THE

JOURNAL OF MALACOLOGY

Established in 1890 by WALTER E. COLLINGE, *as* "THE CONCHOLOGIST, *a Journal of Malacology.*"

EDITED BY

WILFRED MARK WEBB, F.L.S.,

Biological Laboratory, County of Essex.

With the assistance in special departments of :—

The Rev. A. H. Cooke, M.A., F.Z.S., King's College, Cambridge.

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B. B. Woodward, F.L.S., F.G.S., British Museum (Natural History), London.

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THE

JOURNAL OF MALACOLOGY.

No. 1. APRIL, 1897. VOL. VI.

ON THE ANATOMY OF BULIMUS SINISTRORSUS, DESHAYES.

BY WILLIAM MOSS and WILFRED MARK WEBB, F.L.S.

(*PLATE I.*)

In an article "On the generic position of *Bulimus galericulum*, Mouss.," contributed to the "Nautilus" for February last, Mr. Pilsbry points out that this species is the type of the section *Pseudopartula* of Pfeiffer, and he includes in the same section *Ariophanta dohertyi*, Ald., and *Helix nasuta*, Metc., leaving out "the New Caledonian species grouping around *B. sinistrorsus*, Desh.," placed in this position by Pfeiffer, and suggesting Montrouzier's name of *Draparnaudia* for them.

This grouping is based upon purely conchological characters, as Mr. Pilsbry is in doubt as to the systematic position of *Pseudopartula*, and says that "in the absence of information upon the soft anatomy, the group might be placed either next to *Papuina* in Helicidae, or in the Bulimulidae, or the Zonitidae."

As a contribution to the knowledge of the anatomy of one of the species originally included in *Pseudopartula*, the following brief notes on *B. sinistrorsus*, with the accompanying figures, are given as simple facts, no attempt being made by the writers to fix the place in classification, of either species or group.

The material for the present work, in the shape of several spirit specimens of *Bulimus sinistrorsus* was received by one of the writers (Mr. Moss) some years ago, through the kindness of Mr. and Mrs. Hadfield, who had collected the snails in Lifu, New Caledonia.

The remarks on the various organs made out, will be found under the heading of "Explanation of Plate I" on the following page.

Explanation of Plate I.

Bulimus sinistrorsus, Deshayes, Lifu, New Caledonia.

Figure 1. The shell, three times the natural size.

Figure 2. The genitalia. In three specimens in which the spermatheca was dissected out, the shape of it was, as is shewn in this figure. Only the parts which remained unbroken have been sketched, but a fair-sized albumen gland is present, and the spermathecal sac is embedded in it, at the point of its attachment to the oviduct.

Figure 2a. A variation in the spermathecal duct, observed in one specimen.

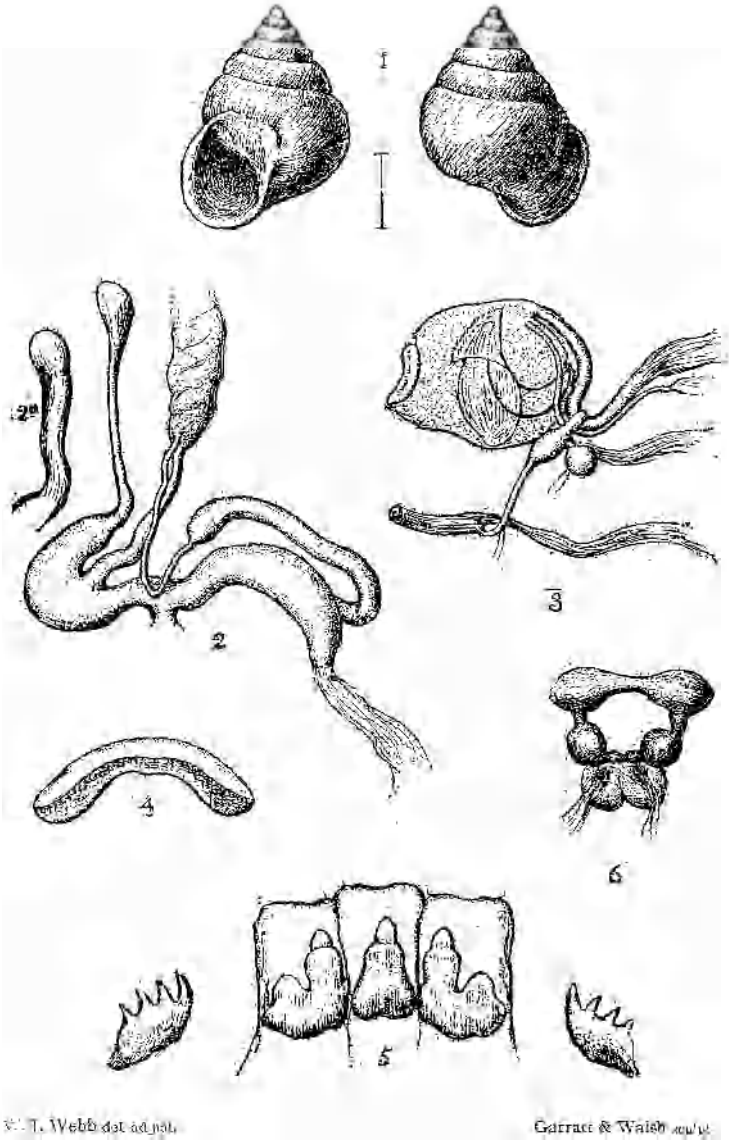
Figure 3. The buccal mass (and its retractor muscle) slightly flattened, with the odontophore and radula shewn semi-diagrammatically through the wall. The œsophagus. Left salivary duct. The nerve collar (the cerebral and pedal ganglia of one side alone shew) and optic nerve supplying the left ommatophore. It may be pointed out that in *Bulimus sinistrorsus* the buccal mass cannot, apparently, be retracted through the nerve-collar.

Figure 4. The jaw. A long transparent projection runs backwards and upwards.

Figure 5. A median, the two adjacent and two marginal "teeth" from the radula.

Figure 6. The nerve collar, semi-diagrammatic. Only the nerves to the otocysts are shewn.

N.B.—*All the figures are enlarged.*



W. T. Webb del. ad nat. Garrard & Walsh sculp.

Bulimus sinistrorsus, Deshayes.

A FEW NOTES ON SLUGS.

By Professor D. T. A. COCKERELL, F.Z.S.

The following notes refer chiefly to a few matters which deserve further elucidation, but the writer is not now in a position to follow up the various lines of enquiry suggested by them.

AGRIOLIMAX.

(1.) **A. laevis (sens. lat.) in Bermuda.** The "Challenger" expedition obtained a young *Agriolimax laevis* at Bermuda; it is in the British Museum, in the same bottle as some *Amalia gagates* from the same island. It is $13\frac{3}{8}$ mm. long; sole narrow, diam. $1\frac{1}{2}$ mm.; colour brownish-ochrey, slightly greyish dorsally, sole ochrey, unicolorous; mantle greyish with black marbling, except the margins and near them, which are pale ochre; neck grey above. Tail hardly keeled; mantle not visibly concentrically striate; respiratory orifice not *very* far behind the middle; median area of sole a little wider than either lateral area; longitudinal line of edge of sole about median between upper and lower margins of sole-edge. In general appearance, the slug recalls *A. berendti* var. *pictus*.

(2.) **A. laevis (sens. lat.) in Jamaica.** I found this common at Moneague, in Jan., 1892; alive it was 16 mm. long, mantle 7 mm., all dark brown, slightly pale near mantle anteriorly, no obvious mottling; mantle with concentric lines; sole all pale grey, unicolorous. Mr. Fawcett sent me the same species from Cinchona; the specimens were 10 mm. long, grey-brown, not very dark, sole pale, unicolorous. Body above and mantle, minutely speckled with blackish; slime colourless. In alcohol they appear pale, and some are almost reticulate on the body. The shell is $2\frac{1}{4}$ mm. long, $1\frac{1}{2}$ broad, oval, but with the sides straight; nucleus on posterior edge, slightly to the left, concentric grooves visible but not strong, no sign of any ridge such as is in *berendti*, colour opaque white. Later,

Mr. Wm. Cradwick sent me many alive; they looked like *campestris*; in alcohol, all showed more or less mottling. Jaw bright-coloured, with a strong median projection.

It is possible that this slug is native in Jamaica, and that the Jamaica and Bermuda specimens may all represent a distinct West Indian race.

(3.) **A parasite of A. laevis (s. lat.).** In a specimen collected in 1889 by Mr. H. F. Wickham at Quincy, California, apparently referable to the form *hyperboreous*, Westerl., I found a small parasitic worm, believed to belong to the genus *Leptodera*.

(4.) **A. berendti var., pictus.** This was figured by Mr. Binney from a specimen collected by Hemphill on the bank of the San Tomas River, Lower California. Length (in alcohol) about 10 mm., body paler than in var. *hemphilli*, inclined to be reticulate, mantle with black spots and blotches; shell squarish at ends, obscurely keeled as in *berendti*, growth-lines obscure. Penis-sac apparently as in *campestris*.

(5.) **A. campestris in New Mexico.** Last year I found this slug on the Mescalero Indian Reservation, in the Sacramento Mts., just above the agency. This is the third locality recorded in New Mexico.

LIMAX.

(6.) **L. maximus in Madeira.** The British Museum contains seven specimens from Madeira, two var. *cellarius* from Baron C. de Paiva, two var. *johnstoni* and two var. *moquini* from Mr. Mason, and one var. *cellarius* collected by Mr. L. M. Cockerell. There is also a *cellarius* from Lowe.

(7.) **L. cinereoniger, variety.** A specimen collected by Mr. F. G. Fenn in August, 1890, at Echternach, Luxembourg (along with *Arion ater* var. *lamarckii* and *A. subfuscus* var. *rufofuscus*) agrees almost exactly with var. *stabilei*, Less., differing only in having the sides mottled with grey, instead of black, and the lateral areas of the sole grey instead of brownish; keel pale for about ⅓ of the back. The var. *niger*, D. and M., is almost identical.

VERONICELLA.

(8.) **Veronicella from Dominica.** Length (in alch.) 17½ mm., breath 7½, sole breath 3 mm.; female orifice, 10 mm. from head, its inner edge almost overlapped by sole. The end of sole rounded, not projecting beyond body. Posterior orifice large, crescentic. Jaw dark, with about 20 ribs. Sole finely transversely striate, mantle punctate. Colour sub-olivaceous black, head and sole brown; a few light spots indicate the place of the dorsal line. Very similar to *V. langsdorfi*, but I expect it will prove to be a new species. The specimen described is in the British Museum.

(9.) **Veronicella from Trinidad.** Length about 27 mm., above, dark blackish-grey, faintly mottled with lighter colour, the mottling hardly visible without a lens; beneath, unicolorous, orchreous. Filiform glands short, and less than ten, so it can hardly be *V. caerulescens*. Female orifice moderately distant from sole. Caparo, Trinidad (Mr. Urich). I think that it is very likely a new species.

AMALIA.

(10.) **A. gagates subsp. mediterranea.** Several specimens in the British Museum, collected by Dr. Anderson, at Hammam Meskoutina, Algeria, must apparently be referred to this sub species. They are not adult, but are very black; soles with the lateral areas pale, concolorous with the median area. The last character differs from strictly typical *mediterranea*.

Mesilla, New Mexico, U.S.A.,
Feb. 6th, 1897.

ON THE SPECIFIC NAME OF HELICELLA ERICETORUM, MÜLLER.

By A. SANTER KENNARD.

It has been the custom of late with certain Malacologists, to adopt the name of "*itala* Linné" for the shell which is generally known as *Helicella ericetorum*, Müll. The authority given for this change, is the late Dr. Hanley, who, in his "Ipsa Linnaei Conchylia," adopted this course. It is there stated, pp. 371-2, as follows:—

"*Helix itala*, Linné. Having satisfied myself by the process of analysis so often alluded to, that no shell in the Linnean cabinet except the *Helix ericetorum* of authors (Chemnitz. Conch. Cab., Vol. ix., pl. 132, fig. 1192-1193), accurately coincided with the diagnosis of this species, I was agreeably surprised by discerning the significant numerals, fully and distinctly inscribed upon one of the specimens, for very rarely is any writing to be found on the smaller shells of the collection. Da Costa and Montagu had surmised the identity of that common British snail with the *itala* of Linnaeus." Of course, if Dr. Hanley's statement be correct, there is an end to the matter, and *itala* would stand.

In February last, through the kindness of Mr. J. E. Harting, F.L.S., I was enabled to examine Linné's specimens, and as a consequence of that examination, I am forced to disagree with Mr. Hanley as to the figures coinciding. If the shell is *H. itala*, the numbers should be 683, whereas they are 593. It is true they are rather indistinct, but with the aid of a lens they are easily deciphered, and I may add that Professor Herdman, Mr. R. Bullen Newton, Mr. W. M. Webb, and Mr. B. B. Woodward, who were present at the time, all agreed that the figures are 593. Of course, it is quite possible that the two species are identical, yet, as there is such a strong element of doubt in the matter, it is better to retain the name of *ericetorum*, Müll.

SOME OBSERVATIONS ON CERTAIN SPECIES OF ARION.

By WALTER E. COLLINGE, F.Z.S.

(Assistant-Lecturer and Demonstrator in Zoology and Comparative Anatomy, Mason College, Birmingham.)

(*PLATE II.*)

I have recently received a large series of living examples of *A. ater*, L., *A. rufus*, L., *A. empiricorum*, Fér., and *A. lusitanicus*, Mabille, and knowing the very divided opinion that exists amongst malacologists as to the specific validity of these four forms, I have submitted them to a very careful examination, with the following results :—

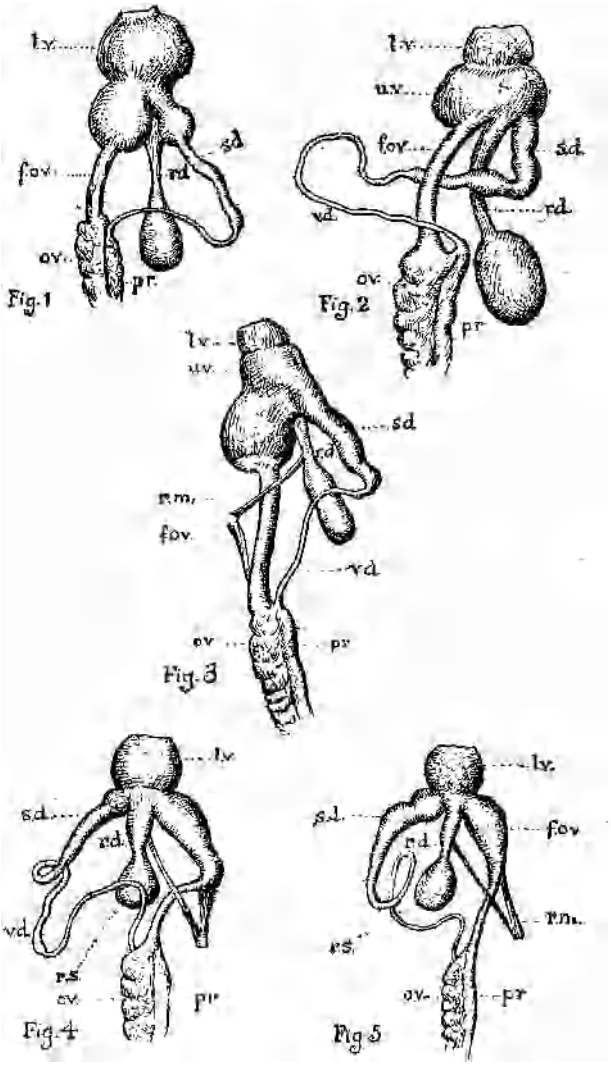
1. Arion ater, Linné, 1746. (Pl. II., Fig. 1.)

Externally this species is very like *A. empiricorum*, Fér., the differences being very minute and unimportant. All the specimens I have seen, however, have been much larger than *A. empiricorum*; thus in twenty adult specimens, the length was as detailed below, the maximum being 125 millim., whereas of forty adult specimens of *A. empiricorum*, the maximum length was 118 millim.

Arion ater.		*Arion empiricorum.*	
5 Specimens ..	110-115 millim.	15 Specimens ..	80- 90 millim.
8 ,, ..	120 ,,	12 ,, ..	90-100 ,,
7 ,, ..	125 ,,	10 ,, ..	115 ,,
		5 ,, ..	118 ,,

All the specimens were measured while alive. The internal differences in the form of the terminal portions of the generative organs are much more distinct. There is only a single vestibule the lower one. The sperm-duct opens at the junction of the vestibule with the lower terminal swelling of the free-oviduct.

[To face page 10.



Hinge del. ad. nat. Garrett & Walsh sculp.

Certain species of *Avion*.

Its lower portion is characterised by a swelling which dilates into a globose sac (Pl. II., Fig. 1, *f.ov.*), and then is continued as a tube much narrower than in either *A. rufus*, L., or *A. empiricorum*, Fér. The vas deferens is sharply marked off from the sperm-duct, and is much shorter than in either of the two above-mentioned species. The free-oviduct is a very short, wide tube, little more than half the length of that organ in *A. rufus* or *A. empiricorum*, and is characterised by a large terminal swelling (Pl. II, Fig. 1). The receptaculum seminis is pyriform in shape, its duct is short, and widens out at its juncture with the vestibule. The retractor muscle is attached to the duct immediately below the expanded head, and joins that attached to the upper portion of the free-oviduct.

2. **Arion rufus**, Linné, 1758. (Pl. II, Fig. 2.)

There are two very distinct vestibules, the upper one being the larger. The sperm-duct shows a series of constrictions and usually* bends in the form of the letter L reversed, passing gradually into the vas deferens, a long, thin tube (Pl. II., Fig. 2). Sometimes, however, the sperm-duct and vas deferens are sharply marked off from each other. The free-oviduct is a moderately long tube of equal breadth throughout. The receptaculum seminis is large and ovoid in form, its duct is much longer than in *A. ater*, and about twice the length of that in *A. empiricorum* or *A. lusitanicus*. The retractor muscles are very similar to those in *A. ater*.

3. **Arion empiricorum**, Fér., 1819. (Pl. II., Fig. 3).

This is what is termed *A. ater* by British authors. There are two vestibules, the lower one being very short and the upper one large and wide, considerably larger than in *A. ater*. The sperm-duct is a large, wide tube; it exhibits no constrictions, and makes a sharp turn at the point where the vas deferens commences (Pl. II., Fig. 3). The free oviduct is a long, wide tube with its terminal portion expanded and forming part of the upper vestibule; unlike *A. ater*, it is not sharply constricted from the lower vestibule. The receptaculum seminis consists of a short, elongated sac and a very short duct (Pl. II., Fig. 3, *r.d.*). The duct is not more than half the length of that found in *A. ater* or *A. rufus*, but more nearly approaches the condition which

* In all the specimens I have examined this feature has been present.

obtains in *A. lusitanicus*, only the head is not so globose. The retractor muscle is attached to the duct just where it commences to expand to form the head. That attached to the free-oviduct is some little distance above this point, so that the muscles run in opposite directions, as shown in the figure (Pl. II., Fig. 3, *r.m.*).

Notwithstanding the minute differences in the form of the reproductive organs, pointed out by Pollonera,† I am inclined to agree, with Simroth, that the *A. sulcatus*, Morelet, is identical with *A. empiricorum*. The *A. hibernus*, Mabille, is also nothing more than a variety of *A. empiricorum*, differing from the typical form in its smaller size, more feeble rugae, and by the lighter colour of the foot-sole.

4. Arion lusitanicus, Mabille, 1868. (Pl. II., Fig. 4.)

Not a few malacologists have mistaken this species for *A. rufus*, *ater*, or *empiricorum*. Externally it is not unlike the last-mentioned species. Simroth‡, who has described and figured a series of young forms, mentions that the foot-sole is without the yellow slime and has an orange-coloured edge. Some young forms look not unlike *A. subfuscus*, Drap. The *A. dasilvae*, Pollonera, is regarded by Simroth as a variety of this species; at present, however, I prefer to keep it distinct. The *A. nobrei*, Poll., is, in my opinion, synonymous with *A. lusitanicus*. The only points of difference I find in the generative organs are that there is no sharp distinction between the sperm-duct and vas deferens, which are slightly shorter than in *A. lusitanicus*, the free-oviduct is more tapering and does not show the sharp bend so characteristic of *A. lusitanicus*. The retractor muscle of the receptaculum seminis is also shorter (Pl. II., Fig. 5). In *A. lusitanicus* the generative orifice leads into a large vestibule. The sperm-duct is long and tapering and sharply differentiated from the long vas deferens. The receptacular duct commences as a dilated tube, then narrows and expands terminally to form the receptaculum seminis, not unlike the condition which obtains in *A. ater*.§ To the receptacular duct a retractor muscle is attached, which blends with that attached to the lower portion of the free-oviduct. The free-oviduct is a short tube slightly bent upon itself, the lower portion being

† Bull. Mus. Zool. Torino, 1890, vol. v., no. 87.

‡ Nova Acta K.L.-C. Deutsch. Akad. Nat., Bd. lvi., Taf. 4.

§ *A. empiricorum*, Fér., as I, by an oversight, stated in a previous paper (Conchologist, 1893, vol. ii., pp. 172–173).

globose, the upper a short, narrow tube. The lower portion opens into the vestibule as a broad tube, thus differing very markedly from the condition seen in *A. empiricorum*. Simroth[1] has figured and described the spermatophore, which also differs from that found in *A. empiricorum*.

From the above remarks, I think it will be seen that there is reliable evidence of important and constant internal differences between these four species.

[1] Nova Acta K.L.-C. Deutsch. Akad. Nat., Bd. lvi., Taf. 6, Fig. 2.

EXPLANATION OF PLATE II.

Fig. 1. The terminal ducts of the generative organs of *Arion ater*, L.
Fig. 2. The same of *A. rufus*, L.
Fig. 3. ,, ,, *A. empiricorum*, Fér.
Fig. 4. ,, ,, *A. lusitanicus*, Mab.
Fig. 5. ,, ,, *A. nobrei*, Poll.

LETTERING.

f.ov. Free-oviduct.
l.v. Lower vestibule.
ov. Oviduct.
pr. Prostate.
r.d. Receptacular duct.
r.m. Retractor muscles.
r.s. Receptaculum seminis.
s.d. Sperm-duct.
u.v. Upper vestibule.
v.d. Vas deferens.

BOOKS RECEIVED.*

A Monograph of the Land and Freshwater Mollusca of the British Isles. Part IV. By J. W. Taylor, F.L.S. Taylor Bros., Leeds, pp. 193-256. Figs. 378-513

The first fifteen pages of the present part complete the detailed "Morphology of the External Organs" alluded to in our last review, by finishing an account of modifications of the foot and pedal glands, and by giving an exhaustive description of the mantle and body region, including a brief but clear explanation of visceral torsion.

"Fig. 385." *Sphaerium rivicola* (Leach) shewing the subreptatory burrowing or crawling foot.

The remainder of the part deals with the "Internal Organization" in a similar way, but does not complete it as was expected.† The nervous system is first described in great detail. We give two illustrations which (with others) have been kindly lent by the author (Figs. 424 and 425), that shew types of nerve collar which respectively do, and do not allow the passage of the buccal mass through them.

"Fig. 424." Semi-schematic view of the proterma of *Limax*, shewing the arrangement of the ganglia, nerves and other organs and their relation to the protrusible and retractile buccal bulb. × 3 after Tesseeel.

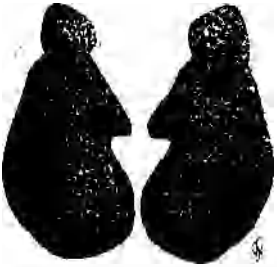
a, abdominal ganglia; *c*, cerebral ganglia, with the infero-posterior buccal ganglia, and also shewing nerve arrangements to the eyes, rhinophores, labial lobes, Semper's lobes, etc.; *oe*, oesophagus; *p*, pedal ganglia; *pgl*, pedal gland; *pl*, pleural ganglia; *s*, Semper's lobes; *v*, anterior aorta; *z*, visceral or palial ganglia.

"Fig. 425." The buccal bulb of *Succinea putris* (L.), shewing the close constriction of the cerebro-visceral nerve ring around the oesophagus, cephalic retractors and salivary ducts owing to the shortening of the cerebric pleural connectives which totally prevents the retraction of the buccal bulb through the nerve ring. × 8, and ligans.

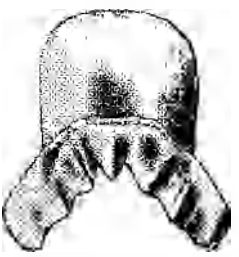
Very many interesting facts are brought forward with regard to the powers of smell, vision and hearing; in fact, this portion of the work seems to be of a most useful nature, and tends to overcome our desire for the beginning of the systematic portion of the work.

* For the present only books received by the Editor will be noted.
† See part I. of the Monograph, p. 2 of the cover.

After the completion of the account of the nervous system, the alimentary canal is discussed, and, after some generalities, a well-illustrated account of the variation in the jaw is given, and the subject of the odontophore entered upon.



"Fig. 513." Pleurognathous Quadrimaxillate mandibles of *Cyclostoma elegans* (Müll).



"Figs. 512 and 513." Front and side view of appendiculate or Elasmognathous mandible of *Succinea putris* (L).

The same remarks that we have previously made, will apply to the general style and get up of Part IV., and we look forward to the time when the whole work rests completed on our shelves.

W. M. W.

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Proceedings of the Malacological Society, vol. ii., No. 4.

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Lotorium armatum; *Pecten thomasi*; *Cardium mendanaense*.

Bednall, W. T.—"The Polyplacophora of South Australia," p. 139, pl. xii.
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Melvill, J. C. and Sykes, E. R.—"Notes on a collection of marine shells from the Andamans Isles with descriptions of new species," p. 164, p. xlii.
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Moellendorf, Dr. O. von.—"Ueber *Trochomanina* und *Dendrotrochus*," p. 5.

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PAMPHLET.

A LIST OF THE LAND AND FRESHWATER SHELLS FOUND AT SUTTON, COMPILED BY Albert Wood, Leeds, 1897.

NOTES.

Azeca elongata, Taylor. In "The Naturalist" for last March on pages 75 and 76, Mr. J. W. Taylor describes under this name "a probably new species of *Azeca*, in the British Isles." The description is based upon two shells, the first from North Wales and the second from Ingleton, Yorkshire, which differ from *Azeca tridens*, Pulteney, in having two and half more whorls

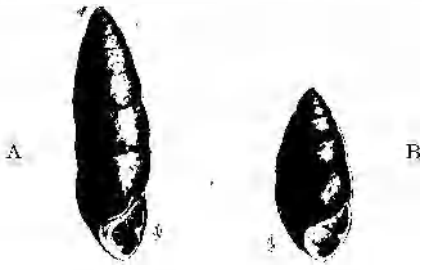


FIGURE 1. **A**, *Azeca elongata*, Taylor, Ingleton Ilkley, both x 4. **B**, *Azeca tridens*, Pulteney,

(that is 9½ instead of 7); in the fact that these increase more slowly in size: and that the last of them is comparatively smaller. The mouth also of the shell in *Azeca elongata* is different in shape. The denticle on the outer lip is stronger and there is no trace of the "winding columellar lamella which is so conspicuous a feature in *Azeca tridens*."

Through the courtesy of Mr. W. Denison Roebuck, the Editor of "The Naturalist" we are able to give the figures (Figure 1, A and B) of the new shell," and of *Azeca tridens* which illustrate Mr. Taylor's paper.

W. M. W.

The dates of Publication of the Journal de Conchyliogie.—Since a list of the dates of issue of some parts of this publication up to vol. xli., No. 2, was given in our pages * it has, we regret to say, gone on, in what we can only describe as its evil way. Numerous enquiries having reached us as to the real dates of issue of the various parts we think it may be of interest to supplement the former list by placing on record the dates at which a subscriber through an English publisher, received his copies. If our readers allow 14 days for the transit, &c., they will be easily able to arrive at the true dates of publication. Why the editors of a periodical of the high class nature of the "Journal de Conchyliologie" should proceed in such an extraordinary manner we fail to understand.

Parts.	Date on cover.	Date of receipt.
Vol. xli., No. 3.	July, 1893.	March 24th, 1894
,, ,, 4.	October, 1893.	August 8th, 1894
Vol. xlii., No. 1.	January, 1894.	November 10th, 1894
,, ,, 2.	April, 1894.	March 1st, 1895
,, ,, 3.	July, 1894.	November 1st, 1895.
,, ,, 4.	October, 1894.	December, 1895
Vol. xliii., No. 1.	January, 1895.	February 26th, 1896.
,, ,, 2.	April, 1895.	April 27th, 1896.
,, ,, 3.	July, 1895.	June 13th, 1896
,, ,, 4.	October, 1895.	September 12th, 1896.
Vol. xliv., No. 1.	January, 1896	December 31st, 1896.
,, ,, 2.	April, 1896.	April 20th, 1897.

* Journ. Malac. iii., p. 9.

E. R. S.

Some French methods of cooking Snails.—Preparation.—Snails are at their best during the winter as at other times they are apt to cause nausea, colic, or even worse ailments, unless they have been starved for a week. To do this keep them in a covered jar picking them over daily and rejecting dead ones. After a week's fasting they are nearly as good as in winter.

To remove the slime, put them into lukewarm water to which salt and vinegar have been added. Change the water three or four times, always adding salt and vinegar. Use cold water the last time. Be careful never to use boiling water, as often advised, as this kills them at once and removes but little slime.

After preparing the snails as described above they may be cooked in the various ways given under the following headings :—

Fried Snails.—Place the prepared snails in boiling water and leave them until they can be easily taken from the shells with a small fork *i.e.*, for about ten minutes. Then remove the gut and let them stand for some time in a marinade composed of equal quantities of water and vinegar, flavoured with minced parsley, garlic, shalot and onion, cloves, thyme, and a bay-leaf. Then drain them, dry on a cloth and fry in hot fat. Drain well on soft paper and serve with a garnish of fried parsley. They may be dipped into a frying batter if preferred, after being marinaded

Snails a la Poulette. After taking the snails from their shells and removing the gut, put them into a saucepan with a good piece of butter and, if liked, some mushrooms. Mix a little flour with some white wine, stir in the saucepan, add a little salt, pepper, parsley, garlic and cloves to your taste. Stew until well reduced, when a little cream or the yolk of an egg may be added. Serve with a little minced parsley sprinkled over the stew.

Snails a la Parisienne.—This is, perhaps, the nicest way of serving snails.

After shelling them and removing the gut, replace the snails in the shells, filling up the opening with good butter which has been well mixed with very finely minced parsley and garlic. Arrange the shells in a shallow dish so that they cannot turn over and so let the butter escape. Cook for a short time in the oven and serve very hot.

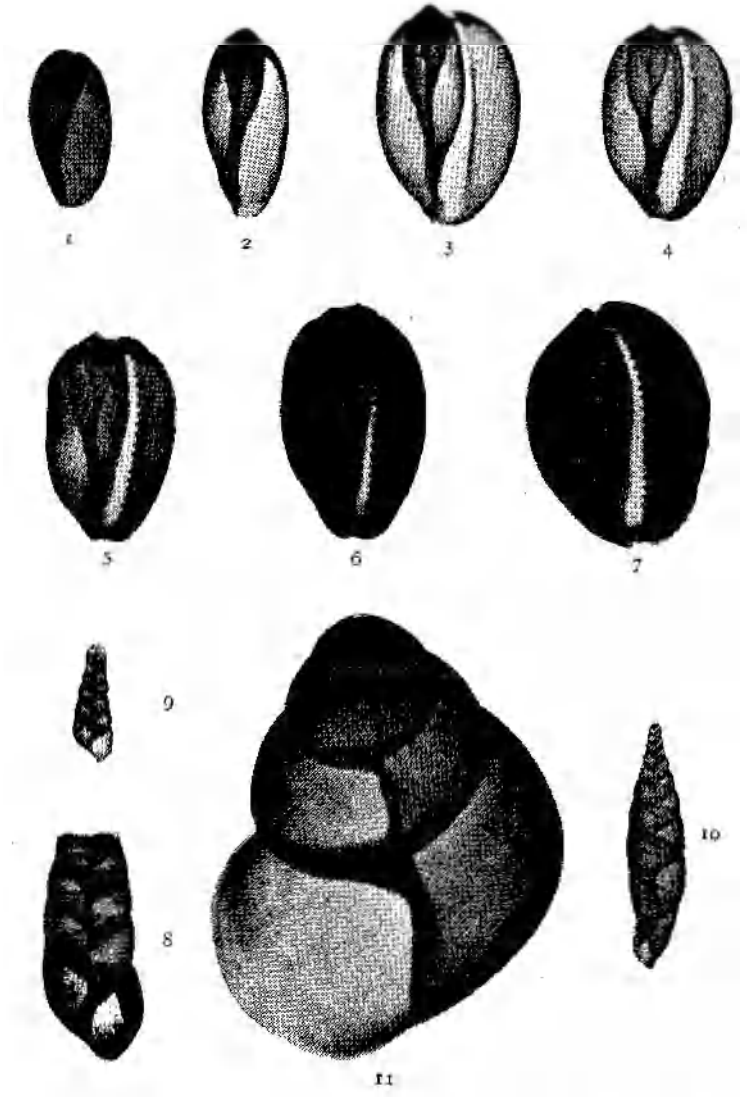
Some persons prefer to leave the gut in the snail thinking it adds to the flavour, but this is a matter of opinion only and it is usually removed.

Stuffed Snails.—Make a force-meat of all or any of the following ingredients —garlic, parsley, shalots, onions, sorrel, almonds, hazel-nuts, walnuts, sausage meat, anchovies, scraps of veal and cold fowl. These must all be minced very finely and worked well with a piece of good fresh butter.

Fill up the shells, after replacing the snails, with this mixture and cook in the oven as above.

Ragout of Snails.—After preparing them as before, put the snails into a saucepan with a pat of butter, salt, pepper, very small onions, mushrooms, a tiny bit of garlic, thyme, a bay leaf and half-a-glass of red or white wine. Cook gently for half-an-hour. A fowl's liver, cooked and pounded is a great improvement, if added at the last moment, and if white wine has been used a small quantity of madeira, cognac or vermouth, will enrich the gravy.

FLORANCE STEPHENSON.



Watson & Sons feceruntl

Some Sciagraphs of Shells.

Garratt & Walsh sculpt

SOME SCIAGRAPHS OF SHELLS.

The sciagraphs given on the accompanying plate are of shells in the writer's possession and were kindly made by Messrs. W. Watson & Sons of High Holborn, London, expressly for the *Journal of Malacology*.

Explanation of Plate III.

Figures 1 to 7 are a series of shells of a cowry *Cypraea arabica*, from the South Pacific Isles, shewing the changes which take place during growth.

Figures 1 and 2. Young specimens, in which the shell is a simple spiral one with a thin unreflected lip. *N.B.—The spires* are somewhat worn at the tip.

Figure 3. In this shell the lip has expanded, the edge has curled inwards, and a row of "teeth" is beginning to make its appearance there.

Figure 4. Here, another row of "teeth" is to be seen on the body of the shell approximately parallel to that on the edge of the lip.

Figure 5. This shell is thicker owing *to the deposition of layers of* "nacre" upon its outside by the mantle-flaps which are protruded by the animal and which cover the shell and meet in the middle line on its dorsal surface. The "teeth" are now more evident.

Figure 6. The thickening process is being carried on, the shell being considerably heavier and more massive.

Figure 7. The adult shell, in which almost the maximum of thickening has been reached, and the broadening of the shell achieved: the longitudinal expansion of the lip, too, has now hidden the spire of the younger shell.

Figures 8 to 11 are sciagraphs of three land shells which show the columella and the interior of the shell as well as other points noted below.

Figure 8. A shell of *Bulimus decollatus*, from Malta, which looses its top whorls as it grows; the partition which divided the uninhabited portion of the shell from the rest is shewn.

Figure 9. A young shell of the same, still retaining its apex and from its position on the plate shewing how much shell has been discarded by Figure 8.

Figure 10. *Clausilia swinhoei*, from Formosa, showing the clausium or clausilium which guards the entrance of the shell.

Figure 11. *Cochlostyla philippinensis*, from the Philippine Islands.

Wilfred Mark Webb

THE JOURNAL OF MALACOLOGY

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THE

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No. 2. JULY, 1897. VOL. VI.

NOTES ON HELIX NEMORALIS, LINNE, AND HELIX HORTENSIS, MUELLER.

By the REV. J. W. HORSLEY, M.A.,

Rector of St. Peter's, Walworth, and Chairman of the London Branch of the Conchological Society.

It was disgust that made me a student of snails. Not the affected disgust of a young woman when she discovers a beautiful and interesting specimen of *Arion ater* upon the rose she has unnecessarily plucked; but the disgust at myself, a naturalist by heredity and by environment and education from my earliest years, when I found by the inspection of a collection of British land shells made by a young friend that I had poked about hedges and ditches, woods and cliffs, for thirty out of the forty years I had lived, and yet had never noticed shells so striking in colour and variation as *Helix nemoralis*. I set to work at once to remedy this defect in my character as a general observer of nature, and at first collected only *nemoralis* and *hortensis*. Soon, however, this led me to help the collections of others and to form one for myself by gathering all the British land and freshwater molluscs. And then I cast my eyes abroad that I might better learn how to see at home, and laid the foundation of what is now a fairly large collection of the Helicidae of the world. The path that proved so pleasant to me is one on which I have induced the feet of not a few lads and men to tread, and with beginners I have always directed their attention first to these two *Helices*, so striking and so common.

To display my collection of the varieties and variations of *nemoralis* and *hortensis* is always to excite astonishment, and frequently to incite people to do and to possess likewise. A few notes, therefore, on these allied shells may be of interest to those who have not directed any special attention to their peculiarities.

First, let me utter a British growl, a grammarian's grumble, anent the absurdity or the misleading character of some of the scientific names we must encounter. *Helix nemoralis*, the snail of the groves, need never be pursued in the grove when there is a hedge handy, and especially is it abundant on sand-hills by the sea, which are about as diverse from groves as anything can be. When the broken shells of *nemoralis* are found in a wood, it may generally be discovered that they have been brought in from outside by some thrush, and that few living specimens can be found in the wood itself, except where they have entered beech woods for the purpose, so dear to them at certain times of the year, of ascending the smooth boles of the beech. Such *nemora nemoralis* are, according to my observation, usually of the nature of copses or plantations, and the deeper the wood the less the chance of finding *nemoralis* therein. Nor is the accuracy of the term *Helix hortensis*, the garden snail, much greater. I can only recall one garden, at Trentham, in which I have found it abundantly.

The hedge-row snail would be a better name, and *H. aspersa* might by the general acclamation and execration of all gardeners become the real *hortensis*. Nor are one's growls hushed when some of the varietal names are noted. Who was the maniac who called first the yellow bandless variety of *nemoralis*, *libellula*? The word is as unknown to classical Latin, as classical Latin is usually unknown to those who libel and ill-treat specimens by the so-called scientific names they give them. There is, indeed, *libella*, which means an as, two-thirds of the truth concerning the sponsor of the shell. In the Latin of Natural History, however, *Libellula* means but a dragon fly. Were the dragon-flies which the author of the name had seen, uniformly bright yellow? Or did he find in their strongly reticulated wings, their enormous eyes, their powerful flight, and their carnivorous habits, the points of similarity to the shell which caused him to make the names identical? Then the red unicolourous and unbanded variety is called *rubella*. This in somewhat late Latin means reddish, but why is *rubra* not used? Its hue is definite

enough,* and needs no term implying qualification or indecision. And the corresponding variety in *hortensis* is *incarnata*. To classical Latin this word is unknown: in mediaeval Latin it would, of course, be common, as meaning having become flesh. What was running in the namer's substitute for a mind was apparently the idea of flesh-coloured, and the fancy that *incarnatus* referred to a tint, and not an operation or a state. From cherry-red to pink, grade the hues of both *rubella* and *incarnata*, and *rubra* would exactly and accurately describe both. And then the yellow grounded, transparent banded variety of *hortensis* is, if you please, called *arenicola*, or the denizen of the sands! For myself, I have never found *hortensis* of any variety on one of the sand-hills I have searched, and I never found any one who could guess why this name was supposed to be appropriate. I did indeed once find on the Deal dunes or Sandwich sand-hills one or two of the corresponding variety of *nemoralis*—i.e., *hyalozonata*; and as this was (like all the forms of *nemoralis* I have seen that have no pigment-producing power for their bands) not black-lipped, I might, if unobservant and foolish enough, have taken it for *hortensis*, and have called it *arenicola*, though dozens of other varieties abounded in the same position, and would be equally entitled to the name. I suppose the namer of *arenicola* has long become *humicola*, and we cannot interrogate him as to what he might be pleased to call his reason for giving this name. Peace, therefore, to his hashes!

Is it really impossible for British conchologists to determine on the common adoption of an intelligible nomenclature, and, considering how undoubtedly allied are the two species, *nemoralis* and *hortensis*, to adopt the term *lutea* for what is called *libellula* in one and *lutea* in the other; *rubra* for what is *rubella* in one and *incarnata* in the other; and *hyalozonata* for the *hyalozonata* of *nemoralis* and the *arenicola* of *hortensis*?†

I pass on to give a few notes on the differences between *nemoralis* and *hortensis*, which, by the consent of the majority of

* Does not this, like all of the colour variations dignified with the mis-applied title of varieties, shade into its fellows, and may not this be the real reason of the qualifying name?—Ed.

† Or perhaps if the suggestion made by Mr. B. B. Woodward in "The Zoologist" (Nov., 1885, "On some variations in *Helix arbustorum*, Linn."), of simply using the "terms, yellow, red or white variations" and phrases such as, "with transparent bands" and so on, in conjunction with the band formulae, was followed, the difficulty would be met.—Ed.

conchologists, are distinct species, although M. Souverbie, Curator of the Bordeaux Museum, waxed very vehement when discussing the matter with me, and maintained they were only varieties.

Others, in earlier days, maintained that the two species were so allied that there was a hybrid form, which form we should now call simply *H. hortensis* var. *fuscolabiata*. I have never seen *nemoralis* and *hortensis* pairing, although I have carefully looked out for instances, nor have I met any one who has. This is a strong argument for their diversity, although an occasional pairing would not prove them to be the same species.

The second difference is an anatomical one, the obvious and unvarying difference between the darts of the two species. That of *nemoralis* is straight and very like the Roman short sword; that of *hortensis* is curved. The length of the dart in *nemoralis* is 7-8 mm.; that of *hortensis* only 4 mm. The observation of the dart is of especial value when a form is found with white peristome and transparent bands associated with undoubted *nemoralis*. Is it a stray *arenicola*? or is it the much rarer *hyalozonata* form of *nemoralis*? The shells tell you little; the darts leave you no doubt. In fact, as *nemoralis* var. *albolabiata* is so rare in most places, it is always well to verify it by an examination of the dart.

The size of the two shells varies—*nemoralis* is usually 16½ millimetres in height and 22½ in breadth, and *hortensis* 16 mm. in height and 18 mm. in breadth, and generally the former is more variable in size than the latter. My largest *nemoralis* is 32 mm. in breadth, and my smallest *hortensis* 11 mm. The difference I have especially noticed abroad, where *nemoralis* is often much larger than the average size in England, but *hortensis* remains the same. A third point to be noticed is that it is not usual, though by no means unknown, for the two species to be found in the same habitat. I can only say, in mentally reviewing the very many localities in which I have noticed or gathered thousands of these shells, that I can recollect a hedge here and a bank there where both were found mixed and in fairly equal proportions. Even where both are found in the same lane, one may be exclusively found at one end and the other at the other. It seems to me, also, that *nemoralis* is more dependent than its cousin, or *hortensis* less dependent than

nemoralis, on a calcareous soil. And in a district where both are found *nemoralis* will affect the parts where the chalk or limestone comes to the surface, and *hortensis* will be in the hedges of the valley where alluvial soil to some extent covers the calcareous rock. Have conchologists noticed, by-the-bye, that in many places both these shells are common in wayside hedges and on the sides of high roads, but far less common in hedges a field or so distant from the road? One might have thought that the less amount of cover and the greater amount of enemies to be found close to the roads in comparison with field hedges would have reversed the position of affairs. But it seems to me that the dust of the high road provides lime so conveniently comminuted for the building up of their shells that they have been drawn, so to speak, into public life by its advantages.

Both shells being in their typical form five-banded, one may notice that the bandless or unicolourous varieties are much more common in *hortensis* than in *nemoralis*, one observer finding that 52·52 of the *hortensis* and only 17·86 of the *nemoralis* he collected in one district in Middlesex were of the bandless kind. This one might expect from the fact that *hortensis* is, on the whole, feebler than its cousin, and so more likely to be without pigment-producing powers, and this is borne out by the rarity of the translucent banded forms in *nemoralis* and their comparative frequency in *hortensis*; and also by the variety with only a peripheral band being quite common in *nemoralis*, but distinctly rare in *hortensis*. But one must note *per contra*, and contrary to one's expectation, that the variety (sometimes called *coalita*) in which from excess of pigment power all the bands are united into one broad belt of chocolate colour that occupies nearly the whole whorl, is much more common in the weaker *hortensis* than in the sturdy *nemoralis*.

Other differences are these: The albino form is not uncommon in *hortensis*, though one may notice that the dead white appearance of the shell gives way to a white tinged with yellow when the animal is extracted; but in *nemoralis* there is hardly a really albino form, the name var. *pallida* being more justified than that of var. *albina*. The variety *lilacina*, again—a tint, by-the-bye, very rare in other Helicidae—is doubtfully found in *nemoralis*, though abundant in certain localities for *hortensis*. Nor are the two species at all alike as to unicolourous specimens of a brown colour. In *nemoralis* we have the vars. *castanea* and *olivacea*,

not rare and giving us many shades, from a dark ruddy brown to a light yellowish brown; but in *hortensis* the corresponding var. *fusca* is rare, and there is nothing like the series of shades of brown to be found.

Another point of difference is the prevalent ground colour. Looking at *nemoralis* in quantity, and including both banded and unbanded varieties, one would certainly come to the conclusion that the original type was red, whereas in *hortensis* yellow is the prevailing colour. The percentages of *nemoralis* were found by Mr. Belt, of Ealing, to be, at any rate for his neighbourhood, 37 per cent. yellow, 51 red, and 12 brown; while those of *hortensis* from the same district were 86 per cent. yellow, 14 red, and 0 brown.

Another point of difference seems to be that the colour of the peristome and columella is normal in *nemoralis* and accidental in *hortensis*, and collectors will notice that it is much more fugitive in *hortensis* than in *nemoralis*, so that the varieties of the latter shell with dark red, pink, or yellow lips should be protected from the light, and even then may be found to lose the colour of their peristome.

No doubt some of these differences are not of very conclusive force when used singly as arguments for the species being only allied and not one, but the cumulative force they possess when considered all together is by no means small.

Nemoralis is probably the older shell of the two, being found not only sub-fossil, but actually in Miocene strata, while I am not aware that a similar antiquity can be claimed for *hortensis*. It might, therefore, be held that *hortensis* is but a weak offshoot from *nemoralis*, or a more northern form. My own observations, however, in Central and Southern France and in Switzerland would not lead me to this conclusion.

NOTE ON THE CLAUSILIAE RECORDED FROM CELEBES WITH DESCRIPTIONS OF TWO NEW SPECIES.

By E. R. SYKES, B.A., F.Z.S.

The two species I now describe were collected by Mr. Doherty and placed in my hands by Mr. Fulton. With them was found a third form, which appears to me to be probably only a variety of *C. simillima*, Smith; dwarf in size (alt. 18, lat. 3·2 mill.; alt. apert. 3·8, lat. apert. 3 mill.), with finer striae, and the crenulation at the sutures almost absent.

Clausilia pyrrha n. sp. (Plate IV., Figures 1 and 2).

Testa elongata, solidula, rufo-cornea, nitidula, spira sub-attenuata, apice obtusulo, distorto; anfr. 9½-10, modice accrescentes, convexiusculi, primi laeves, reliqui sub lente dense sed obsolete striati, ultimus basi sub-inflatus, productus; sutura simplex; apertura obliqua, ovato-piriformis, basi recedens, intus rufo-cornea; peristoma incrassatum, sub-reflexum, solutum; lamella superior obliqua, marginalis, mediocris; lamella inferior fere marginalis, mediocris, spiraliter contorta, abrupte ascendens; lamella sub-columellaris marginalis, conspicua; plicae palatales duae, suturae parallae, una (principalis) mediocris, altera pygmæa. Alt. 17, lat. 3·3 mill.; alt. apert. 3·3, lat. apert. 2·25 mill.

Hab.—Between Maros and Tjamba, near Makassar, S. Celebes (Doherty).

In the position of the mouth this species recalls *C. subpolita*, Smith; but it is larger, more elongate, and differs in colouration; it is also thicker.

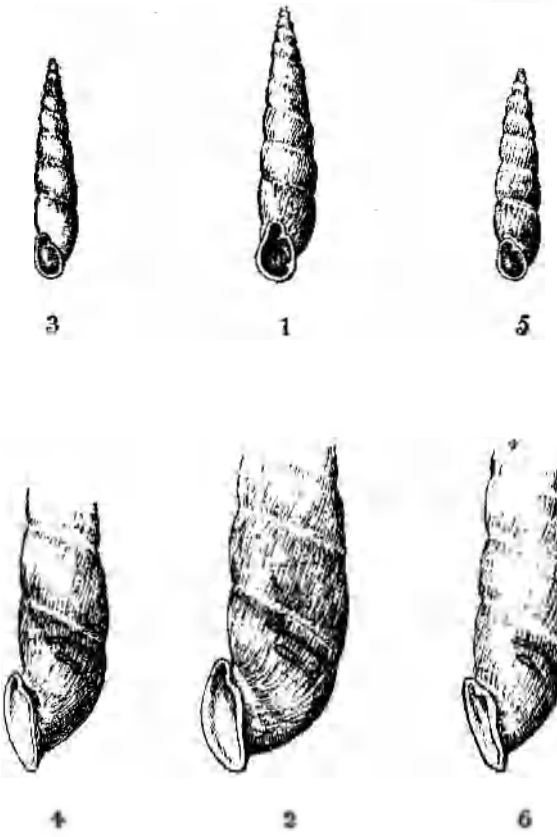
Clausilia makassarensis n. sp. (Plate IV., Figures 4-6).

Testa sub-elongata, tenuiuscula, obsolete striata, cornea, nitida, apice obtusulo; anfr. 9, modice accrescentes, plano-convexi; sutura simplex; apertura ovalis, basi paullo recedens, intus cornea; peristoma incrassatum, sub-reflexum, solutum; lamella superior obliqua, marginalis, l. inferior, mediocris, rapide ascendens, lamella sub-columellaris, sub-conspicua; plicae palatales duae suturae parallelae, p. principalis major, mediocris, altera parva. Alt. 13·7, lat. 3 mill.; alt. apert. 2·8, lat. apert. 2 mill.

Hab.—Between Maros and Tjamba, near Makassar, S. Celebes (Doherty).

An interesting little species re-calling *C. subpolita*, Smith,

(To face page 73.)



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7 8 9

W. J. Webb del. ad. nat. Gorrett & Walsh sculpt.

NEW SPECIES OF LAND SHELLS.

Clausilia spretha. Figure 1, the shell x 2. Figure 2, its lower whorls enlarged.
Clausilia makassarensis. Figures 3 & 5, shells x 2. Figures 4 & 6, their lower whorls enlarged.
Helicarion assimulans. Figures 7, 8 & 9, the shell x 5.

but the shell is slightly more solid, the mouth more ovate and not nearly so oblique, the lamella inferior not so strongly twisted spirally, but more rapidly ascending into the shell.

I have also what I take to be a small variety of this species measuring alt. 12·2, lat. 2·9 mill.; alt. apert. 2·9, lat. apert. 2 mill. (Plate IV., Figures 5 and 6).

In this form the lamella sub-columellaris is almost obsolete, as is also the smaller palatal plica, and the mouth is more quadrate. It was collected with the type and will, I think, prove to be only a variety and not a distinct species.

The species recorded from Celebes appear to be as follows:

C. cumingiana, Pfr., var. *moluccensis* von Martens. N. and S. Celebes.

C. celebensis, Smith. Bonthain Peak, 5000 to 6000 ft.

C. simillima, Smith. S. Celebes, 2000 ft.

C. subpolita, Smith. S. Celebes, 2000 ft.

C. usitata, Smith. S. Celebes, 2000 ft.

C. celebensis, Boettger. Balante. E. Celebes.

C. alternata, Moellendorff. Bua Kraeng.

C. makassarensis, n. sp., near Makassar.

C. pyrrha, n. sp., near Makassar.

Inasmuch as there are two apparently distinct species both published under the name of *celebensis*, it becomes material to ascertain which has the priority in date.

Mr. Smith's species appeared* on July 25th, 1896. Dr. Boettger's species appeared in a paper by Dr. Kobelt entitled "Schnecken von N. O. Celebes and Banggai,"† without, it may be remarked, any figure. This publication bears at its foot the date "27th June, 1896," and this is, one would suppose, the date of publication. An enquiry in April, 1897, however, from Messrs. Friedländer, whose name appears on the title-page as publishers, yields the following:—"No. 5 *was published* in October, 1896 (see our 'Naturae Novitates, 1896, nr. 20.')"

The date on the publication, therefore, appears to be that either of reading, or of distribution of reprints, and the note in the Nachrichtsblatt ‡ that "Die Clausilie wird vor der gleichnamigen Smith'schen Art wohl einige Tage Priorität haben" is inaccurate.

In such a state of affairs Dr. Boettger's species requires a new name, and I would propose that of *bulantensis*.

* Proc. Malac. Soc., vol. ii., p. 209, pl. VII., fig. 4.

† Abh. Zoöl. Mus. Dresden, 1896/97, Nr. 5.

‡ Nach. Malak. Gesell., 1897, p. 111.

THE BRITISH SPECIES OF TESTACELLA.

By WILFRED MARK WEBB, F.L.S.,

Assistant Biologist to the Essex County Council

[Continued from volume iv., page 76]

In a previous paper dealing with the distinctive characters of our three species of worm-eating slugs, the writer expressed his intention of following out the distribution of these forms in the British Isles, and more particularly of the true *Testacella haliotidea*: it is intended to give here, a provisional list of localities from which the writer has received undoubted specimens of the last species, together with some records supplementing those given by Mr. Taylor* for *T. scutulum*, and a few for *T. maugei*.

Testacella haliotidea, Draparnaud.

Devonshire. The Castle, Tiverton (Captain L. Moore).

Kent. Shoreham Vicarage, Sevenoaks (Rev. R. Ashingdon Bullen).

Surrey. Nutfield Priory, with *T. scutulum* (J. Moffat). This is the only locality from which more than one species has been received. Mr. J. Scarlett, of Tasburgh, near Norwich, who told the writer of this locality, remembered the occurrence of worm-eating slugs at Nutfield 15 or 16 years ago. They were most plentiful in asparagus beds.

Surrey House, Leatherhead (C. A. Brigg, M.A.).

11, Harrow Road, East Dorking (C. J. Howell).

Kew Gardens (the Writer).

Essex. Widford Lodge, Widford (E. Hammond).

A dozen specimens were found 18 inches below the surface in a bed 9 feet in diameter on a lawn.

Stisted (Basil F. May).

Colchester (W. Patterson).

The specimens from the last two localities approached *T. scutulum* in colour.

Suffolk. Ballinghoe Rectory (Rev. R. Ashingdon Bullen).

Norfolk. Diddington Hall, Brandon (A. Tanner).

One very dark-coloured specimen.

Worcestershire. Worcester (J. Lloyd Bozward), Elmfield.

London Road, Worcester (C. H. Webber).

Hagley Hall, Stourbridge (D. R. Dixon).

Cheshire. Arley Hall, Northwich (J. V. Smith).

Yorkshire. Sandbeck Park, Rotherham, in Trent drainage (Geo. Summers). Walk-upon-Dearne, 12 miles from the last locality, in "Don drainage" (W. McKeigh Jones).

Stirlingshire. Brentham Park, Stirling (David Bruce).

*Journal of Conchology, 1888, p. 337.

Testacella scutulum, Sowerby.

Surrey. Nutfield Priory, with *T. haliotidea* (J. Moffat).

Crescent Wood House, Sydenham Hill (John Prince).

Essex. Buckhurst Hill (W. Cole).

Hertfordshire. Chase Side, Enfield, known here for 30 years (F. Wright).

Hemel Hempstead Nursery, abundant (William Foden).

Middlesex. Brook Green, Hammersmith, and West Kensington, in gardens (the Writer).

Worton Hall Gardens, Isleworth, not common (A. Pentney).

Two specimens that when found "had between them a worm, of which each slug had swallowed an extremity."

Leicestershire. Belvoir Castle, Grantham (W. H. Divers).

Mr. Taylor gives this locality.

Yorkshire. The Gardens, Castle Howard, York, in large numbers (J. Riddell).

The Gardens, Woodleigh Hessle (Fred. Mason).

Gleastone Hall, Skipton (J. Jopkinson).

Mr. D. R. Dixon, of Stourbridge, who told the writer of this locality, found them there in 1868 or 9.

The Nurseries, Scarborough (Walshaw and Son).

Lincolnshire. High Park Gardens, Stamford (D. Metcalfe).

Testacella maugei, Férussac.

Cornwall. Trehone, Probus, four miles east of Truro (Captain Pinwell).

Rosehill, Falmouth (Howard Fox).

Dorsetshire. The Vicarage Garden, Corfe Castle (J. C. Mansel-Pleydell*).

Hampshire. Porchester (Alex. Goldney Headley).

Gloucestershire. Stoke Gifford, Bristol (George Summers).

Mr. Summers writes as follows:—"This is the place which I remember seeing them when a youth at home 30 years ago in the nurseries of Messrs. Maule and Sons (they are now dead, and with them the nurseries disappeared). My father was foreman with them for upwards of 50 years, and is now (1891) nearly 80 years of age; he writes to me that about 50 years ago a doctor in London advertised for some specimens of the worm eating slug and offered a guinea a dozen for them. A friend of his (who is still alive and living near to him), who was living in South Wales, where they were plentiful, sent the doctor four dozen as a sample, which rather surprised him, and he wanted to pay a less price, but the late Mr. Maule interceded, and his friend was paid the money."

Glamorganshire. Windsor Place, Cardiff, at the bottoms of carnation pots (Arthur Pike).

Dublin. Royal Botanic Gardens, Glasnevin (F. W. Moore and Dr. Scharff).

In conclusion, the writer must express his gratitude to the many correspondents who have contributed towards the making of the present list, which, with their further help, he hopes to make more complete at a later date.

* Specimens are figured by Mr. Mansel-Pleydell from Corfe Castle in a privately published pamphlet, "*Testacella*, Clavier."

DESCRIPTION OF A NEW SPECIES OF LAND SHELL FROM COLOMBIA.

By EDGAR A. SMITH, F.Z.S.

The British Museum is indebted to Mr. S. J. Da Costa for two specimens of this very interesting species, which in several respects is very similar to the *Helix bogotensis* of Pfeiffer. The geographical distribution of the two forms is, as might be expected, also different, the latter occurring in the neighbourhood of Santa Fé de Bogota, and the present species to the north-west, near the Cauca River.

Labyrinthus assimilans, n. sp. (Plate IV., Figues 6-8).

Testa depressa, orbicularis, profunde umbilicata, rufo-fusca, lineis incrementi obliquis curvatis sculpta, undique plus minus tenuiter granulata; spira depresse conoidea, ad apicem obtusa; anfractus $4\frac{1}{2}$ celeriter accrescentes, leviter convexiusculi, ultimus ad peripheriam angulatus vel obtuse carinatus, infra medium convexus, antice ad aperturam subito deflexus, pone labrum contractus et scrobiculatus; apertura transverse auriformis; peristoma continuum, album, undique solutum et expansum, margine *supero* arcuato, intus tuberculo obtuso munito, *parietali* flexuoso, laminam validam prominentem emittente, *basali* obliquo, rectiusculo, intus tuberculis duobis inaequalibus munito, *dextro* dentibus duobus inaequalibus, in tuberculo elevato positis instructo. Diam. maj. 26 millim.; min. 22; alt. 12.

Habitat: Cauca River, Colombia.

In the form and armature of the aperture this species is almost identical with *L. bogotensis*, Pfeiffer, but it is easily distinguishable by its much smaller size and much more obtuse periphery. The peristome also is not so produced or pointed in front, the sinus between the tubercle within the upper margin and the large double tooth within the front margin being shallower and of a different form.

THE

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Nos. 3 & 4. September & December, 1897. Vol. VI.

ON SOME NEW SPECIES OF LAND SHELLS FROM THE ISLAND OF SOCOTRA.

By EDGAR A. SMITH, F.Z.S.

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Since this catalogue appeared, nothing has been added to our knowledge of the Mollusca of the island. During the present year the British Museum has received from Mrs. Theodore Bent a series of land and freshwater shells collected by herself and her late husband whose devotion to exploration was unfortunately terminated by death. This collection contains the majority of the known species and several others new to science. The fact that as many as nine new forms were discovered by Mr. and Mrs. Bent would appear to indicate that many new species have yet to be found in unexplored parts of the island.

ON THE SPECIFIC NAME OF HELICELLA ERICETORUM, MUELLER.

By EDGAR A. SMITH, F.Z.S.

Under the above title, in the last number of this Journal, Mr. A. Santer Kennard has offered some observations respecting the identity of the species referred to, with the *Helix itala* of Linnaeus, and has called in question the accuracy of Mr. Hanley's decision in this matter.

Having known Mr. Hanley (who, I believe, is still living) for many years, and the extreme care which he was accustomed to bestow upon all his work, I felt sure that he could not have committed the mistake imputed to him by Mr. Kennard, namely, of misreading the number written upon the specimen of *Helix itala* in the Linnean cabinet. Mr. Hanley says that "the significant numerals" are "distinctly inscribed upon one of the specimens," but he does not quote the figures. His statement, however, is perfectly correct, for the number upon the shell, 598 (not 593, as given by Mr. Kennard) corresponds with that of the species in the 10th edition of the "Systema Naturae," tom. i., p. 772. Moreover, if Mr. Kennard had read the introduction to Mr. Hanley's work,* he would have discovered (p. 3) "that these numerals more frequently corresponded to the series of the tenth than of the twelfth edition." Mr. Kennard's mistake is obvious. He referred to the twelfth instead of the tenth edition of the Systema, the species in question being numbered 683 in the former.

Besides the gratification of testifying to my old friend's accuracy, I fully recognise the desirability of refuting Mr. Kennard's statement, which, uncontradicted, might tend to depreciate the great importance and utility of Mr. Hanley's work.

I am very much indebted to Mr. Smith for pointing out the very natural error into which I had fallen, but in my own defence I must say that the figures are very indistinct; consequently, it was easy to mistake 8 for 3, especially as I did not know what the figures should be. I did not refer to either the 10th or 12th edition. The Linnean number as given by Mr. Hanley for *Helix itala* was 683, and as this did not agree with the numerals on the shell, I concluded that an error had been made.—A. S. KENNARD.

* Ipsa Linnaei Conchylia.

BOOKS RECEIVED.

MANUAL OF CONCHOLOGY SECOND SERIES PULMONATA, part 41, by **Henry A. Pilsbry**, Philadelphia, pp. 1-64, pls. 1-13.

Mr. Pilsbry continues his work on the genus *Bulimulus* Leach, taking it up again at the second group of the three defined on p. 127 of Volume X., and distinguishing four subgenera, "although only the first of them stands conspicuously apart"; these are *Dactostylus*, Beck; *Scutalus*, Albers; *Bulimulus*, Leach; and *Rhinus*, Albers. The present part is chiefly occupied with the two first of these subgenera, and breaks off in the account of the South American species of *Bulimulus* proper.

THROUGH A POCKET LENS by **Henry Scherren, F.Z.S.**, London, 1897, published by the Religious Tract Society, price 2s. 6d., 192 crown 8 vo. pages, and 90 illustrations.

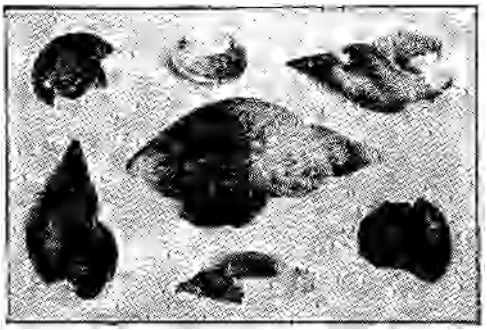
Following a reasonable and customary method one might be tempted to quarrel with the title of this interesting little book and to suggest that a slight addition to it might have been an improvement. Had the work been called "Arthropods through a pocket lens" the "popular" sound would doubtless have been lost, as might also some readers who otherwise would have become interested in the animals so pleasingly described; but at the same time such a name would have given an idea of the contents of the book to others who already have an acquaintance with insects, centipedes, and crustaceans, and who desire to learn further details about them.

"Figure 15." *Dytiscus marginalis* (male).

Leaving the title-page behind, however, it may with certainty be said that books of this kind do much to foster and lead towards the study of the visible outcomes of life, that unborn spirit of curiosity upon which all scientific investigation depends. But just as a thirst for knowledge is a higher development of inquisitiveness, so may there be evolved from a magpie instinct of hoarding and pure love of possession, the desire of forming a collection of specimens for illustration and comparison in the systematic study of a special series of forms which is recognized as an important part of a naturalist's training. It is, therefore, with regret that one reads on page 25 "to make a collection of specimens in tubes would be waste of material." This looks rather like the throwing of collecting into the shade, though it must be said

that later on in the book, the suggestion is made that rare specimens should be sent to the National Collection at the British Museum.

The opening chapter contains much information that would be useful to beginners in any branch of Natural History and the remainder of the book is calculated to enable students of nature to spend many pleasant hours not only in working through the matters actually brought before them, but in examining the structure and looking into the habits of other animals on the lines laid down and suggested by Mr. Sherren.



"Figure 16." Shells of freshwater molluscs broken by *Dytiscus*.

[Figures 15 and 16 are reproduced through the courtesy of the Publishers.]

A point of interest to malacologists is the account of the way in which the water beetle *Dytiscus marginalis* ("Fig. 15") preys upon freshwater molluscs and damages their shells ("Fig. 16") in a way that has puzzled many who did not know who was the worker of such destruction. Mr. Sherren gave an explanation in the "Field"* but afterwards was obliged to yield up the credit † to Mr. G. B. Sowerby who, forty years before, had written an account of this habit of *Dytiscus marginalis* in his Popular History of the Aquarium. ‡

JOURNALS.

THE JOURNAL OF CONCHOLOGY, vol. viii., No. 12, July 1st, 1897.

Marshall, J. T.—"Additions to 'British Conchology,'" (cont.), pp. 388-95.

Wright, C. E.—"A colony of *Caecilioides acicula* Müll. in Northamptonshire," p. 395.

Melvill, J. C. and Standen, Robert.—"Notes on a collection of shells from Lifu and Uvea, Loyalty Islands, formed by the Rev. James and Mrs. Hadfield, with a list of species, part III." pp. 396-421.

Moss, W.—"A preliminary note on the genitalia of *Hyalinia* (*Zonitoides*) *nitida*, Müll., and *Hy. excavata* Bean.," p. 421.

Johnson, J. Yate.—"Description of *Helix watsoni*, n. sp., discovered at Madeira by Senhor J. M. Monez," pp. 429-430.

Marshall, J. T.—"The Marine Shells of Scilly," pp. 431-432.

* The "Field," April 4th, 1896. † The "Field," May 2, 1896. ‡ p. 288.

THE NAUTILUS, vol. xi., Nos. 1, 2, 3.

Stearns, R. E. C.—"*Uvanilla regina*, a new locality," p. 1.

Dall, W. H.—"On a new form of *Polygyra* from New Mexico," p. 2.

Frierson, L. S.—"Conchological Notes from Louisiana," p. 3.

Wright, S. H.—"Contribution to a knowledge of United States Unionidae," p. 4.

Pilsbry, H. A.—"List of Molluscs collected in Maldonado Bay, Uruguay, by Dr. Wm. H. Rush, U.S.N." pp. 6-9.

Nylander, C. C.—"Freshwater Shells of the North East of Maine," pp. 9-12.

Simpson, C. T.—"*Helicina dysoni*," pp. 13-14.

Stearns, Robert E. C.—"Description of a new species of *Actaeon* from the Quarternary Bluffs of Spanish Bight, San Diego, California," pp. 14-15.

Cockerell, T. D. A.—"Notes of *Agriolimax*," pp. 15-16.

Ancey, C. F.—"Description of three new species of *Eulota* (Helices) from Central Asia," p. 16-17.

New species, *Cathaica funki*; *Pseudiberus uniformis*; *Ps. anisopleurus*.

Simpson, C. T.—Notes on the Classification of the Unios, pp. 18-23.

Dall, W. H.—Synopsis of Pinnidae of the United States and West Indies," pp. 25-26.

Analy, C. F.—"On two so-called "*Bulimi*" from the New Hebrides," pp. 26 and 27.

"*B.*" *ruga*, and "*B.*" *bernieri*: these are put in *Diplomorpha*.

Aldrich, T. H.—"A new *Cancellaria* from the Alabama Eocene," pp. 27-28, *Cancellaria lanceolata*.

Baker, Frank, C.—"On a collection of Molluscs from Grand Tower, Illinois," pp. 28-30.

Pilsbry, H. A.—"*Helicina rabei*," n. sp., p. 34.

NACHRICHTSBLATT DE DEUTSCHEN MALAKOZOOLOGISCHEN GESELLSCHAFT, March and April, May and June, 1897.

Kobelt, W.—"Diagnosen neuer Arten aus Kükenthals Ausbeute," pp. 24-28.

New species: *Helicarion kükenthali*, *Everettia moellendorffi*, *Vitrinoconus celebesianus*, *Desdrotrochus celebesianus*, *Raphaulus kükenthali*, *Cyclotus (Pseudocyclophorus) euryomphalus*, *Pupina (Siphonostyla*, sub.-gen. nov.) *longituba*.

Moellendorff, O. von.—"Drei neue Arten," pp. 28-31.

New species: *Plectopylis linterae* from Pegu, *Gonostoma (Drepanostoma) omphalospirum* from Hubei, *Papuina linterae*, New Guinea.

Moellendorff, O. von.—"Diagnosen neuer und Kritischer Landdeckelsnecken," pp. 31-41.

Moellendorff, O. von.—"Neue Landschecken von Java," pp. 57-72.

New species of *Helicarion*; *Sitalia*; *Kaliella*; *Lamprocystis*; *Ariophanta*; *Inozonites*; *Patula (Pyramidula)*; *Acanthinula (Plectotropis)*; *Chloritis*, *Ruliminus*; *Boysidia*; *Hypselostoma*; *Clausilia* and *Prosopeas*.

Kobelt, W. and Moellendorff, O. von.—"Catalogue der gegenwartig lebend bekannten Pneumonopomen," p. 73-88.

JOURNAL DE CONCHYLIOLOGIE, vol. xliv., Nos. 3 and 4.

Bernard, Felix.—"Etudes comparatives sur la coquille des Lamellibrandes *Condylocardia*, type nouveau de Lamellibrandes," pp. 169-207, pl. vi.

Crosse, H.—"Note sur le genre Pterosoma de Lesson," p. 207-213.

Hidalgo, J. G.—"Observations sur quelques *Cochlostyla* des Phillipines," pp. 213-17.

Hidalgo, J. G.—"Description d'une nouvelle espèce de *Cassis*," p. 217. *Cassis crosseï* from the Phillipine Isles.

Crosse, H.—"Note sur la distribution géographique du *Cypraea achatidea* Gray (*C. physis* auct., *non* Broechi) dans la Méditerranée," p. 218-221, pl. vii.

Dautzenberg, Ph.—"Description de deux espéces nouvelles de *Bulimus*," pp. 222-225, pl. vii.

Bulimulus (Goniostomus) bouvieri and *B. (Bostryx) monezi*.

Fischer, H.—"Note sur le bras hectocotylisé et sur le dimorphisme du sepion de *Sepia orbignyana*, Férussac," pp. 233-236, pl. viii.

Hidalgo, J. G.—"Catalogue des espéces du genre *Cochlostyla*, Fèrussac qui vivent dans les Iles Phillippines," pp. 237-353.

Vayssiere, A.—"Description de deux espèces nouvelles de Pleurobranchidés," p. 353.

Pleurobranchus crosseï and *P. giardi*.

Mayer-Eymar, M. C.—"Description de coquilles fossiles des terrains tertiaires inférieurs (suite)," pp. 356-368, pls. ix. and x.

THE IRISH NATURALIST, June and July, 1897.

Adams, L. E.—"Land and Freshwater Mollusca of Ballycastle district," pp. 179-183.

Chaster, G. W.—"Notes on the Marine Mollusca of Rathlin Island," pp. 184-187.

THE NATURALIST, 1897, Nos. 262-264 (1897).

SCIENCE GOSSIP, vol. iii., No. 36. Vol. iv., Nos. 37 and 38.

Gude, G. K.—"Armature of Helicoid Landshells" (with new species and a new form of *Plectopylis*), vol. iii., p. 332; vol. ii., pp. 10-11 and 36-37. figs.

New species: *Plectopylis clathratuloides* and *P. muspratti*.

Bowell, E. Wake.—"The Odontophores of Mollusca," vol. iv., p. 6, figs. of rows of "teeth" from various British Vitreas, etc.

KNOWLEDGE, May-July, 1897.

EDITOR'S NOTE.

The attention of readers is called to the notice that appears on the second page of the cover with reference to the forming of a complete record of the distribution of the land and freshwater Mollusca of the British Isles. It is hoped that a first instalment of revised County lists will appear in the next number of the JOURNAL.

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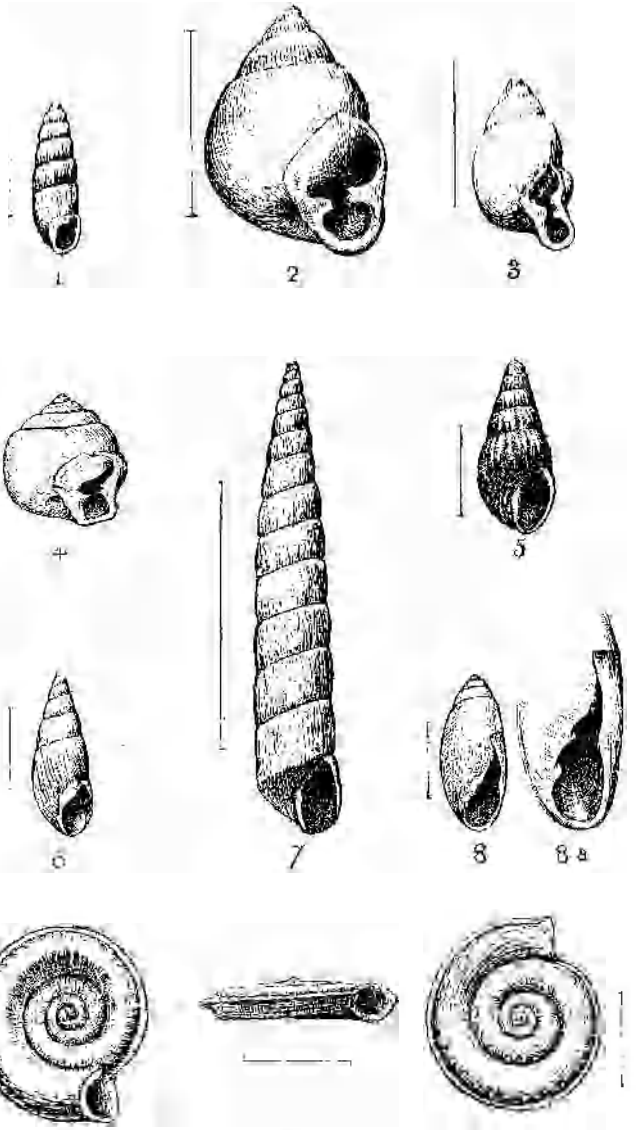


W. J. Welsh del. et lith. Garrett & Welsh sculpt.

NEW SPECIES OF LAND SHELLS FROM SOCOTRA.

My colleague Mr. Ogilvie Grant and Lieutenant-Colonel Yerbury, both ardent and experienced collectors, who propose to visit Socotra next year will doubtless add considerably to our knowledge of the fauna. Therefore, until their return, I abstain from giving a full report upon the shells obtained by Mr. and Mrs. Bent, and merely offer descriptions of the new species which they discovered.

1. **Ennea cylindracea**, n. sp., (Pl. V., fig. 1).

Testa parva, angusta, cylindracea, imperforata, alba, pellucida; spira elongata, ad apicem mammillata; anfractus sex, lente accrescentes, primus globosus, tres sequentes convexiusculi, ult. et penult. planiusculi sutura profunda obliqua discreti, lineis incrementi tenuibus striati, ultimus antice subascendens, supra dorsum tenuiter costulato-striatus; apertura irregulariter subquadrata, parva, longit. totius ⅓ adaequans, dente unica parietali instructa; peristoma leviter incrassatum, marginibus callo conspicuo junctis, exteriore versus suturam leviter sinuato, columellari dilatato, intus prominente, subplicato.

Longit. 7, diam. 2 mm. Apertura 1.6 longa, 1,25 lata.

2. **Buliminus (Passamaiella) mirabilis**, n. sp., (Pl. V., fig. 2).

Testa subglobosa, superne acuminata, purpureo-fusca, vimata, lineis incrementi tenuibus obliquis striata; spira conoidea, ad apicem submammillata; anfractus 5½, superiores duo convexi, laeves, sequentes vix convexiusculi, ultimus magnus, globosus, postice leviter descendens, sed versus aperturam subascendens, pone labrum foveam profundam exhibens, et infra vimam umbilicalem valde excavatus; apertura auriformis, longit. totius ½ paulo superans; peristoma incrassatum, expansum, reflexum, livido-fuscum, marginibus callo plus minus crasso junctis, externo intus in medio tuberculo duplice albo valde prominente instructo, columellari plica crassa intrante alba armato.

Longit. 23, diam. 16 mm.

Distinguished by its globose form, colour, and the characters of the aperture. In form this species bears a striking resemblance to a shell from Fernando Noronha described by the author under the name of *Bulimus* (*Tomigerus*) *ramagei**, and the armature of the aperture although different, is of the same character.

B. isthmodon, Martens is smaller, differently coloured, and has a more oblique aperture and the sculpture appears to be rather coarser.

* Journ. Linn. Soc., vol. xx., p. 200, pl. xxx., fig. 8.

3. Buliminus (Passamaiella) bentii,, n. sp., (Pl. V., fig. 3).

Testa irregulariter ovata, superne acuminata, albida ?, vel fuscescens, rimata, spira convexi conoidea, ad apicem obtuse mammillata; anfractus 5 subceleriter accrescentes, superiores duo convexi, laeves, sequentes duo minus convexi, peroblique striati, ultimus postice oblique descendens, sed prope labrum subascendens, pone labri medium et infra rimam umbilicalem valde impressus; apertura irregularis, obliqua, auriformis, contracta; peristoma paulo incrassatum, anguste expansum et reflexum, marginibus callo conspicuo recto sed obliquo fere junctis, externo intus in medio bituberculato et columellari plica valida elongata oblique intrante instructo.

Longit. 18.5, diam. 10 mm.

The only two specimens collected by Mr. and Mrs. Bent are in a bleached condition, exhibiting traces of a horny or brownish colour only towards the apex. The form of this very interesting species is very remarkable and at once distinguishes it from the other allied species. The great contraction of the aperture is very peculiar, it is also remarkable in that the parietal callus does not actually join the extremities of the peristome, but is separated both above and below by a slight notch or channel. It is a melancholy pleasure that one feels in associating this very curious species with the name of the late Mr. Bent.

4. Buliminus (Passamaiella) rotundus, n. sp., (Pl. V., fig. 4).

Testa globosus, superne conoidea, inferne excavata, vix rimata, albida; spira breviter conoidea, ad apicem submammillata; anfractus $5\frac{1}{2}$ lente accrescentes, sutura mediocriter profunda sejuncti, duo superiores convexi, laeves, sequentes minus convexi, oblique tenuissime et confertim costulati, ultimus globosus, antice haud descendens, in regione umbilici excavatus, et circa excavationem antice obtuse carinatus, pone labrum profunde scrobiculatus; apertura irregulariter auriformis, contracta; peristoma album, tenue, marginibus callo conspicuo utrinque fere junctis, externo in medio intus projecto et bituberculato, columellari reflexo, plica gracile intrante instructo, ad insertionem canaliculato.

Longit. 13, diam. 11.5 mm.

Remarkable for its globular form, the fine costulation being finer than in *B. passamaianus*, the contracted, denticulate aperture, &c. The parietal callus is separated from the extremities of the peristome, both above and below, by a narrow groove or channel.

5. **Buliminus (Ovella) acutus**, n. sp. (Pl. V., fig. 5).

Testa ovato-fusiformis, anguste perforata, nitida, nigro-et fusco-cornea, strigis albis, longitudinalibus, angustis, irregularibus, infra medium anfr. ultimi subito, obliquis, ornata, lineis incrementi vix conspicuis sculpta; spira elongato-pyramidalis, ad apicem obtusa; anfractus 7 lente accrescentes, duo superiores flavescentes convexi, caeteri planiusculi, ultimus haud descendens, antice subacuminatus; apertura anguste ovalis, intus saturate fusca, longit. totius $\frac{1}{3}$ paulo superans; peristoma flavescens, subtenue, margine externo haud expanso, columellari anguste reflexo, ad insertionem albo, intus in medio tenuiter uniplicato.

Longit. 13, diam. 5.4. mm. Apertura 5 longa, 2.5 lata.

The acuminate spire, flattened whorls and style of colouration are the distinguishing features of this pretty species. The ground colour of the last whorl is lighter than that of the two preceding whorls and besides the irregular white lines and stripes, a few white dots are scattered irregularly over the surface. The shell is very smooth and glossy, and the embryonic shell consists of two convex whorls of a yellowish horn colour. Allied to *B. longiformis*, Godwin-Austen, but smaller, with a more acuminate spire, and a peculiar style of markings on the lower half of the body-whorl.

6. **Buliminus (Ovella) innocens**, n. sp. (Pl. V., fig. 6).

Testa parva, angusta, ovato-fusiformis, rimata, albida; anfractus 7 lente accrescentes, apicales duo laeves, convexi, caeteri planiusculi, oblique confertim costulato-striati, sutura leviter obliqua distincta sejuncti, ultimus haud descendens; apertura parva, angusta, longit. totius $\frac{1}{3}$ paulo superans, alba; peristoma tenue, margine exteriore vix expanso, columellari leviter reflexo, intus plica obliqua tenui instructo.

Longit. 12, diam. 4 mm. Apertura 4 longa, 2 lata.

Only two dead specimens are in the collection which may be more or less bleached, but neither exhibit any traces of colour-markings. The species may be recognised by the slender form and very fine, close-set costulae.

7. **Stenogyra insculpta**,, n. sp. (Pl. V., fig. 7).

Testa subulata, imperforata, alba; anfractus 15 lentissime accrescentes, sutura profunda obliqua discreti, duo apicales laeves, convexi, supra tabulati, apicem obtusum formantes, sequentes 5-6 convexiusculi, caeteri minus convexi, subplani, striis leviter obliquis confertis peculiariter crenulatis sculpti, ultimus ad peripheriam angulatus, haud descendens; apertura angulatim ovalis; peristoma tenue, simplex, margine columellari anguste reflexo.

Longit. 37, diam. 6 mm. Apertura 5 longa, 3 lata.

This species is remarkable for the peculiar sculpture, consisting of close-set slightly oblique raised lines of growth, which, being crossed by numerous transverse impressed striae, have a prettily festooned or crenulated appearance. It differs from *S. urguta* Martens in sculpture, in the angulation of the body-whorl, and more tapering form.

8. **Stenogyra (Riebeckia) decipiens**, n. sp.

Testa S. socotoranae similis, sed ad apicem magis attenuata, sutura haud canaliculata, sculptura tenuiore, haud cancellata.

Longit. 88 mm., diam. 30. Apertura 27 longa.
,, 78 ,, ,, 25. ,, 22 ,,

Although quite similar in general appearance, this species is certainly distinct from *S. socotorana*. The top of the spire is more slender, the suture is not deeply cut or channelled, and the sculpture is much finer, consisting of fine lines of growth and excessively fine spiral striae. It is possible that some of the shells figured by Martens (Conch. Mittheil, vol. ii., pl. xxix) may belong to this species, figs. 7*a*, 7*b*, and 8 especially having a very striking resemblance to it.

9. **Auricula socotrensis**, n. sp. (Pl. V., figs. 8, 8A).

Testa elongato-ovata, imperforata, olivaceo-fusca, nitida, lineis incrementi tenuibus striata; spira brevis, convexe conoidea, ad apicem mammillata; anfractus 7, supremus convexus, caeteri vix convexi, interdum plus minus spiraliter punctati, ultimus elongatus, lateribus leviter convexis; apertura inverse elongato-auriformis; labrum tenue, intus levissime incrassatum; columella quadriplicata, plicis superioribus duobus subconjunctis et aliis inferioribus solidioribus.

Longit. 9, diam. 4 mm. Apertura 7 longa.

Allied to *A. pusilla*, H. & A. Adams, *A. nevillii*, and *gassiesi* of Morelet and a few other species, but quite distinct.

10. **Lithidion bentii**, n. sp. (Pl. V., figs. 9-9b.)

Testa discoidea, apertissime umbilicata, acute carinata alba, vel supra pallide rufescens, leviter nitens; spira plana; anfractus quinque, apicales duo (protoconcha) laeves, perconvexi, caeteri liris quatuor spiralibus gracilibus supra instructi, convexiusculi, hic illic radiatim subplicati, ultimus ad peripheriam carina compressa acute ornatus, infra liris concentricis 4-5 circumdatus; apertura rotundata, intus rufescens; peristoma album, marginibus callo junctis, margine supero sursum dilatato, inferiore incrassato, vix reflexo.

Diam. maj. 13, min. 11, alt. 3 mm.

Much flatter than *L. marmorosum* G.-Austen, with a much more prominent peripheral keel.

EXPLANATION OF THE FIGURES ON PLATE V.

Fig. 1. *Eunea cylindracea.*
Fig. 2. *Buliminus (Passamaiella) mirabilis.*
Fig. 3. *Buliminus (Passamaiella) bentii.*
Fig. 4. *Buliminus (Passamaiella) rotundus.*
Fig. 5. *Buliminus (Ovella) acutus.*
Fig. 6. *Buliminus (Ovella) innocens.*
Fig. 7. *Stenogyra insculpta.*
Fig. 8. *Auricula socotrensis.*
Fig. 8a. *Auricula socotrensis.* Aperture enlarged.
Fig. 9-9b. *Lithidion bentii.*

BOOKS RECEIVED.

MANUAL OF CONCHOLOGY, SECOND SERIES, PULMONATA, part 42, by **Henry A. Pilsby**, Philadelphia, pp. 55-144, pls. 14-25.

In this instalment, the section *Bulimus* proper, is brought to a finish. *Rhinus* is also completed, while a fifth section *Hyperaulax* (created by Mr. Pilsby in 1897 for *B. ridleyi*, E. A. Smith) is added to the four (given *ante*, p. 29), into which Mr. Pilsby breaks up his second division of the genus *Bulimulus*, or those species "with nepeonic whorls sculptured with waved, zig-zag, or irregular subvertical wrinkles, or with the wrinkles dislocated and broken more or less into granules or a netted pattern." Furthermore, the third division, in which the sculpturing of the nepeonic whorls is regular, is attacked—the forms belonging to the division are geographically and by general appearance divided into sub-genera, viz.—*Protoglyptus* from Eastern and Northern America, Trinidad, etc., *Naesiotus* from the Galapagos Islands, and *Orthotomum* from Central and Northern Mexico, Lower California, and Southern United States. The work on the first is finished, and the present part breaks off during the consideration of *Orthotomum*.

JOURNALS.

PROCEEDINGS OF THE MALACOLOGICAL SOCIETY OF LONDON, vol. ii., parts 6 and 7 (1897.)

Tate, Ralph.—"On a recent species of *Arcoperna*," pp. 181-2, fig.
Arcoperna recens, n. sp.

Suter, Henry.—"Revision of the New Zealand Polyplacophora," pp. 183-200 fig.

Suter, Henry.—"Note on *Mitra obscura*," Hutton, p.p. 201-2, fig.

Howes, G. B.—Presidential Address, pp. 203-226. A most masterly account of the Malacological work of the year.

Gwatkin, H. M.—"The Dentition of the Pupidae," p. 227.
Confirms Dr. Sterki's discovery that *Vertigo edentula* has the dentition of a *Punctum*.

Smith, Edgar A.—"Notes on some type-specimens in the British Museum," p. 229-232.
Murex penchinata, Crosse, is *M. hultoniae*, Wright; *M. fournieri*, Crosse, is a variety of *M. emarginatus*, Sowerby; *Cancellaria souverbiana*, Crosse, is *C. crenifera*; *Mitra crowani*, Crosse, is *M. conica*

Sykes, E. R.—"Descriptions of some new species of Helicoid and operculate land shells from Ceylon," pp. 235-257, pl. xvi.
New species:—*Corilla colletti*, *C. gudei*; *Euplecta colletti*, *E. scobinoides*; *Polita notabiles*; *Macrochlamys? circumsculpta*; *Cyathopoma artatum*, *C. prestoni*, *C. turbinatum*; *Diplommatina (Nicida) prestoni*.

Kennard, A. S., and **Woodward, B. B.**—"The Mollusca of the English Cave Deposits," pp. 242-244, figs.

This interesting paper deals chiefly with the Mollusca found in Ightham fissure in Kent, the species of greatest interest being:—*Hygromia umbrosa*, Partsch, which has not previously been discovered living or fossil in this country; *Vitrea helvetica* Blum. (*glabra*, Brit. Auct.), which has not been found fossil before; *Pomatias elegans* and *Vitrea alliaria* found in Pleistocene deposits for the first time (the statement that these occur in the Holocenes of Essex must only be meant to apply to the first shell as *V. alliaria* has not been found fossil in Essex at all); *Limax maximus* and *Clausilia laminata* are new records for our Pleistocenes; *Succinea oblonga* and *Vertigo minutissima*. A slender variation of *Carychium minimum* is figured.

Suter, Henry.—"A revision of the New Zealand Athoracophoridae," pp. 245-257, figs.

New species:—*Athoracophorus dendyi* (*Janella maculata*, Collinge, is *Athoracophorus bitentaculatus*, Quoy and Gaimard).

Suter, Henry.—"The Land Mollusca of Stewart Island," pp. 268-9.

Eleven fresh species.

Suter, Henry.—"Revision of the New Zealand Trochidae," pp. 260-283, figs.

New species:—*Gibbula micans*.

Suter, Henry.—"Notes on some New Zealand *Flammulina*, with the description of *F. ponsonbyi*, n.sp.," pp. 284-5, figs.

Smith, Edgar A.—"Descriptions of New species of Land Shells from New Guinea and neighbouring islands," p. 286-290, pl. xviii.

New species:—*Rhylida trobriandensis*; *Macrochlamys dohertyi*; *Ariophanta* (*Hemiplecta*) *andaiensis*; *Chloritis fusco-purpurea*; *Papuina rufo-purpurea*, *P. molesta*; *Pupina papuana*; *Truncatella gracilenta*.

Melville, J. Cosmo, and **Ponsonby, J. H.**—"Description of *Achatina studleyi*, n.p., from Old Calabar, West Africa," p. 291, fig.

Melville, J. Cosmo.—"Description of *Plecotrema sykesi*, n.sp., from Karachi," p. 292, fig.

Collinge, Walter E.—"On a further Collection of Slugs from the Hawaiian (or Sandwich) Islands," pp. 293-307, figs.

New species:—*Amalia babori*.

Sykes, E. R.—"Diagnoses of New Non-Marine Mollusca from the Hawaiian Islands," p. 298-9. New species of *Vitrea*, *Kalliela* and *Succinea*.

THE JOURNAL OF CONCHOLOGY, vol. viii., No. 13, October 1st, 1897.

Marshall, J. T.—"The Marine Shells of Scilly" (concluded) p. 433.

Oldham, Charles.—"*Limax cinereo-niger*, Wolff, in Derbyshire," p. 435.

Melvill, J. Cosmo.—"Upon the Principles of Nomenclature and their application to the Genera of Recent Mollusca," pp. 445-470.

A most interesting account of the various pre Linnean authors, and discussion of the various codes of nomenclature that have been drawn up, from time to time, as well as of many other points.

THE NAUTILUS.—Vol. xi., Nos. 5, 6, 7, & 8.

Wood, M. Williard.—"Bolinas, California; the Conchologists' Paradise," pp. 49-54.

Pilsbry, Henry A.—"Note on a Californian *Helix*," pp. 54-55.

Wright, Berlin H.—"New Unios," pp. 55-6.

New species:—*Unio buxtoni* and *U. suttoni*.

Dall, W. H.—"New land shells from Mexico and New Mexico," pp. 61-2.

New species:—*Holospira* (*Haplostemma*) *cockerelli*; *Coelocentrum atropheres*; *Schazicheila hidalgoana*.

Ancey, C. T.—"On two new species of *Amphidromus*," p. 62-3.

Amphidromus fultoni, from Cochin China, and *A. eudeli*, from Annam.

Merrian, John C.—"New species of tertiary Mollusca from Vancouver Island," p.p. 94-65.

Cythera newcombei, *C. vancouverensis*, *Patella geometrica*; *Turritella diverilineata*; *Nassa newcombei*: *Bullia buccinoides*.

Dall, W. H.—"New species of Mexican land shells," pp. 73-74.

Helix (Lysinoe) queretaroana; *H. (L) sebastiana*; *Polygyra nelsoni*.

Hemphill, Henry.—"Description of a new variety of land shell from Idaho," p. 74 and 75.

Helix devia var. *clappi*.

Cockerell, T. D. A.—"Notes on slugs," p. 75.

Dall, W. H.—"New West American shells," pp. 85-86.

Sigaretus oldroydii; *Pecten palmeri*; *P. randolphi*; *P. davidsoni*.

Ancey, C. F.—"Note on two species of *Helicina*," p. 87.

Considers that *H. rahei* recently described by Pilsbry = *H. rufocallosa* Anc., based upon examples distributed by Schmeltz under the erroneous name of *H. fischeriana* Montr.

Pilsbry, H. A.—"*Oxychona unmasked*," pp. 87-88.

The Brazilian species of *Oxychona* are found by Mr. Pilsbry from the characters of their radula and the sculpturing of the nepeonic shell, to belong to *Drymaeus*. The Central American and Mexican species placed in *Oxychona* by Mr. Pilsbry must now be separated once more, and for them it is proposed to reinstate *Leptarionta* of Crosse and Fischer.

Wright, Berlin H.—"A new Plicate *Unio*," pp. 91-2

Unio walkeri.

Pilsbry, H. A.—"*Polygyra fervissi*, n. sp.," p. 92.

Pilsbry, H. A.—A classified catalogue of American Land Shells with localities, pp. 59-60, 71-72, 83-84, 93-96.

NACHRICHTSBLATT DE DEUTSCHEN MALAKOZOOLOGISCHEN GESELLSCHAFT. July to December 1897.

Moellendorff, O. von.—"Neue Landschecken von Java," pp. 89-67.

New species of *Opeas*; *Tornatellina*; *Carychium*; *Leptopoma*; *Lagocheilus*; *Ditropis*; *Pupina*; *Alycaeus*, *Palaina*, *Diplommatina*, and *Georisa*.

Kobelt, W. and Moellendorff, O von.—"Catalogue der gegenwartig lebend bekannten Pneumonopomen" (continued) pp. 105-120, and 147-152.

Moellendorf, O von.—"Cochlostyla-Studien," p. 121, pp. 153-172.

Rolle, H.—"Eine neue *Anodonta*,"
Anodonta bactriana.

Moellenderf, O. von.—"Studien zur Zoogeographie von Dr. Kobelt · Die Mollusken der Palaearktischen Region, Weisbaden, 1897," pp. 173-778.

Martens, E. von.—"Neue Arten und Varietäten," pp. 178-180.
New species:—*Helix (Camena) moellengi*; *Cyclophorus (Scabrina) basisulcatus*.

JOURNAL DE CONCHYLIOLOGIE, vol. xlv, Nos. 1 & 2

Bernard, Felix.—"Etudes comparatives sur la coquille des Lamellibranches II. Les genres *Philobrya* and *Hochstetteria*, pp. 5-47, pl. i.

Hervier, J.—"Descriptions d'espèces nouvelles de Mollusques provenant de l'Archipel de la Nouvelle-Calédonie (Suite)," pp. 47-69, pl. ii., and pp. 89-121, pl. iii.
New species of *Daphnella*; *Cithara*; *Mangilia*; *Mitra*; *Clathurella*.

Vignal, L.—"Note sur le *Cerithium (Gourmya) cirrhoe*. A. d'Orbiguy," p. 69.

Drouet, H.—"Unionidae nouveaux ou peu connus," pp. 122-136.

Mayer-Eymer, C.—"Descriptions de Coquilles fossiles des terrains tertiaires supérieurs (suite)," pp. 136-145, pl. iv.

THE IRISH NATURALIST, August to December, 1897.

Adams, Lionel E.—"*Paludestrina (Hydrobia) jenkinsi* Smith." A new Irish Shell, pp. 234-236.

Mr. Adams suggests that as this species occurs in places where Baltic timber has been used, and as it has only of recent years been noticed, it may have been imported from the shores of the Baltic.

THE ESSEX NATURALIST, vol. x. April to June, 1897.

Webb, Wilfred Mark.—"The Non-Marine Molluscs of Essex (concluded), pp. 65-81.

Kennard, A. S., and Woodward, B. B.—With contributions by **Webb, Wilfred Mark.**—"The Post-pliocene Mollusca of Essex," pp. 87-109, table.

N.B.—For a resumé of the work in these two papers, see page 58 of this number.

JOURNAL OF THE LINNEAN SOCIETY OF LONDON ZOOLOGY.
Vol. xxvi., pp. 233-329, pls. 19 and 20.

Watson, R. Boog.—"On the Marine Mollusca of Madeira, with descriptions of thirty-five new Species and an Index list of all the known sea-dwelling Species of that Island."

REPRINTS.

From the JOURNAL OF THE ROYAL ASIATIC SOCIETY, CEYLON BRANCH, vol. xv., 1897, No. 48.

Collett, O.—The Terrestrial Mollusca of Ambagamuwa, 10 pp.
Thirty-eight species.

From the ANNALS AND MAGAZINE OF NATURAL HISTORY, vol. xx, (1897).

Hugh, Fulton.—"Descriptions of two new species of *Amphidromus*," pp 211-12, pl. vi., figs. 2 and 3. *Amphidromus floresianus* and *A. consobrinus*.

Hugh, Fulton.—"On supposed new species of *Oleacina*, *Trochomorpha*, and *Bulimulus*," pp. 212-214.

Oleacina underwoodi; *Trochomorpha* (*Videna*) *andamanica*; *T.* (*V.*) *pseudosanis*; *Bulimulus* (*Drymaeus*) *bavoni*.

BULLETIN OF THE NATURAL HISTORY SOCIETY OF BRITISH COLUMBIA, No. 2, pages 1-28, plates 1 and 2.

Dall, W. H.—"Notice of some new or interesting species of shells from British Columbia and the adjacent region."

New species of *Crenella*, *Modiolaria*, *Nucula*, *Leda*, *Yoldia*, *Malletia*, *Macoma*, *Cadulus*, *Cythara*, ? *Mumiola*, *Odontostomia*, *Rissoina*, *and Molleria Encosmia*.

From the JOURNAL OF PHYSIOLOGY, vol. xxii. (1897).

Davenport, C. B. and Perkins, Helen.—"A contribution to the study of Geotaxis in the higher animals," pp. 99-110.

Limax maximus was used in the experiments.

From "SCIENCE GOSSIP" (ns.), vol. iv.

Gude, G. R.—Armature of Heliciid Land Shells, pp. 70-1, 102-103, 138-139, 170-171 (see below page 44).

NOTES.

Distribution of Testacella maugei.

In view of Mr. Webb's studies on the distribution of the British species of *Testacella*, the following records for *T. maugei* may be of interest:—

SOMERSET.	Castle Cary (E. W. Swanton).
CORNWALL.	Phillack Rectory, Hayle (J. G. C. T.)
WARWICK.	Gardens near Birmingham (W. E. C.)
WORCESTER.	Nursery gardens near Worcester (W. E. C.)
CHESHIRE.	Gardens at Bowdon (W. E. C.)

The last three records are all of recent introduction.—W.E.C.

Notes on some Slugs from the Hebrides.

I have recently received from Mr. J. Steele Elliott, some slugs from St. Kilda, and also some from Mr. G. E. Allen, B.Sc., from Sanday, Orkney. As there are few records for these islands, it is desirable, I think, to record these specimens.

Mr. Elliott sent me four specimens of *Arion empiricorum*, Fér., and seven specimens of *Agriolimax agrestis*, L. Of the former, two are young. One of the adults is of the usual deep jet-black, with the foot-fringe and lineoles of the same colour and the foot-sole sepia-coloured; the other specimen is black on the *dorsum*, *becoming* plumbeous towards the foot-fringe. The head is lighter and somewhat mottled. Foot-fringe a yellowish-sepia with black lineoles. Foot-sole yellowish-sepia.

Mr. Allen collected seven specimens of *Arion*, four from West Brough, Sanday; four are *A. empiricorum*, Fér; the remaining three from Castle Green, Sanday, are very fine examples of the variety *johnstoni*, Kal., of *A. empiricorum*.—WALTER E. COLLINGE, *F.Z.S., Mason University College*, Birmingham.

Note on two species of Veronicella from Chili.

I have recently received from the Rev. H. M. Gwatkin, M.A., of Cambridge, four specimens of *Veronicella* from Chili. From an external examination of the same, I am of opinion that three are *V. nigra*, Heyn., 1885, originally described from specimens in the British Museum, and one *V. fusca*, Heyn., also described from a specimen in the British Museum.—W. E. C.

SPECIES OF PLECTOPYLIS RECENTLY DESCRIBED IN SCIENCE GOSSIP BY G. K. GUDE.

Plectopylis smithiana, Gude.

Shell dextral, discoid, widely umbilicated, rufous brown, coarsely and regularly ribbed, with scarcely visible microscopic sculpture above, but strongly decussated with spiral lines below, suture impressed. Whorls 6, convex, slowly increasing, the last rapidly widening towards the aperture, not angulated above, shortly descending in front. Aperture sub-triangular; peristome light brown, a little thickened and reflexed, the margins converging; parietal callus with a strongly raised flexuous ridge, separated from both margins of the peristome. Umbilicus very

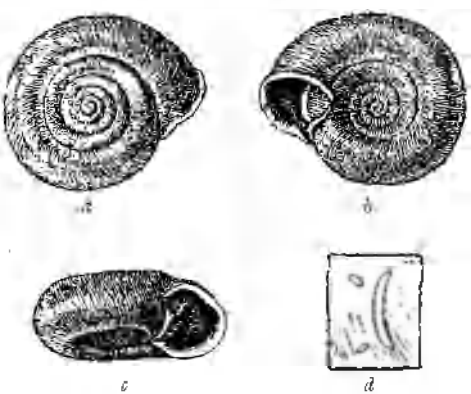


FIGURE 1.—*Plectopylis smithiana*, Gude.

wide but shallow. Parietal wall, with an entering flexuous horizontal fold, united to the ridge at the aperture, and at one-third of the circumference from the aperture with one crescent-shaped vertical plate, which has two small denticles, one above and one below, on the anterior side. Palatal folds 6, the first and sixth thin and horizontal, the other four short, broad and oblique.—Major diameter, 27 millimetres; minor diameter, 21 millimetres; axis, 10 millimetres. Habitat, Attaram, Burma.—Type in the British Museum.

I found two specimens in the Theobald collection of the British Museum, labelled *Plectopylis brachyplecta*, which, in spite of some external resemblance to that species, presented sufficient differences to lead one to suspect that they were distinct, and on opening one of them I found that the difference in the armature confirmed this suspicion. In basing a new species upon them, I have much pleasure in dedicating it to Mr. Smith, whose permission to open the shell enabled me to investigate the matter.

Plectopylis smithiana differs from *P. brachyplecta* in being darker and larger. The ribs are coarser and the whorls more convex; the last whorl is not angulated above, and it widens more towards the aperture. The peristome is less thickened and more reflexed, and the ridge of the parietal callus less stout but more raised, while the umbilicus is wider and much more shallow. The horizontal parietal fold deflects more at the aperture and there is only one vertical plate (see fig. 1 *d*), which is crescent-shaped, with the convex side towards the aperture; on its anterior side, in place of a second vertical plate as in *P. brachyplecta*, are found two elongated, oblique, converging denticles, one above and one below. The palatal armature is similar to that of *P. brachyplecta*. Fig. 1 *d*, which shows the parietal wall, is from one of the specimens in the British Museum. Figs. 1*a*-1*c* are drawn from a specimen, labelled Attaram, obligingly lent to me by Miss Linter, of Arragon Close, Twickenham, who informs me that she received it from Mr. Theobald. This was also labelled *P. brachyplecta*, but I have no hesitation in referring it to the new species. It measures—major diameter, 26 millimetres; minor diameter, 21 millimetres; axis, 9 millimetres. (SCIENCE GOSSIP, New Series, Vol. III., March, 1897, p. 274. *By kind permission of the Editor*).

Plectopylis plectostoma var. **tricarinata**, Gude.

Differs from the type in being larger, in having the periphery acutely keeled, and in having three raised ridges between the periphery and the suture, revolving as far as the fourth whorl.—Major diameter, 10 millimetres; minor diameter, 9 millimetres; axis, 6 millimetres.—Habitat, Bengal.—Type in the McAndrew collection of the University Museum of Zoology, Cambridge.

A tablet in the McAndrew collection contains five specimens, labelled "*Plectopylis plectostoma* Bengal, Benson coll.," two of

which are distinct from the type and appear to be worthy of a varietal name, Besides being larger and more conical than the type, they are also distinctly keeled at the periphery and have three distinct raised ridges on the upper side, revolving as far as the fourth whorl. I name this form *Plectopylis plectostoma* var. *tricarinata*. The entire shell is shown, enlarged, in fig. 2 *a*, while a portion of the last whorl, more enlarged, is shown in fig. 2*b*. The armature is identical with that of the type. (*Ibid*, p. 275).

a *b*

FIGURE 2.—*Plectopylis plectostoma* var. *tricarinata*, Gude.

Plectopylis affinis, Gude.

Shell sinistral, somewhat *widely* umbilicated, disc-shaped, *pale yellowish*, corneous, *translucent*, radiately plicate, *decussated* by spiral lines above, *smoother* and *shining below*. Whorls 7, narrow, increasing slowly, the last *widening* towards the aperture, and descending a little in front, rounded above, *flattened* below; *four* lines of soft pilose hairs pass round the whole length of the body whorl, the first on the angulated periphery, the second a little below it, the third midway between the second and fourth, which is near the umbilicus. Aperture ear-shaped, elongated *vertically*; peristome white, thickened and reflexed, upper margin a little *depressed*; the raised *flexuous* ridge on the parietal callus is separated from the margins by a slight notch. Umbilicus deep and moderately *wide*. The parietal armature consists of a vertical plate with two short supports anteriorly, one above and one below, and two elongated denticles posteriorly, one above and one below; *two* free, short, horizontal folds in a line occur below the vertical plate. The palatal armature is composed of six folds, the first and sixth short, thin and horizontal, the others longer and broader; the second a little indented in the middle, with the posterior termination raised obliquely; the third is notched in the middle, and deflects obliquely posteriorly; the fourth and fifth are in two series separated by a short space, the anterior portion straight and horizontal, the posterior portion crescent-shaped and obliquely descending.—Major diameter, 10 millimetres; minor diameter, 9 millimetres; axis, 5.5 millimetres.—Habitat, Khasia Hills, Assam.—Type in my collection.

Plectopylis affinis from the Khasia Hills, has hitherto been confused with *Plectopylis plectostoma*, but it differs in being larger and much paler in colour, in having four instead of five rows of hairs, which are not placed on raised ridges as in that species; the cuticle is much thinner and not plaited, while the spiral sculpture is less coarse above and scarcely perceptible below, where the shell is also more shining than in *P. plectostoma*. The shell is translucent and the armature is distinctly visible through its wall, while the aperture is more narrowed laterally and the upper margin of the peristome is less arcuate, being a little inflected. The umbilicus is also wider and scarcely angulated, while the base is much more flattened. The ridge of the parietal callus is more raised and more curved. The parietal armature consists of a vertical plate with a very short support anteriorly at the upper and lower extremities, but without the

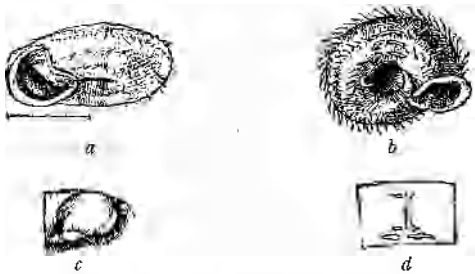


FIGURE 3.—*Plectopylis affinis*, Gude.

horizontal fold above as in *P. plectostoma*. The two denticles on the posterior side are larger and more elongated, and below the vertical plate are two short, thin, horizontal folds in a line with each other (see fig. 3*d*, which shows the parietal wall by itself; and fig. 3*c*, which shows both armatures from the posterior side). The palatal armature is similar to that of *P. plectostoma*, but the posterior portions of the third, fourth and fifth folds, instead of being straight and almost vertical are crescent-shaped and oblique (see fig. 3*b*, which shows the palatal folds as they appear through the shell-wall); an additional semi-circular fold, posterior to, but a little, above the fifth fold, occurs in this specimen; this, however, I have not observed in any of the other specimens. Fig. 3*a* shows the entire shell enlarged. My specimens were obtained from Mr. Fulton some years ago; the twenty-five further specimens from the same locality, sent to me for inspection by him, range from 9 to 11 millimetres in diameter.

Two immature specimens in my collection are composed of five-and-a-half whorls; one of these has the immature barriers complete, but the palatal folds are very short and the posterior oblique portions of the fourth and fifth folds are almost straight instead of crescent-shaped; externally a slight trace of previous folds can be discerned; in the other specimen the last immature folds are similar to those of the first specimen, but the remains of a previous set is in a less advanced stage of disintegration. (*Ibid.*, p. 276).

Plectopylis clathratuloides, Gude.

Shell depressed conical, moderately umbilicated, pale corneous, translucent, finely and regularly plicated by raised ribs above, finely and closely ribbed and a little shining below; whorls $5\frac{1}{2}$, slowly increasing, slightly convex, suture impressed. Periphery with an acute compressed keel, above which revolve 2 raised spiral ridges, the lower provided with a fringe of coarse

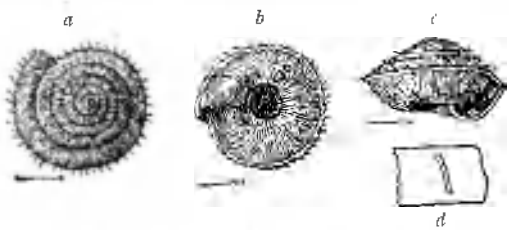


FIGURE 3.—*Plectopylis clathratuloides*, Gude.

hairs. Aperture subquadrate; peristome simple, a little thickened. Umbilicus deep and moderately wide. Parietal armature, one strong, vertical, simple plate. Palatal armature in two series; upper series with one posterior, vertical, conical tooth and one minute anterior denticle; lower series, with one posterior, vertical tooth and a small anterior denticle; in addition, one elongated horizontal fold below the umbilical angulation and a small fold above the peripherial angulation. Major diameter, 6 millimetres; minor diameter, 5.5 millimetres; axis, 3.5 millimetres.—Habitat, Anamullay Hills, India.—Type in Colonel Beddome's collection. (*Ibid* p. 333).

THE BRITISH SPECIES OF TESTACELLA.

By WILFRED MARK WEBB, F.L.S.,

Assistant Biologist to the Essex County Council.

[Continued from page 26.]

PLATE VI.

DISTRIBUTION.

Specimens of *Testacella* have been sent to the writer from several localities since the publication of the provisional list in the last number of THE JOURNAL, and the following records are given under specific headings as a continuation of it :—

Testacella haliotidea, *Draparnaud.*

Somerset.—Beckington, shells only. (H. Franklin Parsons).
Kent.—Kelsey Park, Beckenham. (Mark Webster).
Middlesex.—Royal Horticultural Society's Gardens, Chiswick, with *T. scutulum*. (E. Miller).
Surrey.—Sutton Common. (Maxwell T. Masters, M.D., F.R.S.)
Oxfordshire.—Middleton Park, Bicester, with *T. scutulum*. (Thos. Trollope).
Worcestershire.—Diglish House, Worcester. (Samuel Taylor). This is the third record for this city.
Nottinghamshire.—Carlton Hall, Carlton-on-Trent. (Louis Pope).
Lancashire.—Clayton Hall, Accrington. Dark variation. (Joseph Poulter).

Testacella scutulum, Sowerby.

Middlesex.—Royal Horticultural Society's Gardens, Chiswick, with *T. haliotidea*. (E. Miller).
Surrey.—Park Hill Rise, Croydon. (H. Franklin Parsons).
Oxfordshire.—Middleton Park, Bicester, with *T. haliotidea*. (Thos. Trollope).
Leicestershire.—Bean Manor Park, Loughborough. (Alfred Hamshere).

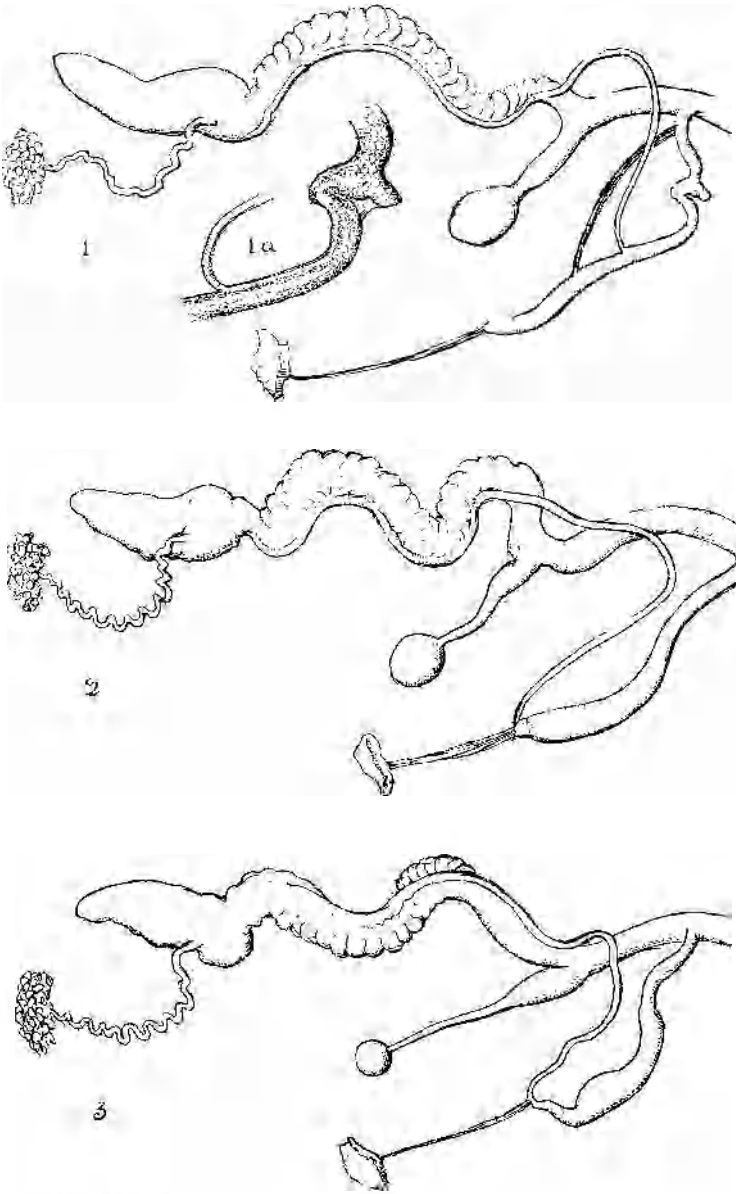
Testacella maugei, Férussac.

Somerset.—Sunnyside, Bridgewater. (Henry Corder).
Wiltshire.—Longleat Gardens, Warminster. Very fine specimens, with very dark and definite markings. (Josiah Trollope).
Pembroke.—Deer Park Villas, Tenby. (A. G. Stubbs).

N.B.—For other records for this species see a note by Mr. W. E. Collinge on page 43.

In the previous list, Walk-upon-Deane, page 25, three lines from the bottom, should read Wath-upon-Dearne. Enfield, page 26, line 5, should have been included under Middlesex. Mr. Mansel-Pleydell's paper see the note on page 26, appeared in Proc. Dorset Nat. Hist. and A. F. Field Club, vol xi. (1889).

[To face page 51.



W. J. Webb del. ad nat. Garnar & Walsh sculpt.

REPRODUCTIVE SYSTEM IN BRITISH TESTACELLAE.

Figure 1, of *T. haliotidea*, figure 1a, the junction of the penis with the vas deferens and flagellum much enlarged. Figure 2 of *T. scutulum*. Figure 3 of *T. maugei*. Figures 1, 2 and 3 are medium-sized specimens enlarged twice linear.

External Characters.

There are one or two points with regard to the external characteristics of these slugs, that might be mentioned before beginning to consider their comparative internal anatomy.

The dorsal lines, or preferably dorsal furrows, were used to some extent as a distinguishing feature in the table of external characters, for the determination of the British species given by the writer in this journal *; but, in the case of the two species, *scutulum* and *haliotidea*, the size of the angle contained by the furrows was merely mentioned as being the greater in the latter species.

Mr. Taylor † pointed out a more definite difference, in that the furrows (he calls them lateral however, the lateral grooves in the writer's table being those which branch from the dorsal ones, after the manner of the side veins from the mid-rib of a leaf) meet outside the shell in *T. scutulum*; and Mr. Lionel Adams, in the second edition of his Manual ‡ uses this feature as a distinguishing one. The writer has found the distinction a constant one, and the following descriptions are quoted from the Manual:—

	Testacella scutulum, Sow.	*Testacella haliotidea*, Drap.
Dorsal furrows when the animal is extended.	"Branching off from a point outside, and just in front of the shell."	"Branching out from point just under the shell."

Since the table above referred to was published, the writer has noted several variations from the more generally occuring forms upon which it was based.

Judging from the Conchological Society's list, and Mr. Adams' Manual which follows it, one would imagine that either *Testacellae* did not vary, or that no variations had been noted, for instead of the long series of varietal names that is usually presented to the reader under the heading of each species, there occurs after the description of *T. maugei* alone, but a single variety, *viridans* (Morelet). To the writer the absence of these

* Volume iv. (1895), p. 76.
† Journal of Conchology, volume v. (July, 1888), p. 315.
‡ The Collector's Manual of British Land and Freshwater Shells, 2nd edition (1856), pp. 40 and 41.

names is a matter for rejoicing, but it is advisable, nevertheless, that all important variations should be recorded.

Testacella scutulum.

It is unlikely that many forms of *T. scutulum* would be recorded, for until recently, it was itself considered to be a variety. The writer recalls, however, some "sub-varieties" he thinks, from Gibraltar, described in "Science Gossip" a number of years ago by Mr. Cockerell, who has raised them to varietal rank in his "Check List of Slugs." *

The first two of the variations noted below as occurring in the British Isles, appear to correspond with a like number of Mr. Cockerell's "varieties."

Yellow form.—With dots.

Bright yellow form.—Without dots.

Brownish form.—The dots are very close, or have run together, thus giving the form a colour likeness to *T. haliotidea*.

In addition, it may be said that the dorsal furrows are (even when the dots are present) sometimes pigmented, sometimes not, and that when the general appearance lightens, the foot-sole whitens. In some specimens there is an orange margin to the foot-sole.

Testacella haliotidea.

If the "Check List" be again referred to, some seven "varieties" are given of *T. haliotidea*: these may or may not be based upon correctly determined specimens of the species. Several of the names have reference to slight variations in the shell alone, which could easily be picked out from a good series, such as the one before the writer. The albino is worth noting, and there is a yellow form also named by Moquin-Tandon which is really represented in *T. haliotidea*.

Among British examples, the writer identifies the following:—

Isabelline form.—The body is compressed dorsiventrally, and its edges are wavy, giving a foliaceous appearance, which is enhanced by the midrib-like dorsal furrows with the lateral grooves running forwards and outwards from them, while other grooves often run in like manner up into the spaces between dorsal furrows. The foot-sole is quite white, but the sides are often tawny, this colour sometimes spreading to the back. This is by far the most general form.

* Journal of Malacology, vol. ii. (1893), p. 188.

Greyish brown form.—One specimen was of a very dark hue, with dorsal furrows of a still darker colour: the foot-sole was of a creamy white, and edged with a narrow line which was to all intents and purposes black, while down the centre from head to tail, ran a narrow stripe of brilliant orange-colour (apparently due to mucus as it could be removed.) Altogether the animal presented a very striking appearance. Only one dark specimen was received from Brandon, and a few somewhat lighter in colour from another locality. The shape of the body recalls somewhat that of the next form.

Yellowish form.—This variation resembles *T. scutulum*, in that yellow is the predominant colour (in some cases even of its foot-sole), and in its more cylindrical shape, but its shell, dorsal furrows, and internal anatomy are typical of *T. haliotidea*.

Testacella maugei.

The bronze variation of Morelet has not been seen by the writer, unless the first form mentioned below be the one:—

Tawny form.—The dark brown markings are fairly wide apart, but give a brown appearance at first sight; the ground colour being yellowish.

Brown form.—The ground colour is nearly obscured by the numerous markings.

Yellow form.—The markings are restricted, and the general appearance is yellow inclined to orange.

Gassies and Fischer* mention albino, greyish black, greyish brown, greyish red (type of Férussac) and reddish brown "varieties," which are not quoted in the Check List, probably owing to the descriptions being so meagre. In some specimens of the first form of *T. maugei* the dorsal furrows and lateral grooves are so strongly pigmented that the likeness to a leaf is very marked; this leaf-like appearance was also noted under the last species. The writer has often noticed also a strong likeness between contracted specimens of *T. scutulum* (and in some cases of *T. haliotidea*), and half a broken pebble, the arched upper side of the slug corresponding with the original surface of the pebble, and the slightly convex underside, with the fractured surface of the flint, which is often higher in the centre. Correspondents point out the difficulty of finding *Testacellae*, as they "favour stones" so much.

Reproductive System.

As the differences in the genital organs have been the chief features relied upon for separating *T. haliotidea* and *T. scutulum*, it is as well perhaps to begin with the reproductive system of our British species.

The previous work of comparing these two species is as follows:—

* Monographie du Genre Testacelle, Actes Linn. Soc. Bordeaux xxi. (1858), p. 239

1888. **J. W. Taylor.**—On the specific distinctness and geographical distribution of *Testacella scutulum*, G. B. Sowerby, Journ. of Conch., vol. v. pp. 337, figs.

In this paper the result of anatomical work, by the late Charles Ashford, is given.

1893. **Walter E. Collinge.** The Morphology of the Generative System of the Genus *Testacella*. Ann. Mag. Nat. Hist., ser. 6, vol. xii., pp. 21-25, pl. i.

Briefly the facts are these. In 1885 Mr. Charles Ashford found that *Testacella scutulum* unlike *T. haliotidea* resembled *T. maugei* in having no flagellum to the penis. Mr. Taylor published these results (1888), and gave figures of the genital organs of the two first species. Mr. Collinge (1893) gave an account of the organs of *T. haliotidea* following Lacaze-Duthiers*; at the same time he criticized Mr. Taylor's description and figure, and proceeded to compare and figure the system, of all three species.

During the last few years the writer has dissected very many specimens of the two species *haliotidea* and *scutulum*, mainly with the object of testing specific determinations previously based upon external characters. In this process it was deemed sufficient for the purpose, to prove the presence or absence of the flagellum, and it was not until some yellow variations of *T. haliotidea* were examined more in detail, and with great care that the writer noticed any deviation from the simple form of penis figured by Lacaze-Duthiers, and later by Collinge, as typical of the species.

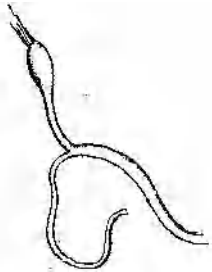
The deviation noted, recalled to mind the other figure given by Mr. Collinge of a variation, but the structure not being the same, the whole of the material available was carefully gone through with a view to finding out the most general form. In every specimen examined by the writer from some eighteen localities dotted about Great Britain, a form of penis was discovered differing from both of those figured by Mr. Collinge. In comparing the figure of the variation on Mr. Collinge's plate with its description, it was noted that such a form was stated to have been wrongly described and figured as typical, by Mr. Taylor. Upon turning to Mr. Taylor's paper, it was at once obvious that the form found by the writer was very similar to that described by the former as having "a tongue-like caecal process."

The structure found by the writer was more marked

* Histoire de la Testacella, Arch. de Zool. Exper. et Gen (2), vol. V., (1887), pl. xxxvi.

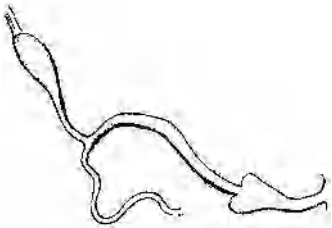
in some examples than others, and in a few cases the elbow on the opposite side of the penis (not brought out in Mr. Collinge's figure) was hardly visible, and the process being turned back,

4 (after Gassies & Fischer)

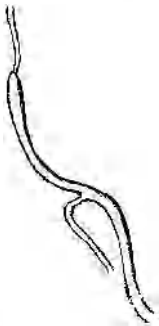


7 (after Collinge)

5 (after Taylor)



8 (after Collinge)



6 (after Lacaze-Duthiers)

Figures 4 to 8.—Various forms of the penis which have been given by different authorities, for *Testacella haliotidea*.

and closely applied to the adjacent organs, might almost have been overlooked.

As Mr. Collinge remarks that the figures and descriptions given by Mr. Taylor "leave much to be desired," and is severely

critical, perhaps it would be useful in the light of the point brought out and touched upon, to examine the critic's description in detail.

Mr. Collinge describes the anterior portion of the penis as being "sometimes dilated in a somewhat caecal-like form," and one acquainted with the anatomy of *T. haliotidea* might fancy that Mr. Collinge had seen the structure alluded to above, and that the dilatation refers to an apparently lateral outgrowth of the penis, which is, of course, a small caecum. A reference on the other hand, to the figure supplementing his description (reproduced, reversed in figure 8), shows that Mr. Collinge is not familiar with the characteristic "tongue-like caecal process" mentioned by Mr. Taylor, and found to be constant in British examples by the present writer, or at least, has not grasped its true configuration. The figure presents two swellings, one on each side of the penis, and as this organ is not shaded, it is further left to the imagination whether there may not be, after all, but one swelling extending all round the structure.

Mr. Taylor's sketch (reproduced in figure 5) at first sight, and taken by itself, is not very much more definite, though it will be seen that in reality it is more accurate. Both of the authors quoted from, allude to the caecum as occurring on the lower (anterior) part of the penis, whereas it will be seen from Plate VI. figure 1*a* that what they consider to be the upper portion of that organ is but a combination, apparently, of the flagellum and vas deferens which run side by side for some distance before they join the true evaginable penis, which shows by transmitted light a very different structure from them, as the bases of papillae, with which the penis is seen to be covered when extruded, are visible through its walls.

Further, in the specimens from seventeen different localities, the spermatheca is not round, but of a slightly pear-shaped oval, indicated by Mr. Taylor.

With regard to foreign examples, the writer's personal knowledge is at present confined to "*Testacella dubia* Poll."—received from Turin through the kindness of the describer, Signor Pollonera—which agrees with British examples of *T. haliotidea* in the shape of the penis, and is put down as a form of this species in the Check-list. A resumé of work other than that of Lacaze-Duthiers bearing upon the point at issue, in Continental specimens of *T. haliotidea*, is given below:—

1855. **Moquin-Tandon.**—"Histoire naturelle des Mollusques terrestres et fluviatiles de France." Plate V., fig. 16.

A swelling (dilatation inférieure) appears upon the penis at about the position occupied by the little caecum in British examples, and a lateral retractor (muscle latéral) noted by Mr. Taylor and the writer but not shown by Lacaze-Duthiers nor Collinge is figured.

1858. **Gassies and Fischer.**—"Monographie du Genre Testacelle," Actes Linn. Soc. Bordeaux, xxi., pl. 1,, fig. 15.

Mr Taylor pointed out that this figure (a part of which is reproduced, figure 4) though labelled *maugei*, obviously belongs to *haliotidea* (a conclusion independently arrived at by the writer), and also that on the authority of these writers, Pollonera credited *T. maugei* with a flagellum. A lateral retractor is indicated.

1889. **Carlo Pollonera.**—"Osservazione intorno ad alcune specie de *Testacella*." Boll. Mus. Zool. Anat. Comp , Torino, iv., pl. 1., figs. 2 and 3.

The figure labelled *T. dubia* depicts a form of penis very much resembling that given in illustration of the present paper (plate VI., fig. 1), while this organ as given for *T. haliotidea* more resembles that called a variation by Mr. Collinge (reproduced in figure 8) in that it looks more like two swellings than like a single one and an elbow.

Signor Pollonera expresses his opinion that the form figured by Lacaze-Duthiers belongs to some other species differing from and wrongly determined as *T. haliotidea*; this still, however, remains to be proved. Further, he does not agree with Mr. Taylor's interpretation of Gassies and Fischer's figure, giving as his reasons small points of difference that would be put down by English malacologists as due to the individuality of the specimen or the figurer. Signor Pollonera gives, however, an excellent figure of the genitalia of *T. maugei*, of course without a flagellum.

The evidence then, leads towards there being a form of *Testacella* as described by Lacaze-Duthiers and Collinge which differs from the more generally distributed *T. haliotidea* in some important particulars which may turn out to be of specific value.

Testacella scutulum.

In this species the writer has noticed that the retractor muscle of the penis is as broad as the terminal portion of that organ which is slightly constricted from the broader and preceding part.

The spermatheca is usually round (as figured by Mr. Collinge), occasionally egg-shaped, but without, in the specimens examined, the much swollen basal part to the duct. (Plate VI., figure 2). The vagina is very long indeed.

Testacella maugei.

The swollen basal part of the spermathecal duct is not inclined to be globular, according to the writer's dissections, but to be of an oval, gradually diminishing into the more ordinary proportions of the duct at the extremities. The lateral entry of the duct into the spermatheca was not noted. (Plate VI., figure 3).

THE DISTRIBUTION OF BRITISH NON-MARINE MOLLUSCS.

I. HAND LIST FOR ESSEX.

In accordance with an announcement made in the Journal, it is proposed to publish Hand Lists of the Non-Marine Molluscs occurring in the various Counties of the British Isles. In order to make such lists really complete, and of greater value, there should be included in them the names of extinct and other species, found fossil in the Counties to which they refer. There are, however, many difficulties in the way of doing this. In the first place, very few of the published Lists of Fossil Shells are reliable. Again, the labour of working through these lists with the specimens which have been preserved, is greater than anyone who has not participated in it would believe, and as there are but two or three workers in this difficult branch of the subject, the progress made is correspondingly small.

Under these circumstances it is possible that all fossil records may not be included in every list, though as the Essex Post-Pliocene Mollusca have been recently worked out in great detail, they are included in the present one.

Authorities for the following List in whose papers reference to previous work on the subject will be found.

1897. **Wilfred Mark Webb.**—"The Non-Marine Molluscs of Essex." Essex Nat., Vol. X. (1897) pages 27-48, and 65-81.

1897. **A. S. Kennard and B. B. Woodward,** with contributions by **Wilfred Mark Webb.**—"The Post-Pliocene Non-Marine Mollusca of Essex." Essex Nat., Vol. X. (1897) pages 87-109.

N.B.—The Editor of the "Essex Naturalist"—**William Cole**—has since pointed out that specimens of *Dreissensia polymorpha*, from the Lea, are in the Epping Forest Museum. Essex Nat., vol. x., p. 189.

HAND LIST OF THE NON-MARINE MOLLUSCS OF ESSEX.

The species living in the County are marked with a cross (+); those found fossil, with a star (*). Extinct Forms are in Roman type.

A. *GASTROPODA.*

I. PULMONATA.

a. Stylommatophora

Testacella—
maugei, Fér.
\+ *haliotidea*, Drap.
\+ *scutulum*, Sow.

Limax—
\+ *maximus*, Linn.
\+ *flavus*, Linn.
\+ *arborum*, Bouch.-Chant
hedleyi, Coll.

Agriolimax—
\+ **agrestis*, Linn
\+ *laevis*, Mull.

Amalia—
\+ *sowerbii*, Fér.
gagates, Drap.

Vitrina—
\+ *pellucida*, Müll

Vitrea—
\+ **crystallina*, Müll.
lucida, Drap.
\+ *alliaria*, Miller
\+ *glabra*, Brit. Anct.
\+ **cellaria*, Müll.
\+ **nitidula*, Drap.
\+ **pura*, Ald.
\+ **raduatula*, Ald.
**excavata*, Bean
\+ **nitida*, Müll
\+ **fulva*, Müll.

Arion—
\+ *ater*, Linn.
elongatus, Coll.
flagellus, Coll.
\+ *hortensis*, Fér.
\+ *circumscriptus*, John.
intermedius, Norm.
lusitanicus, Mab.
\+ *subfuscus*, Drap.

Geomalacus—
maculosus, Allman

Punctum—
\+ **pygmaeum*, Drap.

Pyramidula—
\+ *rupestris*, Drap.
**ruderata*, Stud.
\+ **rotundata*, Müll.

Eulota—
**fruticum*, Müll.

Helicella –
\+ **virgata*, Da. C.
\+ **itala* Linn.
\+ **caperata*, Mont.
barbara, Linn.
\+ *cantiana*, Mont.
\+ **carthusiana*, Müll.

Hygromia—
\+ *fusca*, Mont.
\+ **granulata*, Ald.
\+ **hispida*, Linn.
revelata, Fèr.
\+ **rufescens*, Penn.
umbrosa, Partsch

Acanthinula—
\+ **aculeata*, Müll.
**lamellata*, Jeff.

Vallonia—
\+ **pulchella*, Müll.

Helicodonta—
obvoluta, Müll.

Helicigona—
\+ **lapicida*, Linn.
\+ **arbustorum*, Linn.

Helix—
\+ **aspersa*, Müll.
\+ *pomatia*, Linn.
\+ **nemoralis*, Linn.
\+ **hortensis*, Müll.
pisana, Müll.

Buliminus—
\+ **montanus*, Drap.
\+ **obscurus*, Müll.

Pupa—
secale, Drap.
**anglica*, Fér.
\+ **cylindracea*, Da. C.
\+ **muscorum*, Linn.

Sphyradium—
\+ **edentulum*, Drap.

Vertigo—
**minutissima*, Hartm.
\+ **antivertigo* Drap.
\+ **substriata*, Jeff.
\+ **pygmaea*, Drap.
**alpestris*, Alder
\+ **moulinsiana*, Dup.
\+ **pusilla*, Müll.
**angustior*, Jeff.

Balea—
\+ **perversa*, Linn.

Clausilia—
\+ **laminata*, Mont.
\+ **bidentata*, Strom.
biplicata, Mont.
pumila, Ziegl.
**rolphii*, Gray

Cochlicopa—
\+ **lubrica*, Müll.

Azeca—
\+ **tridens*, Pult.
elongata, Taylor

Caecilianella—
\+ **acicula*, Müll.

Succinea—
\+ **putris*, Linn.
\+ **elegans*, Risso.
**oblonga*, Drap.

Oncidiella—
celtica, Cuv.

b Basommatophora.

Carychium—
\+ **minimum*, Müll.

Melampus—
\+ *denticulatus*, Mont.

Alexia—
\+ *myosotis*, Drap.

Leuconia—
\+ *bidentata*, Mont.

Ancylus—
\+ **fluviatilis*, Müll.

Velletia—
\+ **lacustris*, Linn.

Limnaea—
\+ **auricularia*, Linn.
\+ **peregeri*, Müll.
\+ **palustris*, Müll.
\+ **truncatula*, Müll.
\+ **stagnalis*, Linn.
\+ *glabra*, Müll.
involuta, Harv.

Amphipeplea—
glutinosa, Müll.

Planorbis—
\+ **corneus*, Linn.
\+ **albus*, Müll.
\+ **glaber*, Jeff.
\+ **nautileus*, Linn.
\+ **carinatus*, Müll.
\+ **marginatus*, Drap.
\+ **vortex*, Linn.
\+ **spirorbis*, Müll.
\+ **contortus*, Linn.
\+ **fontanus*, Lightf.
\+ **lineatus*, Walker

Physa—
\+ **fontinalis*, Linn.
\+ **hypnorum*, Linn.

II. PROSOBRANCHIATA.

Paludestrina—
\+ *confusa*, Frau.
\+ *jenkinsi*, Smith.
\+ **ventrosa*, Mont.
\+ **stagnalis*, Bast.
*marginata, Mich.

Bythinia—
\+ **tentaculata*, Linn.
\+ **leachii* Shepp.

Vivipara—
\+ **vivipara*, Linn.
\+ **contecta*, Millett

Valvata—
\+ **piscinalis*, Müll.
\+ **cristata*, Müll.

Assiminea—
\+ *grayana*, Leach

Pomatias—
\+ **elegans*, Müll.

Acicula—
**lineata*, Drap.

Neritina—
\+ **fluviatilis*, Linn.

B. *PELECYPODA*.

Dreissensia—
\+ **polymorpha*, Pall.

Unio—
*littoralis, Lam.
\+ **pictorum*, Linn.
\+ **tumidus*, Retz.
margaritifer, Linn.

Anodonta—
\+ **cygnaea*, Linn.

Corbicula—
*fluminalis, Müll.

Sphaerium—
\+ *rivicola*, Leach.
\+ **corneum*, Linn.
\+ *ovale*, Fèr.
\+ *lacustre*, Mull

Pisidium—
\+ **amnicum*, Müll.
*astartoides, Sandb.
\+ **pusillum*, Gmel.
\+ *nitidum*, Jenyns.
\+ **fontinale*, Drap.
\+ *milium*, Held.

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