wonderfully close to *Cya. filocinctum*, only rather smaller: its operculum is correctly described by Pease as follows:—" *O. subcartilagineum, elevatim spiraliter lamellatum, intus concavum, basilate reflexum*;" the very concave shape gives it a striking resemblance to that of many species of *Pterocyclus*. Reference to the original description of the operculum of *Cyathopoma* will at once show that no separation can be effected on this character only: " *O. truncate conoideum, concentricum, multispirum, e duabus laminis compositum; interna membranacea, externa testacea perconcava; anfractuum marginibus externis in lamellam testaceam, versus medium incurvatam, interdum pulchre sculptam, elevatis.*"

I consider therefore that *Diadema* must rank as a subgenus of *Cyathopoma*, distinguished by its *Pterocyclus*-like operculum, and that it is of approximately equal value with *Jerdonia*. The following is Blanford's original description of the operculum of *Jerdonia*:—" *O. concentricum, arctispirum, sulco marginali circumdatum, duplex; interne membranaceum, externe testaceum et ex anfr. vittaeformibus compositum, quoque proximi interioris marginem externum tegente.*"

It is very remarkable that at the Hervey Islands another small shell occurs with all the characters of the shell of *Jerdonia* and closely resembling, indeed, the type species *J. trochlea*; this is the *Cyclostoma biangulatum* of Pease, P. Z. S. 1864, referred to *Cyclophorus* (*Ostodes*) in the *Donum Bismarckianum* and still more correctly, I consider, to *Cyclomorpha* of

Pease, by von Martens in the Zool. Record for 1871, p. 162; I have extracted the operculum and find it to be something like that of *Omphalotropis*, of thin, horny texture, with 4 to 5 well defined whorls.

The operculum of ? *Diadema rotella*, Pease, a small smooth form, something like a miniature *Leptopoma luteum*, is not as yet known, and it is not present in our single Museum specimen from Rarotonga.

CYATHOPOMA (JERDONIA) IMPERFORATUM, n. sp.

Beddome, P. Zool. S. 1875, p. 449, as "probably a new species" from the Anamallays at 6600 ft. (under *Cya. elatum*, Bedd.).

There is a single specimen in the Museum, for which we are indebted to Colonel Beddome; the species is at once distinguished by its being the only described species of the genus with an imperforate base; I hope to give a figure and more detailed description later on.

Alt. $2\frac{1}{2}$, diam. 2 mil.

CYATHOPOMA SHEVAROYANUM, Beddome, Pl. VI, Fig. 7.

Proc. Zool. Soc. 1875, Shevaroy and Yellagherry Hills (Salem District).

I have thought it well to publish the three figures of this interesting form which had been prepared under the directions of the late Dr. Stoliczka; the specimens are from the Shevroys. The operculum externally presents a curious analogy to that of some species of *Turbo*; it is convex, testaceous, smooth, with only a very small and inconspicuous "umbo," or opening, which is situated considerably above the centre, consequently near the top of the aperture.

CYATHOPOMA (JERDONIA) BEDDOMEANUM, Nevill.

Beddome, Proc. Zool. Soc. 1875, as *Cyathopoma (Jerdonia) blanfordi*, Tinnevely Mns. at 4000 ft., not *Cya. blanfordi*, H. Adams, P. Zool. S. 1868, Seychelles.

PTEROCYCLUS CYCLOPHOROIDEUS, n. sp.

This is a form that has hitherto been confused with *Pt. nanus*, Benson, the shell is more depressed and of thicker substance, resembling more closely *Cyclophorus stenostoma*, Sowerby, both in form and colouration; it can be distinguished at a glance by the apparently constant absence of the conspicuous band at the periphery; I intended, despite all the above, to have merely separated it as a subspecies, when I noticed that all my Anamullay specimens have a much raised, concave operculum, whilst on the other hand in my single operculated specimen of *Pt. nanus* it is only slightly raised, scarcely concave, &c. The Museum is indebted to Colonel Beddome for three operculated specimens from the Anamullays, one of which I take as my type form.

Alt. $8\frac{3}{4}$, diam. 16 mil.

The same valued correspondent has also sent me from the Anamullays two specimens of a light yellow (instead of darkish brown) colour, scarcely if at all streaked or mottled, whereas my type has a more or less reticulate style of painting, for this form I propose the name var. *subluteola*.

Colonel Beddome has further sent two specimens, from the Anamullays at 2000 feet, of a smaller, rather solid form, in colouration &c. presenting a remarkable analogy to *Cyclophorus stenostoma*; this may be known as var. *substenostoma*.

I may mention here that the Colonel has also found in the Anamullays an allied, rather larger species, very strikingly streaked with "tiger-like" markings, with a somewhat similar operculum, but well characterized by the much more highly developed "wing" to the peristome, for which he proposes the name *Pt. comatus*, Beddome, n. sp.

PTEROCYCLUS NANUS, Benson.

Ann. Mag. 1851, Nilgiris, "taken with *Pt. bilabiatus*," diam. 29 mil.

The Museum possesses three specimens from the collection of the late Dr. Stoliczka, unfortunately only labelled "South India." These agree exactly with the original description and with Pfeiffer's figures of a typical specimen, Conchylien Cabinet II, Pl. 49, figs. 31-3, at once characterized by the conspicuous band at the periphery, rather raised spire, and rather simple lip. Looking to the original description of *Pt. bilabiatus*, as a guide to the exact habitat of the type, apparently the neighbourhood of Salem will prove also to be the home of this form.

Mixed with the above was a single specimen of an interesting, rather more richly painted, very flat-spined form, with the whorls increasing a little more slowly, the umbilicus a trifle more open, &c., this I propose to distinguish as var. *applanata*.

Alt. 7, diam. $13\frac{3}{4}$ mil.

var. REFLEXILABRIS, nov. (? distinct species).

A white apparently colourless form, with black apex and easily distinguished from the preceding, as well as *Pter. cyclophoroideus*, by the fragile, broadly reflected and duplex peristome, rather differently shaped too above; the operculum, in my single specimen, agrees with what I take to be the typical form; it is very little raised, or concave. This specimen I purchased from the collection of the late Mr. Lombe Taylor, labelled "Khoondah Mountains, coll. Pirie". Mr. H. F. Blanford also possesses two specimens, labelled "Nilgiris;" they are doubtless from the same habitat.

CYCLOPHORUS PEALIANUS, n. sp. Pl. VI, Fig. 3 (vel C. SUBLAEVIGATUS, Blf., var. PEALIANA).

J. A. S. B. 1877, page 28, Naga Hills, axis 30, diam. 56 mil., as *C. sublaevigatus*, Blf. var. *pealiana*.

Openly and deeply umbilicate, conically somewhat depressedly turbinate, solid; under the lens, the lower whorls are most minutely decussately sculptured, the apical $2\frac{1}{2}$ whorls on the other hand possessing characteristic, well marked, distant, longitudinal striation only, these striæ being incised and very obliquely flexuous; above the periphery a broad, white zone, above and below which there are crowded chestnut-brown bands, almost or altogether confluent, umbilical area white; spire moderately raised, with the apex exerted in a "mamillate" manner, suture distinct; whorls $4\frac{1}{2}$, convex, the last one with a raised and somewhat rounded keel at the periphery, which becomes obsolete near the peristome; aperture almost round, oblique, of a bluish-white colour, peristome callously expanded, boldly and evenly rounded, columellar margin also evenly rounded, margins of a very characteristic, brilliant orange-red colour, joined by a well developed callosity of the same shade.

Alt. $40\frac{1}{2}$, diam. 58 mil.

Type, Indian Museum; also in coll. Morelet, von Martens and Dohrn.

Hab.—Naga Hills; coll. S. E. Peal.

This fine form which I have previously described and named in the Journal, I still consider may be better classed as a variety, though a very distinct one, of the smaller, more depressed and white lipped *C. sublaevigatus* of Blanford. Nevertheless I have thought it well to give it here a regular specific name, with a detailed description, as a matter of convenience for such conchologists as may deem it worthy of specific rank.

CYCLOPHORUS (THEOBALDIUS) ORITES, n. sp. Pl. VI, Fig. 4.

Broadly and openly umbilicate, solid, depressed, subdiscoidal, covered with a rather thick, smooth, bright yellow, or horn-coloured, epidermis, throughout under the lens very minutely, closely, obliquely striated; spire perfectly flat, suture excavate; whorls 4, the last one perfectly round, increasing unusually rapidly in size; aperture circular, peristome double, the outer margin above near the body whorl, being slightly subangulately produced, showing a distinct transition to the "wing-like" process of *Pterocyclus*, columellar margin oblique, the duplication of the peristome becoming obsolete.

Operculum thin, horny, slightly immersed, flat, composed of five or six acutely defined volutions.

Alt. $5\frac{1}{2}$, diam. $14\frac{1}{10}$ mil.

Type, Indian Museum; from Sikkim, Chola Range, at 11,000 ft.

This interesting species, No. 73, page 276, of my Hand-list, is very distinct from its allies of South India and Ceylon.

CYCLOPHORUS SPECIOSUS, Philippi.

Zeits. Mal. 1847, Hab. ?, alt. 35, diam. 61 mil.

var. AUREOLABRIS, Nevill.

Handlist I, 1878, p. 267, Burma (erron.).

I am much indebted to Mr. Wood-Mason for the information necessary to establish the exact home of this well characterized and very beautiful form, almost deserving of specific rank.

A second specimen, in more perfect condition, having been obtained by E. W. Dun, Esq., of H. M.'s 34th Regiment, N. I. (whilst accompanying Major M. O. Boyd on his recent mission to the Lushai Chiefs) on a ridge within 10 miles of Lushai Haut.

Alt. $41\frac{1}{2}$, diam. 59, perist. crass. 8 mil.

CYCLOPHORUS FORMOSAENSIS, n. sp.

Pfeiffer, Nov. Conch. II, 1864, Pl. 68, figs. 14—15, Formosa, as *C. exaltatus*, var. ?

Surgeon-Major Hungerford who has lately found numerous living specimens, both of the Formosan form and of the Hongkong *C. exaltatus*, Pfr. considers them undoubtedly specifically separable. With this view, I entirely agree; Pfeiffer himself indeed appears to have been in considerable doubt on the subject.

Type, Indian Museum, Calcutta; also in coll. Beddome, Hungerford, Dohrn, &c.

PUPINA GUIMARASENSIS, n. sp.

Very closely allied to the Cebu *P. bicanaliculata*, Sow.; smaller, more compressed, apex slightly more obtuse, of a light reddish-brown colour, smooth, of a thicker and less transparent substance; the upper whorls a little more convex, the last two (especially the last) markedly less tumidly swollen; aperture smaller, rounder, with the slight deflection of the outer margin above less developed, the parietal plication stronger, less obliquely twisted, columellar characters much the same.

Long. 6, diam. $3\frac{1}{3}$ mil.

Cebu specimens of *P. bicanaliculata* measure, long. 7, diam. $4\frac{1}{3}$ mil.

HAB.—Guimaras; coll. Surgeon-Major R. Hungerford.

By some this Guimaras form may be considered as a geographical variety of *P. bicanaliculata*; its characters seem to me, however, to compel specific separation.

PUPINA HUNGERFORDIANA, Nevill, Pl. VI, Fig. 6.

Handlist I, 1878, "Asadden Rv.," long. $8\frac{1}{4}$, diam. 5 mil.

I have nothing to add to my above given description of this very distinct species, but it is necessary for me to correct my altogether mistaken reading of the original label of the locality sent me by its discoverer—Surgeon-Major R. Hungerford—it should read "Hsaddan Koo, Salween Valley."

CATAULUS TORTUOSUS, Chemnitz.

Conch.-Cab. I, Vol. XI, 1795, figs. 1882-3, "Nicobar Islands," as *Turbo tortuosus*.

Mr. Benson long ago expressed his belief that this most remarkable form would prove to be a native of South India and not of the Nicobars. If this were the case, it could scarcely have escaped the researches of so indefatigable a naturalist as Colonel Beddome; nor has it—the Colonel having lately found a single specimen on the Hills N. E. of Trevandrum at 2500 feet, which he has most generously presented to the Indian Museum; the apical portion is unfortunately broken away, but the remainder agrees well with the somewhat crude original figure and the much better ones of Sowerby in the Thesaurus and Con. Indica.

ALYCAEUS MONTANUS, n. sp. Pl. VI, Fig. 5.

Openly and widely umbilicate, much depressed, solid, bright corneous brown, closely, evenly and regularly ribbed, ribs somewhat superficial, scarcely flexuous, close-set, for a short distance at the sutural tube more crowded and more strongly developed; spire scarcely elevate, apex obtuse; whorls 4, regularly evenly rounded, constriction scarcely defined, sutural tube short (about 1 mil.); aperture circular, peristome slightly thickened, but not double; operculum thick, black, and concave.

Hab.—Sikkim, at 11,000 ft.

Diam. $5\frac{1}{4}$, alt. $3\frac{1}{10}$ mil.

A well marked form, reminding one of *A. expatriatus*; the depressed form, very open umbilicus, and scarcely distinguishable constriction are all good characters.

ALYCAEUS HUNGERFORDIANUS, n. sp.

Shell depressed, in shape resembling the preceding, but markedly less openly umbilicate; solid, more or less of a pinkish hue, irregularly spirally striate on the upper two whorls, then distantly ribbed, the ribs becoming gradually more acutely raised, and consequently more prominent, a little more close-set at the sutural tube, the difference not being very noticeable as in the preceding, ribs behind the peristome acute, prominent, distant; spire scarcely elevate, apex obtuse, peculiarly, abruptly and prominently raised, slightly twisted; whorls 4 (or $4\frac{1}{2}$?), compressedly convex, having a slightly subangulate appearance at base, where the sculpture is as well defined as it is above; constriction slightly developed, rather produced, much as in *A. stoliczkae*, sutural tube short as in the preceding; aperture circular, peristome remarkably thickened, generally distinctly triple, but sometimes only double, forming a slight projection over the umbilical area.

Diam. 4, alt. 2 mil.

Found tolerably abundant at Tamsui by Surgeon-Major R. Hungerford; the first species described from Formosa belonging to the section *Charax*, the only other species known being *Aly. (Dioryx) swinhoei*, H. Adams.

DIPLOMMATINA HUNGERFORDIANA, n. sp.

Dextral, imperforate, conically ovate, rather solid, of a golden brown colour, sometimes white or nearly so; spire conical, not attenuate, apex obtuse, suture impressed; whorls 6 tumidly, convexly swollen, the upper ones lightly, regularly striate, the striation almost obsolete on the antepenultimate whorl and altogether so on the last one; aperture nearly circular, margins joined with a beautifully arched callosity, conspicuously raised and thus defined on its outer margin, the double peristome usually of a bright orange colour is boldly and evenly rounded, the columellar margin is scarcely oblique, only very slightly subangulate at base, with a tolerably prominent fold or tooth.

Long. 3, diam. $1\frac{3}{4}$ mil.

Found by Surgeon-Major R. Hungerford at Kulung in Formosa. In sculpture it somewhat resembles *D. semisculpta*, Blf. I know no Indian species with the whorls so regular in shape and evenly rounded, the antepenultimate as usual being a little the broadest; the columellar margin is also more rounded than usual and less distinctly subangulate at its base. J. A. S. B., 1870, pl. 1, fig. 3 A. (*D. sherfaiensis*) gives a fair idea of it; the peristome is, however, very different, being boldly and evenly rounded, very broadly reflected, its duplication giving it a sulcate appearance as in J. A. S. B., 1875, pl. VI, fig. 4, (*D. burti*); viewed from the side this duplication does not show at all, as for instance, *loc. cit.* 1870, fig. 3 B, and the peristome then appears to be simple as *loc. cit.* 1875, fig. 6, (*D. tumida*). J. A. S. B., 1875, pl. IV, fig. 5, I consider quite distinct from *D. sherfaiensis*, and I suggest for it the name *D. japvoensis*; it gives a very good idea of the shape of the whorls of my *D. hungerfordiana*; in the latter, however, the last whorl at base is less prominently ventricose. This is the first species of the genus known from Formosa; from Japan three species have been described by von Martens; Gould described two species of *Paxillus* from Hongkong and the Loo Choo Islands; no species is as yet known from China proper.

CYCLOSTOMA (TROPIDOPHORA) CALDWELLIANUM, Nevill, Pl. VI, Fig. 10.

Hand-list I, 1878, p. 305, Pouce Mn. Mauritius (semifossil), long. 31, diam. 30 mil.

Deeply, though narrowly umbilicate, globosely conical, rather fragile (at least in its subfossil state), colourless, spire conically produced, apex acute, suture more or less subcanaliculate, characteristically "fimbriate" or puckered; whorls 5 to 6, convex, the last one rather more convex above

than at base, the last three whorls closely, acutely, spirally striated, striae slightly undulating, the interstices obliquely, longitudinally and more or less subobsoletely striated, the penultimate whorl is acutely keeled in the middle and again quite at its base, the last whorl is prominently carinate at the periphery with a second keel half way between it and the suture and a third round the umbilicus, the umbilical area being spirally and irregularly keeled; aperture rather oblique, nearly circular, peristome reflected, above peculiarly and markedly sinuate, the inflection (or "sinus") broad and shallow and at some slight distance from the body whorl, afterwards boldly rounded, columellar margin only slightly reflected above over the umbilicus, oblique, acutely angulate at base.

Measurements of another, rather smaller specimen than the type, Alt. 26, diam. $26\frac{3}{4}$ mil.

As I have already remarked, a close ally of *C. carinatum*, Born (= *C. tricarinatum*, Sow., not *H. tricarinata*, Müller = *C. tricarinatum*, Lam., a quite different species from Madagascar); it can, however, be always easily distinguished by the more produced spire, much narrower umbilicus (which is more irregularly keeled), the "fimbriate" suture (as in *C. liénardi*, Morelet and *C. fimbriatum*, Lam.), the prominent and close-set spiral striation, &c. The figures in Born, Sowerby, and Reeve all depict the true *C. carinatum*, of which I consider Reeve's figure of *C. unicolor*, Pfr. as a mere variety. The Museum is indebted for two specimens of this latter form to Mr. J. Caldwell, who informs me that one of his specimens of typical *C. carinatum* was found by him with the animal still preserved and only recently dead.

Pfeiffer's figures in the Conch.-Cab. II, pl. 39, figs. 5 to 7, as "*C. unicolor*," represent a quite distinct species, (though also from Mauritius), as can be seen by a reference to his original description, "*anfr. ult. superne et medio acute carinatus*," borne out by Reeve's figure of the type specimen. I presume a similar confusion has arisen to that which I have explained with regard to the *Nanina petrosa* of Hutton and again with the *Helicarion monticola* of Pfeiffer (compare Moll. Yarkand Mission, page 15).

Probably Dr. Pfeiffer rightly supposed that he had erred in describing a mere variety of *C. carinatum*, Born, as a new species (*C. unicolor*); later on, finding an allied, but very distinct, species, he figured the latter in the Conch.-Cab., giving it the name of his former spurious species.

C. caldwellianum occurs abundantly, in a subfossil state, on the ascent of the Pouce Mountain, together with other extinct species of *Tropidophora* and *Omphalotropis*.

Type, Indian Museum; also in coll. J. Caldwell.

var. *SUBLAEVIS*, nov.

The spiral and longitudinal striation more or less obsolete, Mauritius.
Type var. Indian Museum; also in coll. Caldwell.

var. *SEXCARINATA*, nov., Pl. VI, Fig. 10 A.

A very handsome, solid form, with six prominent keels on the last whorl, the interstitial striation obsolete, as in the preceding variety, columellar margin subangulately rounded, instead of oblique.

Alt. 34, diam. $35\frac{1}{2}$ mil.—Mauritius.

Type var. Indian Museum; also in coll. J. Caldwell.

I may take this opportunity of recording that Mr. Caldwell possesses a variety of *C. carinatum* with four keels.

CYCLOSTOMA (TROPIDOPHORA) ERRONEUM, n. sp.

Pfeiffer, Conch.-Cab. II, pl. 39 figs. 5—7, Locality (?), as *C. unicolor* (not *C. unicolor*, Pfr., P. Z. S. 1851, or of Reeve fig. 39).

I take as my type, the abundant form represented by Pfeiffer's above quoted fig. 7; the larger variety seems to be much rarer. Though exceedingly variable, *C. erroneum* can always be easily distinguished from *C. carinatum* and its variety, the "*unicolor*" of Pfeiffer 1851 and of Reeve, by the regular and close-set spiral sulcation, without the prominent and characteristic keels of its ally; though more or less subangulate at the periphery, the whorls are always more convex, and this is especially noticeable at the base of the last whorl, which is also spirally sulcated, instead of being smooth as in *C. carinatum* and as well shown in Reeve's figure of Cuming's type of *C. unicolor*; the umbilicus is always markedly less open, as well shown in Pfeiffer's fig. 6.

Type, Indian Museum.

Alt. $21\frac{3}{4}$, diam. 24 mil.

Keel round the umbilicus almost or altogether obsolete.

M. Morelet in the Journ. de Conch. for 1877, p. 213, describes and separates under three "heads," the forms figured by Reeve and Pfeiffer, &c., which he unites as varieties of *C. unicolor*; if this be done, I consider it impossible to avoid uniting both to *C. carinatum*, from which the type of *C. unicolor* differs less than does the latter from my *C. erroneum*. Undoubtedly we have here an instance of a gradual transition from the extreme form of *C. carinatum* to the *C. unicolor*, var. *C.* of Morelet, intermediate forms of countless variability having been preserved for us in a subfossil state. It is, I think, comparatively immaterial whether we consider *C. carinatum*, *unicolor*, and *erroneum* as distinct species, or the two latter as subspecies of the first; after a careful examination of many hundreds of specimens, I think it better not to separate the true *C. unicolor* from *C. carinatum*, except as a variety, and preferable to separate the (more or less)

keelless form specifically. If the latter be united, it would perhaps lead too far; the umbilicus is sometimes so much covered that *C. barclayanum* could scarcely be separated. Even *C. ligatum*, as hinted by M. Morelet, would become questionably distinct. *C. erroneum* is to be found abundantly, subfossil only, in the coralline sands, near the seashore, on the West Coast of Mauritius. My friend Mr. J. Caldwell possesses a very numerous and fine series.

var. SUBUNICOLOR, nov.

A variety which instead of being subangulate at the periphery is distinctly keeled; two or three of the spiral striae between the keel and the suture are also slightly more prominent than the others, showing a distinct tendency to *C. carinatum* and its variety; the base is, however, persistently and regularly sulcated as in my type form; this is doubtless the var. *B.* of Morelet.

Alt. 23, diam. $24\frac{1}{2}$ mil.

var. SUBOCCLUSA, nov.

The columellar margin broadly reflected, almost covering the umbilicus; spiral striation more acutely raised than usual; scarcely keeled at the periphery.

Alt. $23\frac{1}{2}$, diam. 24 mil.

var. SUBLIGATUM, nov.

Banded below the subangulate periphery; a small form with very fine spiral striation, which is also less developed at base.

Alt. $16\frac{3}{4}$, diam. $18\frac{3}{4}$ mil.

OMPHALOTROPIS DUPONTIANA, G. Nevill, Pl. VI, Fig. 8.

Handlist I, 1878, p. 320, Pouce Mn., Mauritius.

Openly and deeply umbilicate, rather solid, colourless and without sculpture, at least in its present subfossil state, ovately conical; spire convexly conical, very acute, with the suture somewhat excavate; whorls 6, convex, short, increasing slowly and regularly, the last one ventricose, remarkable by its shortness (it appears almost round), the base not being produced as is the case almost universally, rounded at the periphery with a very acute and well defined keel boldly and most characteristically encircling the very open umbilicus; aperture ovate, rather contracted above and dilated below, the margin not continuous, peristome scarcely thickened, regularly rounded, columellar margin lightly reflected, oblique, distinctly subangulate below, the basal margin is again indistinctly subangulate where the keel terminates.

Long. 6, diam. 4 mil.

Type, Indian Museum ; subfossil, at about $\frac{1}{4}$ of the ascent of the Pouce Mn., Mauritius.

This shell was a contemporary of the subfossil *Cyclostoma caldwellianum*, Nev., *C. scabrum*, H. Ad., *C. mauritianum*, H. Ad. &c., which I found associated with it, some few inches below the surface of the soil and generally more or less under overhanging large blocks of stones. It is doubtless a remnant of the old fauna of the island and must be at least as old as the Dodo. It is a very important species, as showing one of the characters of the genus (from which indeed its name is derived) in its greatest development so far as is yet known ; I allude to the keel round the umbilicus. I have named it in honour of my friend Mr. Evenor Dupont of Mauritius, who is well known for his many discoveries in Natural History in those parts. We now know that the genera *Cyclostoma*, *Omphalotropis*, *Helicina*, *Gibbus*, and *Nanina* are all very ancient inhabitants of the Mascarene Islands, as extinct subfossil forms of all of them have been described. *Helicina* appears to have died out.

OMPHALOTROPIS CALDWELLIANA, n. sp. Pl. VI, Fig. 9.

Hand-list I, 1878, p. 320, No. 7, as *Omphalotropis*, n. sp.

Distinctly umbilicate, rather solid, colourless and without sculpture, pyramidically conical ; spire elongately turreted, apex rather acute, suture subcanaliculate ; whorls 7, planulate, increasing very slowly and regularly, the last one short, tumidly ventricose, perfectly rounded at the periphery, umbilicus surrounded with a raised and prominent keel ; aperture slightly oblique, narrowed anteriorly, margins not continuous, peristome slightly convex only, columellar margin anteriorly inflected, in the middle subangulate, then rounded and again subangulate quite at the base.

Long. 6, diam. 3 mil.

Type, Indian Museum.

Subfossil, on the ascent of the Pouce Mn., Mauritius, with *O. dupontiana*, &c. I have named this species after Mr. J. Caldwell of the Colonial Civil Service, the possessor of one of the finest collections of shells from our Eastern Regions that I know of. In shape there is some resemblance to the *O. clavulus* of Morelet, which is not mentioned in Pfeiffer's monograph !

OMPHALOTROPIS RUBENS, Quoy, Pl. VII, Fig. 12 (Copy).

Voy. Astrol. 1832, Mauritius.

I have thought it well to give a copy of the animal of this genus, taken from Adams' 'Genera,' to enable those interested to see at a glance the great differences from that of *Assimineæ*, as the shells of the two genera are constantly confounded, since Dr. Pfeiffer unfortunately united them as '*Hydrocena*.'

PLECOTREMA RAPAX, Dohrn.

Malak. Blätter, 1859, Arabia, long. 6, diam. 3 mil.; Jickeli, Moll. Nord Afr., pl. 7, fig. 7.

var. PRODUCTA, nov. Pl. V, Fig. 7.

A single specimen of this interesting form was found by Mr. W. T. Blanford at Annesley Bay; the spire is more cylindrical and markedly more produced in proportion, the last whorl less convexly swollen than in the typical form. The minute, longitudinal striæ, under a lens, are more distinct than usual. Anfr. 7; long. $5\frac{1}{4}$, diam. $2\frac{1}{2}$ mil.

MARGARYA MELANIODES, Nevill, Pl. V, Fig. 1.

J. A. S. B., 1877, p. 30, Lake Tali in Yunnan, anfr. 4, long. 67, diam. 47 mil.

I have nothing to add to my original description of this remarkable form, altogether unlike any other known mollusk. I take this opportunity of recording the obligation I am under to my friend Mr. J. Schaumberg of the Geological Survey of India, for the great trouble he has been good enough to take in improving the rather crude drawings of this and of some other species represented in the plates accompanying this paper. This species has also been figured by Dr. J. Anderson, F. R. S., in his large and valuable quarto on the Zoology of Yunnan.

AMPULLARIA STOLICZKANA, Nevill, Pl. VI, Figs. 11 and 11 A.

Cat. Moll. Fasc. E, 1877, Penang, alt. 54, diam. 41 mil.

I have not met with any fresh specimens of this interesting species; its nearest ally appears to be Reeve's *A. javanica*, which apparently represents an immature specimen; it is also not unlike his *A. turbinoides* from Australia (?).

PALUDINA HUNGERFORDIANA, n. sp.

Closely allied to *P. jullieni*, Deshayes, from Cambodia, the type of Mekongia, Crosse and Fischer.

Imperforate, spire short (as in *P. jullieni*), the large whorl proportionately large and tumidly swollen, scarcely (if at all) subangulate at the periphery; whorls spirally ribbed, ribs numerous, flat, more or less inclined to become obsolete; columella remarkable, being very short, almost perpendicular, pure white, very broadly and characteristically reflected.

Long. 33, diam. 26 mil.

Hab.—Canton.

Type, Indian Museum; also in coll. Surgeon-Major R. Hungerford.

PALUDINA MARTENSIANA, n. sp.

Imperforate, spire more or less shortly produced, moderately thick, of greenish brown colouration, suture rather indistinct, apex obtuse; whorls 3 to 4, planulately turreted (almost concavely), the last whorl about twice the size of the others, rounded at base, with one acute and raised spiral keel immediately below the suture and three or four others crowded together at the periphery, the preceding whorl has two of these prominent keels and both have besides, under the lens, a very minute, subobsolete, spiral striation; aperture oval, relatively rather small, not oblique, peristome scarcely thickened, but slightly convex, having a very slight subangulate appearance about the middle, columellar margin a little reflected, evenly rounded.

Long. $13\frac{1}{2}$, diam. 10 mil.

Khasing District, N. China.

Type, Indian Museum; also in coll. Hungerford.

I have named this species after Prof. Ed. von Martens of Berlin.

STENOTHYRA WOODMASONIANA, Nevill, Pl. VII, Fig. 8.

J. A. S. B. 1880, p. 159, Port Canning, long. $3\frac{1}{5}$, diam. 2 mil.

STENOTHYRA HUNGERFORDIANA, Nevill, Pl. VII, Fig. 9.

J. A. S. B. 1880, p. 159, Andaman Islands, long. $2\frac{1}{2}$, diam. $1\frac{1}{8}$ mil.

STENOTHYRA BLANFORDIANA, Nevill, Pl. VII, Fig. 10.

J. A. S. B. 1880, p. 160, Chilka Lake, Port Canning and Madras, long. $3\frac{1}{10}$, diam. $2\frac{1}{10}$ mil.

BYTHINEA MORELETIANA, Nevill, Pl. VI, Fig. 14.

J. A. S. B. 1877, Yaylaymaw in Yunnan.

I have thought it advisable to give a figure of this very distinct, imperforate species, for which the Museum is indebted to Dr. J. Anderson, although there is no species which I know of with which it could possibly be confused.

BYTHINEA PHILIPPINENSIS, n. sp.

Somewhat closely resembling *B. lutea*, Gray = *B. goniostoma*, Hutton; slightly decollate, distinctly umbilicate, spire variable, sometimes very short, as in Con. Indica, Pl. XXXVII, fig. 7 (*B. goniostoma*), sometimes moderately produced as *l. c.* fig. 6 (*B. inconspicua*); horn-brown colour, moderately solid, suture distinct, whorls 3 to 4, convex, the last one globosely and tumidly swollen, rounded at the periphery, more or less angulate round the deep, open umbilicus; under the lens spirally, very closely striated, striæ almost microscopic, slightly undulating, subobsoletely decussated or crossed with fine, very oblique lines of growth; aperture everted, nearly

round, with a more or less double peristome, which is boldly, though somewhat irregularly convex, the columellar margin is more distinctly double and slightly angulate at base, all the margins are of a not very pronounced shade of black.

Type, anfr. $2\frac{1}{2}$; alt. 8, diam. $6\frac{1}{2}$ mil.; another, anfr. $3\frac{1}{2}$, alt. 8, diam. 6 mil.

Type, Indian Museum; also in coll. Hungerford and Dohrn.

S. Cruz, in Luzon, collected by Surgeon-Major R. Hungerford; Prof. von Martens has also, I believe, mentioned this species in the Mal. Bl. 1865.

BYTHINIA SUBPULCHELLA, n. sp., Pl. VI, Fig. 12.

Narrowly rimate, conically ventricose, of rather thin substance, slightly transparent, without sculpture, almost white, with a very slight brownish tinge here and there, suture very distinct, spire elongately drawn out, apex rather obtuse; whorls $4\frac{1}{2}$, convexly ventricose, the last one tumidly and globosely swollen, about the same size as the others together, a distinct, opaque vavex on the left hand side (away from the aperture) on each of the two last whorls; aperture nearly round, not oblique, with scarcely thickened, convex peristome and columellar margin nearly straight, subangulate at base.

Very variable in size; type, long. 6, diam. 4 mil.

Abundant at Kutch, where there also occurs a "var. *tenuior*."

Type, Indian Museum; also in coll. Dohrn, Temple, Joly, Blanford &c.

I have hesitated a long time as to separating this form from *B. pulchella*, Hutton. Even now, I am by no means sure it would not be better classed as a "subspecies" of it.

BYTHINEA EVEZARDI, Blanford, Pl. VI, Fig. 13.

J. A. S. B., 1880, p. 220, Lanowlee, long. $3\frac{3}{4}$, diam. 2 mil.

This is a remarkable species of the genus, well distinguished by the peculiar sculpture and umbilicus. The figure is taken from a specimen in the Museum collected by the Rev. S. B. Fairbank and labelled "Mahabaleshwar."

BYTHINEA (?) TURRITA, Blanford, Pl. VI, Fig. 15.

P. Zool. S. 1869, p. 446, "Kyoukpong," long. $6\frac{1}{4}$, diam. 3 mil., as "*Fairbankia* ? (an *Bithynia* ?) *turrita*."

As the animal and operculum are still unknown, the generic classification of this well marked form is still open to question. The peristome is not "sinuate" above, as in the genus *Lartetia*.

FAIRBANKIA (?) FEDDENIANA, n. sp.

Imperforate, solid, turretedly conoidal, white, upper whorls subacutely, spirally striate, striation on the last two whorls more or less obsolete, imparting a "quasi" malleate appearance. Spire turreted, apex broken off in all the specimens seen, suture very distinct; 5 whorls remaining, probably there would be about 8 in a quite perfect specimen, scarcely convex, increasing regularly and slowly in size, the last whorl produced at base; aperture rather small, subquadrangular, nearly perpendicular, moderately dilated at base, outer lip not reflected, bordered with a very broad and callous rib, columellar margin perpendicular, distinctly subangulate above and below, margins joined with a thick callosity.

Long. 6 (vix), diam. $2\frac{1}{2}$ mil. (anfr. 5 only).

Type, Indian Museum; also in coll. Fedden.

I am indebted to Mr. F. Fedden of the Geological Survey of India for an opportunity of describing this interesting form; one of the specimens is from the coast of Kathiawar, all the others are part of a small, but remarkable collection made by the above mentioned gentleman "10 feet below the surface of the Little Rann, at the Kura salt works in northern Kathiawar."

HYDROBIA (BELGRANDIA) MILIACEA, Nevill, Pl. VII, Fig. 7.

J. A. S. B. 1880, p. 161, Port Canning, long. $2\frac{3}{4}$, diam. $1\frac{3}{4}$ mil. and var. minor, long. 2, diam. $1\frac{1}{4}$ mil.

ASSIMINEA WOODMASONIANA, Nevill, Pl. VII, Fig. 1.

J. A. S. B. 1880, p. 163, Port Canning, long. 4, diam. $2\frac{1}{5}$ mil.

I have lately received a single specimen of a closely allied new form from the Andamans, discovered by Mr. F. A. de Roepstorff.

ASSIMINEA HUNGERFORDIANA, Nevill, Pl. VII, Fig. 2.

J. A. S. B. 1880, p. 165, Mouth of the Rangoon River, long. 4, diam. $2\frac{1}{2}$ mil.

ASSIMINEA BEDDOMEANA, Nevill, Pl. VII, Fig. 3.

J. A. S. B. 1880, p. 164, Port Canning, long. 3, diam. $3\frac{1}{5}$ mil.

The second species, only, as yet known of the short spired, or "Helicoid," section of the Genus, the other being *A. helicoides*, Gundl. from Cuba.

ASSIMINEA THEOBALDIANA, Nevill, Pl. VII, Fig. 4.

J. A. S. B. 1880, p. 164, Port Canning, long. $4\frac{1}{3}$, diam. 3 mil.

ASSIMINEA MICROSCULPTA, Nevill, Pl. VII, Fig. 5.

J. A. S. B. 1880, p. 165, Port Canning, long. $2\frac{3}{4}$, diam. $1\frac{3}{4}$ mil.

Mr. de Roepstorff has also sent me from the Andamans a single, but unfortunately not adult, specimen of a species allied to *A. theobaldiana* and

A. microsculpta. This specimen somewhat answers to Mr. Blanford's description of *Realia decussata*.

ASSIMINEA BREVICULA, Pfeiffer, Pl. VII, Figs. 6—6 A.

P. Zool. S. 1854, as *Hydrocena brevicula*, from Singapore; var. = *A. miniata*, Martens, Ann. Mag. XVII, 1866, p. 206, Singapore, long. 9, diam. $4\frac{1}{2}$ mil.; var. = *A. rubella*, Blf., Ann. Mag. 1867, Irawady Delta, long. 5, diam. 4 mil.; var. = *Hydrocena marginata*, Morelet, J. de C. 1855, Bangkok, long. 6—8, diam. $4-5\frac{1}{3}$ mil.; var. ? = *A. rubida*, Gould, P. Bost. S. 1859, Loo Choo Islands.

A very abundant, variable and widely distributed species; there are specimens in the Museum from Singapore, Malacca, Andamans, Borneo, Irawady Delta, Arakan, Philippines, and Amoy.

The Port Canning specimens are mostly of the typical colouration "*corneo-fulva*," and measure—long. 7, diam. 5 mil.; there are also subvarieties, *bicolor* and *bibalteata*. Mons. Morelet's remarks on this species, Sér Conch. IV, p. 294, are excellent "*cette coquille peut varier de 6 à $9\frac{1}{2}$ mil., de couleur fauve ou rougeâtre*;" I will add that it varies also with regard to the infrasutural impressed lines, of which there are sometimes two, as in typical *A. rubella* and *miniata*, sometimes only one, as in *A. brevicula* and *marginata*; at Port Canning both exist together, with every possible intervening form. I am indebted to Mr. Wood-Mason for the figures now given of this small mollusk. Von Martens describes his *A. miniata* as having the head and foot of a pale red colour.

PALUDOMUS BLANFORDIANA, G. Nevill, Pl. V, Figs. 3—3 A.

J. A. S. B. 1877, p. 37, Ava, long. 19, diam. 15 and var. from Gowhatti, long. 20, diam. 15 mil.; Con. Indica, pl. 108, fig. 9, "Tongoop," as "*P. labiosa*" (not of Benson).

I think the figures now given will prevent this species ever again being confused with its undoubtedly distinct Tenasserim ally, the true *P. labiosa* of Benson. I named the species after Mr. H. F. Blanford, to whom I am much indebted for permission to make free use of his collection, which he has temporarily deposited under my charge in the Museum, a privilege I much value owing to the great care and accuracy with which the exact localities of the species have been recorded.

PALUDOMUS PETROSA, Gould, Pl. V, Fig. 5.

P. Boston Soc. 1843, Tavoy, as *Paludina petrosa*; = *Paludomus labiosa*, Benson, Ann. Mag. 1856, Tenasserim Valley, long. 13, diam. 11 mil. (not of the Con. Indica, or Conch.-Cab.).

After a careful study of Gould's original description, I have no hesitation in uniting his species to Benson's, especially as both are from the Province of Tenasserim; Benson probably overlooked it, owing to its having

been described as a species of *Paludina*. My figure is from an original, typical specimen of *P. labiosa*; evidently the form was unknown to Mr. Hanley, or it would, I feel sure, have been separated by him from the preceding species; this is the more to be regretted as Mr. Theobald, his colleague, was in possession of typical specimens of *P. labiosa*.

PALUDOMUS ANDERSONIANA, G. Nevill, Pl. V, Fig. 2.

J. A. S. B. 1877, p. 35, Ava &c., anfr. 7—long. 29, diam. 22 mil.

The type form of this fine and well marked species is not represented in M. Brot's Monograph; it was found by Dr. J. Anderson, in whose honour I have named it, in tolerable abundance in Upper Burma.

var. *MYADOUNGENSIS*, nov.

A small, decollate, and prettily marked variety, with the whorls markedly more rounded, found by Dr. Anderson at Myadoung, near the Yunnan frontier.

Long. 15, diam. 12 mil.

subspecies *PEGUENSIS*, G. Nevill.

J. A. S. B. 1877, p. 35, Pegu, long. 21, diam. 16 mil.; Con. Indica, pl. 108, fig. 6, as "*P. regulata*, Bens. var."; Brot, Conch.-Cab. II, 1877, pl. 7, figs. 2—3, as "*P. andersoniana*, Nev. var."

M. Brot has given a full account of this form in his valuable and important monograph of the genus, which, with his equally carefully and fully worked out monograph of *Melania*, I have found of the greatest assistance in cataloguing the Museum species of these difficult genera. Specimens of this variety, or rather species, are labelled from "Pegu Yoma," in Mr. H. F. Blanford's fine collection of *Paludomus*.

subvar. *NANA*, nov.

Spiral sculpture a trifle less distinct; long. 15, diam. 11 mil.; also from Pegu.

PALUDOMUS BURMANICA, G. Nevill, Pl. V, Fig. 4.

J. A. S. B. 1877, Yaylaymaw and Mandalay; Brot, Conch.-Cab. II, pl. 8, fig. 12 (spec. juven.).

It is probably a young specimen from Mandalay, which M. Brot has figured as above; Dr. Stoliczka sent a few indifferent specimens in exchange to the dealer Landauer, together with some of Blanford's *Melania iravadica*, a young specimen of which has also been figured by M. Brot.

LARINA CINCTA, G. Nevill, Pl. V, Fig. 6.

Cat. Moll. Fasc. E, 1877, Pooree, alt. $5\frac{1}{4}$, diam. $3\frac{1}{2}$ mil.

I have nothing to add to my original description of this species; with regard, however, to *Larina*, I may point out as a synonym of it the genus described under the name of '*Robinsonia*' by my brother, Hugh Nevill (Proc. Ceylon Asiat. Soc., 1869), the two typical species of which I figured in this Journal for 1871, pl. 1, figs. 5 and 6; the latter, *Larina* (= *Robinsonia*) *pusilla*, Nev., is evidently very closely allied to my *L. cincta*, but can apparently be distinguished by the less produced spire (the apical whorls especially being less prominently exerted), the larger and less deflected aperture, and the more ventricose last whorl. *Larina* (= *Robinsonia*) *ceylonica*, Nev. is exceedingly close to Blanford's figure of *L. burmana* in this Journal for 1867, pl. 13, fig. 1 and appears to be only distinguished by its more broadly transverse shape, and it is probably only a variety of it.

RISSOINA BAXTERIANA, n. sp.

Thick, solid, smooth and shining, shortly turreted, white, spire conically ovate, moderately produced, suture excavate, apex somewhat bluntly pointed; whorls $5\frac{1}{2}$, turretedly planulate, the last four distantly ribbed longitudinally, ribs nearly perpendicular, except on the last whorl, where they are subabruptly and obliquely angled at the periphery, disappearing altogether at some little distance from the base in a broad, somewhat superficial groove, which is below encircled with a rather indistinct, raised, transverse keel, throughout the ribs are bisected with transverse striæ, well developed at the points of intersection, which thus become nodulose; the aperture is perpendicular, without basal canaliculation, broader at base, with the peristome rather acute, but slightly convex and the columellar margin straight, subangulate at base; I can perceive no callosity joining the margins in the specimens I have examined.

Long. 3, diam. $1\frac{1}{2}$ mil.

Found in sand from Roweiah, Red Sea, rare, by Mr. J. B. Baxter, F. Z. S., in whose honour I have named this most distinct small form, altogether unlike any species I know; in sculpture, the *R. nodicincta* of A. Adams, from the Philippines, is the only one at all resembling it.

Type, Indian Museum; also in coll. Baxter and Weinkauff.

RISSOINA ORIENTALIS, n. sp.

Thick, smooth, polished and shining; white, sometimes encircled with a single brown band, spire conically ovate, not much produced, with the suture distinct and the apex obtusely mammillate; whorls $6\frac{1}{2}$ to 7, convex, the first three without sculpture, the other four longitudinally rather distantly and

regularly ribbed, ribs continuous (or almost so), very broad and massive, slightly flexuous, the last whorl has 11 of these ribs, continued to its base; aperture ovate, slightly oblique, without any basal canaliculation, with the margins much thickened and continuous, joined by a well marked callosity.

Long. $2\frac{3}{4}$, diam. 1 mil.

Abundant at Ceylon, also Mauritius, Andamans, Bourbon, Aden, and Roweiah.

Type, Indian Museum (from Ceylon); also in coll. Weinkauff, Dohrn, Hungerford, and Baxter.

This pretty little species is the type of my section, or subgenus, *Schwartziella*; *R. orientalis* has hitherto been confused by Herr Schwartz von Mohrenstern and other conchologists with its close ally, the *R. scalariformis*, C. B. Adams, from Panama. It can, however, be sufficiently distinguished by its less elongate form, of one whorl less, and especially by the mammillate instead of "acute" apex, the aperture is less oblique, the ribs bluntly broad, instead of "acute," &c.

After a long examination under a lens, I am unable to detect any signs of transverse striation in my Ceylon specimens, though they are in fresh and perfect condition.

RISSOINA BLANFORDIANA, n. sp. Pl. VI, Fig. 16.

Lanceolately produced, in shape resembling *R. deshayesi*, Schwartz, but the more convex whorls give it a less turreted appearance; white, rather solid, spire conically elongate, very acute, apex not mammillate, suture rather indistinct, especially on the upper whorls; whorls 10 to 11, convexly turreted, longitudinally ribbed with rather distant, acutely raised, almost straight ribs, which are evenly decussated with a transverse, rather distant striation, the striæ of approximately the same developement as the ribs, but slightly subnodulose at the points of intersection, the last whorl is short and convex much as in *R. deshayesi*, but with only 13—14 ribs instead of "22—24," there are 6 of the regular, well developed transverse striæ and two others much finer and more crowded together next the suture, the basal transverse rib is evenly granulose, moderately developed; aperture rather large, with the peristome boldly rounded, somewhat dilated towards the base, the columellar emargination is broad, but shallow and very unlike the markedly incised one of its ally, compared by Herr Schwartz to that of a *Cerithium*; the outer lip is only moderately thickened.

Long. $9\frac{3}{4}$, diam. $3\frac{3}{4}$ mil.

Annesley Bay, Red Sea; rare.

Type, Indian Museum.

RISSOINA WEINKAUFFIANA, n. sp.

Lanceolately and turretedly produced, of a brownish white colour, spire acuminate, with the apex minutely mammillate, composed of $2\frac{1}{2}$ nucleolar whorls, which are perfectly smooth and of a milky white colour; whorls $9\frac{1}{2}$ (except the first $2\frac{1}{2}$) longitudinally, evenly ribbed, ribs close-set, slightly flexuous, a little more numerous and less developed on the last whorl, which under the lens shows two spiral, subobsolete striæ, the upper one of which starts from the top of the peristome, otherwise there is no spiral sculpture, no groove at base but girt with a very thick callous rib, apparently smooth, but under a powerful lens very minutely striate with a slight "beading" at the top; aperture polished, shining, thickened, broadly emarginate at columellar base, peristome evenly rounded, with a thick callosity behind it.

Long. $6\frac{3}{4}$, diam. $2\frac{1}{2}$ mil.

I only know of one closely allied species, a smaller form, *R. funiculata*, Sowerby, 1865, from New Caledonia, this species is also found at the Andamans; I have named this well marked form in honour of Dr. H. C. Weinkauff of Kreuznach, who is now editing a Monograph of the genus for the new edition of the Conchylien-Cabinet; I found the species alive under stones at Port Blair, at extreme low water; it was tolerably abundant.

RISSOINA NEVILLIANA, Weinkauff.

Conch.-Cab. II, 1881, Kowloon.

Shell large, very thick and solid, lanceolately produced; apical whorls wanting, $7\frac{1}{2}$ remaining, regularly pyramidally turreted, the last one relatively very little larger or more tumid than the penultimate, the upper three whorls regularly, and evenly longitudinally ribbed, ribs thick, close-set, slightly flexuous, the last four whorls with similar, but thicker, less flexuous and more unequal ribs, each of the last two having also, in a line with the outer lip, two of these ribs united forming very broad and thickened varices, the last whorl but two has a similar but less prominent one, out of the line of the others and quite at the back of the shell, the whorl above it again has a similar but more developed vaxex in front, almost in a line with the columella; throughout, under the lens, regularly and very finely transversely striated, at the base of the last whorl the ribs become obsolete and the transverse striæ incised and well developed sulcations, on the upper portion of the same whorl the longitudinal ribs are distinctly and characteristically, though somewhat obsoletely, biangulate; aperture shallow and small, not everted, within polished and shining, with two or three denticulations, not canaliculate; columellar margin nearly upright, slightly twisted, a trifle bent back and rounded at base, outer lip

thickened, smooth and evenly rounded, margins joined with a well developed callosity, the peristome behind is much thickened and forms a similar vaxex to those already described.

Long. $13\frac{1}{2}$, diam. $4\frac{1}{2}$ mil. (wanting the apical whorls).

Kowloon, opposite Hongkong.

As will be seen from the above, this fine species, for which I am indebted to Surgeon-Major R. Hungerford, belongs to the typical section of *Rissoina*, that is there is no canaliculation at base of the aperture.

The *R. villica* of Gould, as figured by Sowerby, appears to be its nearest ally. *R. pyramidalis* is also of a somewhat similar type.

RISSOINA SUBLAEVIGATA, n. sp.

Shell rather stout, smooth, shining, pellucid; spire relatively rather short, apex very remarkable, mammillate, strongly inclined to the left, as in the family *Pyramellidæ*; an opaque, rather broad, not incised band, relatively unusually remote from the suture, so much so that it is almost exactly central in the penultimate whorl; six whorls, much more convexly swollen than in the preceding; aperture unusually straight, that is not everted, peristome thickened, columella callously reflected, considerably more perpendicular than in Schwartz's fig. 79 *R. laevigata*, which otherwise, except for the characters of the apex and opaque submarginate band, well represents the species.

Long. $3\frac{1}{3}$, diam. $1\frac{1}{2}$ mil.

Andamans; coll. G. Nevill, Esq.

Under coral blocks, at low-water, Ross Island; Herr Schwartz considered this form a variety of *R. laevigata*, C. B. Adams, from Jamaica. The species probably has a wide range, it will very likely prove to be the shell mentioned by Herr Schwartz, page 111, as *R. laevigata*, from Steward's Island (E. of Solomon Islands).

RISSOINA PSEUDOBRYEREA, n. sp.

? Schwartz, *Mon. Rissoina*, pl. 5, fig. 36 A., Mauritius, as *R. bryerea*, var. (not fig. 36, *R. bryerea*, Mtg., West Indies).

Turreted, very thick and solid, white; spire conical, abruptly pointed, suture excavate, apex rather obtuse; whorls 6, turretly planulate, the last four evenly ribbed longitudinally, the ribs very massive and broad, rather distant, quite perpendicular, terminating some little distance from the base (not the case in *R. bryerea*), finely and rather closely decussated with a transverse striation, especially noticeable in the interstices, towards the base where the longitudinal ribs cease, there are three (or four?) well developed transverse ribs, but slightly (if at all) subnodulose, the last whorl is proportionately long, more so than in the above quoted figure, it has 11 ribs (18 to 22 in *R. bryerea*, fide Schw.); aperture small, subqua-

drate, no basal emargination, outer lip very much thickened, not dilated, evenly rounded at base.

Long. $5\frac{1}{2}$, diam. 2 mil.

Rare, in sand from Roweiah, Red Sea.

Type, Indian Museum.

This species discovered by my friend Mr. J. B. Baxter, is an interesting addition to the group II, section B. of Schwartz, which I now propose to distinguish by the name of *Schwartziella*, at once recognizable by the absence of any basal emargination within the aperture. The differences from true *R. bryerea*, as can be seen from the above, are too many and too marked to require special, further reference; but it becomes a question whether Schwartz's above quoted fig. A represents or not the present species? I am inclined to believe from the acute peristome &c., that it represents a not adult specimen, readily distinguished by the different shape, transverse striation, less numerous ribs &c. from *R. bryerea*. The most important difference in it from the Roweiah form is the absence of the basal three transverse ribs and corresponding abrupt termination of the longitudinal ribs; these latter are also thicker, straighter &c., the peristome much broader and aperture smaller.

AMPHITHALMUS PELLYÆ, n. sp.

Of almost microscopic size, imperforate, solid, smooth, polished and shining, of a rich chesnut-brown colour, ovately oblong; spire shortly and ventricosely conical, suture distinct, apex exceedingly obtuse; whorls $3\frac{1}{2}$, very convex, last whorl produced, regularly ovate, about $\frac{2}{3}$ the size of the whole shell, brought forward at the aperture in a highly characteristic manner, exactly as in the genus *Stenothyra*; aperture almost circular, with continuous and much thickened margins, stained of a very dark mahogany colour within the aperture, behind the peristome there is a "rib-like" thickening, showing through externally in an opaque manner.

Long. $1\frac{1}{8}$, diam. $\frac{1}{2}$ mil.

In sand, from near Adelaide, South Australia.

Type, Indian Museum.

This very interesting minute form, of a little known genus, I have named after its discoverer, Miss Pelly, to whom I am indebted for the type specimen. The other shells found with it were all of a purely marine type, there being no brackish-water forms amongst them. *Barleeia* (?) *microthyra*, Martens, Möbius Reise &c., Pl. XX, fig. 18, from Mauritius is another and most closely allied species of *Amphithalmus*; *A. pellyæ* is readily distinguished by the fewer whorls, more obtuse apex, more convex whorls, the last especially being much more regularly, ovately produced and much longer in proportion, its *Stenothyra*-like deflection in front of the aperture,

so accurately pointed out by Professor von Martens, is still more prominent in the Australian species. Another close ally is the *Amphithalmus pupoides*, H. Adams, P. Z. S., 1865, from Lord Hood's Island, my late much regretted friend in his description also remarks on the resemblance to *Stenothyra*. Our Museum possesses specimens of this last, also of *A. obesus*, H. Adams, *l. c.*, and of the type species, *A. inclusus*, described by Carpenter in the *Annals and Mag.* XV, 1865, from California.

EXPLANATION OF THE PLATES.

PLATE V.

- Fig. 1. *Margarya melanioides*, Nev., p. 155.
- Fig. 2. *Paludomus andersoniana*, Nev., p. 160.
- Fig. 3. *Paludomus blanfordiana*, Nev., p. 159.
- Fig. 4. *Paludomus burmanica*, Nev., p. 160.
- Fig. 5. *Paludomus petrosa*, Gld., p. 159.
- Fig. 6. *Larina cineta*, Nev., p. 161.
- Fig. 7. *Plecotrema rapax*, Dohrn, var. *producta*, Nev., p. 155.
- Fig. 8. *Limnæa yunnanensis*, Nev., p. 142.
- Fig. 9. *Limnæa andersoniana*, Nev., p. 142.
- Fig. 10. *Succinea yarkandensis*, Nev., p. 144.
- Fig. 11. *Stenogyra* [*Glessula*] *oreas*, Bens., p. 135.
- Fig. 12. *Stenogyra* [*Glessula*] *blanfordiana*, Nev., p. 138.
- Fig. 13. *Stenogyra* [*Glessula*] *subfusiformis*, W. T. Blf., p. 138.
- Fig. 14. *Stenogyra* [*Glessula*] *jerdoni*, Bens., p. 136.
- Fig. 15. *Stenogyra* [*Glessula*] *nilagirica*, Bens., p. 136.
- Fig. 16a et b. *Stenogyra* [*Glessula*] *bensoniana*, Pfr., p. 137.
- Fig. 17a et b. *Stenogyra* [*Glessula*] *perotteti*, Pfr., p. 137.
- Fig. 18a et b. *Stenogyra* [*Glessula*] *facula*, Bens., p. 137.
- Fig. 19. *Stenogyra* [*Glessula*] *orophila*, Bens., p. 137.
- Fig. 20. *Stenogyra* [*Glessula*] *amentum*, Bens., p. 138.
- Fig. 21. *Helix* [*Ægista*] *perplanata*, Nev., p. 133.
- Fig. 22. *Trochomorpha percompressa*, W. T. Blf., p. 133.
- Fig. 23. *Helicarion* [*Austenia*] *magnificus*, G.-A. & Nev., p. 129.
- Fig. 24. *Helicarion* [*Austenia*] *resplendens*, Nev., p. 129.

PLATE VI.

- Fig. 1. *Gibbus dupontianus*, Nev., p. 130.
 - Fig. 2. *Buliminus* [*Cerastus*] *jickelianus*, Nev., p. 135.
 - Fig. 3. *Cyclophorus pealianus*, n. sp., p. 146.
- The apical $2\frac{1}{2}$ whorls are incorrectly represented in the figure.
- Fig. 4. *Cyclophorus orites*, n. sp., p. 147.
- The left-hand figure is by no means good; the last whorl is not contorted.

Fig. 5. *Alycaeus montanus*, n. sp., p. 149.

The minute sculpture is not sufficiently indicated !

Fig. 6. *Pupina hungerfordiana*, Nev., p. 148.

Fig. 7. *Cyathopoma shevaroyanum*, Bedd., p. 145.

The spiral striation is incorrectly represented on the two upper figures !

Fig. 8. *Omphalotropis dupontiana*, Nev., p. 153.

Fig. 9. *Omphalotropis caldwelliana*, n. sp., p. 154.

The spire should be more evenly planulate, the whorls are not turreted. The columella is also not reflected over the umbilicus, as in the figure.

Fig. 10. *Cyclostoma caldwellianum*, Nev., p. 150.

Fig. 10a. " " var. *sexcarinata*, Nev., p. 152.

Fig. 11, 11a. *Ampullaria stoliczkana*, Nev., p. 155.

Fig. 12. *Bythinea subpulchella*, n. sp., p. 157.

Fig. 13. *Bythinea evezardi*, W. T. Blf., p. 157.

Fig. 14. *Bythinea moreletiana*, Nev., p. 156.

The magnified figure and that of the natural size are from different specimens.

Fig. 15. *Bythinea (?) turrita*, W. T. Blf., p. 157.

The figure denoting the natural size has been overlooked by the lithographer.

Fig. 16. *Rissoina blanfordiana*, n. sp., p. 162.

Fig. 17. *Melania variabilis*, Bens., var. *pseudospinosa*, Nev.

From Samaguting in Assam.

PLATE VII.

Fig. 1. *Assimineia woodmasoniana*, Nev., p. 158.

Fig. 2. ——— *hungerfordiana*, Nev., p. 158.

Fig. 3. ——— *beddomeana*, Nev., p. 158.

Fig. 4. ——— *theobaldiana*, Nev., p. 158.

Fig. 5. ——— *microsculpta*, Nev., p. 158.

Fig. 6, 6a. ——— *brevicula*, Pfr., p. 159.

Fig. 7. *Hydrobia (Belgrandia) miliacea*, Nev., p. 158.

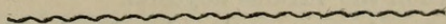
Fig. 8. *Stenothyra woodmasoniana*, Nev., p. 156.

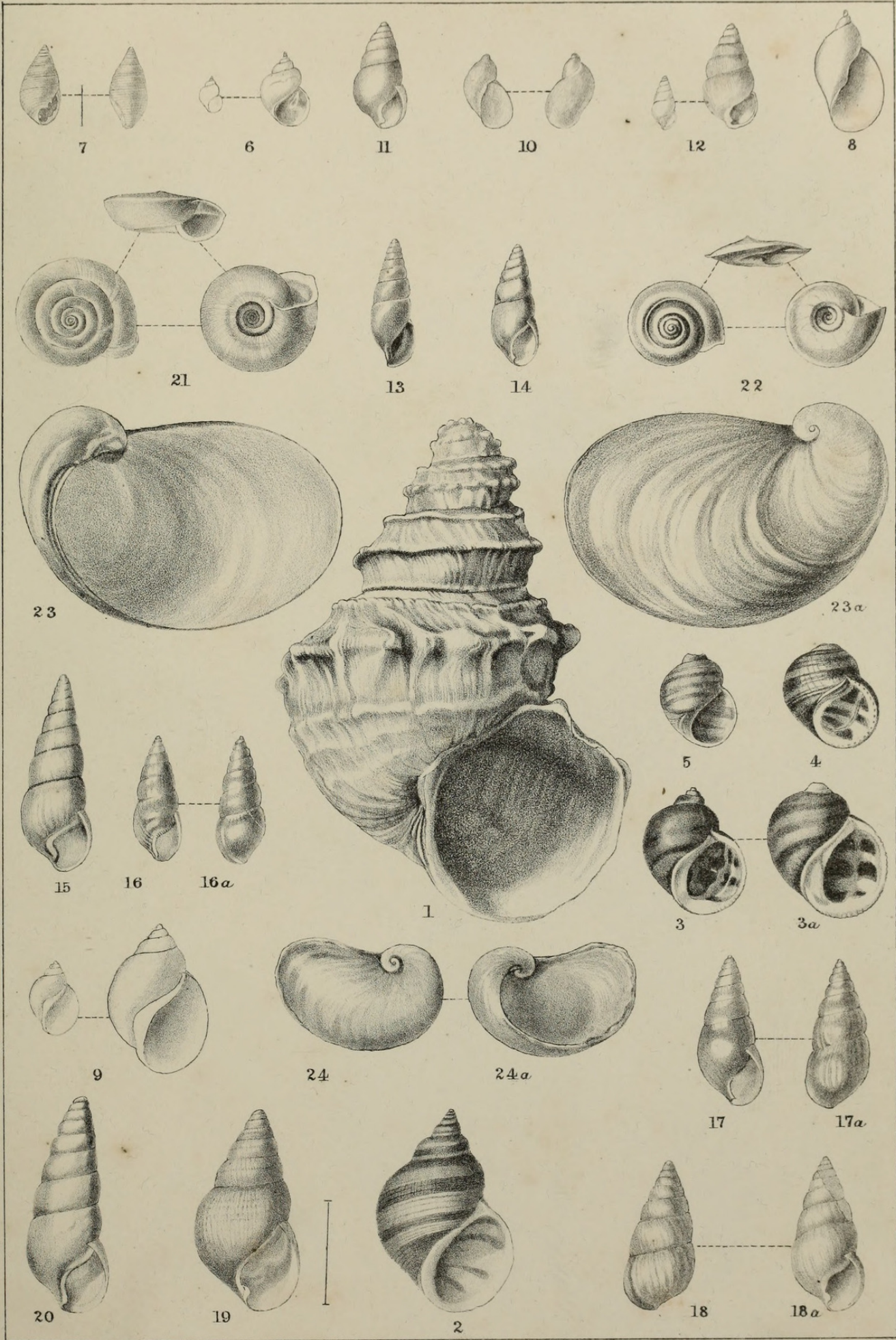
Fig. 9. ——— *hungerfordiana*, Nev., p. 156.

Fig. 10. ——— *blanfordiana*, Nev., p. 156.

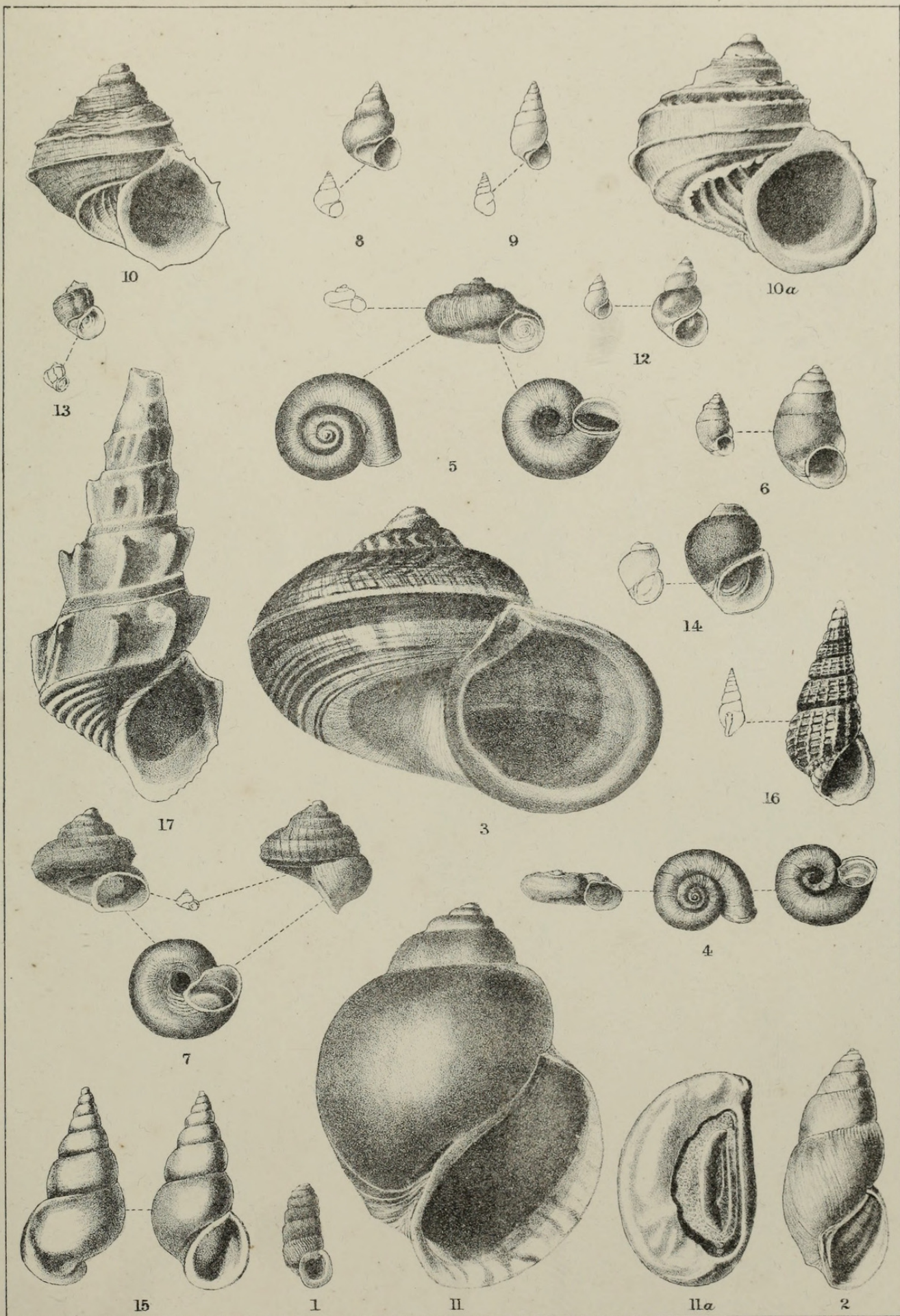
Fig. 11. *Acmella hungerfordiana*, n. sp., p. 145.

Fig. 12. *Omphalotropis rubens*, Quoy, p. 154.

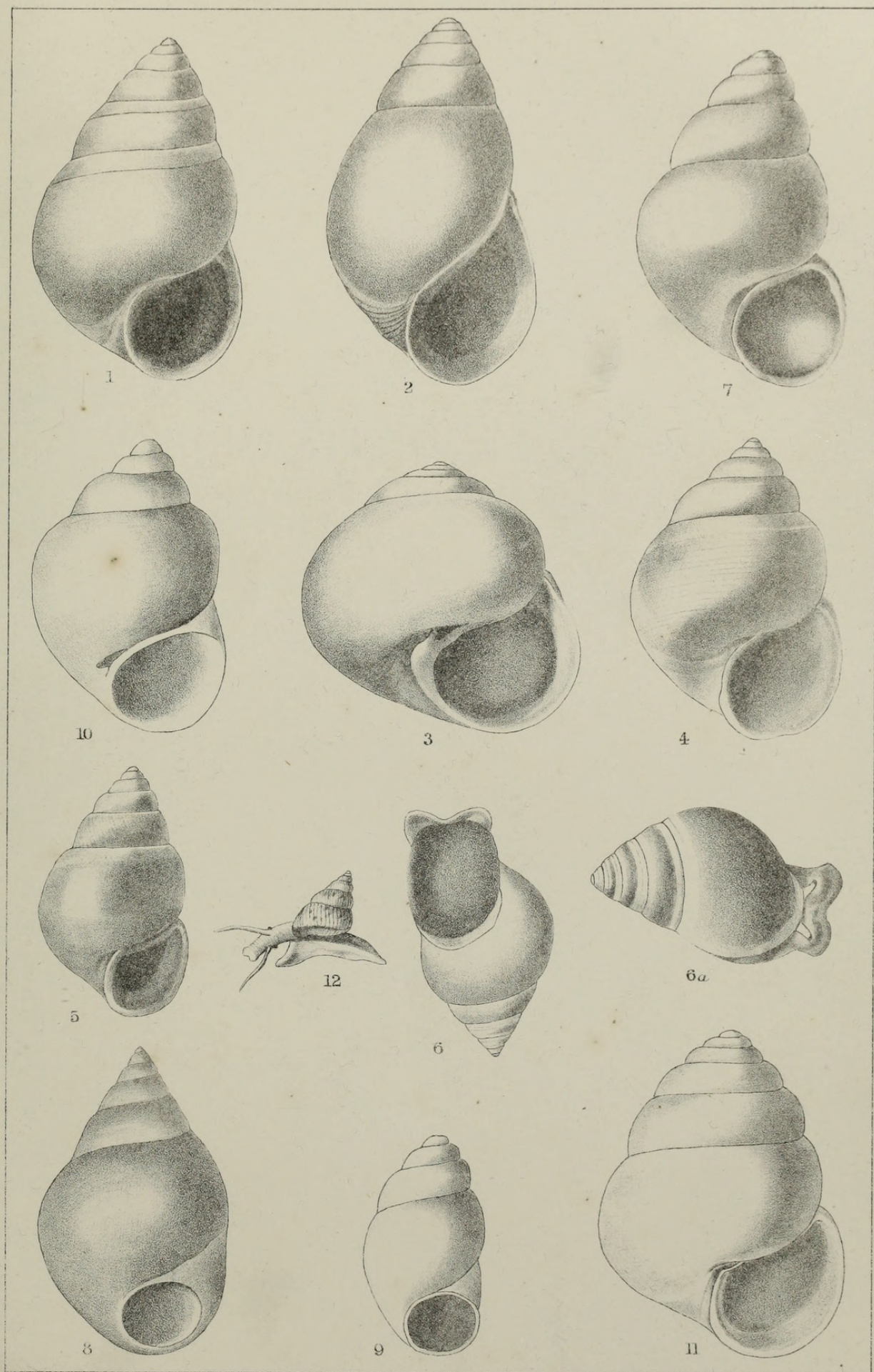




Jules Schaumburg, Lith.



Jules Schaumburg, Lith.





Nevill, Geoffrey. 1881. "XI.—New or little-known Mollusea of the Indo-Malayan Fauna." *The journal of the Asiatic Society of Bengal* 50(III), 125–167.

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