

ON THE MOLLUSCA PROCURED DURING THE "PORCUPINE"
EXPEDITIONS, 1869-1870. SUPPLEMENTAL NOTES, PART III.¹

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Read 8th June, 1906.

PLATE XVI.

THE review of the Pleurotomidæ found during the cruises has been a task of no little difficulty. Had the material been finally worked out when it was collected the work would have been comparatively simple, and a large majority of the forms would have proved new to science. Of late years so much attention has been given to the deep-sea forms, that the labour of identifying species, often described from fragmentary specimens, is considerable.

One point of interest will be gleaned from a study of the present list, namely, that a number of the forms obtained from a most prolific dredging in 1,095 fathoms off the coast of Portugal have proved identical with species described and only recorded from off the Azores.

The classification of the Pleurotomidæ is at present in a state of chaos; the recent system given by Dr. Kobelt² seems fairly convenient for the European forms, and has been, in general, adopted here.

As in previous papers, a number of dead and broken shells have been left unidentified.

ALICEIA ÆNIGMATICA, Dautzenberg & Fischer (?).

Aliceia ænigmatica, Dautz. & Fischer: Mém. Soc. Zool. France, vol. x,
p. 182.

"Porcupine" Expedition, 1870, Station 17.

Distribution.—Off the Azores, in deep water.

Two very immature specimens, which I believe really belong here, though it would not be safe to regard the identification as certain.

HOMOTOMA EMENDATA (Monterosato).

Pleurotoma emendatum, Monterosato: Journ. Conchyl., vol xxii (1874),
p. 278.

Homotoma (Teretia) emendatum, Monts.: Kobelt, p. 222.

Pleurotoma Renieri, Philippi, non Scacchi.

"Porcupine" Expedition, 1870, Stations 50, 56; Adventure Bank,
92 fathoms.

Distribution.—Various localities in the Mediterranean. Also found fossil.

Compare a note under *H. Loprestiana*. Two boxes in the Museum bear a number of stations upon them.

¹ For Parts I and II, see Vol. VI, pp. 23, 322.

² Icon. Europ. Meeresconch., vol. iii. In the following pages this work is not quoted in full, only the author's name (Kobelt) being given.

HOMOTOMA LOPRESTIANA (Calcare).

Pleurotoma Loprestiana (*Loprestiana*), Calcare: Monterosato, Journ. Conchyl., vol. xxii (1874), p. 278.

Homotoma (*Teretia*) *Loprestiana*, Calcare: Kobelt, p. 223.

Pleurotoma crispatum, Philippi, non Cristofori & Jan.

"Porcupine" Expedition, 1870, Stations 16, 24, 50, 56; off Cape Mondego, 100 fathoms (live); Adventure Bank, 92 fathoms.

Distribution.—Mediterranean, and in deep water in the southern portion of the North Atlantic.

Jeffreys gives the following notes on the animal of a specimen from off Cape Mondego, taken in muddy sand:—

"Body white. Pallial or siphonal tube rather long. Tentacles cylindrical, short, rather close together; the part above the eye-stalk is very small and bulbous. Eyes small, black, placed nearly on the top of stalks, which are united with the tentacles. Foot broad and slender, double-edged in front, with triangular corners or auricles, rounded behind."

If my identification be correct, this form and *H. emendatum* may be readily severed by an examination of the protoconch. In *H. Loprestiana* this portion of the shell is brown, pointed, and the early sculpture is longitudinal costæ; while in the other species it is almost white, blunt, and button-shaped, and the early sculpture is spiral in nature.

HOMOTOMA TERES (Forbes).

Pleurotoma teres, Forbes: Rep. Brit. Assoc., 1843 [1844], pp. 139, 190 [nom. sol.]; Ann. Nat. Hist., vol. xiv (1844), p. 412; Reeve, Conch. Icon., *Pleurotoma*, sp. 161 [Jan., 1844; bad!].

Homotoma anceps, Eichwald: Kobelt, p. 221 (*vide* references cited and synonymy).

"Porcupine" Expedition, 1869, Station 65; 1870, Stations 17, 50, 56; Adventure Bank, 92 fathoms.

Distribution.—Norway to the Mediterranean. A Tertiary fossil.

Jeffreys, in his MS., strongly disagrees with the identification of *P. teres* and *P. anceps*, stating that the description and figures given by Eichwald¹ do not agree with Forbes' species; Dr. Kobelt and most other authors have considered them identical. I have followed Jeffreys, but am unable to express any opinion on the point, as the fossil is unknown to me. Reeve's figure is, as Jeffreys very pertinently points out, scarcely recognisable; indeed, some authors have doubted whether it be taken from Forbes' species. Probably, however, since he appears to have received his shells from Forbes, it is due to a failure on the part of the artist.

DRILLIA MARAVIGNÆ (Bivona).

Pleurotoma Maravignæ, Bivona: Generi posth., 1838, p. 13.

Drillia (*Crassopleura*) *Maravignæ*, Bivona: Kobelt, p. 225.

¹ Naturh. Leth., p. 225 (1830); Leth. Rossica, vol. iii, p. 186, pl. viii.

"Porcupine" Expedition, 1870, Station 50; Adventure Bank, 92 fathoms.

Distribution.—Mediterranean, and in the warmer water of the Atlantic (e.g. Spain and Canaries). A Miocene and Pliocene fossil.

TYPHLOMANGELIA NIVALIS (Lovén).

Pleurotoma nivale, Lovén: Index Moll. Scand., p. 14.

Typhlomangelia nivalis, Lovén: Kobelt, p. 232.

"Porcupine" Expedition, 1869 and 1870 (see notes below); 1870, Station 3.

Distribution.—Seas of Northern Europe to Spain, etc., always in fairly deep water.

There are two boxes in the Museum, one labelled "No. 84, 155f, 1869, No. 78," and the other, in which the specimens are live, bearing several numbers apparently relating to the cruise of 1870, but probably really being attributable to the cruise of 1869. Jeffreys in his MS. notes refers to the cruise of 1869 only, but gives no station number. Under these circumstances the details cannot be given with certainty.

BELA CINEREA (Möller).

Defrancia cinerea, Möller: Ind. Moll. Grönl., 1842, p. 13.

Bela cinerea, Möller: Kobelt, p. 250.

"Porcupine" Expedition, 1869, Station 78.

Distribution.—Greenland and Norway.

A single dead shell, which I have compared with specimens sent by the author to the British Museum.

BELA DECLIVIS (Lovén).

Tritonium declive, Lovén: Ofv. Vet. Ak. Forh., 1846, p. 85.

Bela cancellata, var. *declivis*, Lovén: Kobelt, p. 246.

"Porcupine" Expedition, 1869, Station 65.

Distribution.—From Arctic seas to deep water north of the British Isles.

Bearing in mind the diverse views which have been expressed as to the specific value of this form (cf. Jeffreys, Ann. Nat. Hist., ser. iv, vol. xix, p. 331; also Friele, Norske Norhavs-Exped. Moll., part ii, p. 9), it may be of interest to cite the following notes from Jeffreys' MS.: "Types (two specimens, one adult and the other half-grown) sent me by Professor Lovén. Compared specimens with description, which is correct, but not sufficiently explicit. Both are dead shells and solid. Two apical whorls twisted and nearly smooth; the 3rd has two indistinct spiral striæ; the 4th, 5th, and 6th have each strong spiral striæ, which do not cross or intersect the longitudinal ribs; these ribs do not quite extend to the base of the shell, where the spiral striæ are stronger and much more conspicuous, being crowded at the lowest point; the last whorl has about 16 spiral striæ, of which four only occupy the upper half of the whorl."

One box in the Museum bears several station numbers, and another is labelled "No. 77, 500 fms., 1869": if we read 500 as a slip for

560, this agrees with Station 77, but there was no dredging there, only a sounding (cf. Proc. Roy. Soc., vol. xviii, p. 447).

BELA DECUSSATA (Couthouy).

Pleurotoma decussata, Couthouy: Boston Journ. Nat. Hist., vol. ii (1839), p. 183.

Bela decussata, Couthouy: Kobelt, p. 252.

“Porcupine” Expedition, 1869, Stations 23a, 62, 77.

Distribution.—Arctic seas and both sides of the North Atlantic. A Post-Tertiary fossil at Bridlington and near Belfast (Jeffreys).

Jeffreys points out that the *Pleurotoma decussata* of Lamarck has priority, and suggests the use of the name *conoidea*, Sars, for the present shell. I am not sufficiently versed in the literature of the numerous Arctic species of *Bela* to determine what name should be adopted.

BELA EXARATA (Möller).

Defrancia exarata, Möller: Index Moll. Grönland, p. 12.

Bela turricula, var. *exarata*, Möller: Kobelt, p. 236, pl. xxxii, fig. 3.

“Porcupine” Expedition, 1869, Stations 17, 25; 1870, Station 30.

Distribution.—Arctic seas and both sides of the North Atlantic. Fossil in the English Red Crag (Jeffreys) and in Post-Tertiary deposits.

The specimens from Station 17 are only fragments. In the identification of the northern forms of *Bela* I have, as a rule, followed Gwyn Jeffreys.

The following notes by Jeffreys on the ‘type’ of *Pleurotoma mitrula*, Lovén, may find a place here: “Compared specimen with description, which is correct. The first and second (apical) whorls are nearly smooth, and obliquely twisted; the third and fourth whorls have each two rows of prominent spiral striæ, which are nodulous at the points of intersection by the longitudinal ribs. The shell has a remarkably turreted appearance, and the mouth is shorter in proportion to the length of the spire than in most species of the section *Bela*. It is a very elegant and solid shell. Its relations are with *B. Trevelyana*; but the sculpture is much stronger, and the cancellation more remote.” Jeffreys refers to a drawing of this specimen by Mr. Sowerby, but I am unable to trace the drawing, or whether it has appeared in any work.

BELA (?) MACRA (Watson).

Pleurotoma (Mangelia) macra, Watson: Journ. Linn. Soc., vol. xv, p. 437; “Challenger” Rep., Gasteropoda, p. 345, pl. xxiii, fig. 6.

Dautzenberg & Fischer: Mém. Soc. Zool. France, vol. ix, p. 421, pl. xvi, fig. 13.

“Porcupine” Expedition, 1870, Station 17.

Distribution.—Off the Azores, in deep water.

Compared with the Rev. R. B. Watson’s type; one specimen fairly typical, the other apparently belonging to a variety. I am in some difficulty as to the relationship between this form and *Defrancia nodulosa*, Jeff. The latter form was described from the Mediterranean, and in the original reference the author refers also to specimens from

the "Porcupine" off Portugal in 795-994 fathoms. The three specimens from the locality so labelled I attribute to *macra*, Watson. There is also a specimen labelled "No. 55, 1870," which I take to be the Mediterranean specimen to which Jeffreys refers, and which appears to be distinct from *macra*; this latter I accept as *nodulosa*, Jeff., and it is so catalogued in the present paper. The type of this latter species is, however, inaccessible to me. Jeffreys in his MS. also notes *nodulosa* from the "Travailleur" and "Talisman" Expeditions, but I have not been able to trace the form with any certainty in Locard's work; may it be *Bela holomera*, Loc.?

BELA OVALIS (Friele).

Pleurotoma (Bela) ovalis, Friele: *Nyt. Mag. Naturv.*, xxiii, No. ii, p. 9.
Bela decussata, var. *ovalis*, Friele: Kobelt, p. 258, pl. lxxxiv, figs. 15, 16.

"Porcupine" Expedition, 1869, Station 23a (one apparently live); 1870, Station 17.

Distribution.—Deep water on both sides of the North Atlantic.

The specimens from the latter station are much more strongly sculptured. I have followed the identification of Jeffreys and Mr. Marshall.

BELA RECONDITA (Tiberi), Locard.

Bela recondita (Tiberi), Locard: *Expéd. Scient. Trav. Talisman*, vol. i (1897), p. 248; Kobelt, p. 274.

Pleurotoma torquata, auct., non Philippi.

"Porcupine" Expedition, 1870, Adventure Bank, 92 fathoms.

Distribution.—Various localities in the Mediterranean; also the Azores.

According to the authorities cited, as also the Marquis de Monterosato, the present shell has been erroneously attributed by most workers to Philippi's species.

BELA RETICULATA (BROWN).

Pleurotoma reticulata, Brown: *Ill. Conch. Gt. Brit.*, 1827, *Expl.* pl. xlviii.

Pleurotoma Trevelianum, Turton: *Mag. Nat. Hist.*, vol. vii (July, 1834), p. 351.

Bela Trevelyana, Turton: Kobelt, p. 266.

"Porcupine" Expedition (see note below).

Distribution.—Arctic seas and both sides of the North Atlantic.

Known also as a Tertiary(?) and Post-Tertiary fossil. In the Museum as from "89 fathoms, North Atlantic," but I am unable to supply the correct cruise or station number. As has been pointed out by Jeffreys and others, the *Pl. reticulata* of Brown has priority.

BELA TURRICULA (MONTAGU).

Murex turricula, Montagu: *Test. Brit.*, p. 262.

Bela turricula, Montagu: Kobelt, p. 234.

"Porcupine" Expedition, 1869, Lough Foyle, 10 fathoms.

Distribution.—Arctic seas and both sides of the North Atlantic. A Tertiary and Post-Tertiary fossil in the British Isles.

Var. SCALARIS, Möller.

“Porcupine” Expedition, 1869, Station 65.

Var. RUGULATA, Möller.

“Porcupine” Expedition, 1870, Station 26.

I am not clear if the locality for the last-named variety be really correct. *Pleurotoma brevisrostris*, Jeff. MS., seems to me only a form of *turricula*, while *P. delicata*, Jeff. MS., seems synonymous with the variety *rugulata*.

BELA sp. ?

Two specimens from the cruise of 1870, Station 17, deserve a note. They are very small, turreted, and well keeled, and the sub-sutural area is smooth, save for weak radiating lines of growth. The sculpture of the rest of the shell consists in distant, well-marked, longitudinal, and numerous close-set spirals. Mons. Dautzenberg very kindly examined them, but was unable to identify them. I have not described them, as there are only two dead shells, not in good condition.

BELA sp.

A single specimen, apparently live, from the cruise of 1869, Station 38, bearing the MS. name of *pinguis*, Jeff., is in the Museum collection. It appears not to belong to the species described under this name by Locard (Exped. Trav. Talisman, vol. i, p. 211), but is a true *Bela*. I have been unable to satisfactorily identify the shell, but the variation in these forms is great, and I have therefore left the unique specimen unnamed.

PLEUROTOMELLA (?) BULLIOIDES, n.sp. Pl. XVI, Figs. 1, 1a.

Shell ovate fusiform, spire rather depressed. Colour white, with a chestnut-brown protoconch. Whorls 6, somewhat convex, suture well marked. Protoconch composed of four whorls, the first minutely punctate, the second and third being decussated by arcuate riblets, while the fourth whorl has this decussation on its lower half, but one series of riblets has become obsolete on the upper half. The residue of the shell is, in some specimens, marked by three or four incised lines, the only other sculpture being the lines of growth, which are sinuous and more noticeable just below the suture. The last whorl is large and inflated; the mouth ovate; columella slightly curved; lip thin and arcuate, with a deep sinus at its upper margin. Long. 4, lat. 2·8 mm.

“Porcupine” Expedition, 1870, Station 17.

Ten specimens; the details of the protoconch are taken from a younger shell than the type.

Belonging to the group of *T. Dalmasi*, Daut. & Fischer, but a smaller and more ovate shell, the spire not being so elevated. It is the *obesa*, Jeff. MS., which name has been used three times in the Pleurotomidæ.

I have forms apparently belonging to several distinct species of this group from the same dredging, but we know so little of their

variation, and whether they be adult or not, that I deem it wiser not to describe them.

PLEUROTOMELLA CALLEMBRYON (Dautzenberg & Fischer).

Pleurotoma callembrion, Dautz. & Fischer: Mém. Soc. Zool. France, vol. ix, p. 428, pl. xv, fig. 15.

"Porcupine" Expedition, 1870, Station 17.

Distribution.—Off the Azores, in deep water.

Mr. Marshall separated four diverse forms, which M. Dautzenberg considers to be all variations of this species. They certainly show considerable variation, and may eventually prove to be worthy of distinct names, but so little is known of these deep-sea forms that, for the present, I have left them under this denomination.

PLEUROTOMELLA CÆLORHAPHE (Dautzenberg & Fischer).

Pleurotoma cælorhappe, Dautz. & Fischer: Mém. Soc. Zool. France, vol. ix, p. 425, pl. xv, fig. 13.

"Porcupine" Expedition, 1870, Section 17.

Distribution.—Off the Azores, in deep water.

Identified by M. Dautzenberg.

PLEUROTOMELLA DALMASI (Dautzenberg & Fischer).

Pleurotoma Dalmasi, Dautz. & Fischer: Mém. Soc. Zool. France, vol. x (1897), p. 153, pl. iii, fig. 4.

"Porcupine" Expedition, 1870, Station 17.

Distribution.—Previously recorded from deep water off the Azores.

PLEUROTOMELLA EURYBROCHA (Dautzenberg & Fischer).

Pleurotoma eurybrocha, Dautz. & Fischer: Mém. Soc. Zool. France, vol. ix, p. 427, pl. xv, fig. 13.

"Porcupine" Expedition, 1870, Station 17.

Distribution.—Off the Azores, in deep water.

Identified by M. Dautzenberg.

PLEUROTOMELLA FORMOSA (Jeffreys).

Defrancia formosa, Jeffreys: Proc. Zool. Soc., 1883, p. 397, pl. xlv, fig. 9.

Pleurotomella Packardi, var. *formosa*, Jeff.: Kobelt, p. 282.

"Porcupine" Expedition, 1869, Stations 14, 23a, 65; 1870, Station 17.

Distribution.—Deep water in the Atlantic, south to Azores (?); also if it be a variety of *P. Packardi*, on the American coast.

The following notes are due to Mr. Marshall: "There is some confusion as to the identity of this species. Jeffreys in his description says that the 'apical or top whorls are reticulated,' and that the 'point is usually sharp, but sometimes blunt and button-shaped,' although his figure of the shell, as well as the magnified view of the apex, does not exhibit any reticulation. The Rev. R. Boog Watson (Challenger Gasterop., p. 350) demurs to this part of Jeffreys' description, and says he has 'seen nothing like such a variety of form [of the apex] in any specimens of this species, nor in any shells of the whole *Clathurella* group.' He describes the embryonic section

as consisting of four whorls, sharp and narrow, the three lower ones scored 'with the characteristic markings of *Clathurella*, and the extreme tip indistinctly and closely dotted with tubercles somewhat linearly arranged.' This must have been taken from some other shell than *C. formosa*, Jeffr., for it does not apply to that species. The apical whorls of the latter are three only, broad, and brown in colour, the first is smooth and button-shaped, the second conical and very finely obliquely striated, and the third nearly flat-sided, obliquely striated like the second, but with much coarser crinkley striæ. Gwyn Jeffreys' figures show this oblique striation and flattened apex, but they err in depicting four whorls instead of three, and the sculpture of the third should be much coarser than that of the second. I suspect that when Gwyn Jeffreys described his shell he had two species before him, and further that Mr. Boog Watson must have had one of these species in his hands, because the real apex of *C. formosa* is exactly depicted in the figure of *C. cala*, Watson (Challenger Gasterop., pl. xxvi, fig. 11), which latter he says has the apical whorls 'scored with excessively fine threadlets which are straight and longitudinal,' whereas the figure differs from this description. He also says that *C. cala* is 'very much larger,' but the dimensions he gives of .55 in. by .3 in. indicate very little difference by those of Jeffreys—5 in. by .25 in. Mr. Watson's figure of *C. cala* is not *formosa* (though the apical whorls are exact), as the longitudinals of the latter are more oblique and the spirals much more numerous."

The above remarks led me to examine the "Challenger" specimens. I feel convinced that the shells recorded by Mr. Watson as *C. formosa* are not that species; on the other hand, *C. cala* seems to be close to the true *formosa*. At present so little material has been collected that it is uncertain how far variation may exist in these forms, but it may well be that *C. cala* will prove only to be a variety. Jeffreys' "Porcupine" collection contains at least four species grouped under the name of *formosa*, and very possibly Mr. Watson saw one of these, and not the true species.

I am unable to verify the relationship of *formosa* and *Packardi*, Verrill, and have catalogued the shells under Jeffreys' specific name, so that it may be clear to what form the present notes refer.

PLEUROTOMELLA GREGARIA, n.sp. Pl. XVI, Figs. 2, 2a.

Shell somewhat thin, with a well-elevated spire, white, the protoconch stained with brown. Whorls 6, four being apical. The apical whorls (worn) are reticulate, and the residue of the shell is sculptured with longitudinal costæ, which fade out on the lower half of the whorls; there are also numerous rounded spirals cutting the costæ. Below the suture there is an excavated area, showing spirals and also arcuate striæ, more numerous than the costæ. Columella fairly straight; mouth ovate. Long. 4.5, lat. 2 mm.

"Porcupine" Expedition, 1870, Station 17.

A puzzling form of the group of *P. subaraneosa*, Dautz. & Fischer. From this species it differs in sculpture, the spirals being much more numerous and rounded; from *P. Watsoni*, Dautz. & Fischer, it differs

in the excavated area below the suture; it may be the form referred¹ by these authors to *Jeffreysi*, Verrill, from which it appears to me to differ in the shape of the whorls, length of canal, and, from Verrill's figure, in the longitudinal sculpture. It is the *spinulosa*, Jeffreys MS.

PLEUROTOMELLA IMPLICISULPTA (Sturany).

Defrancia implicisulpta, Sturany: Mollusken gesamm. Pola, 1890-4, p. 12, pl. i, figs. 10-12 (1896).

Pleurotomella implicisulpta, Sturany: Kobelt, p. 388.

Defrancia gibbera, Jeffreys: Rep. Brit. Assoc., 1873, p. 113 [nom. sol.].

Pleurotoma gibbera, Jeffreys: Monterosato, Nuova Revista, 1875, p. 44; Enum. e Sinon., 1878, p. 47; Bull. Soc. Mal. Ital., 1880, p. 77 [nom. sol.].

Leufroyia gibbera, Jeffreys: Monterosato, Nat. Sicil., 1890, p. 27 [nom. sol.].

"Porcupine" Expedition, 1870, Stations 30, 50, 56; Adventure Bank, 92 fathoms.

Distribution.—Palermo, Santo Vito, etc. (Monterosato); deep water off Alexandria (Sturany).

I have to thank the Marquis de Monterosato for the bibliographical details, as also for the clue to the above identification. No description of the name *gibbera* has ever appeared.

PLEUROTOMELLA (?) LUSITANICA, n.sp. Pl. XVI, Figs. 3, 3a.

Shell moderately elongate, somewhat fusiform in shape, the spire well raised. Colour white, the protoconch stained with chestnut. Whorls about 7, rather flattened, with a well-marked suture. Apical whorls 3, the first being almost smooth and the others decussated by arcuate riblets. The remaining whorls are sculptured spirally by numerous flat, broad riblets, which (under a lens) are seen to be about twice as wide as their interstices, and to be crossed by lines of growth, which give them a roughened or scabrous appearance. The last whorl is large; the aperture being somewhat squared at the base, and with no noticeable sinus; the outer lip thin and regularly arcuate. The columella is fairly straight above, a trifle twisted at the base, and has a light callus on its lower portion. Long. 6, lat. 3 mm.

"Porcupine" Expedition, Station 17.

Seven specimens of varying ages: the above diagnosis is 'composite,' as the protoconch in the type is rather worn and a little injured. One specimen (broken) is larger than the dimensions given.

Nearly related to *Blanchardi*, Dautz. & Fischer, but, from their figure, the present shell is more slender and the mouth is not so broad; also the interstices of the spirals are not nearly equal in breadth to the spirals themselves.

It is also akin to *Dalmasi*, Dautz. & Fischer, which was found with it. From that species it may be severed by the form being less elongate, the base not being so pointed, but squarer, with a corresponding difference in the shape of the mouth. The spiral sculpture is of a different nature in the present shell, and the zone below the

¹ Mém. Soc. Zool. France, vol. ix, p. 411.

suture in *Dalmasi*, marked by arcuate striæ, is lacking in *P. lusitanica*. In form the shell recalls *Daphnella pompholyx*, Dall, but differs apparently in the spirals, judging from his figure.

PLEUROTOMELLA MEGALEMBRYON (Dautzenberg & Fischer).

Pleurotoma megalembryon, Dautz. & Fischer: Mém. Soc. Zool. France, vol. ix, p. 420, pl. xvii, fig. 14.

“Porcupine” Expedition, 1870, Station 17 (five specimens).

Distribution.—Off the Azores, in deep water.

I have to thank Mons. Dautzenberg for the identification.

PLEUROTOMELLA (?) NODULOSA (Jeffreys).

Defrancia nodulosa, Jeffreys: Ann. Nat. Hist., ser. v, vol. x, p. 32.

“Porcupine” Expedition, 1870, Station 55, 1,456 fathoms.

Distribution.—Deep water in the Mediterranean.

See notes under *Pleurotoma macra*, Watson.

PLEUROTOMELLA (?) OBTUSUM [(Jeffreys) Locard].

Pleurotoma obtusum, Jeffreys: Locard, Expéd. Scient. Trav. Talisman, vol. i, p. 202, pl. ix, figs. 12–16; Kobelt, p. 318.

“Porcupine” Expedition, 1870, Stations 24 and 30.

Distribution.—Deep water to the south and west of Portugal.

PLEUROTOMELLA (?) SERGA (Dall).

Pleurotoma serga, Dall: Bull. Mus. Comp. Zool., vol. ix, p. 65; vol. xii, pl. ix, fig. 4; vol. xviii, p. 114.

Mangilia serga, Dall: Locard, Expéd. Scient. Trav. Talisman, Moll., vol. i, p. 233.

Pleurotoma acanthodes, Watson: Challenger Rep., Gasteropoda, p. 342, pl. xxiii, fig. 3.

“Porcupine” Expedition, 1870 (see below).

Distribution.—Both sides of the Mid-Atlantic in deep water, also off the Azores.

Two lots in the Museum, which I attribute to this species, bear several station numbers whose accuracy is uncertain. I have also the earlier whorls of a specimen from Station 17, and similar fragments from Stations 30 and 56.

PLEUROTOMELLA SUBARANEOSA (Dautzenberg & Fischer).

Pleurotoma subaraneosa, Dautz. & Fischer: Mém. Soc. Zool. France, vol. ix, p. 422, pl. xvi, figs. 11, 12.

“Porcupine” Expedition, 1870, Station 17.

Distribution.—Off the Azores, in deep water.

A long series of this handsome shell; it is the *Pleurotoma exquisita*, Jeffreys MS.

PLEUROTOMELLA THAUMASTOPSIS (Dautzenberg & Fischer).

Pleurotoma thaumastopsis, Dautz. & Fischer: Mém. Soc. Zool. France, vol. ix, p. 426, pl. xvi, fig. 14.

“Porcupine” Expedition, 1870, Station 17.

Distribution.—Off the Azores, in deep water.

Two very young specimens.

PLEUROTOMELLA ? n.sp.

Two specimens from the cruise of 1870, Station 17, seem worthy of being noticed. They are very young apparently, and belong to the group of *P. subaraneosa*, Dautz. & Fischer, but they differ from all other forms of this group known to me in the fact that the spirals are almost obsolete and only traces of them are seen. So little is yet known of the variation in this group that I have not endowed them with a specific name.

SPIROTROPIS CLYTOTROPIS, n.sp. Pl. XVI, Figs. 4, 4a.

Shell elongate fusiform, pale brownish white (dead), spire well produced. Whorls 5, angulated and convex. Protoconch of two whorls, large, glassy, and bulbous, smooth save for indistinct traces of microscopic spirals. The remaining whorls are strongly angulated and carinated at the periphery, this carina appears on the later whorls as if duplex; below this carina is a second, smaller one, and two more are obscurely indicated below. The mouth is strongly angled, and the canal is spout-like and slightly twisted. Long. 8, lat. vix 4 mm.

"Porcupine" Expedition, 1870, Station 17.

Eleven specimens, all, except the type, being very young. Akin to the well-known *S. modiola*, Jan, but slightly broader in proportion to the length. Further, the present shell may be distinguished by the additional spirals below the carina, which are not present in *S. modiola*, Jan; the canal is also more produced in *S. clytotropis*.

We may compare the sculpture with that of *S. monotropis*, Dautz. & Fischer, which appears to be a more elongate shell, with a small and pointed protoconch.

SPIROTROPIS (?) MEGALACME, n.sp. Pl. XVI, Figs. 5, 5a.

Shell small, conical-fusiform, spire well raised, fairly solid. Colour (dead) whitish-brown, with a white protoconch. Whorls 6, turreted, regularly increasing. Protoconch large, white, the first whorl and a half smooth, then closely-set longitudinal riblets are seen, and the whorl becomes carinate. The remaining whorls are acutely carinate, with an area below the suture, either smooth or with arcuate striæ: below the carina appear numerous longitudinal riblets, decussated by spiral carinations, giving the shell a somewhat prickly or nodulous appearance. The mouth is small, with a well-marked situation above; columella vertical, a little twisted at the base. Long. 5, lat. 2.5 mm.

"Porcupine" Expedition, 1870, Station 17.

Four specimens, three being immature. The details as to the protoconch are taken from a younger specimen than the type.

SPIROTROPIS (?) MELVILLI, n.sp. Pl. XVI, Figs. 6, 6a.

Shell small, elongate, spire well raised, varying a good deal in the relative proportions of length and breadth; colour hyaline white. Whorls 6, turreted, carinated, regularly but slowly increasing, suture well marked, with a small strap-like rim below it. Protoconch large, white, smooth, elevated. The remaining whorls are marked by a strong spiral keel, which is either smooth or bears acute nodules;

lines of growth well marked, aperture fairly broad, the columella twisted at the base. Long. 6, lat. 2.6 mm.

“Porcupine” Expedition, Station 17.

A long series. Recalling in shape the well-known *S. modiolus*, Jan, but differing in sculpture. I have to thank M. Dautzenberg for examining this shell, together with the bulk of the forms now described.

SPIROTROPIS MODIOLUS (Jan).

Fusus modiolus, Jan: Cat. Conch. Foss., 1832, p. 10.

Pleurotoma carinatum, Bivona, 1838.

Pleurotoma acuta, Bellardi.

Pleurotoma scalaris, Partsch, 1837.

Spirotropis modiola, Jan: Kobelt, p. 297 (*vide* references cited).

“Porcupine” Expedition, 1869, Stations 1, 23a (live), 65; 1870, Stations 16, 24, 30, 50, 56; Adventure Bank, 92 fathoms; off Cape Sagres, 45–58 fathoms.

Distribution.—From the Lofoten Islands to West Africa, and in the Mediterranean; generally in fairly deep water. Fossil in the Miocene and Pliocene of South Europe.

A good series of this form, not usually of common occurrence.

SPIROTROPIS MONTEROSATOI (Locard).

Pleurotoma Monterosatoi, Locard: Expéd. Scient. Trav. Talisman, vol. i, p. 209, pl. ix, figs. 22–26.

“Porcupine” Expedition, 1870, Station 17.

Distribution.—Deep water, off Morocco (Locard).

Three very young specimens, in poor condition, which I refer here with some slight doubt.

THESBIA (?) MONOCEROS (Watson).

Pleurotoma (Thesbia?) monoceros, Watson: Trans. Linn. Soc., vol. xv, p. 449; Challenger Rep., Gasteropoda, p. 365, pl. xx, fig. 1.

“Porcupine” Expedition, 1870, Station 17.

Distribution.—Off Sierra Leone, in 2,500 fathoms.

Several young specimens and fragments, the identification of which with Mr. Watson's form was suggested, with a query, by Mr. J. T. Marshall. The unique type has lost its protoconch, and, while these specimens may belong to the same form, it is impossible to speak with certainty.

TARANIS MÖRCHI (Malm).

Trophon Mörchi, Malm: Gotenborg Vet. Handl., 1863, p. 130.

Pleurotoma cirrata, Brugnone: Pleur. foss. Palermo, 1862, p. 17.

Non *Pleurotoma cirrata*, Bellardi: Mem. Acc. Torino, ser. II, vol. ix (1847), p. 575.

Taranis cirrata, Brugnone: Kobelt, p. 323.

“Porcupine” Expedition, 1870, Stations 3, 16, 17, 30; Adventure Bank, 92 fathoms.

Distribution.—From Norway to the Mediterranean and in deep water in the Atlantic. I am not clear if the North American records are to be relied upon. A Pliocene fossil in Southern Europe.

The specimens from Station 6 are only fragments of the earlier whorls.

HÆDROPLEURA RUFÆ (Montagu).

Murex rufus, Montagu : Test. Brit., p. 263.

Hædropleura rufa, Montagu : Kobelt, p. 328.

"Porcupine" Expedition, 1869, Lough Foyle, 10 fathoms; also a young, very dead shell from "W. Ireland, 73 fath."

Distribution.—Finmark to the British and French coasts. A Tertiary fossil.

HÆDROPLEURA SEPTANGULARIS (Montagu).

Murex septangularis, Montagu : Test. Brit., 1803, p. 268, pl. ix, fig. 5.

Hædropleura septangularis, Montagu : Kobelt, p. 326.

"Porcupine" Expedition, 1870, Adventure Bank, 92 fathoms.

Distribution.—From Bergen to the Mediterranean, also Madeira and Canaries (Jeffreys). A Tertiary fossil of Southern Europe.

According to Jeffreys the *Pleurotoma Ægeensis* of Forbes is, "ex typ," a synonym, while *Mangelia rigida* (Forbes), Reeve, is a variety.

SURCULA UNDATIRUGA (Bivona).

Pleurotoma undatiruga, Bivona : Gen. Posth., p. 7.

Surcula undatiruga, Bivona : Kobelt, p. 330.

"Porcupine" Expedition, 1870, Station 50; off Cape Sagres, 45–58 fathoms.

Distribution.—Various localities in the Western Mediterranean, especially off the Algerian coast; also off N.W. Africa and to the Canaries. A Pliocene fossil.

One specimen (young) in the Museum has met with an accident, causing the animal to form a new mouth at an angle to the old one, and from the back view to resemble a *Vertagus*.

MANGELIA COSTATA (Donovan).

Murex costatus, Donovan : Brit. Shells, vol. iii, pl. xci.

Mangelia costata, Donovan : Kobelt, p. 343.

"Porcupine" Expedition, 1869, off Lerwick, 10–66 fathoms (var. *coarctata*); 1870, Station 50 (and var. *coarctata*); Vigo Bay, 20 fathoms (and var. *coarctata*); Tangier Bay, 35 fathoms; Adventure Bank, 92 fathoms (with var. *coarctata* and a white var.).

Distribution.—Finmark to the Mediterranean and Tenerife. European Tertiary fossil.

MANGELIA RUGULOSA (Philippi).

Pleurotoma rugulosum, Philippi : Enum. Moll. Sicil., vol. ii, p. 169.

Mangelia rugulosa, Philippi : Kobelt, p. 336.

"Porcupine" Expedition, 1870, Station 50; Adventure Bank, 92 fathoms.

Distribution.—From the British Isles to the Mediterranean. A Tertiary fossil.

BELLARDIELLA GRACILIS (Montagu).

Murex gracilis, Montagu : Test. Brit., 1803, p. 207.

Bellardiella gracilis, Montagu : Kobelt, p. 348.

“Porcupine” Expedition, 1870, Station 50; Benzert Road, 40–65 fathoms; Adventure Bank, 92 fathoms.

Distribution.—British Isles to Madeira and Canaries; also in the Mediterranean. A well-known Pliocene fossil.

Several localities appear on the Museum boxes, but none are sufficiently certain to cite.

CLATHURELLA CLATHRATA (de Serres).

Pleurotoma clathrata, de Serres: Geogn. midi France, 1829, p. 113, pl. ii, figs. 7, 8.

Clathurella (Clathromangelia) clathrata, de Serres: Kobelt, p. 369.

“Porcupine” Expedition, 1870, Adventure Bank, 92 fathoms.

Distribution.—Mediterranean. A Tertiary fossil.

I have followed the traditional identification, but if the recent species be distinct, as has been suggested, it should bear the name of *granum*, Phil.

CLATHURELLA LEUFROYI (Michaud).

Pleurotoma leufroyi, Michaud: Bull. Soc. Linn. Bordeaux, vol. xi (1828), p. 121.

Clathurella (Leufroyia) leufroyi, Michaud: Kobelt, p. 365.

“Porcupine” Expedition, 1869, Station 36; Little Minch, 45–50 fathoms; 1870, Adventure Bank, 92 fathoms.

Distribution.—Norway to the Mediterranean; Canary Islands. Fossil in European Tertiaries.

Jeffreys notes that the animal “is sometimes of a pea-green colour, which is perceptible through the shell”: so far as my own observation, of Guernsey and Herm specimens, has gone, the colour has varied from very pale fleshy to white.

CLATHURELLA LINEARIS (Montagu).

Murex linearis, Montagu: Test. Brit., vol. i, p. 261.

Clathurella (Cyrillia) linearis, Montagu: Kobelt, p. 367.

“Porcupine” Expedition, 1869, Lough Foyle, 10 fathoms; 1870, Stations 13, 50; Adventure Bank, 92 fathoms.

Distribution.—Finmark to the Mediterranean and Canaries. A Pliocene and Post-Tertiary fossil from many European localities.

I am unable to decide as to the priority between this name and the *Murex elegans* of Donovan.

CLATHURELLA MARSHALLI, n.sp. Pl. XVI, Figs. 7, 7a.

Shell elongate-fusiform, fairly solid, spire well drawn out. Colour (dead) whitish-brown. Whorls $7\frac{1}{2}$, convex, regularly increasing. Protoconch pointed, well exerted, of about $3\frac{1}{2}$ whorls, worn and polished but bearing traces of the regular ‘*Clathurella*-sculpture.’ Residue of the shell bearing rounded longitudinal riblets of fair size, crossed by a number of spiral threads (about 6 on the penultimate whorl), and showing traces of a smoother area below the suture. Aperture of fair size, with a short, slightly recurved, canal. Long. 4·5, lat. 1·8 mm.

“Porcupine” Expedition, 1870, Station 17.

Closely related to many forms of *Clathurella*, but I am unable to exactly identify it. Mr. Marshall notes "nearest to *C. linearis*, var. *æqualis*, but more oblong, sculpture finer, with infrasutural area."

CLATHURELLA NIVEA (Monterosato). Pl. XVI, Figs. 8, 8a.

Defrancia reticulata, var. *nivea*, Monterosato: Atti Acc. Palerm., 1875, No. i, p. 44.

Pleurotoma (Homotoma) nivea, Monterosato: Enum. e Sinon., 1878, p. 46.

"Porcupine" Expedition, 1870, Station 56.

Distribution.—Mediterranean.

Recorded from specimens identified by the author. Mr. Marshall writes: "This species resembles *C. reticulata* in size, sculpture, and outlines, but while *C. reticulata* has a slender and acute apex of four whorls, *C. nivea* has a broad twisted apex (*apex revolutus*) of two whorls only, somewhat similar to that of *Trophon* and *Murex*, so that when either of these species are found minus the upper whorls, there is some doubt in determining the species. The same remarks apply to dwarf forms of *C. purpurea* in relation to *C. bicolor*, *C. gemmata*, and *C. gracillima*."

CLATHURELLA PSEUDOHYSTRIX, n.d.

Defrancia hystrix, Jan: Jeffreys, Ann. Nat. Hist., ser. iv, vol. vi, p. 82.

? *Peratotoma hystrix*, Jan: Sacco, Moll. Terz. Piemonte, pt. xxx, p. 52, pl. xiii, fig. 37.

Clathurella (Cordieria) hystrix, Jan: Kobelt, p. 357, pl. xevi, fig. 20.

Pleurotoma (Clathurella) hystrix, Jan: Watson, Journ. Linn. Soc., Zool., vol. xxvi, p. 304.

Non *Pleurotoma hystrix*, Jan: Cat. Coneh., 1832, p. 10.

Non *Raphitoma hystrix*, Jan: Bellardi, Mem. Acc. Torino, ser. II, vol. ix, p. 613, pl. iv, fig. 14.

Non *Homotoma hystrix*, Jan: Bellardi, Moll. Terz. Piemonte, pt. ii, p. 267.

"Porcupine" Expedition, 1870, Station 50; Adventure Bank, 92 fathoms (with a white variety in both cases).

Distribution.—Several localities in the Mediterranean; also Madeira (Watson).

I have set out the above references in detail, as I am unable to agree with the identification of the recent specimens with the older Tertiary form. Nothing can be gleaned from Jan's original reference, and the species really rests on Bellardi's diagnosis and figure, which were, as I understand it, taken from a specimen sent to him by Jan. Further references may be obtained from the works cited.

As the Marquis de Monterosato, who kindly suggested the above name to me, points out, the fossil form has a pointed protoconch, composed of three or four whorls; while the recent shell, in the character of its protoconch, rather resembles *Trophon*. Precisely where the fossil form disappeared and was replaced by the present shell, I am unable to determine, but the two appear to be distinct.

CLATHURELLA PURPUREA (Montagu).

Murex purpureus, Montagu: Test. Brit., p. 260, pl. ix, fig. 2.

Clathurella purpurea, Montagu: Kobelt, p. 359.

"Porcupine" Expedition, 1870, Stations 35, 50, Gibraltar Bay, 3 fathoms.

Distribution.—Atlantic seas from Norway to South England; occasionally in the Mediterranean. A Tertiary fossil.

The specimens from the two first-mentioned stations were identified by Mr. J. T. Marshall as belonging to his variety *minor*.

CLATHURELLA RETICULATA (Renier).

Murex reticulatus, Renier: Tavola Alf., 1804, p. ix.

Clathurella reticulata, Renier: Kobelt, p. 351.

"Porcupine" Expedition, 1870, Stations 51, 56; Rasel Amoush, 45 fathoms; Adventure Bank, 92 fathoms (with var. *hispida*, Monts.).

Distribution.—From England south to the Mediterranean. A Tertiary fossil.

RAPHITOMA ATTENUATA (Montagu).

Murex attenuatus, Montagu: Test. Brit., vol. i, p. 266.

Raphitoma (Villiersiella) attenuatum, Montagu: Kobelt, p. 380.

"Porcupine" Expedition, 1870, Station 50; Vigo Bay, 20 fathoms; Rasel Amoush, 45 fathoms; Adventure Bank, 92 fathoms.

Distribution.—Jutland and Sweden to the Mediterranean, also Teneriffe. A Pliocene fossil.

It may be convenient to mention here some specimens from Station 17 of the cruise of 1870. They are very close to *attenuata*, and may prove to be identical, but the protoconch is different, being dome-shaped rather than cylindrical, and they show other minor variations. Their condition is not good, and I have therefore not named them.

RAPHITOMA BRACHYSTOMA (Philippi).

Pleurotoma brachystomum, Philippi: Enum. Moll. Sicil., vol. ii, p. 169, pl. xxvi, fig. 10.

Raphitoma (Ginnania) brachystomum, Phil.: Kobelt, p. 378.

"Porcupine" Expedition, 1870, Station 50; Vigo Bay, 20 fathoms; Adventure Bank, 92 fathoms.

Distribution.—From Norway to the Mediterranean and Ægean. A Tertiary fossil.

Jeffreys notes in his manuscripts that *Pleurotoma cycladense* (Forbes), Reeve, is a synonym; it is given specific rank by Dr. Kobelt. The form is not in the British Museum, and I am unable to throw any light on the question.

RAPHITOMA LÆVIGATA (Philippi).

Pleurotoma lævigatum, Philippi: Moll. Sicil., vol. i, p. 199, pl. xi, fig. 17.

Raphitoma nebula, var. *lævigata*: Kobelt, p. 376.

"Porcupine" Expedition, 1869, Lough Swilly, 3 fathoms (the

small form known as var. *minor*, Jeff., alive); 1870, Algeciras Bay, 1-15 fathoms.

Distribution.—Mediterranean to the British coasts; also Belgium (Jeffreys MSS.).

The animal of the live specimen above-mentioned is thus described by Jeffreys. "Body milk-white, with minute and irregular specks of flake white; mouth thick; pallial tube long and cylindrical; tentacles thread-shaped, short, extremely thin above the eye-stalks; eyes black, conspicuous, placed on the top of long stalks which are three times as thick as the tentacles; foot long, equal in breadth for two-thirds of its length and narrowing behind; it is squarish or slightly bilobed and double-edged in front, notched or indented behind."

I am unable to decide as to the correct specific name for this shell. Sowerby described a *Pleurotoma laevigata* in 1823 (Min. Conch., vol. iv, pl. 387), as noted by Jeffreys in his MS., and the latter proposed to adopt the name *nigra* of Pot. & Mich. (Gal. Douai, vol. ii, p. 446). According to Tryon (Man. Conch., vol. vi, p. 224) the latter is, however, identical with Montagu's *rufa*, and I am not in a position to settle the question. Jeffreys further suggests that *P. atrata*, O. G. Costa (1839), may be identical with the present species. There is also a *Pleurotoma laevigata* of Nyst (1838).

RAPHITOMA NEBULA (Montagu).

Murex nebula, Montagu: Test. Brit., p. 267, pl. xv, fig. 6.

Raphitoma (Ginnania) nebula, Mont.: Kobelt, p. 374.

"Porcupine" Expedition, 1869, Station 68 (var. *fusiformis*, Marshall); Lough Swilly, 3-13 fathoms; 1870, Station 50 (with var. *abbreviata*, Jeff.); Tangier Bay, 35 fathoms (a live, young, nearly white form); Gibraltar Bay, 3 fathoms; Adventure Bank, 92 fathoms (var. *abbreviata*, Jeff.).

Distribution.—Atlantic coast of Europe, also Mediterranean, Canaries, and Madeira. A Tertiary and Post-Tertiary fossil of the British Isles and the Continent.

RAPHITOMA NUPERRIMA (Tiberi).

Pleurotoma nuperrimum, Tiberi: Descr. nuovi Testacei Medit., 1855, p. 14, pl. ii, figs. 7-9.

Raphitoma (?) nuperrimum, Tiberi: Kobelt, p. 385.

"Porcupine" Expedition, 1870, Stations 6, 8, 9, 24, 50; Cartagena Bay, 60-84 fathoms; Benzert Road, 40-65 fathoms; Adventure Bank, 92 fathoms.

Distribution.—Various localities in the Mediterranean and from Arachon (Locard).

This shell is better known under the name of *hispidula*, Jan; which form appears not to have been described by that author, but by Bellardi in 1848. From the figures given, the recent shell appears to be very closely allied to the fossil, if not identical, but I have followed Dr. Kobelt in their separation, since Jeffreys says, "Not *Raphitoma hispidula*, Jan, in Foresti's collection from Bologna; but in other notes I have regarded the fossil and recent species as the same."

Jeffreys also places *P. lyciacum* (Forbes), Reeve, in the synonymy; Dr. Kobelt, however, gives it specific rank, but, judging from Reeve's figure, I concur with Jeffreys.

RAPHITOMA STRIOLATA (Scacchi).

Pleurotoma striolatum, Scacchi: Cat. Moll. Regn. Napoli, p. 12.

Raphitoma (*Smithiella*) *costulatum*, var. *striolatum*, Scacchi: Kobelt, p. 383.

"Porcupine" Expedition, 1870, Station 50; Tangiers Bay, 35 fathoms; Adventure Bank, 92 fathoms. [Specimens also in the Museum from Station 9; query which cruise.]

Distribution.—Norway to the Mediterranean, and Canaries. A Pliocene fossil.

The correct name for this species seems to be an exceedingly difficult problem (see Kobelt, loc. cit.). There is a prior *Mangelia striolata* of Risso, which seems distinct, as I gather both from his figure and description that the spirals do not cross the longitudinal ribs. Whether it be the *Pleurotoma costulata* of Blainville I am not clear. Various other possible names may be suggested, but perhaps the simplest course at present is to follow Jeffreys, who, quoting the shell as "*striolata* (Scacchi), Philippi," adds, "in this state of uncertainty caused by the multiplicity of names perhaps it is best to use that name which is indisputably appropriate and recognized."

RAPHITOMA TURGIDA (Forbes).

Pleurotoma turgida, Forbes: Rep. Brit. Assoc., 1843 (1844), p. 139.

Raphitoma (?) *turgidum*, Forbes: Kobelt, p. 386, pl. xviii, figs. 19, 20.

Pleurotoma nana, Scacchi, 1839, non Deshayes, 1832.

"Porcupine" Expedition, 1870, off Cape Sagres, 45–58 fathoms; Benzert Road, 40–65 fathoms.

Distribution.—Various localities in the Mediterranean. Fossil in the South European Tertiary.

From the first-mentioned locality come two specimens, so named by Jeffreys; one of them (a very dead shell) is correct, but I refer the other rather to *lavigata*.

EXPLANATION OF PLATE XVI.

- FIGS. 1, 1a. *Pleurotomella* (?) *bullioides*, n.sp.
 ,, 2, 2a. ,, *gregaria*, n.sp.
 ,, 3, 3a. ,, (?) *lusitanica*, n.sp.
 ,, 4, 4a. *Spirotropis clytotropis*, n.sp.
 ,, 5, 5a. ,, (?) *megalaeme*, n.sp.
 ,, 6, 6a. ,, (?) *Melvilli*, n.sp.
 ,, 7, 7a. *Clathurella Marshalli*, n.sp.
 ,, 8, 8a. ,, *nivea* (Monterosato).