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V.—*Revision of British Mollusca.* By the Rev. Canon
A. M. NORMAN, M.A., D.C.L., F.R.S., F.L.S., &c.

[Continued from vol. v. p. 484.]

Class II. **GASTROPODA.**

Subclass I. **ANISOPLEURA.**

Superorder I. *EUTHYNEURA.*

Order I. **PTEROPODA.**

Suborder I. **GYMNOSOMATA.**

Fam. 1. **Clionidæ.**

Genus **CLIONE**, Phipps.

21. *Clione limacina*, Phipps.

Clione limacina, Phipps, Voyage North Pole (1773), p. 195.

Clione borealis, Pallas, Spicilegia Zoologica, fasc. x. (1774), p. 28, pl. i. figs. 18, 19.

Clione limacina, G. O. Sars, Moll. Regionis Arcticæ Norvegiæ, p. 322, pl. xxix. fig. 4 a-c.

Mr. T. Scott (Report Fishery Board Scotland, 1889, p. 325) has procured a specimen of this species in the towing-net off Inchkeith in the Firth of Forth, which he kept alive for two days; and Professor M'Intosh records that on April 11 and 12, 1887, and during a week or two afterwards, a considerable number of the species were captured near shore at St. Andrews.

Pelseneer ('Challenger' Report) says, "There is in the collection of the Muséum d'Histoire Naturelle of Paris a specimen from Falmouth presented by Leach." Leach certainly procured it living off the coast of Mull in 1811 (*vide* Forbes and Hanley, 'British Mollusca,' vol. iv. p. 292).

It is the *Clione retusa* of O. F. Müller, *Clione papilionacea* of authors, *Clione miquelonensis* of Rang, *Clione elegantissima* of Dall, and *Clione Dalli* of Krause.

Very abundant in the Arctic seas. The British localities are its most southern limit in the Eastern Atlantic, while in the Western Atlantic it was found in 1833 as far south as New York. It has been taken in Finmark, but is not known to reach the Norwegian coast.

Suborder II. THECOSOMATA.

Fam. 2. Limacinidæ.

Genus 1. LIMACINA.

22. *Limacina retroversa* (Fleming) = *Spirialis retroversa*, Jeffreys.

Var. 1. *Macandrei*, F. & H.

A produced form, of which several specimens were dredged by MacAndrew 15 miles south of Mizen Head, south of Ireland. The form approaches that of *L. bulimoides*, d'Orb., but the shell is smaller and more delicate than in that species and the suture more deeply cut.

[Var. 2. *Jeffreysii*, F. & H.

Only a single "very young shell" was found. Stated by Jeffreys himself to be only the young.]

23. *Limacina helicoides*, Jeffreys.

Limacina helicoides, Jeffreys, Ann. & Mag. Nat. Hist. ser. 4, vol. xix. (1877), p. 338.

Limacina helicoides, Pelseneer, Report 'Challenger' Pteropoda, pt. 2 (1888), Thecosomata, p. 23, pl. i. fig. 1.

'Porcupine' expedition, 1869, off the west of Ireland, Stat. 28, lat. 56° 44' N., long. 12° 52' W., dead at bottom. It was also procured in the North Atlantic in the 'Valorous' expedition, by the 'Challenger' off the Azores, and by the 'Travailleur' in the Bay of Biscay.

[*Limacina bulimoides* (d'Orbigny).

Atlanta bulimoides, d'Orbigny, Voy. dans l'Amér. mérid. vol. v. (1836), p. 179, pl. xiii. figs. 36-38.

Limacina bulimoides, Boas, Spolia Atlantica, Bidrag til Pterodernes (1886), p. 47, pl. iii. figs. 36, 37.

Pelseneer ('Challenger' Report) records this species, which occurs in all the oceans except the Arctic and Antarctic, as "found by the first 'Porcupine' expedition, 1869." I do not know whence he procured the information, as I have no remembrance that Jeffreys has recorded it. It may be that specimens are preserved in the British Museum. It depends upon the station at which it was found whether it can be included in our lists.]

Genus 2. *PERACLE*, Forbes.24. *Peracle diversa*, Monterosato.

Spiralis diversa, Monterosato, Nuova Revista delle Conchiglie Mediterranee (1875), p. 50.

Peracle diversa, Monterosato, Bull. della Soc. Malacol. Ital. vol. vi. (1880), p. 80.

Peracle diversa, E. A. Smith, Ann. & Mag. Nat. Hist. ser. 6, vol. iv. (1889), p. 421.

Dead shells, doubtfully referred to this species, recorded by E. A. Smith as procured off the south of Ireland by the 'Flying Fox' in 1889.

Fam. 3. *Cavolinidæ*.Genus 1. *CLIO*, Linné.25. *Clio pyramidata*, Linné.

Dr. Jeffreys and myself frequently dredged this species in the Shetland seas, but did not find it living. It was taken in many of the 'Porcupine' dredgings of 1869, and during the recent cruise of the 'Flying Fox' off the south of Ireland (1889) it is stated that "the surface waters teemed with Pteropods, *Cleodora lanceolata* [i. e. *Clio pyramidata*] being taken in abundance."

Genus 2. *CAVOLINIA*, Abildgaard.26. *Cavolinia trispinosa* (Lesueur).

Hyalea trispinosa, Lesueur, MSS. in de Blainville (*Hyale*), Dict. des Sci. Nat. (1821), vol. xxii. p. 82.

Hyalea mucronata, Quoy and Gaimard, Ann. d. Sci. Nat. sér. i. vol. x. (1827), p. 231, pl. viii. n. figs. 1, 2.

Hyalea trispinosa, Boas, Spolia Atlantica, Bidrag til Pterodernes (1886), p. 92, pl. i. fig. 3, pl. ii. fig. 14, pl. iv. fig. 52, pl. v. fig. 93.

Cavolinia trispinosa, Pelseneer, 'Challenger' Report, Pteropoda, pt. ii. (1888) p. 76.

A specimen was washed ashore at Youghal (Brit. Conch. v. p. 117) attached to a mast and found by Dr. Robert Ball in 1820. Dead shells from 250–1000 fathoms off the south of Ireland, 'Flying Fox,' 1889 (*E. A. Smith*). It was dredged also by the 'Porcupine,' 1869, Stat. 1, off Valentia.

It is a very common species in the more southern parts of the North Atlantic, and is found in the South Atlantic, Pacific, and Indian Oceans.

Order II. OPISTHOBRANCHIATA.

Suborder I. TECTIBRANCHIATA.

A. CEPHALASPIDEA.

Fam. 1. Actæonidæ.

Genus ACTÆON, Montfort.

27. *Actæon tornatilis*.

Var. 1. *subulata*, Searles Wood.

Var. 2. *tenella*, Lovén.

Var. 3. *bullæformis*, Jeffreys.

28. *Actæon exilis*, Jeffreys.

Actæon exilis, Jeffreys, Ann. & Mag. Nat. Hist. ser. 4, vol. vi. (1870), p. 21, and vol. xix. (1877), p. 335.

Auriculina insculpta, Verrill, Proc. U. S. Nat. Mus. vol. iii. (1880), p. 381.

Actæon nitidus, Verrill, Trans. Conn. Acad. vol. v. (1882), p. 540, pl. lviii. fig. 21.

Actæon exilis, Dall, Bull. Mus. Comp. Zool. vol. xviii. (1889), p. 38.

'Porcupine' expedition, 1869, in 1215 fathoms, off Ireland to the south-east of Rockall (Stat. 28).

It has been found also in the North Atlantic in 1450 fathoms, 'Valorous,' off the Lusitanian coasts, 227-994 fathoms, 'Porcupine,' 1870, and in the Mediterranean, 92-1456 fathoms. Off east coast of Florida, 150-200 fathoms, and Gulf of Mexico, 200 fathoms (*Dr. Rush*); off Martha's Vineyard, East America, 312-407 fathoms (*Verrill*).

Jeffreys states that it has been found by the late Prof. Seguenza fossil in the older Pliocene of Calabria.

Fam. 2. Tornatinidæ.

Genus 1. TORNATINA, A. Adams, 1850 (= *Utriculus*, Brown, 1845, non Schumacher, 1817).

29. *Tornatina obtusa* (Montagu).

Var. *Lajonkaireana* (Basterot).

30. *Tornatina mammillata* (Philippi).

31. *Tornatina truncatula* (Bruguère).

Var. *pellucida* (Brown).

32. *Tornatina umbilicata* (Montagu).

Var. *strigella* (Lovén).

33. *Tornatina nitidula* (Lovén).

34. *Tornatina ovata* (Jeffreys).

Bulla conulus, Searles Wood, Crag Mollusca, p. 173, pl. xxi. fig. 2 a-c.
Cylichna conulus, Forbes and Hanley, Brit. Moll. vol. iii. p. 517,
 pl. cxiv. c. fig. 7.

Cylichna umbilicata, var. *conulus*; Jeffreys, B. C. vol. iv. p. 156.

Cylichna ovata, Jeffreys, Proc. Roy. Soc. 1870, p. 156 (name only).

Utriculus conulus, G. O. Sars, l. c. p. 287, pl. xvii. fig. 17 a, b.

Cylichna ovata, Watson, Report 'Challenger' Gast. p. 664, pl. xlix.
 fig. 9.

Retusa (?) *ovata*, Dall, Bull. Mus. Comp. Zool. vol. xviii. p. 49.

Deal Voe, Shetland (Jeffreys); 'Triton' exped., 1882, St. 13, lat. 59° 51' N., long. 8° 18' W., 570 fathoms; 'Knight Errant,' 1880, St. 7, lat. 59° 37' N., long. 7° 19' W., 530 fathoms; off south of Ireland, 1000 fath., 'Flying Fox,' 1889 (*E. A. Smith*).

Its extra-Britannic range is 'Porcupine,' 1870, Stat. 16, off Portugal, 994 fathoms; 'Travailleur,' 1880, Bay of Biscay; 'Washington,' 1881, Mediterranean, 337-464 fathoms; 'Challenger,' 350-1000 fathoms, off the Azores; off Culebra Island, West Indies; off Pernambuco; by G. O. Sars off Lofoten Islands, 300 fathoms; Straits of Florida, 150-465 fathoms (*Dr. Rush*); east coast of North America, 124-400 fathoms (*Dall*).

It occurs fossil in the Coralline Crag of England.

Jeffreys says that it is not the *Bulla conulus* of Deshayes. I have no opportunity here of consulting that work. It is certainly not *Bulla striatula*, Forbes = *Bulla conulus*, Weinkauff = *B. (Cylichna) Hoernesii*, Weinkauff = *C. cuneata*, Tiberi, which I have from Algiers and Palermo. That is a larger shell, remarkably attenuated above, with deeply inverted spire, which is quite open above (the margin of the last whorl not projecting over the edges of the inversion as in *T. ovata*), and the shell strongly striated vertically, especially at the apex.

Nor is it *Diaphana conulus*, Brugnone, which Dall states is the *Cylichna obesiuscula*, Brugnone. It is to this last species moreover, according to him, that the shells found by Seguenza in the Italian Pliocene really belong, and not to *T. ovata*, to which they were referred by Jeffreys.

I have followed Sars in placing the species in the present genus as its characters come near to those of *T. umbilicata* and *T. nitidula*, which Sars has shown by examination of the masticatory apparatus are true *Tornatinae*.

[In the Report 'Porcupine' Exped., 1869 (Proc. Royal Soc.), Jeffreys gives under St. 42 "*Cylichna pyramidata* (Norwegian and Mediterranean);" and in B. C. v. p. 223,

under *Cylichna umbilicata*, he writes:—"Var. *conulus*, Loffoden I., 300 f. (Sars), not var. *conulus* of Weinkauff, which he has since named *C. Hoernesii*; this is *C. pyramidata* of A. Adams." It appears probable from the words "Norwegian and Mediterranean" in the first of these quotations that he there used *C. pyramidata* for the shell we now understand as *Tornatina ovata*, Jeffr., whereas in the second he makes *C. pyramidata* synonymous with the shell I have above spoken of as *Cylichna (Bulla) striatula*, Forbes = *C. Hoernesii*, Weink.]

Genus 2. VOLVULA, Adams.

35. *Volvula acuminata* (Bruguère).

Off Berwick (*R. Howse* in Newcastle Museum). This is the only instance of its occurrence off the east of England.

Fam. 3. Scaphandridæ.

Genus 1. CYLICHNA, Lovén.

36. *Cylichna cylindracea* (Pennant).

Var. *linearis*, Jeffreys.

37. *Cylichna alba* (Brown).

At the time when 'British Conchology' was published the only known British locality for this species was north-north-west of Unst, Shetland, where Jeffreys and myself dredged it on several occasions. It has since been found north-north-west from the Butt of Lewis in 189-530 fathoms ('Lightning,' Stats. 12, 13); off the west of Ireland in 430-1366 fathoms ('Porcupine,' 1869, Stat. 23 a, 19); near the same ground as by the 'Lightning,' in 530 fathoms ('Knight Errant,' Stat. 7).

Genus 2. DIAPHANA, Brown, 1833

= *Amphisphyra*, Lovén, 1846.

38. *Diaphana hyalina* (Turton).

39. *Diaphana expansa* (Jeffreys).

40. *Diaphana ventrosa* (Jeffreys).

41. *Diaphana globosa* (Lovén).

Utriculus globosus, Jeffreys, Brit. Conch. vol. v. p. 223, pl. cii. fig. 8.

Diaphana globosa, G. O. Sars, l. c. p. 290, pl. xviii. figs. 4 and 3 c.

Diaphana hyemalis, G. O. Sars, l. c. p. 291, pl. xviii. fig. 4.

Ann. & Mag. N. Hist. Ser. 6. Vol. vi.

The only British specimens of this shell I myself dredged in St. Magnus Bay, Shetland, in 60-80 fathoms, when my friend Jeffreys was not out with me. These were in his collection, and are among the many interesting specimens which have gone to America*.

I have frequently dredged it in the Norwegian west-coast fiords. A small specimen was taken by the 'Travailleur' in the Bay of Biscay (Jeffreys).

Genus 3. SCAPHANDER, Montfort.

42. *Scaphander lignarius* (Linn.).

Var. 1. *alba*, Jeffreys.

Var. 2. *curta*, Jeffreys.

43. *Scaphander punctostriatus* (Mighels).

Bulla punctostriatus, Mighels, Bost. Soc. Nat. Hist. vol. i. (1841), p. 49.

Scaphander librarius, Lovén, Index Moll. Scand. 1846, p. 10.

Scaphander librarius, Jeffreys, B. C. vol. iii. p. 446, vol. v. p. 224.

Scaphander punctostriatus, G. O. Sars, l. c. p. 292, pl. xviii. fig. 6.

One small specimen off Shetland (see Jeffreys, Brit. Conch. vol. iii. p. 446); 'Lightning,' off Butt of Lewis, 189 fathoms (Stat. 13, lat. 59° 5' N., long. 7° 29' W.); 'Porcupine,' 1869, off the west of Ireland, 420-1380 fathoms (St. 23 a and 30); 'Triton,' St. 13, lat. 59° 31' N., long. 8° 18' W., 570 fathoms.

Its distribution includes Norway, where I have frequently dredged it; Iceland; Bay of Biscay, to 1054 fathoms; off Azores, 1000 fathoms, and off Culebra Island, West Indies, 390 fathoms ('Challenger'); Palermo (*Monterosato*); off east coast of United States (*Verrill*); Gulf of Mexico and near Barbadoes, 533 and 288 fathoms (*Dall*). Mediterranean, 'Washington,' 85-1536 fathoms, recorded by Jeffreys, who also states that Seguenza has found it fossil in the older Pliocene of Sicily.

Genus 4. CRYPTAXIS, Jeffreys.

44. *Cryptaxis crebripunctatus*, Jeffreys.

Cryptaxis crebripunctatus, Jeffreys, Proc. Zool. Soc. 1883 (June), p. 398, pl. xliv. figs. 11, 11 a-c.

* In our many dredging expeditions the choicest of the Mollusca went to my friend's collection, while the animals belonging to other classes of the Invertebrata fell to my share. He was always most generous in this matter.

"Shell oval, thin, semitransparent, and glossy: *sculpture*, very numerous and regular fine spiral or revolving striæ, which are closely punctured; they are stronger at the base than at the crown: *colour* white: *spire* deeply sunken, and for the most part concealed in a small cavity in the centre of the crown; but the bulb-shaped apex is visible at the bottom of the cavity: *mouth* semioblong, contracted above and expanding below: *outer lip* slightly raised above the crown and channelled, curved in the middle and at the base: *inner lip* inconspicuous: *pillar* straight on the upper half and incurved below. L. 0·2, B. 0·1."

Three specimens from 'Triton' exped., Stat. 13, lat. 50° 51' N., long. 8° 18' W., 570 fathoms (*Jeffreys*), and I have a small specimen (L. 0·1) which I found in ooze from the same station.

As far as the above description goes the shell might be a *Tornatina*; but the figure represents a shell nearly allied in form to *Scaphander* and with sculpture somewhat like that of *S. punctostriatus*. Compared with my smallest example of the latter species, less than 0·2 long, my little *Cryptaxis* differs in its more equal breadth throughout, the lip being more expanded below and the apex at the other extremity being broader, and the small *S. punctostriatus* shows no more sign of perforated apex than does the adult. I have likewise compared it with *Cylichna insculpta*, Totten, which shell is more broadly ovate and has the apex closed.

Fam. 4. Bullidæ.

Genus 1. BULLA, Klein.

45. *Bulla utriculus*, Brocchi.

Var. *a. oblonga*, Jeffreys.

46. *Bulla semilevis*, Seguenza.

Bulla semilevis, Seguenza, Form. terz. della Provincia di Reggio (Calabria), 1879, p. 241, pl. xvi. fig. 5.

Bulla semilevis, Jeffreys, Report 'Travailleur' Dredgings, Brit. Assoc. Rep. 1880, p. 10 (name only).

Bulla (?) *eburnea*, Dall, Bull. Mus. Comp. Zool. ix. (1881), p. 98; ib. xviii. (1889), p. 55, pl. xvii. fig. 6; Bull. U. S. Nat. Mus. no. 37 (1889), p. 88, pl. xvii. fig. 6.

Bulla Guernei, Dautzenberg, Résult des Camp. scient. par Prince de Monaco, Contrib. à la Faune malacol. des Açores, 1889, p. 24, pl. i. figs. 5 a-d.

Off the south of Ireland, 1000 fathoms, 'Flying Fox,' 1889 (*E. A. Smith*).

Distribution. Bay of Biscay, 'Travailleur' (Jeffreys); off Azores, 450–1000 fathoms, 'Challenger' (Watson); Azores, 1287 metres (Dautzenberg); 'Blake,' Stat. 43, lat. $24^{\circ} 8'$ N., long. $82^{\circ} 51'$ W., 339 fathoms (Dall).

Fossil. Middle Pliocene of Calabria (Seguenza).

Mr. E. A. Smith has kindly, at my request, compared the specimens of this species which are in the British Museum with the figures and description of *B. Guernei*, Dautzenberg, and has confirmed my expectation that the latter cannot be regarded as specifically distinct from *B. semilevis*. It is clear also, I think, that *B. eburnea*, Dall, is the same thing.

Genus 2. HAMINEA, Leach.

47. *Haminea hydatis* (Linn.).

Var. *globosa*, Jeffreys.

Genus 3. ACERA, Müller.

48. *Acera bullata*, Müller.

Var. 1. *nana*, Jeffreys. Length $\frac{3}{10}$ inch.

Var. 2. *Farrani*, Norman. Length $1\frac{3}{4}$ inch.

Acera bullata, var. *gigantea*, Norman, Museum Normanianum, iv. Mollusca, 1888, no. 101.

The variation in size in this species is most extraordinary, and perhaps the forms here treated as varieties should rather be regarded as entitled to rank as species. The full size of ordinary specimens may be taken as an inch; but no specimens of var. *nana*, which was dredged by Jeffreys and myself in shallow water at Balta Sound, Shetland, exceed three twentieths of an inch. On the other hand Dr. Farran found many years ago (see Nat. Hist. Review, vol. iv. (1857) p. 74) the gigantic variety which I here name after him. The specimens were dredged near Birterbuy Bay, Ireland: the animal measured 3 inches long and $2\frac{1}{2}$ wide, and weighed $2\frac{1}{2}$ ounces. The shell of one of these giants, now in my collection, measures $1\frac{3}{4}$ inch long and an inch wide; hundreds of specimens of var. *nana* might be placed in it as in a box! In 1876, in company with my friend Mr. David Robertson, I dredged diligently the spot carefully described by Farran, but without again meeting with this form; but Mr. A. G. More informed me that the year before that just mentioned he had found a similar-sized specimen in a lough nearer Galway.

Fam. 5. **Philinidæ.**

Genus **PHILINE**, Ascanius.

49. *Philine aperta* (Linné).
Var. *patula*, Jeffreys.
50. *Philine nitida*, Jeffreys.
51. *Philine scabra* (Müller).
52. *Philine catena* (Montagu).
Var. *zona*, Jeffreys.
53. *Philine angulata*, Jeffreys.
54. *Philine quadrata* (Searles Wood).
55. *Philine punctata* (Clark).
56. *Philine pruinosa* (Clark).
Var. *dilatata*, Jeffreys.

B. ANASPIDEA.

Fam. 6. **Aplysiidæ.**

Genus **APLYSIA**, Linné.

57. *Aplysia depilans* (Linné).

Major A. R. Hunt took many examples of this fine species in Torbay in 1875 and 1877 (see Trans. Devon Assoc. Advanc. Sci. Liter. and Art, 1877 and 1888); the larger specimens weighed from 19 to 40 ounces. Major Hunt remarks that these large specimens did not discharge any purple, but some pink dye. One of the shells of these large specimens which he kindly sent me measures $2\frac{1}{2}$ inches long and $1\frac{3}{4}$ inch wide, and exactly corresponds in its characters with Mediterranean examples of the same species and size in my collection.

58. *Aplysia punctata*, Cuvier.

C. NOTASPIDEA.

Fam. 7. **Pleurobranchidæ.**

Genus **PLEUROBRANCHUS**, Cuvier.

59. *Pleurobranchus membranaceus* (Montagu).
Off Cumbræ, Firth of Clyde (A. M. N.).
60. *Pleurobranchus plumula* (Montagu).

Fam. 8. **Runcinidæ.**

Genus **RUNCINA**, Forbes, 1853,
= *Pelta*, Quatrefages, 1844, nec Beck, 1838.

61. *Runcina coronata* (Quatrefages).

Pelta coronata, Quatrefages, Mémoire sur les Gastéropodes phlébenteres, Ann. des Sci. Nat. 3^e sér. i. (1844).

Pelta sp., Alder and Hancock, Ann. & Mag. Nat. Hist. xviii. 1846, p. 289, pl. iv. figs. 1-7 (figure optimæ).

Runcina Hancocki, Forbes, in Forbes and Hanley, Brit. Moll. iii. (1853), p. 612, pl. ccc. fig. 2.

Pelta coronata, Vayssière, Ann. des Sci. Nat. 6^e sér. xv. (1883), p. 6, pls. i., ii. figs. 1-24.

Isle of Cumbræ (*A. M. N.*).

Distribution. Brittany (*Quatrefages*), Marseilles (*Vayssière*).

Order III. **NUDIBRANCHIATA.**Suborder I. **HOLOHEPATICA**, Bergh.A. **ANTHOBRANCHIATA.**Fam. 1. **Dorididæ.**

Genus **DORIS**, Linné.

Subgenus 1. **ARCHIDORIS**, Bergh.

62. *Doris tuberculata*, Cuvier.

Distribution. Mediterranean (*Vayssière &c.*), Adriatic (*Sandri &c.*), Western France (*Fischer*), Denmark (*Mörch*), Sweden (*Lovén*), Norway and Finmark (*G. O. Sars*), Faroe (*Mörch*).

It is *D. argo*, Penn., *D. pseudoargus*, Rapp, and perhaps *D. Delle Chiajii* (Verany) and *D. Leuckarti*, Del. Cl., *D. areolata*, Stuvitz, *D. britannica* and *Montagu*, Leach, and *D. mera*, Ald. & Hanc.

63. *Doris flammea*, Ald. & Hanc.

Cumbræ (*A. M. N.*), Plymouth (*Garstang*, in litt.) *.

* Species thus recorded—"(*Garstang, in litt.*)"—are from a list supplied me by Mr. Garstang, of those which he has found at the Biological Laboratory, Plymouth, since the publication of his list ("Report on the Nudibranchiate Mollusca of Plymouth Sound," Journal Marine Biological Assoc. of United Kingdom, vol. i. Oct. 1889, p. 173).

Subgenus 2. JORUNNA, Bergh.

64. *Doris Johnstoni*, Ald. & Hanc.

St. Andrews (*M'Intosh*), Liverpool district (*Herdman*), Plymouth (*Garstang*), Shetland (*A. M. N.*); Moray Firth (*Gordon*).

Distribution. Adriatic (*Graeffe*), S.W. France (*Fischer*), Denmark (*Mörch*), Christiania Fiord and W. Norway (*G. O. Sars*).

This is perhaps *D. tomentosa* of Cuvier, and it is *D. obvelata* of Johnston.

Subgenus 3. ADDISA, Bergh.

65. *Doris testudinaria*, Risso = *D. planata*, Ald. & Hanc.

Plymouth (*Garstang*), Arran, N.B. (*Herdman*).

Distribution. Western France (*Fischer*).

66. *Doris zetlandica*, Ald. & Hanc.

Distribution. W. Norway and Lofoten Islands (*G. O. Sars*).

67. *Doris millegrana*, Ald. & Hanc. ? An *Addisa*.

Subgenus 4. CALDINA, Bergh.

68. *Doris repanda*, Ald. & Hanc.

St. Andrews, abundant (*M'Intosh*), Firth of Forth (*Leslie & Herdman*), Shetland (*A. M. N.*).

Distribution. Palermo (*Schultz*), Adriatic (*Tiberi*), Denmark, Sweden (*Mörch*), Norway, Finnmark, and Spitsbergen (*G. O. Sars*), N.E. America.

This may be *D. laevis* of Fleming. It is *D. obvelata* of Lovén and perhaps of Müller, but not of Fabricius, Johnston, &c. *D. planulata*, Stimpson.

Subgenus 5. ROSTAGNA, Bergh.

69. *Doris coccinea*, Ald. & Hanc.

Plymouth (*Garstang*).

Distribution. Ægean (*Forbes*), Adriatic (*Graeffe &c.*), whole of Western France (*Fischer*), Denmark (*Mörch*), W. Norway (*G. O. Sars*), Faroe (*Mörch*).

Fam. 2. Polyceridæ.

Genus 1. ACANTHODORIS, Gray.

70. *Acanthodoris pilosa* (Müll.).

Firth of Forth (*Leslie & Herdman*), Liverpool district (*Byerley*), Plymouth (*Garstang*), off Lowestoft, 16 fath. (*Meyer*), Shetland (*A. M. N.*), Moray Firth (*Gordon*), Arran, N.B. (*Herdman*).

Distribution. *Ægean* (*Forbes*), whole of Western France (*Fischer*), Kiel (*Meyer & Möbius*), Denmark (*Mörch*), all coasts of Norway and Finmark (*G. O. Sars*), Sweden (*Lovén*), Faroe and Iceland (*Mörch*), N.E. America (*Gould*), Heligoland (*Meyer*).

Synonyms are *D. stellata*, Gmelin, *D. sublævis*, Thompson, *D. fusca*, Lovén, *D. rosinela*, Leach; and of the black variety, *D. nigricans*, Fleming, and *D. Flemingii*, Forbes. It is also *D. similis*, Ald. & Hanc.

71. *Acanthodoris subquadrata*, Ald. & Hanc.

Doris quadrangulata, Jeffreys, B. C. v. p. 93.

Liverpool district (*Byerley*).

Genus 2. LAMELLIDORIS, Ald. & Hanc.

72. *Lamellidoris aspera*, Ald. & Hanc.

St. Andrews (*M^cIntosh*), Plymouth (*Garstang*), Moray Firth (*Gordon*).

Distribution. Coast of Finistère (*Crouan*), Kiel (*Meyer & Möbius*), Denmark, Greenland (*Mörch*), N.E. America (*Stimpson*).

Synonyms. *D. pallida* (Agassiz), Stimpson, *D. fusca*, Müll., *D. muricata*, Mey. & Möb. (non Müll.).

73. *Lamellidoris muricata* (Müll.).

Distribution. Denmark (*Mörch*), Sweden (*Lovén*), Norway and Finmark (*G. O. Sars*).

74. *Lamellidoris ulidiana* (Thompson).75. *Lamellidoris diaphana*, Ald. & Hanc.76. *Lamellidoris bilamellata* (Linné).

Firth of Clyde and Northumberland coast (*A. M. N.*),

Moray Firth (*Gordon*), St. Andrews (*M'Intosh*), Cheshire coast (*Byerley*), Plymouth (*Garstang*).

Distribution. Western France (*Fischer*), Denmark (*Mörch*), West Norway and Finmark (*G. O. Sars*), Iceland and Greenland (*Mörch*), N.E. America (*Agassiz &c.*).

Synonyms. *D. verrucosa* of Pennant and Fleming, *D. Elfortiana*, Blainv., *D. vulgaris*, Leach, *D. tuberculata*, Eckhoff, *D. liturata*, Möller, *D. obvelata*, Bouch.-Chant., *D. Leachii*, Blainv., *D. affinis*, Thompson, *D. coronata*, Agassiz.

77. *Lamellidoris depressa*, Ald. & Hanc.

Hilbre Island, Cheshire (*Byerley*), Moray Firth (*Gordon*).
This is perhaps *Villiersia scutigera*, d'Orbigny.

78. *Lamellidoris inconspicua*, Ald. & Hanc.

Distribution. Denmark (*Mörch*), who also records it with doubt from Iceland and Greenland; Arcachon (*Fischer*).

79. *Lamellidoris pusilla*, Ald. & Hanc.

Moray Firth (*Gordon*).

Distribution. Recorded from Christiania Fiord and West Norway by *G. O. Sars*, who places it in a genus *Onchidoris*.

80. *Lamellidoris sparsa*, Ald. & Hanc.

Plymouth, 15 fath. (*Garstang*).

Distribution. Faroe (*Mörch*).

81. *Lamellidoris oblonga*, Ald. & Hanc.

Subgenus ADALARIA, Bergh.

82. *Lamellidoris proxima*, Ald. & Hanc.

St. Andrews (*M'Intosh*), Liverpool district (*Byerley*).

Distribution. Kiel (*Meyer & Möbius*), Denmark (*Mörch*), West Norway and Lofoten (*G. O. Sars*).

83. *Lamellidoris Lovéni*, Ald. & Hanc.

The only known British example of this was taken by me in Bantry Bay between tide-marks in 1858.

Distribution. Sweden (*Lovén*), Christiania Fiord and West Norway (*G. O. Sars*); recorded with a ? from Faroe (*Mörch*).

Genus 3. GONIODORIS, Forbes.

84. *Goniodoris nodosa* (Montagu).

Moray Firth (*Gordon*), St. Andrews (*M^r Intosh*), Arran, N.B., and Firth of Forth (*Herdman*), Penmaen Ros and Llandrillo Bay, North Wales (*Price*), Plymouth (*Garstang*), Puffin Island, Anglesea (*Herdman*).

Distribution. Western France (*Fischer*), Denmark (*Krøyer*), Sweden (*Lovén*), West Norway (*G. O. Sars*).

It is *Doris barvicensis*, Johnston, and probably *Doris emarginata*, Forbes, and *Doris elongata*, Thompson.

85. *Goniodoris castanea*, Ald. & Hanc.

Isle of Man and Arran, N.B., 25 fath. (*Herdman*), Plymouth (*Garstang*).

Distribution. Genoa (*Verany*), Trieste (*Graeffe*).

It is *Doris Paretti*, Verany.

Genus 4. IDALINA, nom. nov. (= *Idalia*, Leuckart, 1828, nec *Idalia*, Hübner, 1816, nec *Idalia*, Savigny, 1820, nec *Idalia*, Muls., 1846).

86. *Idalina elegans* (Leuckart).

Distribution. Cette (*Leuckart*), Marseilles, Genoa, and Naples (*Bergh*), Trieste (*Staz. Zool.*, fide *Carus*), Western France (*Fischer*), Denmark (*Mörch*).

It is *I. laciniosa*, Philippi.

87. *Idalina Leachii* (Ald. & Hanc.).

Shetland, deep water (*A. M. N.*).

Subgenus IDALIELLA, Bergh.

88. *Idalina inæqualis* (Forbes).89. *Idalina aspersa*, Ald. & Hanc.

Plymouth (*Garstang*), off the Bass Rock, 24 fath. (*Meyer*).

Distribution. Sweden (*Lovén*, as *I. cirrigera*, Phil.), West and S.W. France (*Fischer*).

90. *Idalina quadricornis* (Montagu).91. *Idalina pulchella* (Ald. & Hanc.).

Distribution. West Norway and Lofoten (*G. O. Sars*).

Genus 5. *ANCULA*, Lovén.

92. *Ancula cristata* (Alder).

Shetland (*A. M. N.*), Moray Firth (*Gordon*), St. Andrews (*McIntosh*), Plymouth (*Garstang*).

Taken abundantly at Hilbre Island, Cheshire, by Prof. Herdman, who found one specimen "entirely of a hyaline transparent white colour, without any yellow markings on the dorsal papillæ, and with no opaque white pigment on any part of the body." Arran, N.B., and Firth of Forth (*Herdman*).

Distribution. Boulogne (*Bouch.-Chant.*), Denmark (*Krøyer*), W. Norway (*G. O. Sars*), Kiel (*Meyer & Möbius*), Heligoland (*Frey & Leuckart*), Iceland (*Mörch*), Sweden (*Lovén*).

Genus 6. *THECACERA*, Fleming.

93. *Thecacera pennigera* (Montagu).

Off Lowestoft, 16 fath. (*Meyer*), 20 fath. off Rame Head, Plymouth (*Garstang*).

Distribution. Sicily (*Quatrefages*), N. and N.W. France (*Fischer*).

94. *Thecacera virescens*, Ald. & Hanc.

95. *Thecacera capitata*, Ald. & Hanc.

Genus 7. *CRIMORA*, Ald. & Hanc.

96. *Crimora papillata*, Ald. & Hanc.

The only two known specimens of this Nudibranch are those which I took at Guernsey, the one in 1858 the other in 1865. They occurred in shallow water.

Genus 8. *POLYCERA*, Cuvier.

97. *Polycera quadrilineata* (Müller).

Shetland and Cumbræ (*A. M. N.*); St. Andrews (*McIntosh*), Plymouth (*Garstang*), Moray Firth (*Gordon*), Firth of Forth (*McBain*).

Distribution. Mediterranean (*Marion &c.*), Adriatic (*Bergh &c.*), Kiel (*Meyer & Möbius*), Denmark (*Krøyer &c.*), Western France (*Fischer*), Sweden (*Lovén*), S. and W. Norway (*G. O. Sars*), Heligoland, 5-6 fath. (*Meyer*).

Synonyms. *Doris cornuta*, Abildgaard, *D. flava*, Montagu,

D. varians, M. Sars, *P. ornata*, d'Orbigny, *P. lineata*, Risso, *P. typica*, Thompson.

Subgenus *PALIO*, Gray.

98. *Polycera Lessonii*, d'Orb.

Moray Firth (*Gordon*), St. Andrews (*M'Intosh*), Arran, N.B., 20 fath., and the Mersey (*Herdman*).

Var. *ocellata*, Ald. & Hanc.

Shetland (*A. M. N.*), Moray Firth (*Gordon*), St. Andrews (*M'Intosh*), Liverpool (*Byerley*), Plymouth (*Garstang*).

Distribution. The type: Northern and western coasts of France (*Fischer*), Kiel (*Meyer & Möbius*), Denmark (*Lütken &c.*), Bergen and Manger, Norway (*Friele & Hansen*), Iceland and Greenland (*Mörch*). Var. *ocellata* is recorded from the Adriatic (*Marenzeller*), W. France (*Fischer*), Denmark (*Mörch*), Sweden (*Lovén*), and N.E. America (*Gould*).

Synonyms of the type. *P. modesta*, Lovén, *Doris illuminata*, Gould; *P. citrina*, Ald. & Hanc., is the young. Another variety is probably *P. fusca*, Frey & Leuckart, which is the *P. dubia*, M. Sars.

Genus 9. *TRIOPA*, Johnston.

99. *Triopa clavigera* (Müll.).

Moray Firth (*Gordon*), St. Andrews (*M'Intosh*), Firth of Forth (*F. M. Balfour*), Cumbrae and Lamlash Bay, Arran (*A. M. N.*), Plymouth (*Garstang*).

Distribution. Sweden (*Lovén*), W. Norway, 5–20 fath. (*G. O. Sars*).

Synonyms. *Tergipes pulcher*, Johnston, *Euplocamus plumosus*, Thompson.

Genus 10. *ÆGIRUS*, Lovén.

100. *Ægirus punctilucens* (d'Orbigny).

Shetland (*A. M. N.*), Firth of Forth (*Balfour*), Moray Firth (*Gordon*), St. Andrews (*M'Intosh*), Plymouth (*Garstang*).

Distribution. Mediterranean? (*Ihering*), Brest (*d'Orbigny*), W. Norway, 10–20 fath. (*G. O. Sars*).

It is *Doris maura* of Forbes.

Suborder II. CLADOHEPATICA, Bergh*.

B. INFEROBRANCHIATA.

Fam. 3. *Pleurophyllidiadæ*.

Genus *PLEUROPHYLLIDIA*, Meckel, 1816 (= *Diphyllidia*, Cuvier, 1817).

101. *Pleurophyllidia Lovéni*, Bergh.

Off Dunbar, N.B., 30 fath., in mud (*F. M. Balfour*), St. Andrews (*M'Intosh*, in litt.).

Distribution. Denmark (*Lyngbege & Hörring*), Sweden (*Lovén*), Christiania Fiord, Norway (*G. O. Sars*).

It is the *Diphyllidia lineata* of Lovén and of Forbes and Hanley, but not of Otto. The latter is a Mediterranean species.

C. POLYBRANCHIATA.

Fam. 4. *Tritoniidæ*.

Genus *TRITONIA*, Cuvier.

102. *Tritonia Hombergi*, Cuvier.

Shetland (*A. M. N.*), St. Andrews (*M'Intosh*), Firth of Forth, 30 fath. (*Meyer*), Moray Firth (*Gordon*), Mersey and Isle of Man, 25 fath. (*Herdman*), Plymouth (*Garstang*).

Distribution. Marseilles (*Marion &c.*), W. France (*Fischer*), Denmark (*Mörch*), Sweden (*Lovén*), S. and W. Norway (*G. O. Sars*).

It is *Doris atrofusca*, MacGillivray, and *Sphærostoma Jamesonii*, MacGillivray.

103. *Tritonia alba*, Ald. & Hanc.

Subgenus *CANDIELLA*, Gray.

104. *Tritonia plebeia*, Johnston.

Moray Firth (*G. Murray*), Shetland (*A. M. N.*), St. Andrews (*M'Intosh*), Firth of Forth, Hilbre Island, Cheshire,

* The arrangement here followed is for the most part that of Bergh in his paper just published, "Die Cladohepatischen Nudibranchien," 1890. The most important difference is that I have retained *Pleurophyllidia* in a separate section Inferobranchiata.

and Puffin Island, Anglesea (*Herdman*), Mersey and Dee (*Collingwood*), Peterhead, 30 fath. (*Meyer*), Plymouth (*Garstang*).

Distribution. Smyrna (*Forbes*), Marseilles (*Marion*), West France (*Fischer*), Denmark (*Mörch*), South and West Norway, 10–30 fath. (*G. O. Sars*), Heligoland, 19 fath. (*Meyer*).

105. *Tritonia lineata*, Ald. & Hanc.

In 20 fath., Arran, N.B. (*Herdman*).

Distribution. W. France (*Fischer*), Denmark (*Mörch*), West Norway, 20–30 fath. (*G. O. Sars*).

Fam. 5. *Scyllæidæ*.

Genus *SCYLLÆA*, Linné.

106. *Scyllæa pelagica*, Linn.

Distribution. Mediterranean, Atlantic, Pacific, and Indian Oceans.

Bergh makes four varieties:—1. *marginata*, Bergh = *S. Grayæ*, Ad. = *Edwardsii*, Verrill; Atlantic Ocean. 2. *S. ghomfodensis*, Forskål; Red Sea. 3. *sinensis*, Bergh; China. 4. *orientalis*, Bergh = *S. ghomfodensis*, Q. & G.; Philippines.

Fam. 6. *Dendronotidæ*.

Genus *DENDRONOTUS*, Ald. & Hanc.

107. *Dendronotus frondosus* (Ascanius).

Amphitrite frondosus, Ascanius, Kgl. Norske Vid. Selsk. Skrift. 5 Deel, 1774, S. 114, pl. v. fig. 2.

Doris frondosa, Müll. Zool. Dan. Prod. (1776), no. 2777.

Doris arborescens, id. ibid. no. 2776.

Tritonia lactea, Thompson, Nat. Hist. Ireland, iv. (1856), p. 276.

Dendronotus lacteus, Becher, Mollusker von Jan Mayen (1886), p. 14, pl. vi. fig. 8.

Dendronotus luteolus, Lafont, Note pour servir à la France de la Gironde, no. 11, pl. xvii. fig. 1.

Moray Firth (*G. Murray*), St. Andrews, where the white variety, var. *lactea*, Thompson, has occurred (*M'Intosh*), Firth of Forth (*Leslie & Herdman*), near Dogger Bank, 34 fath. (*Meyer*), off Great Orme's Head and Hilbre Island (*Herdman*), Plymouth, 25 fath. (*Garstang*).

Distribution. S.W. France (*Fischer*), Kiel (*Meyer & Möbius*), Denmark (*Lütken &c.*), all coasts of Norway and Finmark to 100 fath. (*G. O. Sars*), Sweden (*Lovén*), Faroe, Ice-

land, and Greenland (*Mörch*), Jan Mayen (*Becher*), Spitsbergen (*G. O. Sars*), N.E. America (*Couthouy &c.*), Arctic Pacific (*Bergh*), Behring Strait (*Aurivillius*).

It is *Tritonia Reynoldsii*, Couthouy, *Tritonia pulchella* and *Dendrotus arborescens*, Ald. & Hanc., and perhaps *Dendronotus elegans*, Verrill (Proc. U. S. Nat. Mus. 1880, p. 385).

Fam. 7. Dotonidæ.

Genus Doto, Cuvier.

108. *Doto fragilis* (Forbes).

Firth of Clyde and Shetland (*A. M. N.*), St. Andrews (*M'Intosh*), Norfolk coast, 12-16 fath. (*Meyer*), off Puffin Island, Anglesea (*Herdman*), Plymouth (*Garstang*).

Distribution. Adriatic (*Graeffe*), Christiania Fiord, Norway, 20 fath. (*G. O. Sars*).

Synonym. *Melibæa pinnatifida*, Johnston.

109. *Doto pennatifida* (Montagu).

110. *Doto coronata* (Gmelin).

Shetland (*A. M. N.*), Moray Firth (*G. Murray*), St. Andrews (*M'Intosh*), Arran, N.B., 10-20 fath., and Liverpool district, many places (*Herdman*), Plymouth (*Garstang*), Firth of Forth (*F. M. Balfour*).

Distribution. Mediterranean (*Verany &c.*), Adriatic (*Stossich*), S.W. France (*Fischer*), Kiel (*Meyer & Möbius*), Denmark (*Krøyer*), Sweden (*Lovén*), Norway and Finmark down to 10 fath. (*G. O. Sars*), N.E. America (*Stimpson &c.*).

It is *Scillæa punctata* (Bouch.-Chant.), *Melibæa ornata*, Ald. & Hanc., *Melibæa arbuscula*, Agassiz, and *Tergipes lacinulatus*, Delle Chiaje, and, according to Bergh, *Doto Forbesii*, Deshayes, *D. uncinata*, Hesse, *D. pinnigera*, Hesse, *D. armoricana*, Hesse, and *D. confluens*, Hesse.

111. *Doto cuspidata*, Ald. & Hanc.

Shetland (*A. M. N.*).

Genus HANCOCKIA, Gosse, 1877

= *Govia*, Trinchese, 1886 *.

Bergh thus defines this interesting genus :—

“Margo frontalis utrinque digitatus ; rhinophoria quasi ut

* Trinchese, “Ricerche anat. sul genere *Govia*” (Mem della R. Acc. delle Sc. dell' Istituto di Bologna, s. 5, vol. vii. pp. 183-191, pl.

in Tritoniadis, tentacula nulla. Papillæ dorsales cuculiformes (facie concava externa cnidocystis prædita); anus latero-dorsalis. Podarium antice truncatum.

"Margo masticatorius mandibulæ singulaserie denticulorum armatus. Radula triseriata, quasi omnino illi Galvinarum similis. Otocysta cum otolitho. Penis inermis."

Trinchese has described two species from the Mediterranean.

112. *Hancockia eudactylota*, Gosse.

Hancockia eudactylota, Gosse, Ann. & Mag. Nat. Hist. ser. 4, xx. (1877) p. 316, pl. xi.

Govia dactylota, Bergh, Die Cladohepatischen Nudibranchien, 1890, p. 53.

Dredged by Mr. A. R. Hunt near Torquay, Aug. 10, 1877.

Fam. 8. **Lomanotidæ.**

Genus **LOMANOTUS**, Verany.

113. *Lomanotus marmoratus*, Ald. & Hanc.

Lomanotus varians, Garstang, Journ. Marine Biol. Assoc. of Great Britain (1889), p. 185.

Off Lowestoft, 25 fath. (*Meyer*), Shetland (*Peach*).

Distribution. West Norway, 10–20 fath.

Mr. Garstang has found three specimens of this genus at Plymouth, and it appearing to him that they were intermediate forms between so-called species described, he has proposed to group the whole under the name *L. varians*. Of course, however, if they are so united, the laws of nomenclature require that it should be under the earliest name, *L. marmoratus*. Further observations are desirable. It is very probable that Mr. Garstang's conclusions are correct.

114. *Lomanotus flavidus*, Ald. & Hanc.

115. *Lomanotus portlandicus*, W. Thompson (of Weymouth).

116. *Lomanotus Hancocki*, Norman.

Lomanotus Hancocki, Norman, Ann. & Mag. Nat. Hist. ser. 4, vol. xx. (1877), p. 518.

Body elongated, of a very light pinkish-orange tinge, very transparent, so that the internal organs are clearly seen through the skin; below white, the front margin of the foot microscopically sprinkled with red specks. *Veil* with two tentacular processes on each side, overhanging the mouth; these processes are orange-coloured below, and above are microscopically

sprinkled with red in the same manner as the margin of the foot. *Tentacles* terminating above in a calyx-like expansion, formed of five leaflet-like points, from the middle of which rises the small, conical, smooth termination of the tentacle; this conical process is of small size, not exceeding that of the divisions of the calyx. *Branchial processes* in the form of a waved raised curtain, surmounted by flat triangular papillæ, passing down each side of the back and uniting behind; the undulations of the curtain consist of three outwardly and four inwardly directed folds on each side; the fold which is nearest the head is the largest; the papillæ on this fold are 18 to 20 in number; the papillæ on all the folds vary considerably in size, but there appears to be always one larger than the rest; they are capable of contraction and dilatation, and are constantly changing their apparent dimensions while the animal is in motion; they are banded with deep dark orange, while the small points in which they terminate are pale orange. *Length* $2\frac{1}{4}$ inches.

I dredged a single specimen of this very fine Nudibranch off Berry Head, Torbay, June 25, 1875.

It approaches both *L. flavidus*, A. & H., and *L. portlandicus*, Thompson, but differs in many particulars, and especially in the form of the tentacles, which have a very marked character in the small size of their apical portion, which projects beyond the calyx-like sheath and is quite simple and shows no sign of ringing. The small size of these simple and non-laminated tentacles and their peculiar cut-edged sheath prevent my thinking that *L. marmoratus* is the young and *L. Hancocki* the adult of one species, as has been suggested by Mr. Garstang.

Fam. 9. *Æolididæ*.

Subfam 1. *ÆOLIDINÆ*.

Genus 1. *ÆOLIS*, Cuvier, 1798 = *Æolidia*,
Cuvier, 1817.

Subgenus 1. *ÆOLIS*, Cuv. (sens. strict.).

117. *Æolis papillosa* (Linn.).

Cumbræ and Shetland (*A. M. N.*), Moray Firth (*G. Murray*), Hilbre Island (*Byerley*), North Wales and Isle of Man (*Herdman*), St. Andrews (*M'Intosh*), Plymouth (*Garstang*), Firth of Forth (*McBain &c.*).

Distribution. W. and S.W. France (*Fischer*), Kiel (*Meyer & Möbius*), Denmark (*Mörch*), Sweden (*Lovén*), Norway and
Ann. & Mag. N. Hist. Ser. 6. Vol. vi. 6

Finmark (*G. O. Sars*), Faroe and Iceland (*Mörch*), N.E. America (*Gould*).

It is *Doris bodoensis*, Gunner, *Doris vermigera*, Turton, *Eolis Cuvieri*, Lamarck, *Eolida zetlandica*, Forbes & Goodsir, *Eolis Murrayana* and *Lesliana*, MacGillivray, *Eolis rosea*, Ald. & Hanc., *Eolis obtusalis*, Ald. & Hanc., and *Eolis farinacea*, Gould.

Subgenus 2. *ÆOLIDIELLA*, Bergh.

118. *Æolis glauca*, Ald. & Hanc.

North Wales (*Herdman*).

Distribution. Genoa (*Trinchese*), Adriatic (*Graeffe*), S.W. France (*Fischer*), Denmark (*Collin*).

119. *Æolis Alderi*, Cocks.

Plymouth (*Garstang*, in litt.).

Distribution. St. Malo (*Vaillant*).

120. *Æolis sanguinea*, Norman.

Eolis sanguinea, Norman, Ann. & Mag. Nat. Hist. ser. 4, xx. (1877) p. 517.

This is a very beautiful species, the type of which was taken August 26, 1874, at low water, spring tides, on the islet known as Innislacken, at the entrance of Roundstone Bay, Connemara. The radula of this species has not been examined.

Subfam. 2. *CRATENINÆ*.

Genus 2. *CUTHONA*, Ald. & Hanc.

121. *Cuthona nana*, Ald. & Hanc.

Hilbre Island, Cheshire, and Puffin Island, Anglesea (*Herdman*), Firth of Forth (*T. S. Wright*).

Distribution. Boulogne (*Bouch.-Chant.*).

122. *Cuthona* (?) *aurantiaca* (Ald. & Hanc.).

Shetland (*A. M. N.*), Liverpool district (*Price &c.*), Peterhead, 30 fath. (*Meyer*).

Distribution. Lofoten Islands (*G. O. Sars*), Sweden (*Lovén*).

It is *Eolis bellula*, Lovén.

Genus 3. CRATENA, Bergh
(= *Cavolina*, Cuvier, non Abildgaard).

123. *Cratena viridis* (Forbes).

Moray Firth (*G. Murray*), St. Andrews, abundant (*M'Intosh*), Arran, N.B., 20 fath., and Puffin Island, Anglesea (*Herdman*), Plymouth (*Garstang*, in litt.).

124. *Cratena amæna* (Ald. & Hanc.).

Arran, N.B., 20 fath.; off Port Erin, Isle of Man, 15 fath. (*Herdman*).

125. *Cratena olivacea*, Ald. & Hanc.

Shetland (*A. M. N.*), St. Andrews, not uncommon (*M'Intosh*), Moray Firth (*G. Murray*), Mersey (*Herdman*), the Dee (*Collingwood*), Plymouth (*Garstang*).

Distribution. West Norway, 5–10 fath. (*G. O. Sars*).

126. *Cratena pustulata* (Ald. & Hanc.).

127. *Cratena glottensis* (Ald. & Hanc.).

128. *Cratena arenicola* (Forbes).

North Wales (*Herdman*).

129. *Cratena concinna* (Ald. & Hanc.).

? *Eolis gymnota* (Couthouy), Gould, *Invert. Mass. edit. Binney* (1870), p. 249, pl. xvi. figs. 238–241.

Mersey, common (*Collingwood*).

Distribution. Christiania Fiord (*Ashjörnsen*), West Norway, 5–100 fath. (*G. O. Sars*).

130. *Cratena* (?) *Peachii* (Ald. & Hanc.).

131. *Cratena* (?) *stipata* (Ald. & Hanc.).

132. *Cratena* (?) *angulata* (Ald. & Hanc.).

Off the Bass Rock, 24 fath. (*Meyer*), Plymouth (*Garstang*), Moray Firth (*G. Murray*).

Distribution. Sweden (*Lovén*, fide Alder), Normandy (*Quatrefages*, as *Eolidina paradoxa*).

133. *Cratena* (?) *inornata* (Ald. & Hanc.).

134. *Cratena* (?) *Couchii* (Cocks).

135. *Cratena* (?) *northumbrica* (Ald. & Hanc.).

Subfam. 3. *TERGIPEDINÆ*.Genus 4. *TERGIPES*, Cuvier.136. *Tergipes despectus* (Johnston).

Arran, N.B., and Hilbre Island, Cheshire (*Herdman*),
Firth of Forth (*Leslie & Herdman*), Mersey (*Collingwood*),
Plymouth (*Garstang*).

Distribution. West Norway, 0–10 fath. (*G. O. Sars*), N.E.
America (*Stimpson*).

Bergh suggests that *Tergipes claviger*, Menke, is a synonym.

Genus 5. *EMBLETONIA*, Ald. & Hanc.137. *Embletonia pulchra*, Ald. & Hanc.

Distribution. Mediterranean (*Ihering*), Brest (*Crouan*).

138. *Embletonia minuta* (Forbes & Good.).139. *Embletonia pallida*, Ald. & Hanc.

Mersey (*Herdman*).

Distribution. Kiel (*Meyer & Möbius*), Denmark (*Mörch*),
Bergen Fiord, Norway, 14 fath. (*Meyer*).

Var. *Grayi*, Saville Kent.

Embletonia pallida, Meyer and Möbius, Fauna der Kieler Bucht, 1865,
p. 17, pl. figs. 1–3.

Embletonia Grayi, Saville Kent, Proc. Zool. Soc. 1869, p. 109, pl. viii.

Oral lobes highly developed. *Eyes* deeply sunk beneath the integument and situated some distance apart, immediately behind the tentacles; they are, however, often scarcely discernible. *Branchial papillæ* in five transverse rows, two on each side; but in the adult generally three in each fasciculus of the second row, and rarely three in the first. In the form figured by Meyer and Möbius there are three papillæ in first and second fasciculus and four in the third; but the additional papillæ beyond the primary two are not one third the size of these. *Colour* transparent white, antero-dorsal region usually more or less sprinkled with minute ramifying pigment-cells of a blackish hue, which occasionally also extend over the papillæ. Length two tenths to three tenths of an inch.

Feeding on *Cordylophora lacustris*, which lives on the submerged timber-balks at the Victoria Docks, London, where the water contains about one third of the saline constituents of pure sea-water. Spawn masses of an irregular oval form.

Genus 6. AMPHORINA, Quatrefages.

140. *Amphorina cærulea* (Mont.).

Distribution. Genoa (*Trinchese*), Adriatic (*Graeffe*), West France (*Fischer*).

141. *Amphorina* (?) *purpurascens* (Fleming).

A species doubtful in all respects.

142. *Amphorina molios* (Herdman).

Eolis molios, Herdman, Proc. Roy. Phys. Soc. Edinb. vol. vi. 1881, p. 28, pl. i. figs. 1-3.

"Body longish, tapering to a fine point posteriorly, and of a yellowish-green colour. *Oral tentacles* of the same colour as the body, very short. *Dorsal tentacles* also yellowish green, short and thick. *Branchial processes* stout but not large, dark blue, with large cadmium-yellow tips, encircled near the top by a narrow brown band; they are set in eight transverse rows, having five processes in each [there is some mistake in this number five, as according to the figure there must be double that number at least]; the three anterior rows are placed close together, the rest having greater intervals between them. *Radula* formed of overlapping plates, each of which has a central spine and five lateral denticulations, which decrease in size from the centre to the edge. Length 10 mm."

Two specimens dredged in about 10 fathoms, Arran, N.B., by Professor Herdman.

Genus 7. GALVINA, Ald. & Hanc.

143. *Galvina exigua*, Ald. & Hanc.

St. Andrews (*M'Intosh*), Mersey (*Collingwood*), North Wales (*Herdman*).

Distribution. Bergen Fiord, Norway, 14 fath. (*Meyer*), Adriatic (*M. Sars*), Kiel (*Meyer & Möbius*), Sweden (*Lovén*), Jugor Schar, 'Vega' exped. (*Aurivillius*); recorded with doubt from W. Norway (*Friele & Hansen*).

It is *Tergipes lacinulatus*, Lovén (nec Gmelin).

144. *Galvina tricolor* (Forbes).

Moray Firth (*G. Murray*).

Distribution. Brest (*Crouan*), Sweden (*Lovén*), Florö, Norway (*Friele & Hansen*), Arran, N.B. (*Herdman*).

It is *E. purpurea*, *E. amethystina*, and *E. violacea*, Ald. & Hanc.

145. *Galvina picta*, Ald. & Hanc.

Shetland (*A. M. N.*), Arran, N.B., 10–20 fath. ; Liverpool district and off Port Erin, Isle of Man (*Herdman*), Moray Firth (*G. Murray*).

Distribution. Genoa (*Trinchese*), Adriatic (*Graeffe*), West Norway, 5–10 fath. (*G. O. Sars*).

146. *Galvina Farrani*, Ald. & Hanc.

St. Andrews (*M'Intosh*), Moray Firth (*G. Murray*). Mr. Garstang finds the species at Plymouth, and describes several interesting colour varieties (Journ. Marine Biol. Assoc. Gt. Brit. vol. i. 1889, p. 193).

Distribution. Mediterranean (*Ihering*), Bréhat, France (*Quatrefages*).

It is *Amphorina Alberti*, Quatrefages, and *Eolis andreapolis*, M'Intosh. The last is a variety with more or less purple colouring.

147. *Galvina adelaidæ* (W. Thompson).

Weymouth (*Thompson*), St. Andrews (*M'Intosh*).

This is *Eolis Robertianæ*, M'Intosh.

148. *Galvina vittata*, Ald. & Hanc.

149. *Galvina cingulata*, Ald. & Hanc.

It is also *Eolis hystrix*, Ald. & Hanc.

Subfam. 4. *CORYPHELLINÆ*.

Genus 8. *CORYPHELLA*, Gray.

150. *Coryphella rufibranchialis* (Johnst.).

Shetland (*A. M. N.*), Moray Firth (*G. Murray*), St. Andrews (*M'Intosh*), Hilbre Island (*Herdman*), near Plymouth, 20–25 fath. (*Garstang*), Arran, N.B. (*Herdman*).

Distribution. Mediterranean (*Bergh*), Denmark (*Mörch*), Bergen and Florö, Norway (*Friele & Hansen*), Kiel (*Meyer & Möbius*), N.E. America (*Stimpson*), Behring Sea (*Bergh*).

Synonyms. *Eolidia Embletoni*, Johnston, *Eolis mananensis*, Stimpson.

Trinchese regards the four *Coryphellæ* which next follow as only so many colour varieties of *C. rufibranchialis*.

151. *Coryphella gracilis*, Ald. & Hanc.

Off Puffin Island, Anglesea, 11-13 fath. (*Herdman*), Plymouth (*Garstang*, in litt.).

Distribution. Denmark (*Mörch*).

152. *Coryphella smaragdina*, Ald. & Hanc.

Moray Firth (*G. Murray*).

153. *Coryphella Landsburgii*, Ald. & Hanc.

Shetland and Cumbræ (*A. M. N.*), Firth of Forth (*McBain*), Moray Firth (*G. Murray*), Hilbre Island, Cheshire (*Herdman*).

Distribution. Mediterranean (*Trinchese*), S.W. France (*Fischer*), Florö, Norway (*Friele & Hansen*).

154. *Coryphella pellucida*, Ald. & Hanc.

Lamlash Bay, Firth of Clyde, 10 fath. (*Herdman*).

Distribution. Christiania Fiord and W. Norway, 10-20 fath. (*G. O. Sars*).

155. *Coryphella lineata* (Lovén).

Off Port Erin, Isle of Man, 15 fath. (*Herdman*).

Distribution. Mediterranean (*Verany*), Sweden (*Lovén*), W. Norway, 20-30 fath. (*G. O. Sars*).

It is *Æolis argento-lineata*, A. Costa, and *Eolidia Demarini*, Verany.

Subfam. 5. *FAVORINIDÆ*.

Genus 9. *FAVORINUS*, Gray.

156. *Favorinus albus*, Ald. & Hanc.

Favorinus albus, Trinchese, Atti della R. Acc. dei Lincei, ser. 3, vol. xi. (1882), p. 69, pls. xxxi., xxxii. fig. 2.

One variety figured by Trinchese has the branchiæ white, another green, another orange, a fourth brown.

Isle of Cumbræ and Shetland (*A. M. N.*), Moray Firth (*G. Murray*), Plymouth (*Garstang*, in litt.).

Distribution. Mediterranean (*Trinchese &c.*), Adriatic (*Graeffe*), S.W. France (*Fischer*), Kiel (*Meyer & Möbius*), Denmark (*Mörch*), Sweden (*Lovén*), W. Norway, 10-20 fath. (*G. O. Sars*).

157. *Favorinus carneus*, Ald. & Hanc.

Genus 10. *FACELINA*, Ald. & Hanc. (= *Acanthopsole*, Trinchese).

158 *Facelina Drummondii* (W. Thompson).

Facelina Drummondii, Trinchese, Atti della R. Acc. dei Lincei, ser. 3, vol. xi. (1881) p. 41, pl. x. fig. 3, pls. xii., xviii., xix., xxi., xxiv., xxv., xxvi., xxviii., xxix., xxx., xxxi.

Trinchese, as above, figures two very marked colour varieties, and goes very fully into the anatomy of the species.

Cumbræ, Arran, N.B., and Falmouth (*A. M. N.*), Firth of Forth (*McBain*), Mersey and Dee, very common (*Collingwood*).

Distribution. Mediterranean (*Costa &c.*), S.W. France (*Fischer*), Kiel (*Meyer & Möbius*), Denmark (*Mörch*), W. Norway, 0–10 fath. (*G. O. Sars*).

Synonyms. *Æolis gigas*, A. Costa, *Eolidia Janii* and *Pannizæ*, Verany, *Eolis Quatrefagesi*, Vayssière; and a British variety is *E. tenuibranchialis*, Ald. & Hanc.

159. *Facelina coronata* (Forbes).

Moray Firth (*G. Murray*), St. Andrews (*M'Intosh*), Cumbræ and Arran, N.B. (*A. M. N.*), Firth of Forth (*McBain*), Hilbre Island (*Herdman*), Plymouth (*Garstang*).

Distribution. Mediterranean (*Trinchese &c.*), W. France (*Fischer*), Denmark (*Mörch*), Florø, Norway (*Friele & Hansen*).

160. *Facelina punctata*, Ald. & Hanc.

Facelina punctata, Trinchese, Atti della R. Acc. dei Lincei, ser. 3, xi. (1882), p. 38, pls. ix., x. figs. 1, 2, pls. xi., xiv., xv., xvi., xvii., xxii. figs. 1, 2, pl. xxiii. figs. 3–5, pls. xxvii., xxx A. figs. 3–8.

One of the Mediterranean varieties figured by Trinchese has the branchiæ of a rich rose colour.

Plymouth (*Garstang*).

Distribution. Mediterranean (*Ihering &c.*), S.W. France (*Fischer*).

161. *Facelina elegans*, Ald. & Hanc.

Subfam. 6. *FLABELLININÆ*.

Genus 11. *CALMA*, Ald. & Hanc.

162. *Calma glaucoides*, Ald. & Hanc.

Subfam. 7. *FIONIDÆ*.

Genus 12. *FIONA*, Hancock & Embleton.

163. *Fiona marina* (Forskål).

Fiona nobilis, Ald. & Hanc. Brit. Nud. Moll. fam. iii. pl. xxxviii a.

Fiona atlantica, Bergh, Anatom. Unders. af *Fiona atlantica*, Vid. Medd. Natur. For. i Kjöbenhavn, 1857.

Fiona marina (Forskål), Bergh, Scient. Results Explor. Alaska, vol. i. (1879) p. 142.

Penmaenmawr, N. Wales (*Thompson*), Southport Pier (*Vicars*).

Distribution. Mediterranean (*Bergh &c.*), W. France (*Fischer*), North Pacific (*Bergh*).

Synonyms. *Limax marinus*, Forskål, *Æolis fusciculata*, Lamarck, *Eolis Cuvieri*, Del. Chi., *Hymenæolis elegantissima* (A. Costa).

Subfam. 8. *ANTIOPINÆ*.

Genus 13. *ANTIOPA*, Ald. & Hanc. 1848 (= *Janus*, Verany, 1844, nec Stephens, 1835).

164. *Antiopa cristata* (Delle Chiaje).

Shetland, and Seaham Harbour, co. Durham (*A. M. N.*), River Dee (*Collingwood*), Mersey and N. Wales (*Herdman*), Plymouth (*Garstang*).

Distribution. Mediterranean (*Verany &c.*), Adriatic (*Graeffe*), Boulogne (*Bouch.-Chant.*).

Synonyms. *Antiopa splendida*, Ald. & Hanc., *Janus spinolæ*, Verany, and perhaps *Æolis carinata*, Costa.

165. *Antiopa hyalina*, Ald. & Hanc.

Hilbre Island, Cheshire (*Byerley &c.*).

Genus 14. *PROCTONOTUS*, Ald. & Hanc.

166. *Proctonotus mucronifer*, Ald. & Hanc.

Arran, N.B., in 15 fathoms (*Herdman*).

Subfam 9. *HEROINÆ*.

Genus 15. *HERO*, Lovén.

167. *Hero formosa*, Lovén.

Hero formosa, Herdman, Proc. Roy. Phys. Soc. Edin. vi. (1881) p. 15, pl. i. figs. 4-6.

Lamlash Bay, Arran, 10-20 fath., and off Salen, in the Isle of Man (*Herdman*).

Distribution. Denmark (*Mörch*), Christiania Fiord and Lofoten Islands, 15–100 fath. (*G. O. Sars*).

Synonyms. *Clælia trilineata*, M. Sars, and *Tritonia velata*, *Ørsted*.

Fam. 10. **Hermæidæ.**

Genus 1. **HERMÆA**, Lovén.

168. *Hermæa bifida* (Montagu).

Plymouth (*Garstang*, in litt.).

Distribution. Naples (*Costa*), Genoa (*Trinchese*).

It is *H. Hancocki*, Trinchese, and perhaps *H. cruciatus*, Agassiz; it is also *Physopneumon carneum*, Costa.

169. *Hermæa dendritica*, Ald. & Hanc.

Distribution. Naples (*Costa*), Genoa (*Trinchese*), Trieste (*Graeffe*).

It is *H. brevicornis*, *lutescens*, and *orbicularis* of Costa.

Genus 2. **ALDERIA**, Allman.

170. *Alderia modesta* (Lovén).

Distribution. Sweden (*Lovén*).

It is *Alderia amphibia*, Allman.

D. PELLIBRANCHIATA.

Fam. 11. **Elysiidæ.**

Genus **ELYSIA**, Risso.

171. *Elysia viridis* (Montagu).

Cumbræ and Plymouth (*A. M. N.*).

Var. *olivacea*, Jeffreys.

Distribution. Mediterranean (*Marion &c.*), Adriatic (*Bergh &c.*), Ægean (*Forbes*), Kiel (*Meyer & Möbius*), Denmark (*Bergh*), Sweden (*Lovén*), Norway and Finmark, 0–10 fath. (*G. O. Sars*).

Fam. 12. Limapontiidae.

Genus 1. LIMAPONTIA, Johnston.

172. *Limapontia capitata* (Müller) = *Fasciola capitata*,
Müller = *Limapontia nigra*, Johnston.

Cumbræ (*A. M. N.*), St. Andrews (*M^cIntosh*), Newhaven,
in Firth of Forth (*T. Scott*), Plymouth (*Garstang*, in litt.).

Distribution. Denmark (*Müller &c.*), Sweden (*Lovén*).

173. *Limapontia depressa*, Ald. & Hanc.

Genus 2. CENIA, Ald. & Hanc.

174. *Cenia Cocksii*, Ald. & Hanc.

Moray Firth (*G. Murray*).

Genus 3. ACTÆONIA, Quatrefages.

175. *Actæonia corrugata*, Ald. & Hanc.

[To be continued.]

VI.—*Description of a new Snake of the Genus Glauconia*,
Gray *, obtained by Dr. Emin Pasha on the Victoria
Nyanza. By G. A. BOULENGER.

Glauconia Emini.

Snout rounded; supraocular large, nearly twice as broad as long, followed by a single large transverse shield; rostral a little broader than nasal, not extending quite to between the eyes; nasal completely divided; ocular bordering the lip, between two labials, the anterior of which equals the lower portion of the nasal in size; six lower labials. 14 scales round the body. Diameter of body 55 times in the total length, length of tail 9 times. Uniform blackish. Total length 110 millim.

Two specimens were obtained at Karagwe by Dr. Emin Pasha and presented by him to the British Museum.

* = *Stenostoma*, Wagler, nec Latreille.