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THE NAUTILUS

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OF CONCHOLOGISTS.

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8. *Hyalina Binneyana* Morse.
9. *Conulus fulvus* (Müller).
10. *Pristiloma Lansingi* (Bland).
11. *Pristiloma Stearnsi* (Bland).
12. *Ariolimax Columbianus* (Gould).
13. *Prophysaon Hemphilli* Bland & Binney.
14. *Prophysaon Pacificum* Cockerell.
15. *Patula striatella* (Anthony).
16. *Patula asteriscus* (Morse).
17. *Punctum minutissimum* (Lea).
18. *Punctum conspectum* (Bland).
19. *Lysinoe fidelis* (Gray).
20. *Mesodon Columbianus* (Lea).
21. *Mesodon devius* (Gould).
22. *Stenotrema germanum* (Gould).
23. *Pupilla corpulenta* (Morse).
24. *Vertigo simplex* (Gould).
25. *Vertigo ovata* Say.
26. *Ferussacia subcylindrica* (Linn.).
27. *Succinea Nuttalliana* Lea.
28. *Succinea Oregonensis* Lea.
29. *Succinea rusticana* Gould.
30. *Onchidella Carpenteri* W. G. Binney.
31. *Onchidella borealis* Dall.
32. *Carychium exiguum* (Say)?

LIMAX AGRESTIS LINN. ON THE PACIFIC COAST.

BY G. W. TAYLOR.

In the October number of the NAUTILUS, Mr. T. D. A. Cockerell writing of *Limax agrestis*, recorded its occurrence at Portland, Oregon, and remarked that he believed this to be "the first record of the species from the Pacific Coast." However two years ago I myself noticed the introduction of the species into this part of the world, in a little paper on "The Land Shells of Vancouver Island" published in the *Ottawa Naturalist*, vol. 3, p. 84, etc. (December, 1889.)

I believe that I first observed this slug about seven years ago in the Victoria gardens, and it has since developed into a dreadful pest. There cannot I think be any doubt as to the species being an

introduced one as it has not yet been noticed in any part of Vancouver Island other than in Victoria, and the specimens resemble British ones in every respect save that the milky slime is not nearly so copious. The principal varieties occurring here are those that Mr. Cockerell would call *aylaticus* and *varians*. I have appended to this note a list of the Terrestrial Mollusca of Vancouver Island as at present known to me. Further information concerning their occurrence may be found in my paper above referred to, a copy of which I shall forward with pleasure to any conchologist who may desire it, so long at least as my stock holds out.

GENERAL NOTES.

PUPA HOLZINGERI STERKI, IN OHIO. Three, specimens of this species occurred among other small species collected last spring at Put-in-Bay Island, Lake Erie. A comparison with specimens received from Dr. Sterki leaves no doubt in my mind as to the identification.—*Bryant Walker, Detroit, Mich.*

UNIO COMPLANATUS SOL. IN NORTHERN MICHIGAN. In the NAUTILUS for June 1889 (vol. 3, p. 16) I recorded the discovery of an isolated colony of this species at Ocqueoc Lake, in the northern part of the lower peninsula, and queried as to how it got there. Since then I have found the species in the St. Mary's river at Lime Island, Michigan. The occurrence of the species at this locality would seem to make it probable that it will be found quite generally distributed through the upper peninsula and also affords an explanation for the existence of the Ocqueoc colony.—*Bryant Walker, Detroit.*

NEW JAPANESE SHELLS. *Terebra Stearnsii*, n. sp. Shell large, much elongated, having 22 whorls remaining, the apical portion (probably $\frac{1}{2}$ the entire length) being broken off. The whorls are narrowly but distinctly shouldered just below the suture. The surface of the body-whorl is divided into three subequal parts by two spiral grooves, and below the lowest of these grooves there are several others. Base cut by about 15 unequal impressed lines; growth-striae faint. Whitish, with a single series of brown spots. Total length 105, breadth $17\frac{1}{2}$ mm.; length of aperture 12, breadth 7 mm.

Thylacodes medusa n. sp. Shells large, generally clustered, resembling *Thylacodes polyphragma* Sassi, of the Mediterranean, but

3. On a Collection of Marine Shells from Aden, with some Remarks upon the Relationship of the Molluscan Fauna of the Red Sea and the Mediterranean. By EDGAR A. SMITH, F.Z.S.

[Received June 10, 1891.]

(Plate XXXIII.)

The specimens hereafter catalogued were collected at Aden between tide-marks or at low water by Major J. W. Yerbury, R.A., and the Rev. A. W. Baynham. To the former the British Museum is indebted for a very valuable series of 555 specimens, and from the latter it received 160 specimens. Nearly all are in excellent condition, and much praise is due to these gentlemen for devoting so much time and trouble to their cleaning and preservation. No complete list of the Mollusca of this particular spot has yet appeared, and it is as a contribution to such a Catalogue that I venture to publish the following. Many species have already been quoted from Aden, but to have searched through the vast mass of Conchological literature which exists, in order to get together a complete list of the fauna, would have occupied more time than could at present be spared.

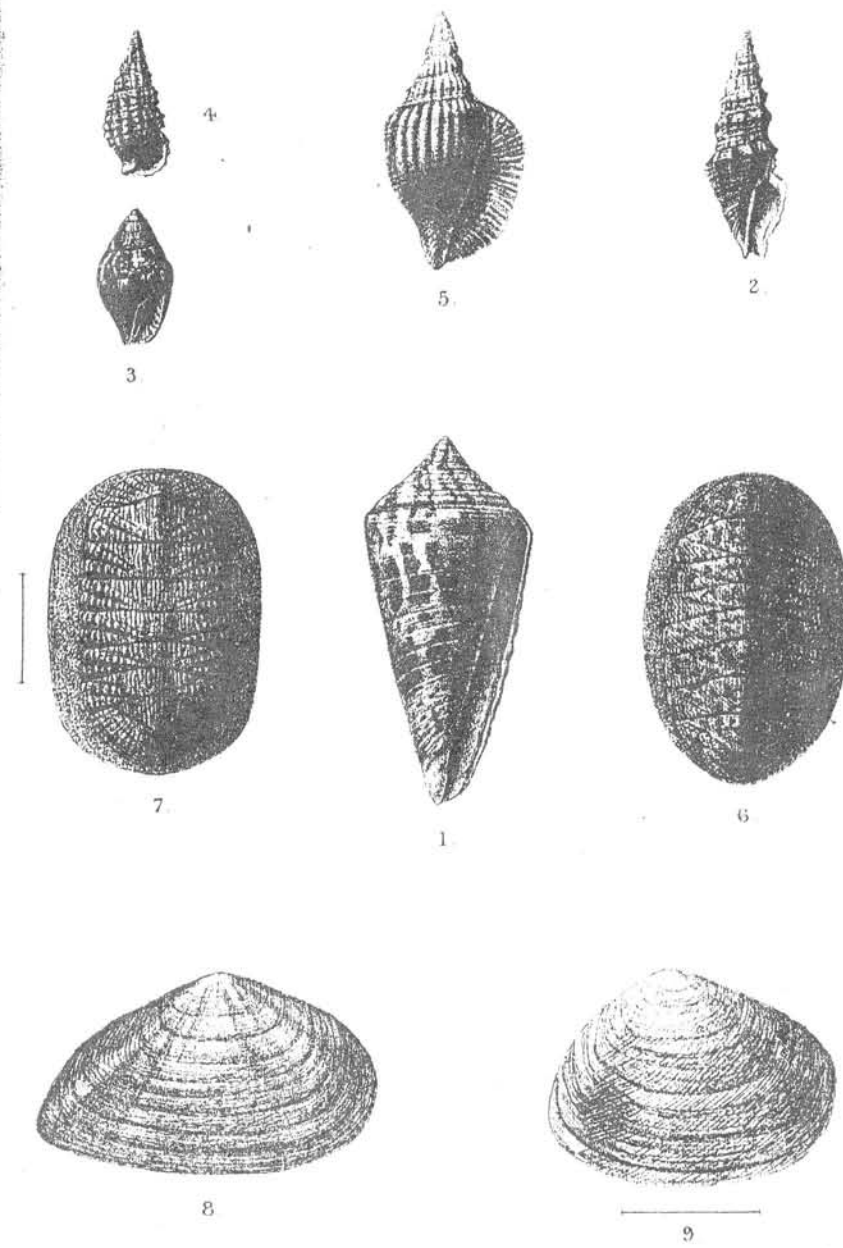
Dr. F. Jousseume, in the 'Mémoires de la Société Zoologique de France' for 1888, has enumerated the species collected in the Red Sea and Gulf of Aden by Dr. Faurot in 1885, and among the species quoted are a number (about 26) from Aden itself. Another list of 106 species from this locality was given by G. Caramagna in the 'Bollettino della Società Malacologica Italiana,' vol. xiii. 1888.

Some of the species mentioned in these Catalogues were not met with by Major Yerbury or Mr. Baynham, and these I have given in a supplemental list at the end of this paper. The species quoted from the present collection which also appear in the works of Jousseume and Caramagna are indicated by the locality Aden being inserted in the distribution, with the names of one or both of these writers appended.

The fauna of the Red Sea is essentially tropical, and forms the north-west limit of the Indo-Pacific fauna. The great mass of the species found at Aden have been met with at various places further up the Red Sea, and many of them occur even at the northern end, in the Gulfs of Suez and Akaba; the majority also have a wide distribution over the Indian and Pacific Region.

I have not thought it necessary to give references to all the species, most of which are well known; but it is to be understood that they are recognized as determined in the Monographic works of Reeve, Sowerby, and Küster, viz. the 'Conchologia Iconica,' the 'Thesaurus Conchyliorum,' and the 'Conchylien-Cabinet,' ed. 2.

Notes respecting the identification of certain species have been inserted when any doubt has existed, and it is trusted some of these observations may be useful, as, in many cases, they are based upon comparison of the types. The present paper may also be of some



R. Minton del. et lith.

Minton del. et lith.



use to those who possess shells from this locality and are desirous of identifying them.

Before concluding these prefatory remarks I have some observations to make respecting the list of species which, according to Mr. Cooke, are "common to the Mediterranean and the Red Sea"¹. Examples of the seventeen species he enumerates were collected in the Gulf of Suez by the late Robert MacAndrew in the early part of the year 1869, some months before the opening of the Canal. It is important to note this as showing that their establishment in the Red Sea was not of recent date. Before expressing any opinion with regard to the accuracy of some of Mr. Cooke's identifications, it was necessary for me to study the specimens themselves, and consequently I applied to Dr. Sharp of the Cambridge Museum, where the MacAndrew collection is preserved, and I have to acknowledge his kindness in forwarding all the specimens I required, and I have also to thank Mr. Cooke for kindly looking them out for transmission.

The following is the result of my examination:—

1. CERITHIUM (PIRENELLA) MAMMILLATUM, RISSO.
(= *caillaudi*, Pot. & Mich.)

Nearly all the Suez specimens, which may be referred to a strongly marked variety of this species, have a peculiar facies. They have two distinct rows of granules on the upper whorls, whereas in Mediterranean specimens there are mostly three or more, and in these the granules are smaller than in the Red-Sea specimens. In the Museum we have three specimens from Bombay² which are more like the Mediterranean form than that from Suez.

In discussing the marine fauna of any particular sea, it is hardly correct to include the genera *Cerithidea* and *Leuconia*, the former an estuarine form and the latter an amphibious Pulmonate. Now the distribution of some of these estuarine species is most remarkable, and so unaccountable, that I think the occurrence of two forms in some parts of the Mediterranean and the Red Sea hardly bears upon the subject of distribution in question. An instance of this unaccountable distribution has lately come to my notice which may fittingly be recorded here: I refer to *Neritina crepidularia*. This unmistakable species is known from the mouth of the Ganges, from Pondicherry, Tranquebar, Ceylon, Mergui, Singapore, the Dutch Indian Islands, Philippines, Japan, Persian Gulf, and lastly from the Gold Coast, West Africa, where living specimens were collected by Mr. R. Austen Freeman and presented to the British Museum.

2. EMARGINULA ELONGATA, Costa.

The specimen kindly sent me for inspection I certainly consider distinct from the above species. It bears a close resemblance to it in general appearance, and without close examination one would not

¹ Ann. Mag. Nat. Hist. 1836, vol. xviii. p. 394.

² *Cerithidea bombayana*, Sowerby, Con. Icon, sp. 24. Badly described and figured.

and not nearly so concave. The upper normal whorls in the Chinese species are turreted and prettily coronated or tuberculated at the angle, and the revolving sculpture of the spire is rather stronger than in the present species, which does not exhibit any coronation above. The tuberculation upon the transverse ridges of the lower two-thirds of the body-whorl is also a good distinguishing feature.

Kiener's figure of *C. recurvus* (Coq. Viv. pl. 97. f. 4), if the outlines of the spire were the slightest less concave, would exactly represent the form of this species.

18. *CONUS ARMATUS*, Hwass.

Hab. Red Sea, East Africa, Ceylon, Philippines, New Caledonia, Viti Islands, Samoa Islands. Amirantes (*Brit. Mus.*); Aden (*Caramagna*).

19. *CONUS TÆNIATUS*, Hwass.

Hab. Red Sea, Ceylon, China, Singapore.

20. *CONUS MINIMUS* (auct.).

Hab. Natal, Andaman Islands, China, Philippines, Port Essington, New Caledonia (*Brit. Mus.*); Aden (*Caramagna*).

21. *CONUS CEYLANENSIS*, Hwass.

Hab. Red Sea, Ceylon, Mauritius, Andaman Islands, Island of Rodriguez.

These are localities for the typical form of this species.

22. *CONUS CUVIERI*, Crosse.

Hab. Red Sea (*Brit. Mus.*).

Tryon¹ could never have seen this species or he would not have placed it as a variety of *C. cervus*, with which it has no relationship. Weinkauff², in comparing it with *C. tulipa* and *C. geographus*, has indicated its true affinity.

The locality "Swan River," which has been quoted for this species, requires confirmation.

23. *CONUS TEXTILE*, Linn.

Hab. Red Sea, Indian Ocean, Philippines, Polynesia. Aden (*Caramagna*).

With this species I am inclined to unite the following as varieties:—*C. vicarius*, Lamarek, *C. verriculum*, Reeve, *C. textilina*, Kiener, *C. tigrinus*, Sowerby, *C. corbula*, Sowerby, *C. scriptus*, Sowerby, *C. panniculus*, Lamarek, *C. canonicus*, Hwass, *C. rubescens*, Bonnet, *C. legatus*, Lamarek, *C. musivum*, Broderip, *C. pauluccia*, Sowerby, *C. condensus*, Sowerby, *C. archiepiscopus*, Hwass, *C. abbas*, Hwass.

Great as is the difference in many respects between the extreme forms, still I find it impossible to discover any permanent distinctions,

¹ Man. Conch. vi. p. 87.

² Conch.-Cab. Monogr. *Conus*, p. 321.

when a very large series of specimens is examined, which will separate any of these so-called species from the rest.

Sowerby (Proc. Zool. Soc. 1882, p. 120), on the other hand, observes "having had exceptional opportunities, from time to time, of examining large numbers of specimens of all the varieties, I continue to regard these last (*C. abbas*, *C. panniculus*, *C. legatus*, &c.) as species."

24. *CONUS NUSSATELLA*, Linn.

Hab. Red Sea, East Africa, Ceylon, Java, Philippines, N. Australia, New Caledonia, Polynesia.

25. *TEREBRA TESSELLATA*, Gray.

Hab. Pidang, Sumatra.

This species is quite distinct from *T. ligata*, Hinds, with which it is united by Tryon¹. It is, however, identical with *T. decorata*, Deshayes. Having the *types* of the three so-called species in the Museum, I can speak with certainty upon the subject.

The specimens from Aden show that this species attains to much larger dimensions than those already quoted, the largest example having a length of 55 millimetres.

26. *TEREBRA LAMARCKII*, Kiener.

Hab. Zanzibar; Aden? (Jousseaume as *duplicata*).

This species is considered by Tryon and Reeve a variety of *T. duplicata*, Linné. The style of coloration, however, is very peculiar, and the longitudinal striae are farther apart. I prefer therefore, not having as yet met with intermediate forms, to regard them as distinct species.

27. *TEREBRA (IMPAGES) CÆRULESCENS*, Lamarek.

Hab. Red Sea, Mauritius, Philippines, Australia, Polynesia.

28. *PLEUROTOMA VIOLACEA*, Hinds, var.

Hab. Red Sea, Persian Gulf, Japan, Philippines, New Guinea, New Zealand, Australia.

The specimens from Aden are unusually large, measuring as much as 27 millimetres in length and 9 in diameter. They do not belong to the typical lilac form, but are of a very light brownish tint with white spiral ridges, one of which is more conspicuous than the rest.

29. *PLEUROTOMA (SURCULA) CATENA*, Reeve.

This species, the habitat of which was hitherto unknown, is well distinguished by the oblique white tubercles on the middle of the whorls with brownish spots between them. They become obsolete on the body-whorl, which is ornamented with oblique streaks and

¹ Man. Conch. vol. vii. p. 26.