



or lesser extent, of the dark pectoral blotch covered with light spots:— one, 12½ inches long, from the Propontis; another, 9½ inches long, from Dalmatia; a third, of the same size, from Naples; and a fourth, 7½ inches in length, from Sicily.

As no structural difference is observable between *T. pæciloptera* and *T. hirundo*, except such as may be due to age, I think we are justified in considering the former the immature of the latter; while the immature colours may be continued (although less decidedly) to the adult age, this difference being restricted to the inner side of the pectoral fin.

Whether Thompson's specimen was *T. hirundo* or *T. lineata* is open to grave doubt. He says:—"10 dorsal spines . . . lateral lines spinous;" and as to colours, "I have little doubt that when recent it would in colour have corresponded. So I conclude it did not correspond when he received it from Mr. Ball, who obtained the single example, 2 inches in length, from among some sprats captured at Youghal, in Ireland. A *Trigla* possessing ten dorsal spines and a spinous lateral line is unlikely to be *T. pæciloptera*, which has nine dorsal spines and a smooth lateral line.

EXPLANATION OF PLATE XVIII.

*Trigla hirundo*, from a specimen in the author's collection obtained near Southend: a. Stomach and caecal appendages; b. Air-bladder; c. Pectoral fin (inner side).

11. On a Collection of Mollusca from Japan. By EDGAR A. SMITH, F.Z.S., Zoological Department, British Museum.

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(Plates XIX., XX.)

A large collection of Japanese Mollusca, containing very many new and most interesting forms, has been presented to the British Museum by Dr. J. Gwyn Jeffreys, F.R.S., with his wonted liberality. It is a most valuable addition to the series of species from the same region which was placed in the national collection a few years ago by the same gentleman. That series, of which a brief account of the Gastropoda only appeared in the 'Annals and Magazine of Natural History' for 1875, was dredged by Capt. H. C. St. John, of H.M.S. 'Sylvia.' The specimens now to be considered were derived from the same source; and the highest praise must be accorded to Capt. St. John for the excellent manner in which they have been collected and preserved. Most of them are from the region of the Goto islands; and to save the continual repetition of the longitude, latitude, and depths of the various stations, a list of them with consecutive numbers is appended below; so that for the locality of each species only the number of the station will be quoted.

*List of the Stations.*

- Station 1. Goto Islands in the Korean Channel, 33° 19' N. lat., 129° 7' E. long.; 50 fathoms.  
 Station 2. East of Goto Islands, 32° 43' N. lat., 129° 28' E. long.; 58 fathoms.  
 Station 3. West of Goto Islands, 33° 10' N. lat., 128° 51' E. long.; 54 fathoms.  
 Station 4. Low-water mark, Goto Islands.  
 Station 5. Ojica Bay, Goto Islands, 33° 12½' N. lat., 129° 5' E. long.; 10 fathoms.  
 Station 6. Ibid. On rocks at low water.  
 Station 7. Goto Islands, 32° 49' N. lat., 128° 54' E. long.  
 Station 8. Ukushima, Goto Islands, 33° 15½' N. lat., 129° 5' E. long.; 11 fathoms.  
 Station 8\*. Ibid. 33° 16' N. lat., 129° 4' E. long. Among rocks at low water.  
 Station 9. East of Goto Islands, 33° 10' N. lat., 129° 12' E. long.; 36 fathoms.  
 Station 10. East of Goto Islands, 33° 4' N. lat., 129° 18' E. long.; 23 fathoms.  
 Station 11. West of Goto Islands, 33° 2½' N. lat., 128° 48½' E. long.; 22 fathoms.  
 Station 12. North of Goto Islands, 33° 19' N. lat., 129 7½' E. long.; 50 fathoms.  
 Station 13. East of Goto Islands, 32° 47' N. lat., 129° 5' E. long.; 46 fathoms.  
 Station 14. East of Goto Islands, 32° 48½' N. lat., 129° 6' E. long.; 47 fathoms.  
 Station 15. East of Goto Islands, 33° 15' N. lat., 129° 18' E. long.; 40 fathoms.  
 Station 16. West of Goto Islands, 33° 8' N. lat., 128° 46' E. long.; 60 fathoms.  
 Station 17. West of Goto Islands, 33° 14' N. lat., 128° 55' E. long.; 40 fathoms.  
 Station 18. East coast of Kii, south of Nippon.  
 Station 19. East of Kii, 34° 13' N. lat., 136° 13' E. long.; 48 fathoms.  
 Station 20. East of Kii, 34° 11' N. lat., 136° 25' E. long.; 56 fathoms.  
 Station 21. Between south-western extremity of Nippon and the island of Shikoku, 35° 45½' N. lat., 132° 30' E. long.; 30 fathoms.  
 Station 22. Inland sea between Shikoku and Nippon, 34° 31' N. lat., 133° 40' E. long.; 22 fathoms.  
 Station 23. Channel between the east end of Shikoku island and the Kii peninsula, 33° 52' N. lat., 135° 4' E. long.; 30 fathoms.  
 Station 24. Gulf of Yedo, 35° 24' N. lat., 139° 43' E. long.; 10½ fathoms.  
 Station 25. South of Nippon, 34° 12' N. lat., 136° 28' E. long.; athoms.

- Station 26. West of Nagasaki, 32° 43' N. lat., 129° 28' E. long.; 40-58 fathoms.  
 Station 27. North of Kiushiu, 33° 56' N. lat., 130° 27' E. long.; 30 fathoms.  
 Station 28. Satsuma Bay, south Kiushiu.  
 Station 29. South of Korea, 34° 8' N. lat., 126° 24' E. long.; 24 fathoms.  
 Station 30. South of Korea, 33° 42' N. lat., 127° 40' E. long.; 51 fathoms.  
 Station 31. South of Korea, 34° 30' N. lat., 125° 44' E. long.; 20 fathoms.  
 Station 32. South of Korea, 34° 19' N. lat., 124° 57' E. long.; 12 fathoms.

## GASTROPODA.

1. *TEREBRA EVOLUTA*, Deshayes.

*Terebra evoluta*, Deshayes, P. Z. S. 1859, p. 292; Reeve, Conch. Icon. xii. f. 55.

*Hab.* Station 8.

Like the specimens which were mentioned by me in the 'Annals and Magazine of Natural History' 1875, these also from the Goto Islands are much smaller than the type, which seems to be of very unusual dimensions. The Goto specimens differ from the type and the others from Matoza Harbour in having a much narrower sulcus at the upper part of the whorls, from which circumstance the infrasutural band is broader. The colouring and sculpture are the same.

2. *TEREBRA GOTOENSIS*. (Plate XIX. figs. 1-1 a.)

Shell subulate, pale brown or fawn-colour, with a white band spotted with brown at the upper part of the whorls, and with a white narrow zone round the middle of the last whorl: volutions 16; the two apical ones white, smooth, subglobose, the rest almost flat, only very faintly constricted towards the upper part, where they are unequally divided by a transverse shallow groove, longitudinally ribbed and very finely striated, the striae being inconspicuous to the naked eye and scarcely developed at all on the ribs; the latter are but little raised, arcuate, and divided at the upper part by the spiral furrow, and number about 24 on the penultimate whorl; costae on the last volution obsolete at the periphery: columella white, oblique at the base, straightish at the upper part; canal short, recurved, oblique.

Length 25 millims., diameter 5.

*Variety.* Shell more slender, similarly sculptured; spots on infrasutural band dark brown; rest of surface purplish brown, variegated with white patches. Length 29 millims.; breadth 4½. (Fig. 1 a.)

*Hab.* Station 1. Var., Japan.

The brown spots on the white zone at the top of the whorls are somewhat distant from one another, of a transversely oblong sub-quadrangle form. Below these are other less conspicuous spots placed

under them, so that the upper series might be said to be subdivided by the spiral furrow which separates them. The general tone of the shell is light brown or fawn; but a few of the upper whorls are of a more or less lilac tint. The variety, from its slenderness and different coloration, appears at first sight almost specifically distinct; its sculpturing, however, is of precisely the same character as that of the typical form. The painting of *T. alveolata*, Hinds, resembles that of this species very much; but its sculpture is a great deal coarser.

### 3. *TEREBRA JEFFREYSII*. (Plate XIX. fig. 2.)

Shell subulate, dirty yellowish, dotted and streaked with light brown. Whorls 13 to 14; the two nuclear ones proportionally very large, globose, white, shining; the rest flat, bearing numerous oblique, but little raised fine costæ (about 20 on a whorl), and spirally striated, the striæ cutting through the riblets and giving them a nodulous appearance: the striæ number about five on a whorl; of these the two uppermost are twice as far apart as the three following, and consequently the spaces between them are wider and more conspicuous; the ends of the costæ cut off by the two uppermost striæ are prominently nodulous, and form two distinct series of granules, whereof the upper are more elongate than the lower. The body-whorl is but very faintly angled at the middle; the costæ upon it terminate abruptly at that part, and are only continued to the base in a very obsolete manner; thus the lower half of the whorl is comparatively smooth to the upper portion, and the spiral or concentric striæ are also less pronounced than those above. The aperture is small, light brown, and exhibits traces of one or two pale narrow zones. The canal is short, oblique, and slightly recurved: the columella is straight or nearly so in the middle and oblique at the base, and covered with a thin, shining, whitish callosity.

Length 25 millim., diam. 5.

*Hab.* Stations 20 and 21.

This species is remarkable on account of the unusually large size of the nuclear whorls. The colour is rather indistinct, as most of the specimens are more or less coated with a cretaceous deposit; however, it appears to be luteous or dirty yellow, dotted with light brown between the two series of nodules, and streaked with the same colour beneath, and the body-whorl has a pale zone at the middle.

### 4. *TEREBRA TORQUATA*, Adams & Reeve.

*Terebra torquata*, Adams & Reeves, Voy. Samarang, p. 30, pl. 10, fig. 13; Reeve, Conch. Icon. vol. xii. fig. 69.

*Hab.* Station 14. China Sea (*A. Adams*).

This species must not be confounded with *T. fenestrata*, Hinds. The latter is very similarly sculptured, but lacks the variegated painting of *T. torquata*.

### 5. *TEREBRA TEXTILIS*, Hinds.

*Terebra textilis*, Hinds, P. Z. S. 1843, p. 156; id. Voy. Sulphur,

p. 34; id. Sowerby's Thesaur. Con. vol. i. pl. 44. fig. 73; Reeve, Conch. Icon. vol. xii. fig. 130.

*Hab.* Station 18. Philippines (*Cuming*); Straits of Macassar (*Hinds*); Ovalau, Fiji Islands (*Macgillivray in Brit. Mus.*).

### 6. *TEREBRA SUBTEXTILIS*. (Plate XIX. fig. 3.)

Shell subulate, entirely white: whorls probably about 22, the few apical ones being broken off; they are a little convex, finely ribbed, and spirally grooved; costæ about 20 on a whorl, arcuate, constricted a little below their upper extremities by a spiral furrow, which in the interstices between the ribs is comparatively deeply pitted; transverse striæ rather deep, more or less obsolete on the costæ, about ten in number on a whorl, whereof three are above the pitted sulcus, and the rest below it; the ribs on the last whorl are arcuate above and flexuous at the base, to which they attain; the lower part of the whorl is also transversely sulcated like the upper portion; columella covered with a distinct callosity; canal short, rather broad and recurved.

Length 37 millims., diam. 6.

*Hab.* Station 21.

This species to a certain extent has the characters of *T. textilis*, Hinds. From it, however, it may be known by its more convex and broader whorls, its greater size, and the more numerous spiral sulci or striæ, which in this species are present on the infrasutural band as well as below the pitted groove, whilst in *T. textilis* they only exist on the latter portion of the whorls, leaving the upper part plain, with the exception of the cut-off terminations of the costæ. These striæ are of different magnitudes, so that the interstices also vary in size and also in their degree of elevation. The sculpture of *T. polygyrata*, Desh., is similar in character, but much finer. That, too, is a coloured species and smaller.

### 7. *TEREBRA TANTILLA*, Smith. (Plate XIX. fig. 4.)

*Myurella tantilla*, Smith, Ann. & Mag. Nat. Hist. 1873, vol. xi. p. 270.

*Myurella pumilio*, Smith, *l. c.* p. 269.

*Hab.* Station 21. Persian Gulf (*Col. Pelly in Brit. Mus.*).

The specimens described under the name of *T. tantilla* were in bad, faded condition; and hence it was that the third band on the body-whorl escaped observation. I am now convinced of the identity of *P. tantilla* and *T. pumilio*.

### 8. *TEREBRA ALBOZONATA*, Smith. (Plate XIX. fig. 5.)

*Terebra albozonata*, Smith, Ann. & Mag. Nat. Hist. 1875, vol. xv. p. 415; *l. c.* 1877, vol. xix. p. 226.

*Hab.* Station 27. Matoza Harbour (*l. c.*).

It is satisfactory to have obtained a second, although young, example of this species agreeing perfectly with the type.

I take this opportunity of changing the name of a species of

*Terebra* described by me as *granulosa* in the Ann. & Mag. Nat. Hist. 1873, vol. xi. p. 268: I propose to call this interesting Japanese form *T. pustulosa*.

9. PLEUROTOMA FUSCA, var., Hombron & Jacquinot.

*Pleurotoma fusca*, var., Hombron & Jacquinot, Voyage au Pôle Sud, Zoologie, vol. v. p. 111, pl. 25. figs. 19, 20.

Shell fusiform, pale horn-colour, with a white band round the middle of the whorls, brownish at their upper part: whorls 10; first three convex, the rest strongly keeled above at the suture; beneath this keel they are concavely sloping, prominently carinated at the middle, the carina being white and bearing small close-set nodules; beneath and above this series of nodules the whorls are ornamented with three or four spiral thread-like liræ and oblique lines of growth; last whorl whitish at the lower extremity, with a brownish somewhat indistinctly defined band around the middle, and encircled with about 15 liræ below the white carina; mouth and canal occupying rather less than half the entire length of the shell; slit in the labrum small, situated at the termination of the prominent white keel; canal narrow, produced, and a little recurved.

Length 17 millims., diam. 5.

*Hab.* Stations 1 and 21. "Torres Straits" (*Hombron & Jacquinot*).

Although in some respects like the Californian *P. gemmata*, Hinds, nevertheless, on comparison with that species, the present one appears sufficiently distinct for specific rank. It has a less slender spire and is strongly carinated beneath the suture, whilst *P. gemmata* is described by Hinds as having two small keels parallel with the suture; and Reeve ('Conchologia Iconica,' i. sp. 83) refers to these keels as "two very distinct elevated lines." A second, rather deep sinus is situated in the outer lip, about halfway between the suture and the caudal extremity. This character is not referred to by Hombron & Jacquinot; but if the labrum of their single specimen were broken (and this is very possible, judging from the figure of it), of course the slit would not be present. The name *fusca* has been employed earlier for a species in this family by C. B. Adams; but as that belongs to a different section, I think it unadvisable to alter the name of the present.

10. PLEUROTOMA MARMORATA, Lamarck.

*Pleurotoma marmorata*, Kiener, Coq. Viv. pl. 6. fig. 11; Reeve, Conch. Icon. vol. i. fig. 21; jun. = *Pl. hastula*, Reeve, l. c. fig. 139.

*Hab.* Station 21.

Other localities are:—the Straits of Malacca; Shanghai; Ticao, Philippines; and Ovalau, Fiji Islands.

11. PLEUROTOMA VERTEBRATA, Smith. (Plate XIX. figs. 6-6 a.)

*Hab.* Stations 21 and 27.

The description of this species in the 'Annals and Magazine of Natural History,' 1875, vol. xv. p. 416, was based upon specimens

from the Persian Gulf (fig. 6). The Japanese examples (fig. 6'a) differ in a slight measure: they are a trifle narrower, have a very slightly more elongated canal; and the apex is brown instead of pale violet as in the typical form. In sculpture and colouring they are identical.

12. PLEUROTOMA NIPONICA. (Plate XIX. fig. 7.)

Shell shortly fusiform, light brown: whorls  $6\frac{1}{2}$ ; nucleus consisting of  $1\frac{1}{2}$ , rather large, globose, glassy shining; the four whorls following strongly keeled around the middle, concave above, with two or three fine spiral liræ, and also concave below the carina, margined at the upper and lower boundaries by a fine thread-like lira, arcuately or flexuously elevated striated above the carina, and obliquely, but in an opposite direction, beneath it; the last whorl encircled beneath the principal keel by about ten liræ, whereof the uppermost is the stoutest, the rest gradually becoming finer towards the base; the interstices between them crossed by elevated striæ or lines of increment. Aperture small, brownish, occupying about three sevenths of the entire length of the shell; slit situated in the concavity above the principal carination; columella a little convex or prominent in the middle, and oblique below it; canal short, scarcely recurved.

Length 7 millims., width  $2\frac{1}{2}$ .

*Hab.* Station 21.

This pretty shell is recognizable by the strong central keel to the whorls, which are excavated above and below, and the raised striæ on the upper portion are obliquely flexuous towards the right, whilst those below the carina are obliquely straight and inclined to the left.

13. PLEUROTOMA DIFFICILIS. (Plate XIX. fig. 8.)

Shell shortly fusiform, brownish horn-colour. Whorls nearly flat, strongly keeled a little below the middle, and above at the suture, with one or two thread-like spiral liræ in the spaces between these two carinæ and between the subcentral one and the suture below it; lines of growth moderately distinct, raised, flexuous, and more or less oblique; nucleus (or the three apical whorls) smooth, glassy, shining, convex; the fourth also convex and coarsely obliquely costate; last whorl encircled by about ten coarsish liræ, whereof the three uppermost are equal in size to the submedian carina of the upper whorls, which falls just above them on this volution; the interstices between them coarsely striated by the lines of growth. Aperture small, occupying three sevenths of the entire length; columella brown, coated with a smooth enamel, oblique below the middle; slit above the submedian liration; canal short, very little recurved. Operculum ovate, pointed at the base; nucleus apical.

Length 7 millims., width  $2\frac{1}{2}$ .

*Hab.* Stations 21 and 27.

Of this species there are two specimens in the collection. In both there are two fine thread-like liræ in the interstice between the upper and submedian keels on the last two whorls; but the upper one gradually becomes obsolete on ascending the spire. The upper of the

