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JOURNAL

OF

THE LINNEAN SOCIETY.

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ZOOLOGY.

VOL. XXI.



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## NOTICES.

**Publications generally.**—From several different volumes of the Journals and of the Transactions being in the press at the same time, some confusion and disappointment is likely to arise by Fellows receiving Parts widely different in number.

The gaps may be attributed to neglect in the Society's distribution, or supposed loss in their transmission by post or through agents.

**Fellows will note, therefore, that irregularity in the issue of Numbers in sequence is due to the arrangement whereby separate volumes on special subjects are being issued at intervals concurrently with the ordinary ones.**

The following memoranda may help to explain discrepancies:—

**Journal (Botany).**—No. 149, now issued, closes Vol. XXII.

Nos. 150 and 151, already published, will be followed later on at intervals by Nos. 153 to 157; altogether comprising Vol. XXIII. devoted exclusively to "Index Floræ Sinensis."

No. 158, now issued, begins Vol. XXIV.

**Journal (Zoology).**—Nos. 116 and 117 will be followed hereafter and at irregular intervals by Nos. 118 up to 125, the whole comprising Vol. XX.

No. 129, now issued, is part of Vol. XXI, which will contain only subjects connected with the "Fauna of the Mergui Archipelago." It commenced with No. 126.

**Transactions (Botany).**—Vol. I. completed.

Vol. II. Parts 1 to 12 published and three more to follow, viz.:—Botany Roraima Exped.; Bower, Apospory; and Botany Kilimanjaro Expedition: all in press.

Vol. III., commencing with Botany Afghan Boundary, in press.

**Transactions (Zoology).**—Vol. I. completed.

Vol. II. Parts 1 to 17 published; one more (Hartog, *Cyclops*) to follow.

Vol. III. Parts 1 to 4 published; Part 5 closing volume (Eaton, Recent Ephemeridæ) in press.

Vol. IV. Part 1 published (Davidson, Recent Brachiopoda), and Parts 2 and 3 in press.

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# THE JOURNAL

OF

# THE LINNEAN SOCIETY.

VOL. XXI.

ZOOLOGY.

No. 130.

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See Notice on last page of Wrapper.

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NOTE.—The Charter and Bye-Laws of the Society, as amended up to the 21st April, 1881, have been reprinted, and can be had on application.

pointed out as existing between Darwin's specimens and those from Mergui, are due to difference in age. A specimen I dissected was furnished with ovigerous lamellæ.

In figure 3 I have given a representation of the penis of this species. Whereas the probosciform organ, except in certain species of *Scalpellum*, is very long, the present species has a very thick and short penis, its tip being pointed and somewhat hooked. Darwin does not describe the penis of this nor of any other species of the genus.

## DESCRIPTION OF PLATE XIII.

Fig. 1. *Dichelaspis pellucida*, Darwin, side view:  $\times 14$  diam.

Fig. 2. View of a part of the capitulum, to show A & B, the terga, C & D, the occludent segments of the scuta, and *a, b, c*, the angle the occludent segment of the scutum forms with the handle of the battle-axe-shaped tergum:  $\times 30$  diam.

Fig. 3. Representation of the penis:  $\times 30$  diam.

List of the Shells of Mergui and its Archipelago, collected for the Trustees of the Indian Museum, Calcutta, by Dr. John Anderson, F.R.S., Superintendent of the Museum. By Prof. EDUARD VON MARTENS, M.D., C.M.Z.S., of the University of Berlin. (Communicated by Dr. JOHN ANDERSON, F.R.S., F.L.S.)

[Read 17th June, 1886.]

(PLATES XIV.-XVI.)

## INTRODUCTORY REMARKS.

THE following is a list of the species of Mollusca collected by Dr. John Anderson at Mergui and some of the islands of the Tenasserim coast. The species have been determined chiefly by comparison with the shells in the Zoological Museum of the University of Berlin, and by consulting the leading illustrative works of this department of science, the figures of which are here cited, so far as they have been compared with the objects themselves, and may help to secure the determination. Concerning the land and freshwater Mollusca, I have derived very valuable information from Hanley and Theobald's 'Conchologia Indica,' and from G. Nevill's 'Hand-list of the Mollusca of the Indian Museum,' vols. i. (1878) and ii. (1884); also from the paper by A. Gould in

the 'Boston Journal of Natural History,' vol. iv. 1844, which is the first treatise on the land-shells of that country. Besides Reeve's 'Conchologia Iconica,' several conchological publications by R. A. Philippi have been very useful to me in determining the marine shells, as this author mentions and describes various shells collected by his brother, Theodor Philippi, at Mergui, about the year 1846. Descriptions and figures are only given in the few cases of new or very little-known species. In several other cases some remarks are added concerning the more striking and easily observable differences of the species, chiefly if several nearly allied species are mentioned; they are not intended, however, to give a sufficient description, but only to help the memory of the conchologist in the discrimination of those species.

Dr. Anderson noted on the spot the conditions under which many of the species occurred; and his notes I have given *verbatim*. These are very valuable, as they afford an idea of the circumstances under which the animals live, which are of great importance owing to the influence the surroundings of a species exercise in modifying the general external appearance of the shell, a consideration which is as yet not sufficiently known and appreciated in foreign shells. Many of Dr. Anderson's statements, contained in his notes, coincide with my own observations made during a stay of about two years in the Malayan Archipelago. Chiefly on this account, I have arranged the list into several parts, separating the land-, freshwater-, and sea-shells, and have even attempted to make a peculiar division for those which live in mangrove-swamps and at the mouths of rivers, as we there find intermingled at the same spot air- and water-breathing mollusca and species of genera which are generally admitted as marine with others of a more fluviatile character. I am well aware that this division of submarine Mollusca cannot be strictly limited either from the marine or from the fluviatile forms; but it may, nevertheless, be useful to emphasize them in this way, as, otherwise, even the distinction between marine and fluviatile occurrence remains doubtful and arbitrary for some species.

I have also tried to add, for distinction's sake *in italics*, a sketch of the geographical distribution of the single species, by naming the chief localities in which they have hitherto been found; many of these statements are taken from the collections in the Berlin Museum, the rest from the more reliable conchological authors. If hitherto the "habitat" of the species

was unknown (or at least not stated in the standard conchological works), the sign † is added. By this the reader will arrive easily at the following conclusions:—

A. Terrestrial Mollusca: the greater number of the species are either confined to the Tenasserim coast or range only into the next adjacent countries, as Pegu, Arakan, or the Malayan Peninsula. Only the small-sized *Stenogyra gracilis* is spread throughout continental India and the Malayan Archipelago.

B, C. Fluviate and Submarine Mollusca: most of them are wider spread, chiefly in the direction of Siam and the Malayan Archipelago, and are also found in Bengal; but only few range much further to the west.

D. Marine Mollusca: a very considerable number of species range westwards to the shores of Eastern Africa, even into the Red Sea, and eastwards to the Polynesian islands, several southwards to Natal and to the subtropical parts of Australia, and northwards to China and Southern Japan. Only one (*Natica unifasciata*) is stated with tolerable certainty to live also on the west coast of America; and very few (*Octopus rugosus*, *Lima squamosa*, and *Pholas striata*) are known also as inhabitants of the Atlantic; among these are some which are liable to be spread by currents and drift-wood. Several Oriental species, however, are represented in the West Indies by species so nearly allied, that even the specific discrimination remains doubtful (*Littorina scabra*, *L. intermedia*, and *L. angulifera*, *Planaxis pyramidalis* and *P. sulcatus*, and *Asaphis deflorata*).

*List of Shells collected at Mergui and its Archipelago.*

A. TERRESTRIAL MOLLUSCA.

OPERCULATA.

1. CYCLOPHORUS AURANTIACUS, Schumacher. (Plate XIV. figs. 1-6, and Plate XV. figs. 1-6.)

A number of rather large-sized specimens of *Cyclophorus* have been collected, which are very near to one another, but exhibit some differences in the elevation of the spire, the width of the umbilicus, and the colours of the peristome. They form a nearly continuous chain from the flat widely-umbilicated *C. pernobilis*, Gould, to the more turbinated narrowly-umbilicated *C. malayanus*, Reeve; so much so that I dare not venture to

## PLEUROTOMIDÆ.

79. PLEUROTOMA (TURRIS) ARMILLATA, *Reeve, Conch. Icon. i.*  
Pleurotoma, pl. xxi. fig. 176.  
Sullivan Island, 7 fathoms. *Philippines.*

80. PLEUROTOMA (DRILLIA) CRENULARIS, *Lam., Reeve, Conch. Icon. i.*  
Pleurotoma, pl. vii. fig. 54.  
Mergui, King Island and Sullivan Island, 4 and 7-10 fathoms.  
*Tranquebar, Singapore.*

81. PLEUROTOMA (SURCULA) JAVANA, *L., Reeve, Conch. Icon. i.*  
pl. iv. fig. 28.  
Pleurotoma nodifera, *Lam., Kiener, Icon. pl. 12. fig. 1.*  
Sullivan Island, 7-10 fathoms; young specimens. *Madras, Tranquebar, Singapore, Java.*

82. CLAVATULA NITENS, *Hinds, Voy. of the 'Sulphur,' Zool. pl. 6. fig. 17; Reeve, l. c. i.*  
Pleurotoma, pl. xxii. fig. 189.  
Mergui. *Malacca, Macassar, New Guinea.*

83. MANGELIA (?) POLITA, *Hinds, P. Z. S. 1843; Reeve, Conch. Icon. i.*  
Pleurotoma, pl. xviii. fig. 150.  
With only vertical stout ribs.  
Sullivan Island, 7-10 fathoms. *Macassar.*

84. MANGELIA (?) FAIRBANKI, *Nevill, Journ. As. Soc. Bengal, vol. xliv. pt. 2, 1875, pl. 7. fig. 2.*  
Sharply cancellated, sexangular.  
Sullivan Island, 7-10 fathoms. *Bombay, Ceylon?, Andamans?*

## TEREBRIDÆ.

85. TEREBRA STRIGILATA, *L., Kiener, fig. 18; Reeve, Conch. Icon. xii. pl. xviii. fig. 85.*  
Owen Island, 7 fathoms. *Mauritius, Singapore, New Guinea, Hawaiian Islands.*

86. TEREBRA (ABRETIA) TRICOLOR, *Sow.*  
Terebra taeniolata, *Quoy & Gaimard, Voy. 'Astrolabe,' Moll. pl. 36. figs. 25, 26; Kiener, fig. 33.*  
Owen Island, 7 fathoms. *Tongatabu.*

87. TEREBRA (ABRETIA) SWAINSONI, *Deshayes, Reeve, Conch. Icon. xii. pl. xxii. fig. 118.*  
King Island, mud-bank, exposed at low water (dead specimens).  
*Sandwich Islands.*

88. TEREBRA (ABRETIA) SEROTINA, *Adams and Reeve, Zool. Voy. 'Samarang,' pl. 10. fig. 20; Reeve, l. c. xii. pl. xv. fig. 66.*  
Mergui, mud-flats; Sullivan Island, 7 fathoms. *Japan.*

89. MYURELLA LONGISCATA, *Deshayes, Reeve, Conch. Icon. xii.*  
Terebra, pl. xxi. fig. 103.  
Sullivan Island, 7 fathoms. *Philippines.*

## CANCELLARIIDÆ.

90. CANCELLARIA COSTIFERA, *Sow., Reeve, l. c. x. pl. xii. fig. 57.*  
Mergui and King Island, littoral; small-sized specimens.  
*Mauritius, Philippines.*

## MURICIDÆ (including PURPURIDÆ).

91. MUREX TERNISPINA, *Lam., Reeve, Conch. Icon. iii. pl. xix. figs. 73 & 76.*  
King Island Bay, mud-banks exposed at spring-tides, and at a depth of 7 fathoms; Laloon Bay, Elphinstone Island; Owen Island; Sullivan Island; 6-7 fathoms. *Madras, Salang, Singapore, Celebes.*

92. MUREX (CHICOREUS) ADUSTUS, *Lam., Kiener, pl. 33. fig. 1; Reeve, Conch. Icon. iii. pl. viii. fig. 29.*  
King Island and Sullivan Island. *Mauritius, Ceylon, Andamans, Salang, Singapore, Java, Celebes, Philippines.*

93. MUREX (CHICOREUS) RUBIGINOSUS, *Reeve, l. c. iii. pl. viii. fig. 32.*  
Owen Island. *Philippines.*

94. MUREX (CHICOREUS) TORREFACTUS, *Sow., Reeve, Conch. Icon. iii. pl. x. fig. 41.*  
Elphinstone Island Bay; King Island. *Philippines.*

95. MUREX (CHICOREUS) MICROPHYLLUS, *Lam., Reeve, Conch. Icon. iii. pl. x. fig. 40.*  
Elphinstone Island. *Ceylon, Singapore.*

96. MUREX (OCINEBRA) CAPUCINUS, *Chemnitz, Kiener, pl. 45. fig. 2; Reeve, Conch. Icon. iii. pl. ii. fig. 10.*  
Kisseraing and Owen Islands. Small specimens of *Ostrea cucullata* are fixed on several of them. *Coromandel, Ceylon, Salang, Celebes.*