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PART I.

PLACENTADÆ AND ANOMIADÆ.

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CATALOGUE OF

PLACENTADÆ & ANOMIADÆ.

Family PLACENTADÆ.

Placentadæ, *Gray*, *Proc. Zool. Soc.* 1848, 201.
Placunidæ, *Gray*, *Syn. B. M.* 1842, 84, 92; *Hermann. Ind.* 279.
Placunoidæ, *Agassiz*, *Nomen. Zool.* 1847; *Hermann. Ind.* 279.
Placuna, *Lamk. Hist.* 2 ed. vii. 269.
Ostrea, part *Ferus. Tab. Syst.* 40, 1821.
Pectinidæ, part *Fleming*, *Brit. Anim.* 381, 1828.
Anomia, part *Hermannsen*, *Ind.* i. 61, 1846.

Lamarck describes three species of this genus, depending on the general outline and the waved or flat form of the shell, characters which are liable to considerable variations, as may be found on the mere inspection of any considerable number of specimens.

The hinge forms a more permanent character, and affords the means of dividing the species into two sections, and furnishes characters which separate them from each other. The right valve is the flattest, and bears the ridges of the hinge.

Chemnitz gives the best character for the species, and has observed the character furnished by the hinge, which has been overlooked by Lamarck, and by all recent authors.

Synopsis of the Genera.

a. *Hinge-ridges linear, diverging, only slightly raised.*

1. Placuna. Hinge-ridges of nearly equal length; muscular scar under centre of hinge.

2. Placenta. Hinge-ridges unequal, hinder much the longest; muscular scars rather in front of middle of hinge.

b. *Hinge-ridge transverse, elevated on a broad and high process.*

3. Hemiplacuna. A small pit in front of the base of the hinge-ridge. *Fossil.*

a. *Hinge-ridges linear, diverging, only slightly raised.*

1. PLACUNA.

Shell purplish, subopaque; hinge-ridges rapidly diverging from one another at about the angle of 45 degrees, of nearly equal length. Muscular scar under the centre of the hinge.

Placuna, *Solander*, 1785, fide *Chemn. Conch.* viii. 116; *Humph. Mus. Calonn.* 1797; *Lamk. Syst.* 135, 1801.
Placuna, sp. *Brug. E. M.* t. 174, 175, 1792; *Lamk. Hist.* 2 ed. vii. 270.
Ephippium, *Bolten*, *Mus.* 1798, 2 ed. 116, 1819; *Chemn. Conch.* vii. 116.
Placenta, β., *Schumacher*, *N. Syst.* 113, 1817.
Placuna pectinoides, *Lamk. Ency. Meth.* t. 175, f. 1-4, is a species of Plicatula, *Desh. in Lamk. Hist.* 2 ed. vii. 271.

1. Placuna Sella.

Shell flexuous, outline rather rhombic, being straight in front and rather notched behind, rather thick, purple; the ridges of the hinge not longer than they are separate from each other at the base.

Anomia Sella, *Gmelin*, *S. N.* 3345, 1788; *Dillw. R. S.* i. 297.
Placuna Sella, *Lamk. Hist.* vii. 270, *No.* 1.
Ephippium anglicanum maximum, *Chemn. C.* viii. t. 79, f. 714, cop. E. M. t. 174, f. 1.
Placenta Ephippium, *Retz.* 1788.
Placenta Sella, *Gray*, *Proc. Zool. Soc.* 1848, 113.

a, *b*. Adult. Purple, flexuous. China.
c. Nearly adult. Flexuous. China. Mus. Cracherode.
d. Young. Single valve; flat, purplish. India. Presented by Dr. Horsfield.
e. N. W. Australia. Presented by the Earl of Derby.

Var. β. Shell nearly flat, subquadrangular, notched before and behind.

2. Placuna papyracea.

Shell rather four-sided, nearly flat, thin, hyaline, white and purple varied.

Placuna papyracea, *Lamk. Hist.* vii. n. 2.
Ephippium parvum, *Chemn. Conch.* viii. t. 79, f. 719, eop. E. M. t. 174, f. 2.
Anomia Sella junior, *Dillw. R. S.* i. 297.
Placenta papyracea, *Gray*, *Proc. Zool. Soc.* 1848.

a, *b*, *c*, *d*. Shell thin, slightly flexuous, more or less purple varied. China.
e. Single valve; flat, thin, brown, transparent edges. India. Presented by Dr. Horsfield.
f. Flat; front, and especially the hinder edge notched, thin. Pale purple spotted. Australia. Presented by the Earl of Derby.

Perhaps only the young of *P. Sella*.

3. Placuna Lincolnii.

Shell flat, rather solid, subopaque, outline suborbicular, rounder before and behind; ridges of the hinge elongate, longer than they are separate from each other at the base.

Placenta Lincolnii, *Gray*, *P. Z. S.* 1848, 113; *Moll. t.* 3.

a. Australia; Mr. W. Davison. Presented by Abraham Lincoln, Esq.

This species is named after the late Mr. Abraham Lincoln, who kiudly presented the specimen here described, and who was well known for his foudness for conchology and the liberality with which he allowed persons to use his extensive collection.

2 PLACENTA.

Shell semitransparent, flat, outliue suborbicular; ridges of the hinge very gradually diverging from each other, the hinder ridge much the longest. Muscular scar rather in front of the middle of the hinge.

Placenta, *Retzius*, *Dissert.* 15, 1788 (not *Klein*); *Schum. N. S.* 113, 1817; *Gray*, *P. Z. S.* 1848.
Placuna sp. *Solander*, 1785, fide *Chemn. Cab.* viii. 116; *Brug. E. M.* t. 174, 175, 1792; *Lamk. Hist.* 2 ed. vii. 270.

1. Placenta obicularis

Shell colourless, semitransparent; when young, pale purplish.

Placuna placenta, *Solander, MSS.; Lamk. Hist.* N. 3.
Anomia placenta, *Linn. S. N.* 1154; *Chemn. Conch.* viii. t. 79, f. 176, cop. E. M. t. 173, f. 2; *Dillw. R. S.* i. 297; *Lister, Conch.* t. 225, f. 60, t. 226, f. 61.
Placenta orbicularis, *Retz. Dissert.* 15, 1788; *Gray, P. Z. S.* 1848.

a. Adult. China.
b, c. Adult. China. Mus. Broderip.
d. Nearly adult. India. Presented by Dr. Horsfield.
e, f, g, h. Half grown. China.
i, j. Small, rather thicker. N. E. coast of Australia or Port Essington. Presented by the Earl of Derby.

b. *Hinge-ridge transverse, elevated on a broad, high, oblique process.*

3. HEMIPLACUNA.

Shell free; valves orbicular, flat, external surface minutely laminar and radiately striated, especially on the edge of the plates; muscular scar in each valve single, nearly central, circular; the right valve flat, with a large, oblong, elevated, transverse process for the cartilage, having a very small concavity in the inner surface in front of the cartilaged process representing the sinus in *Anomia;* the left valve rather more convex, with an oblong, transverse pit for the internal cartilage under the umbo.

Hemiplacuna, *G. B. Sowerby, MSS.; Gray, P. Z. Soc.* 1849, 123.
Anomia or Placuna sp. *Desh. in Lamk. Hist.* 2 ed. vii. 270, note.

This shell has all the external characters of the flat species of *Placuna*, and has the same muscular impression; but instead of having the two linear, diverging ridges and grooves to give attachment to the cardinal cartilage, it has an oblong, elevated process in the right valve, and an oblong cavity in the left, exactly similar to those found in the genus *Anomia;* and on the inner surface of the right valve, just in front of the base of the process which supports the cartilage, there is a small, shallow, roundish pit, with a short furrow towards the centre of the shell, which is evidently a rudimentary representation of the sinus found in the genus *Anomia*. This rudimentary sinus is not visible on the outer surface of the shell.

This shell forms the passage between the genus *Anomia*, or rather *Placunanomia*, and *Placuna*. It shows the gradual change which takes place between the three genera. In *Anomia* there are two muscles for the purpose of attaching itself to marine bodies, which form a plug which is free from the sinus of the shell. In *Placunanomia* there is only a single muscle to perform the same office, and in the more typical species of this genus the plug itself is fixed into the surface of the shell, forming, as it were, part of its substance. In *Hemiplacuna* and *Placuna* there is no muscle or plug for attachment, and the shells are free; but in *Hemiplacuna* there is a rudimentary development of the sinus through which the plug is usually emitted, and the ligament which connects the shell is of the same form as that found in the genera *Anomia* and *Placunanomia*.

The name for the genus is not consistent with the Linnæan canon; but used rather than burthen the genus with two names.

1. Hemiplacuna Rozieri.

Placuna, sp., *Rozière*, *Description d'Egypte*, *Minéralogie*, t. 11, f. 6.
Hemiplacuna Rozieri, *G. B. Sow. MSS.*; *Gray*, *P. Z. S.* 1849, 124.
Anomia? or Placuna? *Desh. in Lamk. Hist.* vii. 270, note.

a. Fossil. Shore of the Red Sea; Vallée de l'Egarement. Purchased of Mr. Sowerby.

Family ANOMIADÆ.

Anomiadæ, *Gray*, *Syn. B. M.* 1840, 1842, 82, 92; *P. Z. S.* 1848, 1849, 113.
Anomiea, part, *Hermannsen*, *Ind. Gen.* i. 61, 1846.
Anomia, sp., *Linn. S. N.* xii. 1150, &c., not *Fab. Colonna*, 1616.
Anomia, *Muller*, *Zool. Dan. Prod.* 31, 1776; *Lamk. Syst.* 137, 1801.
Ostrea, part *Ferussac*, *Tabl. Syst.* 1819.
Ostreadæ, part *Fleming*, *Brit. Anim.* 381, 394, 1828.
Echion and Echionoderma, *Poli*, *Test. Sicil.* i. 34, 1791, ii. 225, 1795.
? Bursula, sp., *Klein*, *Ost.* 173, 1753.
Stola, part *Klein*, *Ost.* 173, 1753.
Cepa, *Humph. Mus. Calonn.* 1797.
Fenestella, *Bolten*, *Mus.* 1798, 2 ed. 134, 1819.
Anomya, *Agassiz*.

The European species of *Anomiadæ* have been much multiplied, while on the other hand the exotic species have been almost entirely neglected.

The form, substance, surface and colour of the shell, which have been used to distinguish the species, were suspected by Montague to be dependent on the age of the specimens and the locality in which they happened to be found, and further researches have proved the accuracy of these observations.

Synopsis of the Genera.

1. Placunanomia. Shell not eared; upper valve with two subcentral muscular scars; the anterior upper lobe of the notch agglutinated to the cardinal edge; plug shelly at the top and near the body, to which it is attached, and with horny longitudinal laminæ below and internally.

2. ANOMIA. Shell not eared; upper valve with three subcentral muscular scars; the anterior upper lobe of the notch separated from the cardinal edge; the plug entirely shelly, and quite free from the edge of the notch.

3. LIMANOMIA. Shell eared on each side of the umbo; sinus high up near umbo. Muscular scars ? *Fossil.*

1. PLACUNANOMIA.

Upper or dorsal valve with two subcentral muscular scars; the upper scar radiately veined. Byssal notch distinct, converted into a hole by the upper part of the anterior lobe of the notch being soldered to and forming part of the cardinal edge: the plug triangular, gradually enlarging in size; the apex and outer surface next to the body to which it is attached, calcareous, longitudinally striated; the inner surface covered with horny, longitudinal, parallel laminæ, and more or less agglutinated to the edge of the notch.

Anomia, β., *Schumacher, Essai*, 1817.
Placunanomia, *Broderip, Proc. Zool. Soc.* 1832, 29; *Müller, Syn.* 176; *Desh. in Lamk. Hist.* vii. 269; *Gray, P. Z. Soc.* 1849, 119.
Pododesmus (decipiens), *Philippi, Wiegmann, Arch.* i. 385, 1837.
Anomia, pars. *Blainv. Man. Mol.*; *Montagu*; *Forbes & Hanley.*
Ostrea, sp. *Da Costa*; *Montagu.*
Placunanomia, *D'Orb. Amér. Mérid.*
Placunomia, *Swains. Malac.* 39, 1840.

Mr. Broderip, who established this genus, does not observe the character furnished by the muscular impressions, or the lobe of the notch: he merely says, "Impressio muscularis in utrâque valvâ subcentralis. In valvâ superiore organi adhesionis impressio superaddita." And further, that "the organ of adhesion, which in its bony character (for it is more bone than shell) resembles that of *Anomia*, does not perforate the lower valve directly, but is inserted between the laminæ of the internal surface of the lower valve, above the muscular impression and below the hinge, and passes out into an external, irregular, somewhat longitudinal, superficial fissure or *cicatrix*, which is narrowest at the hinge margin, and which it entirely fills to a level with the surrounding surface."

This form is produced by the gradual increase of the size of the plug and the simultaneous increase of the size of the shell.

Some have considered the "plug" or "stopper" of *Anomia* to be a third valve, which is evidently a mistake. Phillippi (*Moll. Sicil.*

i. 92) considers it as the ossification of the tendon of the adductor muscle. Mr. Broderip, in the passage quoted, regards it as a *bone*. In Dr. Dieffenbach's Travels Mr. Gray has remarked: "The plug is evidently only a modification of the kind of laminar beard formed by the end of the foot of the arcs (*arcæ*); for, like it, it is formed of numerous, parallel, erect, longitudinal horny laminæ, placed side by side, extending from the apex to the margin, and it is on these plates that the calcareous matter is deposited when the attachment assumes its shelly substance. The same structure is to be observed in the plug of the European *Anomia Ephippium* (*striata*)." — *Voy. New Zealand*, ii. 261.

Messrs. Forbes and Hanley compare it to the byssus of *Pecten*, and predict that when the very young Anomiæ have been observed, they will be found to be attached by threads, like that genus (*Brit. Moll.*). The plug of a very small specimen of the genus is laminar, like that of the adult shell.

M. Philippi, when describing *Pododesmus*, appears to have observed only the upper of the two muscular scars, for he gives as the generic character, "*Impressio muscularis unica, ovata*," and he only figures the larger upper one on the plate.

The upper scar, which is usually of a larger size, and has its surface covered with radiating veins, while the lower is generally punctated, appears to be the one which gives rise to the muscle that is attached to the inner surface of the plug.

The examination of the upper valve of a large series of specimens of *Placunanomia patelliformis* has shown that the position of the two muscles is liable to a slight variation; in by far the larger number of specimens the small lower muscle is quite close to and confluent with the scar of the upper larger muscle, but in a few specimens it is separated from the upper larger one by a small interval or space. Hence probably the three West Indian species of the genus may prove, when a larger series of specimens have been collected and compared, only varieties of the same species.

* *Shell plicately folded. Perforation of lower valve small, firmly embracing the plug.* PLACUNANOMIA.

1. PLACUNANOMIA CUMINGII.

Shell depressed; edge of the valves with three or four large angular folds.

Placunanomia Cumingii, *Broderip, Proc. Zool. Soc.* 1832, 29; *Sow. Genera*, t.; *Manual*, f. 189-191; *Gray, P. Z. Soc.* 1849, 121.

Hab. Central America; Gulf of Dulce, Province of Costa Rico. From Mr. Cuming's collection.

** *Shell ovate, radiately ribbed; edge not plicated. Perforation of lower valve moderate, firmly embracing and inclosing the plug.* American. PODODESMUS.

Pododesmus, *Philippi*, *Wiegm. Arch.* i. 387, 1837; *Gray*, *P. Z. S.* 1849, 121.

2. PLACUNANOMIA RUDIS.

White; disk brown; laminæ smooth.

Upper valve with two rounded, separate scars of nearly equal size, the hinder one rather more transverse.

Placunanomia rudis, *Broderip*, *Proc. Zool. Soc.* 1834, 2; *Gray*, *P. Z. S.* 1849, 121.

Pododesmus decipiens, *Philippi*, *Wiegmann*, *Arch.* i. 1837, 387, t. 9, f. 1 (one scar left out).

Hab. East Indies? *Broderip.* Mus. Cuming. Havana; *Philippi.*

3. PLACUNANOMIA FOLIATA.

White; laminæ smooth, with very slight, distant, radiated ribs; disk purple brown.

Upper valve with two nearly united scars; the upper largest, and rather elongated; lower small, rounded.

Placunanomia foliata, *Broderip*, *Proc. Zool. Soc.* 1834, 2; *Gray*, *P. Z. S.* 1849, 121.

P. echinata, *Broderip*, *Proc. Zool. Soc.* 1834, 2.

"P. pectinata, *Brod.*" in Mus. Cuming.

a. Upper valve of young. St. Vincent. Jamaica. From the Rev. L. Guilding's collection.

b, *c*, *d*, *e*. Perfect. On Spondylus. West Indies. Mus. Broderip.

The specimen of *Placunanomia echinata*, from the island of Nevis, in Mr. Cuming's collection, appears to be only an imperfect specimen of this species. Mr. Broderip doubted if this might not be the case, when he described it.

4. PLACUNANOMIA ABNORMALIS.

White, radiated, ribbed. Upper valve with two scars, confluent on the lower hinder edge; the upper one rather the largest.

"Placunomia abnormalis, *Sow.*" in Brit. Mus.; *Gray*, *P. Z. S.* 1849, 121.

a. West Indies.

These three species are very nearly related to each other, and if it were not for the difference in the position of the scars, might be taken for one. The first is white, and the two last have a brown blotch on the internal surface of the dorsal valve.

*** *Shell ovate, not plicated; radiately ribbed. Perforation of lower valve large, only slightly embracing the large thin plug.* MONIA.

Monia, *Gray*, *P. Z. S.* 1849, 121.

† *American.*

5. PLACUNANOMIA MACROCHISMA.

Upper valve with two scars, partly confluent on the lower hinder edge; the upper scar largest. Lower valve with an oval, oblique scar, narrowed behind, rather in front of the plug.

Anomia macrochisma, *Deshayes*, *Rev. Cuvier*, *Zool.* 1839, 359; *Mag. de Zool.* 1841, t. 34.
Placunanomia Broderipii, *Gray*, *B. M.* 1842, and Mus. Cuming.
Placunanomia macrochisma, *Gray*, *P. Z. S.* 1849, 121.

a, *b*. Kamtschatka.

M. Deshayes observes: "On sait que dans le plus grand nombre des Anomies la perforation se reduit ordinairement en un simple échancrure, parce que les deux parties du bord supérieur ne se rejoignent jamais. Ici au contraire le trou est complète, et la valve est réellement perforée." This character is common to all the species of *Placunanomia*. M. Deshayes does not figure nor describe the plug. The habitat, "Cagayan, Lucon," assigned to this species by Mr. G. B. Sowerby must be a mistake. It is the specimen referred to by Mr. Broderip in the observations on the genus in the Proceedings of the Zoologieal Society.

6. PLACUNANOMIA CEPIO.

Scars two, far apart; upper very large, ovate, longitudinal, central; lower smaller, oblong, oblique, rather behind the upper.
Plug large, flat, broad. Notch large, wide.

Placunanomia Cepio, *Gray*, *P. Z. S.* 1849, 121.

a. Adult. California. Presented by Lady Katherine Wigram.

7. PLACUNANOMIA ALOPE.

Upper valve flat, smooth, radiately striated. Scars two, well separated, rounded, equal-sized.

Placunanomia alope, *Gray*, *P. Z. S.* 1849, 122.

a, *b*. California. Two upper valves. Presented by Lady Katherine Wigram.

†† *European.*

8. PLACUNANOMIA PATELLIFORMIS.

Shell suborbicular, convex or quite flat, radiately striated; inner disk greenish. Apex rather within the dorsal margin.

The upper muscular scar of the dorsal valve very large, oblong; the lower one small, roundish, on the lower part of the hinder margin of the upper one.

The peduncle of the cartilage with a triangular cavity in front, under the tip, and continued in an oblong, rib-like ridge towards the centre of the shell.

Anomia patelliformis, *Linn. S. N.* 1152; *Nov. Act. Upsal.* 1773, i. 42, t. 5, f. 6, 7; *Retzius*, *Nov. Gen. Test.* ii.; *Sars*, fide *Mus. Cuming*; *Loven*, *Moll. Scand.* 30: *Forbes & Hanley*, *Brit. Moll.* 334, t. 56; *Wood*, *Index Test.* t. 10, f. 10, not *Chemn.*

Squama Magna, *Chemn. Conch.* vii. 87, t. 77, f. 697.

Anomia Squama, *Gmelin*, *S. N.*; *Schumacher*, *Essai.*

Ostreum striatum, *Da Costa*, *Brit. Conch.* 162, t. 11, f. 4.

Anomia undulatim striata, &c., *Chemn. Conch.* viii. 8, t. 77, f. 699.

Anomia undulata, *Gmelin*, *Syst. Nat.* i. 3346; *Mont. Test. Brit.* 157, t. 4, f. 6; *Maton & Racket*, *Trans. Linn. Soc.* viii. 103; *Turton*, *Conch. Dict.* 4, *Bivalves*, 230, t. 18, f. 8, 9; *Dillw. R. S.* i. 289; *Wood*, *Index*, *Test.* t. 11, f. 9.

Ostrea striata, *Pulteney in Hist. Dorset*, 36; *Donovan*, *B. Shells*, ii. t. 45; *Mont. T. B.* 153, 580.

Anomia striata, *Loven*, *Index Moll. Scand.* 29; *Forbes & Hanley*, *Brit. Moll.* 336, t. 55, f. 1, 6, t. 53, f. 6.

Placunanomia patelliformis, *Gray*, *P. Z. S.* 1849, 122.

a, *b*, *c*, *d*. Adult and young. British shores. Mus. Montague.
e, *f*. Coast of Devonshire.

This species is easily known from the other European species of the family by being generally thicker and regularly radiately ribbed, and greenish; but the number and position of the muscular scars at once separate it from all the multiform varieties of that species. Some authors, overlooking the latter character, have been inclined to regard it as a mere variety of *Anomia ephippium.*

††† *Australian.*

9. PLACUNANOMIA ZEALANDICA.

Suborbicular, white, smooth; upper valve with distant, radiating grooves; internally dark green.

Upper valve with two confluent scars; upper oblong, longitudinal, lower rather small and more transverse.

Anomia Zealandica, *Gray, in Dieffenbach's New Zealand*, ii. 261, 1843.

Placunanomia Zealandica, *Gray, P. Z. S.* 1849, 123.

a. Adult specimen. New Zealand: on the inside of mussel shells. Presented by Dr. Stanger.

10. PLACUNANOMIA IONE.

Shell white, laminar; edge of the laminæ with small, slender, elongated processes; internally green.

Lower muscular scars small, round, on the lower hinder edge of the larger one; sinus or perforations large.

Placunanomia ione, *Gray, P. Z. S.* 1849, 123.

a. A single dorsal valve. On rocks, Australian Seas. Van Diemen's Land. Presented by Dr. A. Sinclair.

11. PLACUNANOMIA COLON.

Shell (upper valve) flat, with rather irregular, flat, radiating ribs; white, lower spotted; upper valve with two separate scars; the upper one oblong, longitudinal, the lower one much smaller, circular.

Placunanomia colon, *Gray, P. Z. S.* 1849, 123.

Hab. ——?

Mr. Cuming's collection (no. 10). Mr. Humphrey's collection a single upper valve of a rather young shell.

2. ANOMIA.

Upper valves with three subcentral muscular scars; byssal notch distinct; the upper part of the anterior lobe of the notch separate from and often partially overlapping the front of the cardinal edge; the plug thick, elongate, entirely shelly, and quite free from the edge of the notch.

Anomia, *Müller*, 1776; *Retzius*, 1788; *Lamk.* 1801; *Megerle*, 1811; *Gray*, *P. Z. S.* 1849, 114.
Anomia, pars, *Linn. S. N.*
Anomia, A. *Schumach. Essai*, 1817.
Echion and Echinonoderma, sp. *Poli*, *Sicil. Test.* i. 34, 1791, ii. 255, 1795.
Fenestrella, *Bolten*, *Mus.* 1798, 2 ed. 134, 1819.
Lampades, pars, *Gevers*, 1787.
"Ænigma, *Koch*," according to the cabinet of Mr. Cuming.

It is by no means certain that all the species here indicated are distinct, or are to be distinguished by the characters assigned to them, unassisted by the country which they inhabit: but they seem distinct, and it appears to be desirable that they should be distinguished until we have the means of more completely investigating them, and of examining and comparing the animals which form them.

* *The upper scar in dorsal valve large; two lower scars smaller, and nearly under the upper one. Shell suborbicular.* ANOMIA.

Anomia, *Gray*, *Proc. Zool. Soc.* 1849, 114.

† *European.*

1. ANOMIA EPHIPPIUM.

Shell white, yellow, rosy or red brown; upper valve radiated; internally pearly. The upper scar large, oblong, the two others rather smaller, subequal, one above the other; the lowest of the two rather more behind. Plug large, broad, short; the sinus in lower valve large.

Anomia Ephippium, *Linn. S. N.* 1150; *Chemn.* viii. 82, t. 76, f. 692, 693; *Mont. T. B.* 155; *Lamk. Syst.* 138; *Dillw. R. S.* i. 286; *Poli*, *Test.* ii. 186, t. 20, f. 9, 10; *Lamk. Hist.* vi. 226, 2 ed. vii. 273, n. 1; *Gray*, *P. Z. S.* 1849, 116.
Anomia Tunica Cepa, *Dacosta*, *B. Conch.* 165, t. 11, f. 3.
Anomia cepa, *Linn. S. N.* 1151; *Chemn.* viii. 85, t. 76, f. 694, 695; *Dillw. R. S.* i. 287; *Poli*, *Test.* ii. 182, t. 30, f. 1-8; *Lamk. H.* v. 227, 2 ed. vii. 274, n. 3.
Anomia violacea, *Brug. Enc. Meth.* 71.
Anomia plicata, *Brocch. Conch.* 665, t. 16, f. 9.
Anomia scabrella, *Philippi*, *Sicil.* i. 92, ii. 65, t. 18, f. 1.
Anomia polymorpha, *Philippi*, *Sicil.* i. 92, ii. 65.
Anomia costata, *Brocchi*, 463, t. 10, f. 9.

Anomia sulcata, *Poli, Test. Sicil.* t. 30, f. 12 ; *Brocch.* t. 10, f. 2.
Anomia radiata, *Brocchi*, t. 10, f. 10.
Anomia pectiniformis, *Poli, Sicil.* t. 30, f. 13, on a *Pecten ; Philippi, Sicil.* ii. 63, t. 18, f. 3.
Anomia margaritacea, *Poli, Sicil.* t. 30, f. 11 ; *Philippi, Sicil.* ii. 63.
Anomia electrica, *Linn. S. N.* 1151 ; *Chemn. Conch.* viii. t. 76, f. 691 ; *Lamk. Hist.* vi. 227, 2 ed. vii. 274, n. 4.
Anomia squamula, *Linn. S. N.* 1151 ; *Chemn. Conch.* viii. 86, t. 76, f. 696 ; *Lamk. Hist.* vi. 228, 2 ed. vii. 275, n. 8.
Anomia punctata, *Chemn. Conch.* viii. 88, t. 77, f. 698 ; *Dillw. R. S.* ii. 288.
Auomia aculeata, *Müller, Z. D. Prod.* 249 ; *Chemn.* viii. 92, t. 77, f. 702 ; *Mont. T. B.* 157, t. 4, f. 5 ; *Dillw. R. S.* i. 288.
Anomia scabra, *Solander MSS.* fide *Dillwyn.*
Anomia leus, *Lamk. Hist.* vi. 228, 2 ed. vii. 276, n. 9.
? Anomia aspera, *Philippi, Sicil.* ii. 65, t. 18, f. 4.
Anomia elegans, *Philippi, Sicil.* ii. 65, t. 18, f. 2.
Anomia patelliformis, *Chemn. C.* viii. 89, t. 77, f. 700 ; *Dillw. R. S.* i. 290.
Anomia striatula, *Bruguière, Enc. Meth.* 74.
? Anomia bifida, *Chemn. Conch.* viii. 79, t. 76, f. 689, 690 ; *Dillw. R. S.* 290.
Anomia cylindrica, *Gmelin, S. N.* 3349 ; *Dillw. R. S.* i. 291.
Anomia cymbiformis, *Maton & Racket, Linn. Trans.* viii. 104, t. 3 f. 6 ; *Mont. Supp.* 64.
Anomia coronata, *Bean, Mag. N. Hist.*
Anomia patellaris, *Lamk. Hist.* 2 ed. vii. 273, n. 2 ; *Deles. Receuil*, t. 17, f. 3.
Anomia pyriformis, *Lamk. Hist.* vi. 227, 2 ed. vii. 175, n. 5 ; *Deles. Rec.* t. 17, f. 4.
Anomia fornicata, *Lamk. Hist.* vi. 228, 2 ed. vii. 275, n. 6 = *Enc. M.* t. 170, f. 45.
? Anomia membranacea, *Lamk. Hist.* vi. 228, 2 ed. vii. 275, n. 7 = *Enc. Meth.* t. 170, f. 1-3 ?
? Anomia cucullata, *Bruguière, E. M.* 70.

a, b, c, d. Adult. Europe.
e. Adult. From back of *Pecten.* Lower valve radiated. Europe.
f, g, h. Small, very convex. On *Cerithium vulgatum.* Malta. Presented by Miss Emilie Attersoll.
i. Small, very convex, obliquely costated from a costated shell. Malta. Presented by Miss E. Attersoll.
j. Shell thick, radiately striated. Coast of Africa. Presented by Capt. Owen, R.N.

†† *Asiatic.*

2. ANOMIA AMABÆUS.

Flat, white, smooth; internally pearly, with a very thin disk. Upper scar moderate; lower scars two, rather large (nearly as large as the upper one), confluent into a broad, oblong scar.

Anomia amabæus, *Gray*, *P. Z. S.* 1849, 113.

Hab. Philippines, Island Buraas (Jackass Island); on stones, sand, ten fathoms. Mr. Cuming's collection.

3. ANOMIA CYTÆUM.

Shell suborbicular, smooth; internally reddish. Upper muscular scars very large, subcordate; lower two, suborbicular, smaller, nearly equal-sized; the upper in the notch of the upper one; the lower hinder close to lower hinder edge of the upper one; sinus in lower valve large.

Anomia cytæum, *Gray*, *P. Z. S.* 1849, 115.

Hab. China, River Zangtze Keang; *Fortune.* Mr. Cuming's collection. Two specimens.

4. ANOMIA DRYAS.

Suborbicular, flat, white; upper valve internally and radiately lined. Upper scar large, oblong; lower scars two, small, circular, nearly confluent, placed side by side nearly on the same line.

Anomia Dryas, *Gray*, *P. Z. S.* 1849, 115.

Hab. Singapore. On dead shells, ten fathoms, in course sand and gravel. One small specimen. Mr. Cuming's collection.

5. ANOMIA ACHÆUS.

Shell purplish, smooth; umbo rather acute; upper valve generally convex; inside purplish white. Upper muscular scar large, lower edge slightly arched; lower scars two, small, nearly equal-sized; the hinder rather lower than the other.

Anomia achæus, *Gray*, *P. Z. S.* 1849, 115.

a, *b*, *c*, *d*, *e*, *f*. Dorsal valves only. Indian Ocean, Kurachee, mouth of the Indus. Presented by Major Baker.

Major Baker sent to the Museum a very large series of the dorsal valves of this species, collected at Kurachee. They are ex-

tremely variable in form, surface, colour and thickness, and they also offer considerable variety in the disposition of the muscular scar. In all the upper scar is largest, but variable in shape from round to broad cordate. In most the two lower scars are close together, but separate, and nearly on the same line. In others the lower scar is rather lower than the middle one, and in a few (four) specimens, which are mostly produced posteriorly, the lower scar is much lower; that is to say, in some the upper edge is parallel with the lower edge of the middle one. In one specimen the two lower scars are on the same line, and are confluent together, forming a scar about the same size as the upper scar, yet showing that the lower scar is formed by two muscles; so that this valve cannot be confounded with a *Placunanomia*.

The examination of this series of specimens from the same locality I think shows, that though the comparative size and disposition of the scars may furnish good characters for the distinction of the species, yet they are not to be relied on.

6. Anomia belesis.

White or red; the upper part of the centre of the dorsal valve white, externally radiately striated; apex acute, at some distance from the dorsal edge. Upper valve with three separate scars, the upper one very large, oblong, and rather transverse; two lower ones very small, nearly equal-sized, and nearly on the same line.

Anomia belesis, *Gray*, *P. Z. S.* 1849, 116, *Moll.* t. 4, f. 3, 4.

a. White, rather thick. Indian Ocean. Presented by General Hardwicke.

b, *c*. Red. Indian Ocean. Presented by General Hardwicke. Specimen figured *P. Z. S.* 1849, t. 4, f. 3, 4.

††† *American.*

7. Anomia acontes.

Yellowish white, suborbicular, flat, smooth; disk pearly. Upper scar moderate, subcircular; lower scars smaller, distant, circular, subequal, the lower one nearly on a line with the lower edge of the middle one.

Anomia acontes, *Gray*, *P. Z. S.* 1849, 116.

Hab. Jamaica. One small specimen in Mr. Cuming's collection.

8. Anomia fidenas.

White, pearly, thin, flat, smooth externally, pearly within, with a thick white disk. Upper scar large, elongate, arched below; lower scars two, small, circular, far apart, the lower one considerably below the other.

Anomia fidenas, *Gray*, *P. Z. S.* 1849, 117.

Hab. America, west coast. Panama; on *Pinna* at low water. Mus. Cuming, no. 2; three specimens.

9. Anomia adamas.

Red, thick, with numerous, indistinct, radiating ribs, most distinct on the edge of the lamina; internally red, pearly, with a small white disk. Upper muscular scar oblong, arched below; lower scars subequal, separate, but close together, and nearly on the same line.

Anomia adamas, *Gray*, *P. Z. S.* 1849, 117.

Hab. Galapagos; Lord Hood's Island, attached to *Avicula margaritifera* at nine fathoms. Mus. Cuming, no. 5; three specimens.

10. Anomia pacilus.

Red, with distinct radiating ribs; internally reddish pearly, with a thick white disk. Upper muscular scar oblong, broad, lower edge arched; lower scars two, rather smaller, nearly similar in size, rather close together, but separate, the hinder one rather lower than the other.

Anomia pacilus, *Gray*, *P. Z. S.* 1849, 117.

Hab. Peru; Tumbez. Dredged from five fathoms in soft mud. Mus. Cuming, no. 9.

11. Anomia larbas.

Shell white, smooth, lower valve pale green. Upper muscular scar large; lower scars two, nearly as large as, and close to, the upper one, nearly equal, and nearly in a line.

Anomia larbas, *Gray*, *P. Z. S.* 1849, 117.

Hab. Coast of Peru, Payta. Mus. Cuming.

12. ANOMIA ALECTUS.

Irregular, upper valves convex, reddish, internally pearly; lower valve green, internally green. Upper scar large, oblong; lower scars two, large, rather smaller than the upper one, close together, but not confluent; the lowest one the largest.

Anomia alectus, *Gray*, *P. Z. S.* 1849, 117.

a. Dorsal valve. Peru, Bay of Guayaquil. Presented by R. B. Hinds, Esq.
b. Yellow, perfect. N. coast of America. Presented by Capt. Sir Edward Belcher, C.B., R.N.

13. ANOMIA HAMILLUS.

Reddish, thin, sinuous. Dorsal valve with a triangular, white, porcellaneous disk. Upper scar large, roundish; lower scars two, separate, close together, nearly equal-sized, small, and nearly on the same line.

Anomia hamillus, *Gray*, *P. Z. S.* 1849, 117.

Hab. West Columbia, Bay of Canes. Mus. Cuming, no. 6.

14. ANOMIA LAMPE.

Shell yellowish green, radiately costated; internally green. Upper muscular scar large, squareish; lower two rather smaller, subequal, near together and to the upper scar, and nearly on the same line; sinus in lower valve very large.

Anomia lampe, *Gray*, *P. Z. S.* 1849, 117.

a, *b*, *c*. Single valves, yellow and red. California. Presented by Lady Katherine Wigram.

†††† *Fossil.*

15. ANOMIA TENUISTRIATA.

Shell very variable in shape, regularly radiately striated; sinus of lower valve very large, ovate. Dorsal valve with three nearly equal muscular scars very close together; the two lower small, placed close together side by side, just on the lower margin of the upper scar, the hinder one being rather behind the hinder edge of the upper one.

Ostrea anomialis, *Lamk. Hist. An. sans Vert.* vi. 220.
Anomia Ephippium, *Defrance*, *Dict. Sci. Nat.* ii.

Anomia striatula, *Desh. Coq. Foss. Paris*, t. 65, f. 7, 11.
Anomia tenuistriata, *Desh. Coq. Foss. Paris*, i. 377, *in Lamk. Hist.* vii.; *Gray, P. Z. S.* 1849, 118.

a, *b*, *c*, *d*, *e*, *&c.* Fossil, Grignon. From M. Deshayes collection.

The very characteristic scars of the dorsal valve are well shown in M. Deshayes' plate above referred to, but not mentioned in the description.

** *Upper scar of dorsal valves large; two lower scars smaller, far behind the upper one. Shell oblong, transverse.* ÆNIGMA. *Koch.*

Ænigma, *Koch, MSS.*; *Gray, P. Z. S.* 1849, 118.

16. ANOMIA ÆNIGMATICA.

Shell elongate, transverse, oblong, purple or yellowish, with a purple disk; apex acute, considerably within the dorsal edge.

The upper scar large, suborbicular, subcentral; lower scars two, much more posterior, small, equal-sized, and nearly confluent.

Tellina ænigmatica, *Chemn. Conch.* xi. t. 199, f. 1949, 1950.
Anomia rosea, *Gray, Ann. Philos.* 1825, 5.
Anomia ænigmatica, *Alton in Wiegmann, Arch.* 1837, *Verz.* 21; *Reeve, Nomen. Conch.*; *Gray, P. Z. S.* 1849, 118.

Hab. Indian Ocean.

Var. 1. Elongate, purplish brown, smooth, flat. *Chemn. l. c.* f. 1949, 1950.

Hab. Indian Ocean, on the surface of flat wooden piles, &c.

a, *b*. Philippines. From Mr. Cuming's collection.

Var. 2. Like former, but more elongated, and the sides folded together, from being on a concave surface.

Anomia naviformis, *Jonas*; fide *Mus. Cuming.*
Ænigma, sp. *Koch*; fide *Mus. Cuming.*

c, *d*. Bengal, on wood.

Var. 3. Flat, smooth; like *Var.* 1, but yellow, with a dark purple brown, transverse ray.

e, *f*. Philippines. From Mr. Cuming's collection.

Var. 4. Flat, purple; like *Var.* 1, but often more ovate, and with a few radiating ribs, ending in projections, making the edge sinuous.

g. Singapore, on piles of wood forming the wharves. From Mr. Argent's collection.

**** Two upper scars small; lower one large. Shell suborbicular; sinus small.* PATRO.

Patro, *Gray*, *Proc. Zool. Soc.* 1849, 118.

17. ANOMIA ELYROS.

White, lamellar, closely radiately striated. The disk of the upper valve with three separate subcircular scars; the two upper scars small, subequal, one under the other; the lower one large, nearly circular, subcentral. Notch in lower valve very small. Plug small, elongate, subcylindrical; the notch small, with reflexed edges.

Anomia elyros, *Gray*, *P. Z. S.* 1849, 118; *Moll.* t. 4, f. 1, 2.

a, *b*, *c*, *d*. Adult, thick; disk white, thick. Port Essington. Presented by the Earl of Derby.
e, *f*. Adult. Port Essington. Presented by J. B. Jukes, Esq.
g. Adult. Depuch Island. Presented by Capt. Wickham.
h. Adult, thin; disk thin. Port Essington. Presented by Capt. Sir Everard Home, Bart., R.N.

The small size of the upper scars in this species probably depends on the small size and elongated form of the plug. The other species, which have the upper scar the largest, have at the same time a larger notch and a broader plug.

3. LIMANOMIA.

Shell adherent, longitudinal, subequivalve, inequilateral; *umbo* curved to the right, regularly curved on each side, cardinal edge transverse, oblique, inclined to the right; valves thin near umbo, slightly radiately ribbed; lower valve with a subtriangular notch near the umbo, under the ear; cartilage ridge ? muscular scars ? *Plug* triangular, calcareous, with a narrow, scalariform impression.

Limanomia, *Bouchard*, *Chantereœux MSS.* (in letter) 1850.

This fossil genus, which has the external form of a *Lima* and the plug and habit of *Anomia*, has hitherto only been found in the Devonian limestone.

* *Shells adherent, sometimes aggregate.*

1. Limanomia Grayiana.

Shell ovate, longitudinal, radiated and dichotomously ribbed; ribs of upper valve strong, under far apart, of lower valve flat, broad and near together.

Limanomia Grayiana, *Bouchard MSS. & figure.*

Fossil. Devonian limestone, Boulogne.

See also Limanomia multicosta, and L. Lineolaria.

** *Shell isolated, attached to Terebratula or Spirifer.*

2. Limanomia gibba.

Shell orbicular, gibbous; upper valve very concave, cancellated, concentrically ribbed, and finely undulately radiated; lower valve smooth, concave in the centre.

Limanomia gibba, *Bouchard MSS.*

Fossil. Devonian limestone, Boulogne.

Printed by E. Newman, 9, Devonshire Street, Bishopsgate.

CATALOGUE

OF THE

MOLLUSCA

IN

THE COLLECTION

OF THE

BRITISH MUSEUM.

PART IV.

BRACHIOPODA ANCYLOPODA,

OR

LAMP SHELLS.

LONDON:
PRINTED BY ORDER OF THE TRUSTEES.
1853.

PRINTED BY TAYLOR AND FRANCIS,
RED LION COURT, FLEET STREET.

PREFACE.

THE chief objects in forming the present Synoptical Catalogue have been, to exhibit at one view a complete list of all the specimens of BRACHIOPODOUS MOLLUSCA in the British Museum Collection, and to furnish such an account of the species known to exist in other collections, but which are at this time desiderata in the British Museum, as the materials at hand would permit me to compile, in order to enable travellers, collectors, and others, to assist in completing the national collection.

For this purpose, short descriptions have been given of all the genera and species of recent Brachiopoda now known to exist in the different museums and private collections, and of the better-known fossil species of the various fami-

lies. At the end of each description is added the country, or strata, and other peculiarities of each species mentioned.

Great attention has been paid to dates, and the generic and specific names which appear to possess priority in this respect have been adopted.

Reference has also been made to the works in which the genera and species appear to have been first described or noticed.

Mr. S. P. Woodward has kindly assisted in the preparation of the Catalogue, especially as regards the fossil species, and in drawing the illustrations, which have been engraved by Miss Ann Waterhouse of the School of Design.

JOHN EDWARD GRAY.

January 11th, 1853.

CATALOGUE

OF

BRACHIOPODA OR LAMP-SHELLS

IN

THE BRITISH MUSEUM.

Class II. BRACHIOPODA.

Shell inequivalve, equilateral, attached by a muscular peduncle, or by the surface of one valve, or free; *valves* applied to the dorsal and ventral sides of the animal, united by muscles and mostly articulated by teeth; *dorsal valve** usually smallest, always free, furnished internally with sockets for the hinge-teeth, and with shelly processes † for the support of the animal; *ventral valve* usually largest, and with its umbo produced and perforated for the passage of the peduncle, frequently attached by its outer surface, and generally provided internally with two prominent teeth; *periostracum* thick, sometimes developed into concentric lamellæ.

Animal furnished with elongated labial appendages, or *oral arms*, which are free or united by membrane and variously folded,

* What is here called the *dorsal* valve has often been called the *lower* valve, being usually below when the animal is in its natural position attached to marine bodies; but it has been found to cover the back of the animal.

† Sometimes termed an "internal skeleton" or "apophysary system."

being usually spiral, and having their outer margin fringed with *cirri*; mantle-lobes closely applied to the valves, fringed with horny *setæ*, and furnished with large branching veins; digestive organs occupying a small space near the umbones, separated by a strong membrane from the general cavity of the shell in which the cirrated arms are expanded; respiration performed by the vessels of the mantle; circulation effected by two hearts, each having an auricle and a ventricle; sexes united?; ova developed in vascular sinuses, or in the large veins.

Habit marine, ranging from low water to 100 fathoms; in all climates and seas (*Woodward MS.*).

Ostreacia; Subfam. Plaeunia, part., *Rafinesque, Anal.* 148, 1815.
Poleteria; Brachiopea, *Rafinesque, Anal.* 148, 1815.
Brachiopoda, *Cuvier, Ann. du Mus.* i. 44, & *in Roissy, Moll.* vi. 460, 1805.
Dumeril, Trait. élém. 1806.
Lamk. Phil. Zool. 1809, 317.
Latr. Fam. Nat. 1825.
Schweigg. Naturg. 689, 1820.
Rang, Man. 257. 1829.
Flem. Brit. An. 1828, 256, 377.
Menke, Syn. i. 95, 1836.
Owen, Trans. Zool. Soc. i. 22.
Gray, Syn. B. M. 1840; 1842, 85; *Proc. Zool. Soc.* 1847, 202; *Ann. Nat. Hist.* 2nd ser. ii. 435, 1848.
Anomia, part., *Linn. S. Nat.*
Criopus or Criopoderma, *Poli, Test. Sicil.* 1792.
Branchiopoda, *Risso, Hist.* iv. 1826.
Swains. Malac. 1840.
Spirobrachiophora, *Gray, Med. Repos.* 1821, 238.
Lingulacea, *Blainv. Dict. Sc. Nat.* x. 1818.
Acephalophora palliobranchia, *Blainville, Prodr.* 1814.
Acephala Brachiopoda, *Anton, Verz. Conch.* 12, 1839.
Acephala Palliobranchiata or Brachiopoda, *Forbes & Hanley, Brit. Moll.* ii. 339.
Conchifères monomyaires, Sect. III. (Les Rudistes et Les Brachiopodes), *Lamk. Hist.* vi. 229.
Conchifères Brachiopodes, *Lamk. Hist.* vi. 241.
Mol. acephala testacea monomyaria (monomyaires), part., *Lamk. Hist.* vi. 1, 2nd ed. vii. 1.
Acephales testacés, Brachiopodes (and Ostracées, part.), *Lamk. Ext. du Cours*, 104, 1812.
Rang, Man. Moll. 257.
Palliobranchiata or Palliobranches, *Blainv. Dict. Sc. Nat.* xxxii. 1824.
King, Ann. & Mag. N. H. xviii. 1846.

Multivalves, part., *Megerle, Berl. Mag.* 1811.
Therozoa Brachiopoda, *Eichwald, Zool. Spec.* i. 272, 1831.
Mollusques Agames Endocephales Brachiopodes, *Latr. Fam. Nat.* 1825.
Palliobranchiata seu Brachiopodes, *Van der Hoev. Handb. der Zool.* 692, 1850.

In 1798 M. Cuvier (*Leçons d'Anatomie Comparée, Ann.* vii. i. tab. 5) placed the Brachiopods with *Hyalæa* in the third division of the shell-bearing acephalous mollusca, which he afterwards named *Brachiopodes*. Thus:

1. *Terebratules.* Terebratula, Calceola, Hyalæa.
2. *Lingules.* Lingula.
3. *Orbicules.* Orbicula.

In 1812 Lamarck (*Extrait du Cours,* 8vo, p. 105) regarded the Brachiopods as part of the *Acephales testacés*.

§ 1. Les *Brachiopodes.* Lingule, Terebratule, Orbicule.

§ 2. *Ostracées.* Radiolite, Calceole, Cranie, Anomie, and other bivalve shells.

In 1815 Rafinesque (*Analyse de la Nature,* 12mo, p. 148) divided the present Brachiopodes between the family *Ostreacia* of the *Bivalvia,* subfamily *Placunea.* 1. Calceolina = Calceola, 2. Cranicella=Crania.

Family *Brachiopea* of *Poleteria.* 1. Orbicula. 2. Terebratula. 3. Lingula.

In 1817 M. Cuvier (*Règ. Anim.* ii. and ed. 2, 1829, iii. 122) considered Les Brachiopodes as a class containing

1. Les Lingules.
2. Les Terebratules (Spirifères, Thécidées).
3. Les Orbicules (Cranies, Discines).

In 1818 Lamarck (*Hist. Nat. des Animaux sans Vertèbres*) regarded the Brachiopods as forming the greater part of his third section of the CONCHIFÈRES MONOMYAIRES.

1. *Les Rudistes.* 1. Spherulite. 2. Radiolite. 3. Calceola. 4. Birostrite. 5. Discine. 6. Cranie.
2. *Les Brachiopodes.* 1. Orbicule. 2. Terebratule. 3. Lingule.

In 1819 M. de Férussac (*Tabl. Syst. Moll.* fol. 38) regarded *Les Brachiopodes* as a class of the Acephales, and divided them into

Fam. 1. *Les Lingules.* Lingule.
2. *Les Terebratules.* Terebratule, Magas.
3. *Les Cranies.* Orbicule, Cranie, Thécidée.

and placed *Calceole* in the family *Rudiste* of the class Lamellibranches.

In 1825 M. de Blainville (*Manuel Malac.* 8vo) divided the class Acephalophores into four Orders; the following contain what are now considered Brachiopods.

Order I. PALLIOBRANCHES.

1. *Coquille symmétrique.* Lingule, Terebratule, Thécidie, Strophomène, Plagistome, Dianchore, Podopside.

2. *Coquille non-symmétrique, irrégulière, constamment adhérente.* Orbicule, Cranie.

Order II. RUDISTES. Sphærulite, Hippurite, Radiolite, Birostrite, Caleeole.

In 1825 M. Latreille (*Fam. Nat. Règ. Anim.* 8vo, 196) divided the Mollusques Agames Endocephales Brachiopodes into two Orders and three Families, thus:

1. *Pedonculés.* 1. *Equivalves,* Lingule. 2. *Inéquivalves,* Terebratule.

2. *Sessiles.* 1. *Fixivalves,* Orbicule, Cranie, Acarde, Sphærulite. Plaeing the genus Calceole in the family Ostracés of Conchifères.

In 1829 M. Rang (*Manuel des Mollusques,* 12mo, Paris, p. 257) arranged the Acephales Testacés Brachiopodes thus:

I. *Lingules.* Lingule.

II. *Terebratules.* Térébratule, Strophomène, Thécidée, Calceole.

III. *Cranies.* Cranie, Orbicule.

In 1834 Leopold von Buch (*Ueber die Terebrateln,* Berlin, 4to) gives the following arrangement:—

A. Attached by the border.

* Between the two valves no hinge-line. 1. *Lingula.*

** At the border of the dorsal valve above the hinge.

† One valve perforated.

o. This perforation separated from the hinge-line by a deltidium. 2. *Terebratula* (Atrypa, Orthis, Strigocephalus, Uncites, Pentamerus, Magas).

oo. The perforation is triangular, open, of which the base rests on the hinge-line, and the apex reaches to the apex of one valve. 3. *Delthyris* (Spirifer, Cyrtia, Gypidia).

†† Neither valve perforated.

o. A large cardinal area. 4. *Calceola.*

oo. No cardinal area. 5. *Leptæna* (Producta, Strophomena).

B. Attached by the lower side.

a. Middle of the lower valve perforated for attachment. 6. *Orbicula.*

b. Lower valve entire, attached by its whole face. 7. *Crania.*

In 1836 M. Deshayes (*Lamk. Hist. Nat. Anim. sans Vert.* vii. 309) proposed the following arrangement :—

BRACHIOPODES.

I. *Valves articulées.*—1. *Productes,* Productus. 2. *Térebratules,* Terebratule. 3. *Thécidées,* Thecidée.

II. *Valves libres.*—4. *Lingules,* Lingule. 5. *Orbiculées,* Orbicule. 6. *Cranies,* Calceola, Cranie.

Dr. Gray in 1840 (*Synopsis Brit. Mus.* 1840, i. f. 7) divided the order thus :—

The family of *Terebratulidæ* are regular, and somewhat like a Grecian lamp in form, and have therefore been called Lamp-shells. The valves are articulated together, and are attached by means of a tendinous band, which passes out of the hole in the apex of the upper valve as in Terebratula and Spirifer.

The *Lingulidæ* are attached by a tendinous tube, resembling the stem of the Barnacles, which projects between the apices of the gaping valves.

The *Discinidæ*, on the other hand, have the tendon passing out of a linear slit near the middle of the under valve.

And at p. 155 gives a list of the genera as follows :—

1. *Lingulidæ*, Lingula. 2. *Terebratulidæ*, Terebratula, Spirifer. 3. *Productidæ*, Productus, Calceola. 4. *Thecideidæ*, Thecidea. 5. *Craniadæ*, Crania. 6. *Discinidæ*, Discina.

In 1841 Mr. John Phillips (*Figures and Descriptions of the Palæozoic Fossils*, 8vo, p. 54) arranged the genera of *Brachiopoda* thus :—

1. Valve free, attachment by exserted muscle.

A. Valves equal. 1. Lingula.

B. Valves unequal.

a. Larger valves imperforate, *Athyridæ*; * no cardinal area, Producta; ** a cardinal area, Calceola.

b. Larger valve perforated in or under the beak.

Perforation reaching to the hinge-line, *Delthyridæ*.

Cardinal area more or less common to both valves, Orthis. Cardinal area confined to the large valve. * Internal plate of the larger valves separate, Spirifera. ** Internal plates of the larger valve united on the inside line of the shell. † Platc narrow, Strigocephalus. †† Plates very narrow, Pentamerus.

Cardinal area obsolete, beak incurved over a minute perforation, which is often obtect, or merely serves to receive the beak of the smaller valve, Cleiothyris.

Perforation not reaching to the hinge-line, *Cyclothyridæ*. * Beak truncate, perforate, Epithyris. ** Beak acute, the perforation below it, Hypothyris.

In 1842 Dr. Gray (*Synopsis Brit. Mus.* 1842, 88) proposed the following division for the class *Brachiopoda*:—

"Some are attached by means of a tendinous cord, which passes out between or in a groove in one of the valves. The family of *Lingulidæ* are attached by a tendinous tube, resembling the stem of the Barnacles, which projects between the apices of the gaping valves, as in Lingula.

"The family of *Terebratulidæ* are regular and somewhat like a Grecian lamp in form, and have therefore been called Lamp-shells. The valves are articulated together, and the animals are attached by means of a tendinous band, which passes out of the hole in the apex of the upper valve, as in the Terebratulæ and Spirifer.

"The family *Discinidæ*, on the other hand, have the tendon passing out of a linear slit near the middle of the under valve; the shell is suborbicular, and the upper valve conical, like a Patella, but more symmetrical—Discina.

"Others are immediately attached by the outer surface of their under shell.

"The family of *Craniadæ* are attached by their flat lower valve, which has an oblique facet on the upper side; the upper valve is suborbicular, conical, with a subcentral apex like the *Discinæ*: the muscular scars of the lower valves bear some resemblance to a face, hence the name of *Crania*.

"The family of *Thecideidæ* are fossil shells, very like the last, but only attached by the apex of the lower valves, which is produced and somewhat lamp-like, and the cavity is furnished with a complicated apparatus to support the internal organs, as in *Terebratulidæ*—Thecidea.

"The family of *Productidæ* are fossils, probably allied to the latter; one valve is concave, the other flat, or concave and pressed into the cavity of the other; the hinge-line is straight and the shell subsymmetrical—Productus, Calceola."

In 1846 Mr. W. King (*Ann. & Mag. N. H.* xviii. 1846, p. 28) divided the genera of *Palliobranchiata* into the following families:—

1. *Obolidæ*. 1. Obolus.
2. *Lingulidæ*. 1. Lingula.
3. *Orbiculidæ*. 1. Orbicula.
4. *Craniidæ*. 1. Crania. 2. Siphonotreta.
5. *Calceolidæ*. 1. Calceola.
6. *Strophomenidæ*. 1. Strophomena. 2. Orthis. 3. Leptæna. 4. Chonetes.
7. *Productidæ*. 1. Productus. 2. Strophalosia.

8. *Terebratulidæ*. 1. Terebratula. 2. Hypothyris, 3. Pentamerus. 4. Camerophoria. 5. Uncites.
9. *Spiriferidæ*. 1. Spirifer. 2. Atrypa. 3. Martinia. 4. Strigocephalus.
10. *Thecideidæ*. 1. Thecidia.

In 1847 M. d'Orbigny (*Ann. Sci. Nat.* 1847; *Paléont. Franç. Terr. Crét.* iv. and *Cours Elémentaire de Paléontologie*, 12mo. p. 80, 1849) proposed the following arrangement:—

Order I. Brachiopodes brachides (*Brachidæ*).

1. Brachides propre.
Fam. 1. *Lingulidæ*. 1. Lingula. 2. Obolus.
2. *Calceolidæ*. 1. Caleeola.
3. *Productidæ*. 1. Productus. 2. Chonetes. 3. Leptæna.
4. *Orthisidæ*. 1. Strophomena. 2. Orthisina. 3. Orthis.
5. *Rhynchonellidæ*. 1. Hemithyris. 2. Rhynchonella. 3. Strigocephalus. 4. Porambonites.
6. *Uncitidæ*. 1. Uncites. 2. Atrypa. 3. Pentamerus.

2. Semibrachides.
1. *Spiriferidæ*. 1. Cyrtia. 2. Spirifer. 3. Spiriferina. 4. Spirigerina. 5. Spirigera.
2. *Magasidæ*. 1. Magas. 2. Terebratulina.
3. *Terebratulidæ*. 1. Terebratella. 2. Terebrirostra. 3. Fissirostra.
4. *Orbiculidæ*. 1. Siphonotreta. 2. Orbicella. 3. Orbiculoidea. 4. Orbicula.
5. *Cranidæ*. 1. Crania.

Order II. Brachiopodes cirrides (*Cirrhidæ*).

1. *Thecidæ*. 1. Megathiris. 2. Thecidea.
2. *Caprinidæ*. 1. Hippurites. 2. Caprina. 3. Caprinula. 4. Caprinella.
3. *Radiolidæ*. 1. Radiolites. 2. Biradiolites. 3. Caprotina.

In 1848 Dr. Gray (*Ann. & Mag. N. H.* 1848, ii. p. 435; *Translated Wiegm. Arch.* 1849, 98, and *Lovén, Arsb.* 1845–1849, 213) proposed the following arrangement:—

Brachiopoda.—Subclass 1. Ancylopoda.

The oral arms not extensile, or only at the tip; on fixed shelly supports, or in grooves in the under or ventral valves; the mantle is adherent to the shell, the substance of the shell being pierced with numerous minute perforations, which are pervaded by the processes of the mantle.

Order I. Ancylobrachia.

The oral arms are attached to two shelly plates arising from the hinder or cardinal edge of the ventral valves; they are recurved and convolute on the inner side of the lamina. The animals are generally attached to marine bodies by a tendinous peduncle, which passes through a hole in the top of the umbo of the larger or dorsal valve; this peduncle and the hole are sometimes obliterated in the older specimens.

The order only contains a single family,

Fam. 1. *Terebratulidæ*,

which is nearly synonymous with the smooth *Terebratula* of Sowerby, the perforated *Terebratula* of Carpenter, the genus *Epithyris* of Phillips and *Terebratula* of King, the family *Terebratulidæ* of M'Coy, and *Cyclothyridæ* of Phillips.

The animal has been described by Linnæus, Pallas, Owen, Blainville, Philippi, D'Orbigny and others. In some genera the hoops are united together below by a transverse band which is attached to medial longitudinal ridges of the ventral valve, as in *Terebratula* of Retzius = the *Terebratella* of D'Orbigny, as *T. dorsata* and *Magas*, Sow. In others the hoop forms a ring, and is free from the ventral valve, as *Gryphus*, Megerle=*Terebratula*, D'Orb. and *Terebratulina*, D'Orbigny, for *T. vitrea* and *T. caput serpentis*. D'Orbigny indicates other genera under the names of *Terebrirostra* and *Fissirostra*.

Order II. The Cryptobrachia

have the oral arms entirely attached in the form of two or more lobed processes sunk into the grooves in the disc of the ventral valve. They are generally thick shells. This order also consists of only a single family.

Fam. 1. *Thecideadæ*.

The animals are described by Philippi and D'Orbigny. The genus *Argiope*, De Longchamps = *Megathiris*, D'Orb. (*Tereb. detruncata*) is attached by a tendon passing out of a very large perforation below the beak of the dorsal valves: Philippi confounds this genus with his *Orthis*, which is different from the *Orthis* of Dalman. *Thecidæa* has the shell attached by the truncated apex of the dorsal valve, or it is free when the apex is produced and entire. De Longchamps, who established the genus *Argiope* in 1839, pointed out the affinity of this genus to *Thecidæa*.

Subclass 2. Helictopoda.

The oral arms are elongate, regularly spirally twisted when in repose. The mantle-lobes are merely applied to the inner surface

of the shell, and the substance of the valves is not pierced with minute perforations, though the surface is sometimes spinulose, the spines being only formed on the edge of the shell while it is being increased in size.

Order III. Sclerobrachia.

The oral arms support a shelly band arising from the hinder or cardinal edge of the ventral valve.

Fam. 1. *Spiriferidæ.*

The oral arms very largely developed and supported the whole of their length by a thin shelly? or cartilaginous? spirally twisted plate.

These shells are only known in the fossil state, but the spiral supports of the arms are generally preserved, and may be discovered by sections of the fossil, and are often to be seen in the fractured specimens.

This family is equivalent to the genus *Spirifer* of J. Sowerby the father, the family *Delthyridæ*, M'Coy, who gave some excellent illustrations of the structure and the *Spiriferidæ* of King. D'Orbigny proposed some genera under the names of *Spiriferina, Spirigera* and *Spirigerina,* according to the direction of the axis of the spiral cones, but it is doubtful if these genera are only new names to those already established.

The *Spirifer* of Sowerby, as reduced by M'Coy, and the *Martinia* of M'Coy, have the hinge as long or longer than the width of the shell. In *Atrypa,* Dalman, and *Athyris,* M'Coy, it is shorter and the shells oblong, rounder behind.

According to the description of Mr. King, the genus *Strigocephalus* would appear to form the passage between this and the next family (*Ann. Nat. Hist.* xviii. 89).

Fam. 2. *Rhynchonellidæ.*

The oral arms are elongate, fleshy, supported at the base by two short, hard, diverging shelly laminæ arising from the hinge-margin of the ventral valve.

They are easily known from the *Terebratulidæ* by the cavity of the shell being without shelly plates, its substance not perforated, and its surface being generally radiately plaited.

Only one species, *T. psittacea,* is known in the recent state; its animal has been described by Professor Owen. The family is equivalent to the plaited *Terebratula* of the elder James Sowerby and Von Buch, the non-perforated *Terebratula* of Carpenter, the genus *Hypothyris* of Phillips, and part of the family *Terebratulidæ* of King. It contains the genus *Rhynchonella* of Fischer and D'Orbigny = *Hypothyris* of Phillips; *Camerophoria,* King;

Uncites, Defrance?; *Trigonosemus*, Kœnig; *Rhynchora*, Dalman; *Pygope*, Link; *Delthyridæa*, M'Coy; *Pentamerus*, Sowerby.

Order IV. SARCICOBRACHIA.

The oral arms fleshy to the base and without any shelly support; the lower valve without any processes on the hinge-margin or disc, or except sometimes a slight medial longitudinal elevation.

Fam. 1. *Productidæ*

consists entirely of fossil species, some much resembling those of the former family, but the shells are generally spinose; they are only attached to marine bodies by the surface of the ventral valve, as the genera *Productus*, Sow.; *Strophalosia*, King; *Chonetes*, Fischer; *Leptæna* and *Orthis*, Dalman; *Strophomena*, Rafinesque; and *Calceola*, Lamk. This family comprises Mr. King's *Productidæ*, *Strophomenidæ* and *Calceolidæ*.

Fam. 2. *Craniadæ*.

Nearly allied to the last, but the upper valve is simply conic like *Patella*, and the animal is attached by the outer surface of the ventral valve.

The animal has been figured by Müller, Poli and others. It includes the recent genus *Crania* of Retzius, including the *Orbicula* of Lamarck, *Criopus* of Poli. The lower valve of the only recent species I am acquainted with varies greatly in thickness and form according to the position and habitation of the animal. This animal in many particulars is allied to *Thecidæadæ*.

Fam. 3. *Discinidæ*.

The upper valve is conical and patelloid, the lower orbicular, and is attached to marine bodies by a short tendinous peduncle, which passes out through a slit in the hinder part of the disc of the ventral valve.

The animal of this genus has been described by Mr. Owen under the name of *Orbicula*, Mr. G. B. Sowerby having some years ago confounded this shell with that genus, which has caused confusion, which has existed to this day. The shell was first described by Schumacher as a section of the genus *Crania*. Mr. King, probably misled by this mistake, does not include it in his arrangement. This shell is peculiar, for being horny rather than a shell texture, it is flexible when moist.

Fam. 4. *Lingulidæ*.

The valves are nearly equal elongate, and supported by a thick peduncle which comes out between the beaks of the two valves. The shells are covered with a horny periostraca, and in some species the shelly matter is so very thin that the shells are flexible

and nearly entirely cartilaginous. The family consists only of a single genus, *Lingula*.

Order V. Rudistes.

This Order has been placed by modern authors with the Brachiopoda: the proofs of its belonging to this family are not very evident; but as there is no other to which they appear to be more nearly allied, they may as well be retained in this position.

Lamarck, Cuvier, Férussae, and some other authors have regarded some of the genera as belonging to Cephalopoda, and others as Bivalves (Conchifera). Deshayes regards them as more nearly allied to *Chama*, the character of the family having been lost by the destruction of the inner coat of the shell during the fossilization of the specimen.

M. d'Orbigny has properly united them into one group under the name of Irregular Brachiopods or Rudistes, but he includes with them the genus *Crania*, which is a true Brachiopod.

They form three very distinct families.

Fam. 1. *Radiolitidæ*.

The lower valves more or less elongate-conical, fixed; the upper valve conical or spiral, free; the texture of the lower valve cellular or fibrous.

The *Radiolites* has the upper valve flat or conical and cap-like. The *Caprina*, D'Orb., has a spiral and produced upper valve. The first of these genera has had many names applied to it, but that given by Lamarck has the priority. It has been called *Sphærulites*, *Ostracites* and *Acardo*, and the cast of the interior cavity has been considered as a genus, under the name of *Birostris* and *Iodamia*.

Fam. 2. *Hippuritidæ*.

The lower valve is elongate, tapering sub-cylindrical, of a solid laminated texture; the upper valve is nearly flat, and pierced with peculiar pores radiating to the circumference with branches diverging to the upper surface.

This family contains only a single genus, *Hippurites*, Lamarck, which has also had many other names applied to it, as *Cornucopia*, *Orthoceratites*, *Batolites* (or *Batholites*), *Raphanister*, and *Bitubulites*.

Fam. 3. *Caprotinidæ*.

The lower or fixed valve is conical and spirally twisted, and marked internally with prominent ridges or transverse septa; the dorsal or free valve is oblique or spiral. They differ from *Caprina* in the valves not being of a cellular or fibrous texture.

This family contains two genera:—

1. *Caprotina*, D'Orb., which has the cavity of the shell merely marked with internal ridges.

2. *Ichthyosarcolites* has the cavity of the large spiral or involute fixed valve divided transversely by a number of oblique septa; the upper valve is probably like an operculum, but this genus is very imperfectly known.

In 1849 Dr. H. G. Bronn (*Index Palæontologicus*, 8vo, p. 210) divided the BRACHIOPODA thus :—

A. genuina. 1. Obolus. 2. Lingula. 3. Siphonotreta. 4. Terebratula. 5. Magas. 6. Thecidea. 7. Atrypa. 8. Stringocephalus. 9. Uncites. 10. Pentamerus. 11. Camerophoria. 12. Enteletes. 13. Spirifer. 14. Trigonotreta. 15. Delthyris. 16. Porambonites. 17. Orthis. 18. Pronites. 19. Hemipronites. 20. Orthambonites. 21. Gonambonites. 22. Chonetes. 23. Leptæna. 24. Plectambonites. 25. Strophonema. 26. Productus. 27. Calceola.

B. *Rudistæ*. 28. Orbicula. 29. Crania. 30. Polyconites. 31. Hippurites. 32. Radiolites. 33. Sphærulites. 34. Diceras. 35. Ichthyosarcolithus. 36. Caprina. 37. Requienia. 38. Caprotina. 39. Plagioptychus. 40. Dipilidia. 41. Monopleura.

In 1850 Dr. Van der Hoeven (*Handbuch der Zoologie*, Leipsic, 1850, 80. p. 692) divided the *Palliobranchiata seu Brachiopoda* thus :—

I. *Testa acardis*. 1. Lingula. 2. Orbicula. 3. Crania.

II. *Testa cardine instructa*. 4. Calceola. 5. Thecidea. 6. Terebratula. 7. Spirifer. 8. Productus.

Subclass 1. ANCYLOPODA.

The oral arms reeurved and affixed to shelly appendages on the disk of the dorsal valve. Shell minutely and closely punctate.

Ancylopoda, *Gray, Ann. & Mag. N. H.* ii. 1848, 436; *Cat. Brit. Moll. B. M.*; *in Wiegm. Arch.* 1849, 48. and p. 7.

Order I. ANCYLOBRACHIA.

Oral arms affixed to calcareous lamellæ, forming a loop attached to the hinge-margin of the dorsal valve, and more or less prominent in its cavity.

Ancylobrachia, *Gray, Ann. N. H.* 2nd ser. ii. 435, 436, 1848; *Cat. Bivalves B. M.*; *Wiegm. Arch.* 1849, 98 (see p. 8).

Brachiopodes brachides (Brachidæ) part., *D'Orb., Cours Elém. Paléont.* 80, 1849 (see p. 7).

Fam. 1. TEREBRATULIDÆ.

Shell minutely punctate, usually round or oval, and smooth or striated; *ventral valve* (fig. 2) largest, its umbo produced into a beak with the apex truncated and perforated; foramen (*f*) separated from the hinge-line by a small triangular plate or *deltidium* (*d*) composed of two pieces (*deltidia*); teeth (*t*) situated one on each side of the deltidium, supported by plates; *dorsal valve* (fig. 1) with a depressed umbo; furnished interiorly with a prominent cardinal process (*j*) between the sockets for the teeth (*t'*), a hinge-plate (*p*) with four cavities and a central ridge or *septum* (*s*); internal skeleton in the form of a slender shelly *loop*, attached by its crura (*c*) to the hinge-plate, and furnished near its origin with *oral* processes (*o*).

Fig. 1.

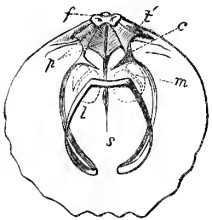


Fig. 2.

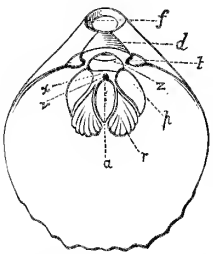


Fig. 1. Dorsal valve:—*j*. cardinal process; *t'*. dental sockets; *p*. hinge-plate; *s*. septum; *c*. crura of the loop; *l*. reflected portion of the loop; *m*. quadruple adductor-impression.

Fig. 2. Ventral valve:—*f*. foramen; *d*. deltidium; *t*. teeth; *a*. adductor-impression; *r*. retractor impressions; *p*. pedicle-muscles; *x*. anal muscles; *v*. position of the vent; *z*. attachments of peduncle-sheath.

Animal always attached by a peduncle; furnished with cirrated arms, united throughout by membrane, folded upon themselves, and only spiral at their extremities; muscles of three kinds,—adductors, retractors, and those which go to the peduncle (*byssal* or *pedal* muscles of ordinary bivalves). The adductors are attached to four spots near the centre of the dorsal valve (*m*), and to a single spot behind the centre of the opposite valve (*a*); the retractors originate on each side of the adductor in the ventral valve (*r*), and are attached to the cardinal process (*j*) of the dorsal valve; the hinge-teeth form the *fulcrum* on which the dorsal valve turns; of the *pedicle* muscles, two (*p*) originate outside the adductor and behind the retractors in the ventral valve: two

others, each with a double termination, are inserted in the hinge-plate (*p*) of the dorsal valve; the *septum* supports the visceral membranes.

The position at which the intestine of Terebratula terminates, namely just behind the adductor muscle (fig. 2, *v*), seems to imply that it discharges through the byssal *foramen*; and as the same arrangement exists in *Terebratulina, Kraussia, Argiope,* and in the recent *Rhynchonella nigricans,* it becomes probable that such is the general rule; in those extinct genera which have the foramen closed at an early age, there is always an opening between the *deltidium* and the umbo of the smaller valve (*e. g.* in *Uncites gryphus*), which has been mistaken for a byssal notch. The foramen in the hinge-plate of *Athyris* shows that the intestine took the same course in the *Spiriferidæ* as it is known to do in the *Rhynchonellidæ* and *Terebratulidæ* *.

The following illustration (fig. 2*) is from a drawing by Mr. Albany Hancock.

Fig. 2*. *Waldheimia flavescens.*

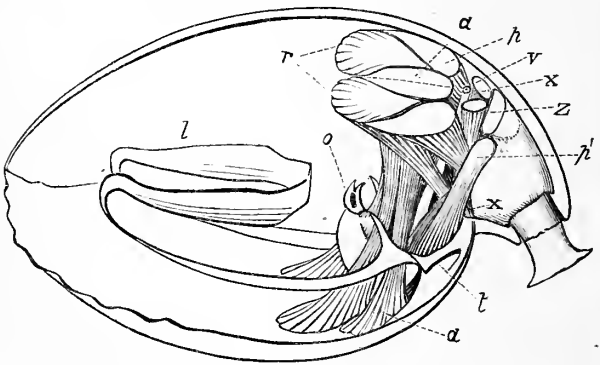


Fig. 2*. *a.* adductors; *r.* retractors; *x.* accessory retractors (anal muscles); *p, p.* pedicle-muscles; *z.* function uncertain; *o.* mouth; *v.* vent; *l.* loop; *t.* dental socket.

* The muscular system of *Ter. flavescens* was correctly (though diagramatically) represented and described by Mr. King in his Memoir of the Permian Fossils, published by the Palæontographical Society in 1850; the *function* of the retractor muscles was not stated, but must have been understood. (*Woodward, MS.*)

Terebratuladæ, *Leach, MSS.* 1818, *Ann. & Mag. N. H.* xx. 273.
Terebratulidæ, *Gray, Syn. B. M.* 1840; 1842, 85, 92; *Sow. Ann. N. H.* 2nd ser. ii. 436, 1848; *Wiegm. Arch.* 1849, 98.
M'Coy, Carb. Foss. Ireland.
King, Ann. & Mag. Nat. Hist. xviii. 26.
Forbes & Hanley, Brit. Moll. ii. 343.
D'Orb. Cours Paléont. 80. 1849.
Terebratulacea, *Menke, Syn.* ed. 2. 95, 1830.
Terebratulacea, part., *Anton, Verz. Conch.* 12. 21.
Terebratulaceæ, *Menke, Syn.* ed. 1. 56, 1828.
Les Térébratules, *Féruss. Tab. Syst.* 1821.
Rang, Man. Moll. 258.
Terebratulinæ, *Agass. Nomen.* 1847.
Lingulæ, part., *Eichw. Zool. Spec.* i. 275.
Thecididæ, part. (Megathyris), *D'Orb. Ter. Crét.* iv.
Cyclothyridæ, *Phillips, Pal. Foss. Cornwall.*

Synopsis of Tribes and Genera.

A. *Loop attached to the hinge-plate.*—**Terebratulanina.**

1. Terebratula.
2. Terebratulina.
3. Waldheimia.

B. *Loop attached to the septum in the middle of the dorsal valve.*—**Magasina.**

4. Terebratella.
5. Trigonosemus.
6. Magas.
7. Bouchardia.
8. Megerlia.
9. Morrisia.
10. Kraussia.

C. *Loop attached to the surface of valve.*—**Argiopina.**

11. Argiope.

Tribe 1. TEREBRATULANINA.

Shell usually oval, valves convex, margins even or only slightly waved; hinge-line curved; beak of the larger valve perforated, the foramen quite at the apex; deltidium of two pieces, often blended; internal skeleton consisting of a slender shelly loop, not attached in the middle to the valve.

Animal with the oral arms united by membrane, forming a 3-lobed disc, the central lobe elongated and folded spirally (figs. 3, 5, 6 and 7).

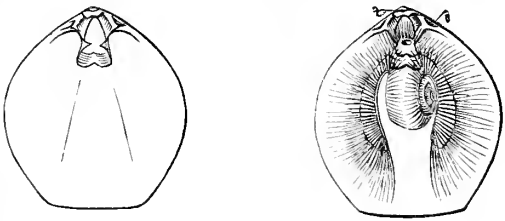
Concha anomia, *Fab. Colonna, Tract. de Purp.* 1616.
Terebratula, *Llhwyd, Lith. Brit.* 40, 1699.
Brug, 1789, *Enc. Méth.* t. 6. p. xiv.
Müller, Zool. Dan. 1776.
Retzius, Dissert. 1788.
Lamk. Phil. Zool. 1809; *Hist.* vi. 243, ed. 2. vii. 319.
Lovèn, Ind. Moll. Skand. 29.
Leach, Zool. Miscell. i. 76, 1814.
Schum. Ess. 133.
Féruss. Tab. Syst. 1821.
Rang, Man. 1829.
Gray, Lond. Med. Repos. xv. 1821; *Syn. B. M.* 1840; 1842, 92; *Proc. Zool. Soc.* 1847, 202.
Menke, Syn. 1828 & 1830.
Forbes & Hanley, Brit. Moll. ii. 349.
Anomia, part. (animal), *Linn.* 1768, *Syst. Nat.*
Lampades, part., *Gevers*, 1787.
Lampas, *Humph.* 1797, *Mus. Calon.* (not *Schum.*).
Gryphus, *Mühlfeldt*, 1811, *Berlin Mag.* 64.
Gray, Ann. & Mag. N. H. 1848, ii. p. 438 (see above, p. 8).
Epithyris, *Phillips*, 1844, *Pal. Foss.* p. 55.
Smooth Terebratulæ (with a truncated beak), *Morton*, 1712, *History of Northampton.*
Terebratula (restricted), *Fischer*, 1809, *Foss. Nouv. Moscou.*
Smooth Terebratulæ, *Sowerby*, 1815, *Min. Con.* p. 189.
Terebratulæ non-plicatæ, *Buch*, 1834, *über Terebrateln.*
Punctate Terebratulæ, *Morris*, 1841, *Min. Con. Suppl.* No. 108, p. 12.
Carpenter, 1844, *Report Brit. Assoc.* p. 18.
Epithyridæ, *Morris*, 1846, *Geol. Soc. Journ.* p. 382.
Terebratula and Terebratulina, *D'Orb. Paléont. Franç.*
Criopus and Criopoderma, *Poli, Test. Sicil.*
Trigonosemus, *Kœnig, Icon. Sect.* iv. 1825.
Terebratularius, *Dumer. Zool. Anal.* 168, 1806.
Apleurotis, Megorima, Trigonina, Diclisma, Obovites, Terebratula, *Rafin. Anal.*
Terebratula A*, *Blainv. Dict. Sci. Nat.* liii. 145, 1828.

1. TEREBRATULA.

Shell:—Valves convex, foramen complete; loop short and simple (fig. 3).

Terebratulæ with short loops, *Davidson*, 1852, *Ann. Nat. Hist.* p. 364; *Mon. Cret.* p. 45.
Epithyris (elongata), *King*, 1849, *Permian Fossils*, 81, 146 (not *Phillips*).
Terebratulæ Jugatæ repandæ, part., *Buch*, 1834, *über Terebrateln.*
Terebratulæ carinatæ sinuatæ, part., *Buch*, *l. c.* 1834.
Terebratulæ biplicatæ, *Quenst.* 1851, *Handb.* p. 471.
Gryphus (vitrea), *Megerle*, *Berl. Mag.* 1811, 64.

Fig. 3. *Terebratula vitrea.*



A. B.

A. Dorsal valve, showing the small loop.
B. Dorsal valve with the animal; the œsophagus passes through the opening of the loop.

1. TEREBRATULA VITREA. B.M.

Shell rounded-ovate, slightly truncated in front, ventricose, smooth, translucent, milky, or pale horn-colour; valves nearly equal; margins even; beak short, recurved; foramen small, complete; deltidium nearly concealed; loop simple, one-fourth the length of the shell. Lon. 17, lat. 14, alt. 11 lines.

Anomia terebratula, *Linn. S. N.* 1153.
Gmelin, S. N. 3344.
Da Costa, Elém. 292. t. 6. f. 3.
Anomia vitrea, *Born. Mus.* 119. *Vig.* 116.
Gmelin, S. N. 3347.
Terebratula vitrea, *Lamk. Syst. A. s. V.* 139, 1801; *E. M.* t. 239. f. 1; *Hist.* vi. 245, ed. 2. vii. 329.
Sow. Thes. Conch. vii. 353. t. 70. f. 56–59.
Philippi, Moll. Sicil. i. 95. t. 6. f. 6; ii. 66.

Kuster, Conch. vii. 21. t. 2. f. 11–13; t. 1. f. 13. 14.
Davidson, Ann. Nat. Hist. 1852, p. 364.

Terebratula (*a*) sub-vitrea (*Leach*), *Blainv. Dict. Sci. Nat.* liii. 135. 1828.

Terebratula euthyra, *Phil.* 1844, *Moll. Sicil.* ii. p. 68. t. 18. f. 8?

Gryphus vitreus, *Megerle, Berl. Mag.* 1811, 64.

Habitat. Mediterranean, in 90 to 250 fathoms, on nullipore mud (*Forbes*).

Fossil. *Pliocene.* Sicily.

2. TEREBRATULA SPHENOIDEA.

Shell triangularly-ovate, truncated in front, smooth; margins even, obscurely bisinuated in front; dorsal valve convex near the umbo, depressed in front; beak prominent, scarcely curved, foramen moderate, round; deltidium conspicuous; loop short, simple. Lon. 12, lat. 10, alt. 6 lines.

Terebratula sphenoidea, *Phil.* 1844, *Moll. Sicil.* ii. p. 67. t. 18. f. 6.
Bronn, Index, p. 1251.

Fossil. *Pliocene.* Sicily.

3. TEREBRATULA SEPTATA.

Shell oval, subquadrate, ventricose, smooth; valves gibbous, rather truncated in front, sides nearly parallel; dorsal valve with the front margin rather bent downwards, beak prominent, thick; foramen moderate, round; deltidium solid. Lon. 10, lat. 9, alt. 7 lines.

Terebratula septata, *Phil.* 1844, *Moll. Sicil.* ii. p. 68. t. 18. f. 7.
Bronn, Index, p. 1250.

Fossil. *Pliocene.* Sicily.

4? TEREBRATULA UVA.

Shell narrowly-oblong, gibbous, smooth, slightly translucent, pale horn-colour; margins even; beak produced, truncated; foramen large, deltidium small, concave; loop short?. Lon. 13, lat. 7, alt. 6 lines.

Terebratula uva, *Brod.* 1833, *Proc. Zool. Soc.* 124.
G. B. Sow. Thes. Conch. vii. 353. t. 70. f. 53–55.
Dav. Ann. Nat. Hist. 1852, ix. p. 364.

Hab. Gulf of Tehuantepec (Mus. Cuming).

5. TEREBRATULA GRANDIS. B.M.

Shell oval, ventricose, smooth, becoming very thick with age; front margin obscurely biplicate; beak produced, slightly recurved, lateral ridges indistinct; foramen large and round; del-

tidium narrow, concave, incomplete in the fry; loop simple, one-third as long as the dorsal valve. Lon. $4\frac{2}{12}$, lat. 3, alt. 2 inches (extreme size).

Terebratula grandis, *Blum.* 1803, *Arch. Tell.* t. 1. f. 4; *Encycl. Méth.* p. 239. f. 2.
Bronn, Index, p. 1237.
Phil. Moll. Sicil. ii. p. 67.
Dunker, Palæont. p. 129. t. 18. f. 4.

Terebratulites giganteus, *Schl.* 1813, *Leonhard's Min. Tasch.* 7. p. 104; *Petref.* p. 278. no. 48.
Buch, Mém. Soc. Géol. France, iii. p. 222 (not figured).

Terebratula spondylodes, *Smith*, 1817, *Strat. Syst.* p. 12.

Terebratula birostris, *Val.* 1819, *in Lam. Hist. Nat.*; *Dav. Ann. Nat. Hist.* June 1850, pl. 13. f. 23.

Terebratula variabilis, *Sow.* 1829, *Min. Con.* vi. p. 148. t. 576. f. 2–5.
Galeotti, Mem. Geol. Brabant, p. 151.
Nyst, Coq. Foss. Anvers, p. 15. no. 37.

Terebratula perforans, *Dujardin*, 1837, *Mém. Soc. Géol. Fr.* p. 272.

Terebratula maxima, *Charlesworth*, 1837, *Mag. Nat. Hist.* p. 92. f. 13, 14.

Terebratula Sowerbii, *Nyst*, 1843, *Coq. Belg.* p. 335. pl. 27. f. 3.

Fossil. *Miocene.* England; Belgium; France.

6. ? TEREBRATULA AMPULLA. B.M.

Shell roundish, inflated, smooth; margins obscurely plaited in front. Lon. 24, lat. 18 lines.

Anomia ampulla, *Brocch.* 1814, *Conch.* ii. 466. t. 10. f. 5.

Terebratula ampulla, *Desh. E. M.* iii. 1027.
Buch, Mon. Tereb. 111. n. 4.
Val. in Lamk. Hist. vii. 336.
Dav. Ann. Nat. Hist. June 1850.

Terebratula Pedemontana, *Valenciennes, in Lam. Hist.* no. 34. See *Dav. Ann. Nat. Hist.* June 1850, pl. 14. f. 34.

Terebratula complanata, *Brocchi, Conch.* ii. p. 469. t. 10. f. 6?.

Fossil. *Miocene.* Turin; Malta.

7. TEREBRATULA BISINUATA. B.M.

Shell oval, rather depressed, smooth, fragile; margins biplicate in front; beak produced, nearly straight; foramen large, circular; deltidia small, united. Lon. 22, lat. 19 lines.

Terebratula bisinuata, *Valenc.* 1819, *in Lamk. Hist.* vii. 339.
Desh. Foss. Paris, i. t. 65. f. 1, 2; *E. M.* iii. 1025.
Davidson, Ann. Nat. Hist. v. pl. 13. f. 32; *Mon. Ter. Brach.* p. 19. pl. 1. f. 17.

Terebratula gigantea, var., *Buch, Mém. Soc. Géol. France,* iii. p. 222. pl. 20. f. 3 (not *Schl.*).
Terebratula succinea, *Desh.* 1824, i. p. 390. pl. 65. f. 3 (young).
Terebratula grandis, *Bronn, Index,* p. 1237 (not *Blum.*).

Fossil. *Eocene.* France; England.

8. Terebratula Montolearensis.

Shell oval, depressed and bi-sinuated in front, smooth; beak moderately prominent, slightly recurved; foramen moderate, circular; deltidium triangular. Lon. 11–13, lat. 8–11, alt. 5–lines.

Terebratula Montolearensis, *Leymer.* 1846, *Mém. Soc. Géol. France,* t. 1. p. 362. pl. 15. f. 13, 14.

Fossil. *Eocene.* France.

9. Terebratula æquilateralis.

Shell smooth, equilaterally triangular, rounded in front; ventral valve gibbous; beak large, curved, truncated by a round foramen; margins even. Lon. 28, lat. 28 lines.

Terebratula æquilateralis, *D'Arch.* 1846, *Mém. Soc. Géol. France,* 2nd ser. ii. p. 214. pl. 9. f. 7.

Fossil. *Eocene.* Franee.

10. Terebratula trilobata. B.M.

"*Shell* oval, smooth, subantiquated, somewhat sinuated in front; beak produced, recurved; foramen apical, minute." Lon. , lat. 10, alt. lines.

Burtin, 1784, *Oryct. Brux.* pl. 8. f. L. N. P.
Terebratula trilobata, *Galeotti,* 1837, *Mem. Geog. Brabant.* t. 12. p. 150. pl. 4. f. 16 (imperfect).
Terebratula lævis, *Nyst,* 1843, *Belg.* p. 334.
D'Orb. Prod. ii. p. 395.
Terebratula Kickxii (*Galeotti*), *Bronn, Index,* p. 1240.
Terebratula papilio, *König,* 1825, *Icones Foss. Sectiles,* f. 220 (imperfect; no description).

Fossil. *Eocene.* Belgium.

11.? Terebratula Kickxii.

"*Shell* oval, attenuated in front, inflated, smooth, ornamented with fine, regular, concentric lines of growth; margins even; beak short, recurved, with a very minute apical foramen." Lon. and lat. 4½ lines.

Terebratula Kickxii, (*Galeotti*) *Nyst*, 1843, *Belg.* p. 335. pl. 29. f. 4.
D'Orb. Prod. ii. p. 395.

Fossil. *Eocene.* Belgium.

12. TEREBRATULA WILMINGTONENSIS.

Shell oblong, smooth; margins nearly even; beak produced, nearly straight, truncated by a moderately large foramen; deltidium rather long. Lon. 10, lat. 7 lines.

Terebratula Wilmingtonensis, *G. Sow.* 1845, *Proc. Geol. Soc.* 1845, p. 565.

Fossil. *Eocene.* N. Carolina.

13. TEREBRATULA CARNEA. B.M.

Shell depressed, smooth, obtusely five-sided, front edge short; valves equally convex, slightly flattened along the middle, often of a dull red colour; margins even; beak small; foramen minute. Lon. 14, lat. 14, alt. 8 lines.

Terebratula carnea, *Sow.* 1813, *Min. Con.* i. p. 47. pl. 15. f. 5, 6.
D'Orb. Ter. Crét. iv. t. 513. f. 5–8; *Prod.* ii. p. 258.
Quenstedt, Handb. p. 473. t. 38. f. 2.
Pusch, Polen. Pal. p. 18. t. 3. f. 12?.
Alth, Geog. Lemberg (*in Haidinger's Abhandl.* 1850), p. 258. t. 13. f. 8.

Terebratula lens, *Nilsson, Petref. Suec.* p. 35. pl. 4. f. 6.
Dalman, Vet. Acad. p. 146.

β. Terebratula elongata, *Sow.* 1823, *M. C.* v. p. 49. t. 435. f. 1, 2.

Terebratula ovata, *Nilsson, Petr. Suec.* p. 33. t. 4. f. 3 (not *Sow.*).
Dalman, Vet. Acad. p. 145.
Rœmer, Kreid. p. 44.

Terebratula minor, *Nilsson, Petr.* 1827, p. 34. t. 4. f. 4.
Rœmer, Kreid. p. 44.

Terebratula plebeia, *Dalman*, 1828, *Vet. Acad.* p. 145. t. 4. f. 4.

Fossil. *Upper Chalk.* England; Belgium; France; Russia; Sweden.

14. TEREBRATULA RHOMBOIDALIS.

Shell rhomboidal, smooth, marked with a few concentric lines; margins sinuated in front; *dorsal* valve gibbose, depressed at the sides; *ventral valve* curved, flattened along the centre, and slightly depressed in front; beak short, curved; foramen moderate, round; deltidium distinct. Lon. 13, lat. 9½, alt. 7 lines.

Terebratula rhomboidalis, *Nilsson*, 1827, *Petr. Suec.* p. 34. t. 4. f. 5.
Dalman, 1828, *Vet. Acad.* p. 146.

? Terebratula collinaria, *D'Orb.* 1847, *Ter. Crét.* iv. p. 81. t. 507. f. 6–10.

Fossil. *U. Greensand.* Sweden.
? *Neocomian.* France.

15. Terebratula Becksii. B.M.

Shell obovate, smooth, laterally compressed towards the beak; margins even; dorsal valve strongly curved, gibbous near the umbo, depressed and flattened in front; ventral valve rather straight; beak short and thick, not recurved; foramen moderate, round; deltidium solid, concave. Lon. 10, lat. 8, alt. 6 lines.

Terebratula Becksii, *Rœmer*, 1840, *Nord. Kreid.* p. 44. t. 7. f. 14.
Bronn, Index, p. 1229.

Fossil. *Chalk* (*Pläner*). Ahaus, Westphalia.

16. Terebratula squamosa. B.M.

Shell orbicular, or oval; valves nearly equally convex, marked with squamose lines of growth and fine radiating punctate striæ; margins even, or slightly bisinuated; beak short, recurved; foramen round; deltidium solid. Long. 7, lat. 6, alt. 5½ lines.

Terebratula squamosa, *Mantell*, 1822, *Geol. Suss.* p. 132.
Davidson, Ann. Nat. Hist. 1847, p. 254. pl. 18. f. 8.
D'Orb. Prod. ii. p. 172.
Bronn, Index, p. 1251.
Terebratula Robertoni, Viquesneli, Murchisoni et Leveillei ?, *D'Arch.* 1847, *Mém. Géol. Soc. France*, 11. pt. 2.

Fossil. *U. Greensand, Chalk-marl.* England.

17. Terebratula Fittoni.

Shell small, oval, ventricose, smooth, biplicate in front, ornamented with squamose lines of growth; valves equally convex; beak recurved; foramen large, round. Lon. 5, lat. 4, alt. 3½ lines.

Terebratula Fittoni, *Hag.* 1842, *Neues Jahrb.* p. 542. t. 9. f. 6.
Bronn, Index, p. 1236.

Fossil. *Chalk.* Rügen.

18. Terebratula capillata. B.M.

Shell oval, or somewhat pentangular, front margin slightly waved; dorsal valve slightly convex; ventral valve deep; beak short, rounded and recurved, truncated by a large circular foramen; deltidium incomplete; surface ornamented with minute, radiating, wavy striæ, decussated by a few lines of growth. Lon. 13, lat. 11, alt. 8 lines.

Terebratula capillata, *D'Arch.* 1846, *Bull. Soc. Géol. Fr.* 2nd ser. iii. p. 336; *Mém. Soc. Géol. France*, 2nd ser. ii. p. 323. pl. 20. f. 1–3.
Davidson, Mon. Cret. p. 46. pl. 5. f. 12.
Terebratula linearis, *Münster, in Cambridge Museum.*
Spondylus undulatus, *Geinitz*! (according to *Koninck*).
Fossil. *Red Chalk* (*Gault*). Norfolk.
Tourtia (*Greensand*). Tournay, Belgium.

19. TEREBRATULA LONGIROSTRIS. B.M.

Shell ovate-oblong, smooth, with long, straight and thick beak; foramen very large, round; deltidium elongated, solid; front margin slightly bisinuated. Lon. 28–39, lat. 14–22, alt. 11–18 lines.

Anomites longirostris, *Wahl.* 1821, *N. Acta Upsal.* viii. p. 61. t. 4. f. 15, 16.
Terebratula longirostris, *Nilsson, Petr. Suec.* p. 33. pl. 4. f. 1.
Dalman, 1828, *Vet. Acad.* p. 144.
D'Orb. Prod. ii. p. 258.
Trigonosemus rustica, *König*, 1825, *Icones Foss. Sect.* p. 4. f. 75.
Fossil. *Chalk.* Sweden.

20. TEREBRATULA DEPRESSA. B.M.

Shell smooth, oblong, transversely dilated, contracted towards the beak, obtuse in front; beak produced, straight, thick, truncated by a large foramen; deltidium large and solid. Lon. 24, lat. 19 lines.

Terebratula depressa, *Val. in Lam.* 1819, *An. sans Vert.* vi. p. 249.
D'Orb. Prod. ii. p. 172.
Davidson, 1850, *Ann. Nat. Hist.* June, pl. 13. f. 15.
Terebratula longirostris?, *Rœmer*, 1839, *Nordd. Ool.* ii. p. 21. t. 18. f. 13.
Bronn, Index Paleont. 1241.
Rœmer, Kreid. p. 42.
Terebratula Nerviensis, *D'Archiac*, 1847, *Mém. Soc. Géol. Fr.* ii. p. 313. pl. 17. f. 2–10.
Terebratula Viquesneli, *D'Archiac*, pl. 18.
Terebratula ovalis, *Morris, Journ. Geol. Soc.* 1846, p. 384. f. 1 (not *Lamk.*).
Fossil. *U. Greensand*? (*Tourtia*). Belgium.

21. TEREBRATULA BIPLICATA. B.M.

Shell oblong, smooth, gibbose; margins bisinuated in front; valves convex, marked with lines of growth and obscurely striated

at the sides; beak thick, rounded, recurved; foramen rather large, round; deltidium solid, inconspicuous; loop simple, short. Lon. 13, lat. 10, alt. 8 lines.

Anomia biplicata, *Brocchi*, 1814, *Conch. Foss.* ii. p. 419. pl. 10. f. 8.
Terebratula biplicata, *Sow.* 1815, *Min. Con.* i. p. 201. t. 90.
Defrance, 1828, *Dict. Sc. Nat.* 53. p. 151?.
Terebratula Dutempliana, *D'Orb.* 1847, *Ter. Crét.* p. 93. pl. 511. f. 4–8.

Fossil. *U. Greensand, Chalk.* Tuscany; England; France.

22. TEREBRATULA OBTUSA. B.M.

Shell oval, smooth, rather depressed, bisinuated in front; lines of growth becoming strong towards the margin; dorsal valve much flattened, sinuated only on the front of adult specimens; ventral valve with a thick, recurved beak; foramen large and round; deltidium nearly concealed. Lon. 18, lat. 16, alt. 10 lines.

Terebratula obtusa, *Sow.* 1823 (and T. biplicata, part.), *Min. Con.* v. p. 53. t. 437. f. 2–4.
Terebratula curvirostris, *Nilsson*, 1827, *Petref. Suec.* p. 33. t. 4. f. 2.
Dalman, Vet. Acad. p. 144.
Rœmer, Kreid. p. 42.

Fossil. *U. Greensand* ("*Gault*"). Cambridge; Sweden.
Red Chalk (*Gault*). Hunstanton.

23. TEREBRATULA TORNACENSIS. B.M.

Shell smooth, inflated, somewhat pentagonal, rounded at the sides, truncated in front; margins strongly bisinuated in front; beak produced, slightly curved, rounded, thick, truncated by a large foramen; deltidium large and solid. Lon. 17, lat. 14, alt. 9 lines.

Terebratula Tornacensis, *D'Arch.* 1847, *Mém. Soc. Géol. Fr.* ii. p. 316. pl. 18. f. 3–5.
Terebratula Bouei, crassa, crassificata, rustica, Boubei, et Tchiatcheffei et Gravesi?, *D'Arch. id.*
Terebratula phaseolina, *Val. in Lam. Hist.* no. 29?. See *Dav. Ann. Nat. Hist.* April 1852, pl. 13. f. 29.
Terebratula subundata, *Rœmer, Kreid.* 1843, p. 42. t. 7. f. 15? (not *Sow.*).

Fossil. *Greensand* (*Tourtia*). Belgium.

24. TEREBRATULA ROISSYI. B.M.

Shell subcircular, smooth, bisinuated in front; beak small, rounded, recurved; deltidium distinct; foramen moderate. Lon. 10, lat. 10, alt. 5 lines.

Terebratula Roissyi, *D'Arch.* 1847, *Mém. Soc. Géol. Fr.* ii. p. 321. pl. 19. f. 4.
Terebratula Virleti, *Id.* f. 6.
Terebratula revoluta, *Id.* f. 3.
Terebratula subpectoralis, *Id.* f. 9.
Terebratula gussignisensis, *Id.* f. 10.
Fossil. *Greensand* (*Tourtia*). Belgium.

25. ? TEREBRATULA LENTOIDEA.

Shell suborbicular, depressed, smooth; margins even, slightly raised in front; dorsal valve round, slightly convex; beak small, strongly curved, laterally keeled; foramen small. Lon. $7\frac{1}{2}$, lat. 7, alt. 3 lines.

Terebratula lentoidea, *Leym.* 1842, *Mém. Géol.* v. p. 12. t. 15. f. 10.
Reuss, Böhm. Kreid. p. 53. pl. 26. f. 13.
Terebratula lentiformis, *Leym. Mém. Géol.* iv. p. 321.
Fossil. *Greensand.* France.

26. TEREBRATULA PARVA.

Shell small, oval, inflated, smooth, with three rounded plaits in front; beak large, recurved, truncated by a large round foramen; deltidium short. Lon. $3\frac{1}{2}$, lat. 3, alt. 2 lines.

Terebratula parva, *D'Arch.* 1847, *Mém. Soc. Géol. Fr.* ii. p. 322. pl. 19. f. 7.
D'Orb. Prod. ii. p. 172.
Terebratula parvula, *D'Arch. id.* pl. 19. f. 8.
Fossil. *U. Greensand.* Belgium.

27. TEREBRATULA SEMIGLOBOSA. B.M.

Shell nearly circular, gibbous, smooth; ventral valve deepest, and uniformly gibbous; front margin undulated, with two risings in the dorsal valve; beak thick, obtuse; foramen moderate. Lon. 15, lat. 13, alt. 11 lines.

Terebratula semiglobosa, *Sow.* 1813, *Min. Con.* i. p. 48. pl. 15. f. 9.
Dalman, 1828, *Vet. Acad.* p. 145.
D'Orb. Ter. Crét. iv. 514. f. 1–4.
Reuss, Verst. Böhm. p. 51. pl. 26. f. 6–8.
Terebratula subrotunda, *Sow.* 1813 (part.), *Min. Con.* pl. 15. f. 1.
Reuss, p. 50. pl. 41. f. 2.
Terebratula subundata, *Sow.* 1813, *Min. Con.* i. p. 47. pl. 15. f. 7.
Reuss, p. 50. t. 41. f. 7.
Terebratula carnea, *Reuss*, p. 50. f. 9–11 (not *Sow.*).
Fossil. *Chalk.* England; Belgium; France.

28. ?Terebratula incisa.

Shell oval, longer than wide; dorsal valve convex near the umbo, with a shallow sinus in front; beak recurved; foramen minute; deltidium distinct. Lon. 1–1½ inch.

Terebratula incisa (*Münster*), *Schlotheim, Cat.* p. 75. n. 71.
Buch, 1834, *Terebrat.* p. 95; *Mém. Soc. Géol. Fr.* iii. p. 204.
Bronn, Index, p. 1238.
Pusch, Polens Pal. t. 3. f. 16. p. 19?.

Fossil. *Chalk.* Poland; Faroë.

29. Terebratula obesa. B.M.

Shell oblong, ventricose, smooth; front margin with a wide and shallow central depression and two angular lateral depressions; sides obscurely striated; beak short and thick, incurved, truncated by a large round foramen; deltidium concealed; loop short and simple. Lon. 2½, lat. 2, alt. 1½ inch.

Terebratula obesa, *Sow.* 1825, *Min. Con.* v. p. 54. t. 438. f. 1.
Brown, Illust. Conch. pl. 54. f. 28, 29.
D'Orb. Ter. Crét. iv. p. 101. pl. 513. f. 1–4.
Davidson, Mon. Cret. p. 33. pl. 5. f. 13–16.

Fossil. *U. Chalk, U. Greensand.* England; France.

30. Terebratula sulcifera. B.M.

Shell oval, inflated, smooth, ornamented with numerous imbricating lines of growth in regular series from the umbones to the margin; valves nearly equally ventricose; margins sinuous, elevated in front; beak short, very thick, rounded and recurved; foramen large and round; deltidium concealed. Lon. 22, lat. 16, alt. 16 lines.

Terebratula sulcifera, *Morris & Dav.* 1847, *Ann. Nat. Hist.* 1847, p. 254. pl. 18. f. 7.
D'Orb. Prod. ii. p. 172.

Terebratula ovoides, *Rœmer*, 1843, *Kreid.* p. 42 (not *Sow.*).
Alth, Geog. Lemberg (*in Haid. Abhandl.* 1850), p. 258. t. 13. f. 5.
Geinitz, Petref. 1850, t. 8. f. 5.

Fossil. *Chalk-Marl.* England; Germany.

31. Terebratula albensis. B.M.

Shell oval, inflated, smooth, with obscure lines of growth, becoming more distinct towards the margin; margins flexuous, the front straight, wide, angularly elevated; dorsal valve convex, circular in young specimens; ventral valve gibbose; beak thick, rounded, recurved; foramen moderate, round; deltidium concealed. Lon. 19, lat. 14, alt. 12 lines.

Terebratula albensis, *Leym.* 1841, *Mém. Géol.* iv. 288, 289; v. 11, 29. t. 15. f. 2–4.
Terebratula hulla, *J. Sow.* 1850, *Dixon's Geol. Sussex*, p. 346. pl. 27. f. 11.
Terebratula semiglobosa, var. γ, *Bronn, Index*, p. 1250.
Reuss, Verst. Böhm. Kreid. p. 51. pl. 26. f. 5.
Fossil. *Lower Chalk.* Sussex; Rouen.

32. Terebratula Harlani. B.M.

Shell oval, elongated, thick, smooth, with concentric lines of growth; dorsal valve moderately convex, raised and flat in the centre, depressed at the sides; margins even, slightly elevated in front; ventral valve deep; beak thick, recurved, slightly keeled at the sides; foramen very large; deltidium nearly concealed. Lon. 26, lat. 16, alt. 15 lines. (Lon. 36 lines, *Morton.*)

Terebratula Harlani, *Morton*, 1829, *Acad. Nat. Sc. Philad.* p. 73. pl. 3. f. 1; 1834, *Syn. Cret.* p. 70. pl. 3. f. 1.
Terebratula Camilla, *Morton*, *Syn. Cret.* pl. 9. f. 8, 9.
Terebratula perovalis?, *Morton*, 1829, *Journ. Philad.* p. 77. pl. 3. f. 7, 8 (not *Sow.*).
Fossil. *Chalk.* New Jersey, U.S.

33. Terebratula fragilis.

Shell elongated, oval, thin, fragile, smooth, strongly hiplicated in front; dorsal valve with two longitudinal ridges almost its whole length; ventral valve with a prominent central ridge, and corresponding lateral depressions. Lon. 21, lat. 12 lines.

Terebratula fragilis, *Morton*, 1829, *Journ. Acad. Philad.* p. 75. pl. 3. f. 3, 4; 1834, *Syn. Cret.* p. 70. pl. 3. f. 2 (not *Schl.*).
Terebratula subfragilis, *D'Orb.* 1850, *Prod.* ii. p. 258.
Fossil. *Chalk.* New Jersey, U.S.

34. ? Terebratula Toucasiana.

Shell like *T. semiglobosa*, hut always more depressed, most prominent at the front margin.

Terebratula Toucasiana, *D'Orb.* 1850, *Prod.* ii. p. 258.
Fossil. *Chalk.* France.

35. ? Terebratula Vendocinensis.

Shell small, glohular, round, smooth; front margins sinuated; dorsal valve scarcely convex.

Terebratula Vendocinensis, *D'Orb.* 1850, *Prod.* ii. p. 258.
Fossil. *Chalk.* France.

36. Terebratula prælonga. B.M.

Shell ovate, much elongated, gibbose; front slightly elevated, with a depression in its middle; beak prominent, large; surface smooth. Lon. 14, lat. 7 lines. (Lon. 18, lat. 12, alt. 9 lines, *Morris*.)

Terebratula prælonga, *J. Sow.* 1836, *Geol. Trans.* iv. 2. p. 339. pl. 14. f. 14.

Fossil. *Neocomian.* England; France; Germany; Switzerland.

37. Terebratula acuta. B.M.

Shell oblong, elongated, somewhat pentagonal, sharply biplicate, depressed at the sides, smooth; margins even, strongly bisinuated in front; beak prominent, scarcely curved; foramen rather large; deltidium elongated. Lon. 14, lat. 11, alt. 6 lines.

Terebratula biplicata-acuta, *Buch*, 1843, *Mém. Soc. Géol. Fr.* iii. p. 220.
Terebratula prælonga, *D'Orb. Ter. Crét.* iv. p. 74. t. 506. f. 1–4.
Terebratula acuta, *Quenst.* 1851, *Handb.* p. 473. t. 38. f. 2.

Fossil. *Neocomian.* France; Switzerland.

38. Terebratula Sella. B.M.

Shell subquadrangular, smooth; front considerably elevated, narrow, sharply bisinuated; sides depressed; beak slightly recurved; foramen moderate, round; deltidium rather large, solid. Lon. 15, lat. 13, alt. 7 lines.

Terebratula Sella, *Sow. M. C.* 1823, v. p. 53. t. 437. f. 1.
D'Orb. Ter. Crét. iv. t. 510. f. 6–12.
Rœmer, Kreid. 1843, p. 43. t. 7. f. 17.
Terebratula Rœmeri, *D'Archiac, Mém. Géol. Soc. Fr.* ii.
Terebratula undulata, *Pusch, Polens Pal.* p. 20. t. 4. f. 4.
Kner, Kreid. Lemberg (*in Haid. Abhandl.* 1850), p. 32.

Fossil. *Neocomian, Gault, U. Greensand.* England; France.

39. Terebratula Moutoniana. B.M.

Shell ovate, depressed, smooth, finely striated concentrically; dorsal valve rather flat, slightly raised in the centre in front; ventral valve convex; beak recurved; foramen rather large; deltidium partly concealed. Lon. 20, lat. 13, alt. 8 lines.

Terebratula Moutoniana, *D'Orb. Ter. Crét.* iv. p. 89. t. 510. f. 1–5; *Prod.* 2. p. 108.
Terebratula perovalis, *Rœmer*, 1839 (not *Sow.*), *Ool.* t. 2. f. 3; *Kreid.* p. 42.

Fossil. *Neocomian.* France; Germany.

40. Terebratula Carteroniana.

Shell roundly angulated, ventricose, smooth; margins bisinuated; beak contracted, slightly curved; foramen small, round; deltidium inconspicuous; dorsal valve with two small, elevated folds in front. Lon. 13, lat. 12, alt. 11 lines.

Terebratula Carteroniana, *D'Orb. Ter. Crét.* iv. p. 80. t. 507. f. 1–5; *Prod.* 2. p. 85.

Fossil. *Neocomian.* France.

41. Terebratula arabilis.

Shell suborbicular, depressed, concentrically ploughed with numerous regular shallow furrows; front margins obscurely bisinuated; beak recurved, truncated by a large foramen. Lon. 16, lat. 14, alt. 7 lines.

Terebratula arabilis, *Forbes*, 1846, *Trans. Geol. Soc.* vii. pt. 3. p. 138. pl. 18. f. 12.
D'Orb. Prod. ii. p. 258.

Fossil. *Chalk.* S. India.

42. Terebratula Inca. B.M.

Shell orbicular, depressed, smooth; lines of growth very obscure, except near the margin; valves nearly equally convex, slightly bisinuated in front; beak short, recurved, obscurely keeled at the sides; foramen large and circular; deltidium wide and short. Lon. 21, lat. 20½, alt. 12 lines.

Terebratula Inca, *Forbes*, 1846, *in Darwin's Geol. S. Amer.* p. 268. pl. 5. f. 19, 20.

Fossil. *Cretaceous limestone.* Iquique, Peru.

43. Terebratula longa. B.M.

Shell elongated, elliptical, smooth; margins even, slightly elevated in front; dorsal valve depressed, pointed at the umbo, slightly truncated in front; ventral valve convex; beak produced, curved, keeled; foramen rather large; deltidium distinct, solid. Lon. 16, lat. 9, alt. 7 lines.

Terebratula longa, *Zieten*, 1830, *Petr.* p. 52. pl. 39. f. 7.
D'Orb. Prod. i. p. 344.
Terebratula biplicata, *Bronn, Index*, p. 1241 (not *Sow.*).
Terebratula lagenalis, *Braun* (not *Schl.*).

Fossil. *Coral Rag.* Wurtemberg; Bavaria; Switzerland.

44. Terebratula insignis. B.M.

Shell oval, smooth; front margin angularly raised; dorsal valve much flattened from the umbo to the front margin; beak

produced, recurved; foramen large; deltidium distinct, in one piece; loop simple, short. Lon. 20, lat. 15, alt. 11 lines. (Max. lon. 3, lat. 2. unc.)

Terebratula insignis (*Schübler*), *Zieten*, 1830, *Verst. Würt.* p. 53. pl. 40. f. 1.
D'Orb. Prod. i. p. 376.
Quenstedt, Flöz. Würt. p. 484.
Davidson, Mon. Ool. p. 47. pl. 13. f. 1.
Quenst. Handb. p. 472. t. 38. f. 1.
Terebratula perovalis, *Buch, Mém. Soc. Géol. France.*
Pusch, Polens Pal. p. 22. t. 4. f. 5, 7, 8 (not *Sow.*).
Terebratula biplicata, *Bronn, Index*, ii. p. 1239 (not *Sow.*).
Fossil. *Coralline Oolite, Oxford Clay.* England; France; Germany.

45. TEREBRATULA BISUFFARCINATA. B.M.

Shell oval, smooth; margins bisinuated in front; dorsal valve convex, depressed at the sides; beak thick, rounded and recurved. Lon. 22, lat. 16, alt. 12 lines.

Terebratulites bisuffarcinatus, *Schl.* 1820, *Petr.* no. 50. p. 279; *Enc. Méth.* t. 239. f. 3.
Terebratula bisuffarcinata, *Zieten, Verst. Würt.* p. 53. pl. 40. f. 3.
Terebratulites bicanaliculatus, *Schl.* 1813, *Min. Tasch.* p. 104 (name only); 1820, *Petref.* p. 278. no. 49?
Terebratula bicanaliculata, *Zieten*, p. 54. pl. 40. f. 5?
D'Orb. Prod. i. p. 344 (excl. *synonyms*).
Terebratula ovalis, *Val.* 1819, *in Lam. Hist. An. sans Vert.*?
Dav. Ann. Nat. Hist. June 1850, pl. 13. f. 16.
Fossil. *White Jura* (*Coral Rag*). Germany; France; Italy; India?

46. ? TEREBRATULA REPELINIANA.

Shell oblong; beak of the larger valve much produced.

Terebratula Repeliniana, *D'Orb.* 1850, *Prod.* ii. p. 25.
Fossil. *Coral Rag.* France.

47. ? TEREBRATULA SUBSELLA. B.M.

Shell like *T. perovalis*, but broader, and more deeply plaited.

Terebratula subsella, *Leymerie*, 1846, *Stat. de l'Aube*, pl. 10. f. 5.
Fossil. *Kim. Clay and Coral Rag.* France.

48. ? TEREBRATULA EQUESTRIS.

Shell like *T. subsella*, but with the larger valve produced in front, forming a single, prominent, obtuse angle.

Terebratula equestris, *D'Orb.* 1850, *Prod.* ii. p. 24.
Fossil. *Coral Rag.* France.

49. ? Terebratula Baugieri.

"*Shell* small, the size of a pea, oval, very globular, obtuse and rounded in front, larger valve with two projections, not forming points."

Terebratula Baugieri, *D'Orb.* 1850, *Prod.* i. p. 377.
Fossil. *Oxford Clay.* France.

50. ? Terebratula Garantiana.

"Like *T. biplicata*, but with the two plaits close together; it is also broader, and wants the radiating striæ."

Terebratula Garantiana, *D'Orb. Prod.* i. 1850, p. 287.
Fossil. *Inferior Oolite.* France.

51. ? Terebratula Deschampsii.

"*Shell* like *T. biplicata*, but with the middle plait so deep as to form a notch (sillon) in the front of the larger valve."

Terebratula Deschampsii, *D'Orb. Prod.* 1850, p. 287.
Fossil. *Inferior Oolite.* France.

52. ? Terebratula Erina.

"Like *T. biplicata*, but shorter, more ventricose, the anterior fold narrower."

Terebratula Erina, *D'Orb.* 1847, *Prod.* i. p. 240.
Fossil. *Lias.* Normandy.

53. ? Terebratula Maceana.

Shell small, globular, round, furnished with a deep sinus in the small valve to receive the projection of the other.

Terebratula Maceana, *D'Orb.* 1847, *Prod.* i. p. 221.
Fossil. *Lias.* France.

54. ? Terebratula orbiculata.

Shell orbicular, smooth; dorsal valve rather flat; ventral valve convex; beak short, thick; foramen large and round; deltidium double, distinct. Lon. 12, lat. 12, alt. 6 lines.

Terebratula orbiculata, *Rœmer*, 1836, *Nordd. Ool.* p. 52. t. 2. f. 6.
Fossil. *Coral Rag.* Saxony.

55. Terebratula ventricosa.

Shell oval, ventricose, depressed at the sides; valves ornamented with fine radiating striæ, crossed by obscure lines of growth; margins even, raised, but not sinuated in front; beak recurved; foramen small. Lon. 25, lat. 19, alt. 13 lines.

Terebratula ventricosa (*Hartmann*), *Zieten*, 1830, p. 53. pl. 40. f. 2 (not *Gmelin*).
Terebratula subventricosa, *D'Orb. Prod.* p. 287.
Terebratula perovalis, *Rœmer, Nordd. Ool.* t. 2. f. 3? (not *Sow.*).
Fossil. *Inferior Oolite.* Germany; France.

56. Terebratula intermedia. B.M.

Shell oval, smooth; front with a central and two lateral indistinct depressions; beak short, rounded, recurved; foramen rather large; deltidium nearly concealed; loop simple, short. Lon. 23, lat. 18, alt. 13 lines.

Terebratula intermedia, *Sow.* 1812, *Min. Con.* i. p. 48. t. 15. f. 8.
Davidson, Mon. Ool. p. 52. pl. 11. f. 1–5.
Quenstedt, 1851, *Handb.* p. 472. t. 37. p. 50 (not of *Buch* and *Mantell*).
Terebratula biplicata, *Pusch, Polens Pal.* p. 21. t. 4. f. 1?.
Fossil. *Cornbrash.* England; France.

57. Terebratula maxillata. B.M.

Shell subquadrangular, smooth; valves strongly folded in front; dorsal valve broad and short, moderately convex, with one central and two lateral depressions, increasing in depth with age; beak produced, recurved, with obtuse lateral ridges; foramen large, oblique; deltidium obtusely triangular; loop simple, one-third as long as the shell. Lon. 32, lat. 34, alt. 18 lines.

Terebratula minor subrubra, *Llhwyd, Lith. Brit. Ichn.* 1699, pl. 11. f. 890.
Terebratula maxillata, *Sow.* 1825, *Min. Con.* p. 52. pl. 436. f. 4.
Morris & Dav. Ann. Nat. Hist. 1847, pl. 19. f. 5.
Davidson, Mon. Ool. p. 50. pl. 9. f. 1–9.
Terebratula biplicata, *Bronn, Index* (not *Sow.*).
Terebratula tetragona, *Pusch*, 1837, *Polens Pal.* p. 23. t. 4. f. 9?.
β. Terebratula submaxillata (*Morris*), *Davidson, Mon. Ool.* p. 51. pl. 9. f. 10–12.
Fossil. *Great Oolite.* England; France. (β.) *Inf. Oolite.* England.

58. Terebratula globata. B.M.

Shell oval, ventricose, smooth; front with a central and two lateral depressions; beak rounded, recurved; foramen moderate, round; deltidium concealed, small; loop simple, short. Lon. 13. lat. 11, alt. 10 lines.

β. Longer and less globular. Cotteswolde Hills.

Terebratula globata, *Sow.* 1825, *Min. Con.* p. 51. pl. 436. f. 1.
Davidson, Mon. Ool. p. 54. pl. 13. f. 2–7.
Terebratula Kleinii, *Morris, Desh., D'Orb., Bronn* (not *Lamarck*).
Terebratula biplicata, *Pusch, Polens Pal.* p. 21. t. 4. f. 3?.

Fossil. *Inferior Oolite.* S. of England; France.

59. Terebratula Phillipsii. B.M.

Shell oblong, elongated, tapering towards the beak, smooth; front strongly biplicate; beak produced; foramen moderate, round; deltidium large and distinct. Lon. 28, lat. 20, alt. 13 lines.

Terebratula Phillipsii, *Morris*, 1847, *Ann. Nat. Hist.* p. 255. pl. 18. f. 9.
D'Orb. Prod. i. p. 287.
Davidson, Mon. Ool. p. 53. pl. 11. f. 6–8.

Fossil. *Inferior Oolite.* England; France.

60. Terebratula perovalis. B.M.

Shell oval, elongated, smooth; front margin with a central and two lateral depressions, or with a nearly straight central elevation and angular lateral depressions; beak large, rounded, with indistinct lateral ridges; foramen large, entire; deltidium generally concealed; loop simple, short. Lon. 33, lat. 28, alt. 23 lines (large specimen).

Terebratula perovalis, *Sow.* 1825, *Min. Con.* v. p. 51. t. 436. f. 2, 3.
Buch, Mém. Soc. Géol. France, iii. p. 221. pl. 20. f. 2.
Davidson, Mon. Ool. p. 51. pl. 10. f. 1–6.
Quenst. Handb. p. 471. t. 37. f. 49–51.
Terebratula ovoidea (of Collectors).
Terebratula Kleinii, *Valenciennes*?, 1819.

Fossil. *Inferior Oolite.* England; France.

61. Terebratula Kleinii.

Shell oval, depressed, with two blunt projecting angles in front; smooth, or with only fine lines of growth; margins bisinuated in front; beak large and thick, recurved, strongly keeled at the sides; foramen large and round; deltidium nearly concealed. Lon. 30, lat. 26 lines.

Terebratula Kleinii, *Val. in Lam.* 1819, *An. sans Vert.* vi. p. 252. no. 33 (not of *Morris' Cat.*).
Dav. Ann. Nat. Hist. 1850, June, pl. 13. f. 33.
Fossil. *Inferior Oolite.* France.

62. TEREBRATULA HOMALOGASTER. B.M.

Shell subcircular, depressed, smooth, with strong lines of growth near the margin; front margin slightly raised; dorsal valve nearly flat, circular; ventral valve convex; beak very thick, recurved, obscurely keeled; foramen very large; deltidium solid. Lon. 18, lat. 16, alt. 9 lines.

Terebratula omalogaster (*Hehl.*), *Zieten*, 1830, p. 54. pl. 40. f. 4 (deformed ?, *D'Orb.*).
Terebratula perovalis, *Bronn, Index*, p. 1243.
Fossil. *Inferior Oolite.* Germany.

63. TEREBRATULA SIMPLEX. B.M.

Shell roundish, smooth; margins even; dorsal valve flattish, a little concave in front; larger valve ventricose; beak rounded, recurved; foramen large and round; deltidium nearly concealed. Lon. $2\frac{4}{12}$, lat. $2\frac{1}{12}$, alt. $1\frac{5}{12}$ inches.

Terebratula triangularis maxima, *Llhwyd*, 1699, *Lith. Brit.* ed. 2. t. 25. f. 870.
Terebratula simplex, *Buckman, Geol. Chelt.* pl. 7. f. 5.
Davidson, Mon. Ool. p. 48. pl. 8. f. 1, 3.
Terebratula lata, *D'Orb.* (not *Sow.*).
Fossil. *Inferior Oolite.* England.

64. TEREBRATULA OVOIDES. B.M.

Shell oval, smooth, ventricose; margins even; beak prominent, slightly keeled; foramen large and round; deltidium distinct, double. Lon. 2, lat. $1\frac{10}{12}$, alt. $\frac{11}{12}$ inches.

Terebratula ovoides, *Sow.* 1812, *Min. Con.* i. p. 227. t. 100.
Young & Bird, Geol. Yorks. pl. 8. f. 12.
Lam. ed. Desh. vii. p. 361.
Davidson, Mon. Ool. p. 48. pl. 8. f. 4–9.
Terebratula lata, *Sow.* 1812, *Min. Con.* i. p. 227. t. 100.
Terebratula trilineata, *Young & Bird, Geol. Yorks.* 1828, pl. 8. f. 17 (internal cast).
Fossil. *Lias, Inferior Oolite.* England.

65? TEREBRATULA BUCKMANII. B.M.

Shell elongated, oval; valves smooth, convex; beak small, lateral ridges indistinct; foramen round, large; deltidium con-

cealed; front margin a little raised. Lon. 18, lat. 11, alt. 8 lines.

Terebratula Buckmanii, *Dav. Mon. Ool.* i. p. 44. pl. 7. f. 15, 16.
Fossil. *Inferior Oolite.* Cheltenham.

66. TEREBRATULA PUNCTATA. B.M.

Shell oval, depressed, smooth; small valve rather flat; front margin a little raised; beak small, slightly recurved, with evanescent ridges; foramen moderate; deltidium double; loop simple, short, nearly half as long as the dorsal valve. Lon. 16, lat. 12, alt. 7 lines.

Terebratula punctata, *Sow.* 1812, *Min. Con.* i. p. 46. t. 15. f. 4.
Morris, Catal. 136.
Davidson, Mon. Ool. p. 45. pl. 6. f. 1–6.
Fossil. *Lias.* England.

67. ? TEREBRATULA SUBPUNCTATA. B.M.

Shell smooth, oval, ventricose; margin slightly raised in front; beak rounded, recurved, with lateral ridges soon becoming indistinct; foramen rather large; deltidium concealed; loop a little more than one-third the length of the shell. Lon. 28, lat. 20, alt. 17 lines.

Terebratula subpunctata, *Dav. Mon. Ool.* p. 46. pl. 6. f. 7–10.
Fossil. *Lias.* Somerset; France.

68. ? TEREBRATULA INDENTATA. B.M.

Shell elliptical, smooth; front margin sometimes notched when adult; valves nearly equally convex; beak recurved, lateral ridges soon lost; foramen entire; loop simple, short. Lon. 14, lat. 10, alt. 9 lines (largest specimen).

Terebratula indentata, *Sow.* 1825, *Min. Con.* v. p. 65. t. 445.
Davidson, Mon. Ool. p. 46. pl. 5. f. 25, 26.
Terebratula digona, *D'Orb. Prod.* p. 315 (part.), not *Sow.*
Terebratula punctata, var. (*Waterhouse, in Brit. Mus.*).
Fossil. *Lias.* England.

69. TEREBRATULA EUGENII.

Shell oval, obtuse in front, tapering to the beak; smooth, with obscure radiating lines at the sides; *dorsal* valve ventricose, especially near the umbo; *ventral* valve curved, flattened and furrowed in the middle; beak long and pointed; foramen minute; deltidium elongated, double. Lon. 16, lat. 11, alt. 8 lines.

Terebratula Eugenii (*Buch*), *Davidson*, 1849, *Bull. Soc. Géol. Fr.* vii. p. 74. pl. 1. f. 16–20.

Fossil. *Lias*. Normandy.

70. Terebratula marsupialis.

Shell oblong, smooth, with obscure lines of growth; dorsal valve convex, depressed at the sides; ventral valve depressed; beak small, recurved, keeled; foramen minute. Lon. 12, lat. 8, alt. 6 lines.

Terebratulites marsupialis, *Schl.* 1820, *Petr.* p. 282?, *Enc. Méth.* t. 240. f. 3?.

Terebratula marsupialis, *Zieten*, 1830, *Würt.* p. 53. pl. 39. f. 9.
D'Orb. Prod. i. p. 221.

Terebratula lagenalis, *Bronn, Index*, p. 1241 (not *Schl.*).

Fossil. *Lias*. France; Wurtemberg.
Coral Rag?. Bavaria.

71. Terebratula bullata. B.M.

Shell oblong, inflated, smooth; margins obscurely bisinuated in front; valves nearly equally gibbose; beak much inflated, closely recurved, keeled; foramen small; deltidium concealed; loop short, simple. Lon. 15, lat. 12, alt. 12 lines.

Terebratula bullata, *Sow.* 1825, *Min. Con.* v. p. 49. t. 435. f. 4.
Lam. ed. Desh. vii. p. 362.
Buch, Mém. Soc. Géol. Fr. iii. p. 195. pl. 18. f. 8.
Zieten, Verst. Würt. t. 40. f. 6.
Deslong. 1837, *Soc. Lin. Normandie.*
Morris, Cat. p. 132.
Bronn, Index, p. 1231 (excl. *syn.*).

Terebratula sphæroidalis, var., *Davidson, Mon. Ool.* p. 56. pl. 11. f. 10, 14–19.

Fossil. *Inferior Oolite*. S. of England; Germany; France.

72. ? Terebratula Galliennei.

Like *T. bullata*, but more oval; beak less curved; larger valve advanced at two distant points, without much projecting.

Terebratula Galliennei, *D'Orb.* 1850, *Prod.* i. p. 377.

Fossil. *Oxford Clay*. France.

73. Terebratula sphæroidalis. B.M.

Shell subcircular, ventricose, smooth; margins even, in the young shell, usually crenulated in old specimens, especially in front; borders obtuse, or flattened; beak rounded, curved; fora-

men moderate; deltidium triangular, concave; loop short, simple. Lon. 13, lat. 12, alt. 10 lines.

Terebratula sphæroidalis, *Sow.* 1825, *Min. Con.* v. p. 49. t. 435. f. 3.
Deslong. 1837, *Soc. Lin. Normand.*
Morris, Cat. p. 136.
D'Orb. Prod. i. p. 287.
Dav. Mon. Ool. p. 56. pl. 11. f. 9, 11, 12, 13.

Fossil. *Inferior Oolite.* England; France; Germany.

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74. TEREBRATULA FIMBRIA. B.M.

Shell orbicular, smooth when young; margins more or less plaited when adult; plications rounded, numerous, often subdivided; beak short, recurved, nearly concealing the deltidium; foramen large and round; loop simple, short. Lon. 20, lat. 18, alt. 13 lines.

Terebratula fimbria, *Sow.* 1823, *Min. Con.* iv. p. 27. t. 326.
Davidson, Mon. Ool. p. 61. pl. 12. f. 6–12.

Fossil. *Inferior Oolite.* Gloucestershire; France (Sarthe).

75. TEREBRATULA PLICATA. B.M.

Shell elongated, oval, smooth when young; margins more or less plaited when adult; plaits short, simple, rounded; umbo of dorsal valve gibbose; larger valve with a short, scarcely recurved beak; foramen round; deltidium small; loop short, simple. Lon. 33, lat. 22, alt. 17 lines.

Terebratula plicata, *Buckman*, 1845, *Geol. Chelt.* pl. 7. f. 6.
Davidson, Mon. Ool. p. 60. pl. 12. f. 1–5 (not *Lam.*).
Terebratula subplicatella, *D'Orb.* 1849, *Prod.* i. p. 287.

Fossil. *Inferior Oolite.* England; Franee.

76. TEREBRATULA SUBORBICULARIS. B.M.

Shell oval, inflated, smooth at the umbones, rather sharply plaited round the border; beak laterally compressed, thiek, curved, truncated by a rather large foramen. Lon. 8, lat. 6, alt. 4½ lines.

Terebratula suborbicularis, *Münst.* 1841, *Beitr.* iv. p. 56. pl. 6. f. 4.
D'Orb. Prod. i. p. 204.
Terebratula semiplicata, *Klipstein*, 1844, *Beitr.* p. 214. pl. 15. f. 3.
Rhynchonella! semiplicata, *D'Orb. Prod.* i. p. 203.

Fossil. *Trias.* Tyrol.

77. Terebratula flabellum. B.M.

Shell transversely oval, deeply plaited; plaits 7–9, simple, rounded, imbricated by lines of growth; beak produced, foramen round; deltidium obtusely triangular, double; loop short, simple?. Lon. 5–6, lat. 5–8, alt. 3–4 lines.

Terebratula flabellum, *Defr.* 1828, *Dict. Sc. Nat.* liii. p. 160.
Morris & Dav. Ann. Nat. Hist. 1847, p. 256. pl. 19. f. 2.
D'Orb. Prod. i. p. 316.
Dav. Mon. Ool. p. 62. pl. 12. f. 19–21.
Terebratula palmetta, *Deslongchamps*, 1837, *Soc. Lin. Normandie.*
Bronn, Index, p. 1244.
Terebratula septemcostata, *Münster, MS.*
Fossil. *Bath Oolite* (*Bradford Clay*). England; France.

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78. Terebratula Moreana.

Shell trigonally ovate, depressed, smooth; margins sharply sinuated; beak prominent, laterally keeled; foramen moderate, round; deltidium small, triangular; dorsal valve with a sharp central elevated fold and two obscure lateral ridges. Lon. 13, lat. 11, alt. 7 lines.

Terebratula Moreana, *D'Orb. Ter. Crét.* iv. p. 79. t. 506. f. 13–16; *Prod.* ii. p. 58.
Fossil. *Neocomian.* France.

79. Terebratula Bentleyi. B.M.

Shell somewhat pentagonal, smooth; dorsal valve rather flat, truncated or indented in front, with a central and two lateral elevations; ventral valve deep, with beak prominent, recurved and keeled; foramen moderate; deltidium double, distinct. Lon. 16, lat. 18, alt. 11 mill.

Terebratula Bentleyi (*Morris*), *Davidson, Mon. Ool.* 1851, p. 58. pl. 13. f. 9–11.
β. Terebratula sub-Bentleyi, *Dav. Mon. Ool.* 1851, p. 59. pl. 13. f. 11.
Fossil. *Cornbrash.* Rushden, Northamptonshire (Griesbach).
Inferior Oolite. (β.) Minchinhampton (Lycett); Germany (Brit. Mus.).

80. Terebratula subcanalis.

Shell oval, somewhat pentagonal, smooth; dorsal valve flat, with two diverging furrows; ventral valve convex, with a deep

central furrow; beak recurved, thick, rounded; foramen moderate. Lon. and lat. 6, alt. 4 lines.

Terebratula subcanalis, *Münster, in Cambridge Museum.*

Fossil. *Oxford Clay.* Bavaria.

81. Terebratula coarctata. B.M.

Shell somewhat pentagonal, ornamented with radiating spinulose striæ, decussated by numerous lines of growth; dorsal valve curved, with an angular median ridge and more or less distinct lateral furrows; front straight or indented; ventral valve deep, with a prominent beak; foramen moderate, round; deltidium distinct; loop short, simple. Lon. 12, lat. 11, alt. 8 lines.

Terebratula coarctata, *Park.* 1811, *Org. Rem.* iii. pl. 16. f. 5.
Sow. 1823, *Min. Con.* iv. p. 7. t. 312. f. 1–4.
Bronn, Index, ii. p. 1232.
D'Orb. Prod. i. p. 316.
Davidson, Mon. Ool. p. 59. pl. 12. f. 12–15.
Quenst. Handb. p. 465. t. 37. f. 21.

Terebratula reticulata, *Smith,* 1816, *Org. Foss.* p. 83. pl. 30. f. 10.
Sow. 1823, *Min. Con.* t. 312. f. 5–6 (et decussata).
Deslong. Soc. L. Norm.
Quenst. Handb. p. 464. t. 37. f. 20.

Terebratula decussata, *Val. in Lam.* 1819, *An. sans Vert.* vi. no. 51; *Enc. Méth.* t. 245. f. 4.
Dav. Ann. Nat. Hist. June 1850, pl. 14. f. 51.

Terebratula reticularis, *Schloth. Petref.* i. p. 269.
Buch, Mém. Soc. Géol. France, p. 185. pl. 17. f. 7.

Fossil. *Bath Oolite* (*Bradford Clay*). England; France.

82. ? Terebratula Richardiana.

Like *T. reticulata,* but much narrower, more elongated, and more strongly reticulated.

Terebratula Richardiana, *D'Orb.* 1850, *Prod.* i. p. 377.

Fossil. *Oxford Clay.* France.

83. Terebratula Morierei.

Shell pentagonal, deeply indented in front; valves ornamented with concentric, imbricated ridges, both deeply furrowed in the middle; beak rather short, recurved, laterally keeled; foramen moderate, round; deltidium distinct. Lon. 9, lat. 8, alt. 6 lines.

Terebratula Morierei (*Deslongchamps, MS.*), *Davidson,* April 1852, *Ann. Nat. Hist.* pl. 14. f. 3.

Fossil. *Inferior Oolite.* Normandy.

84. TEREBRATULA ANTIPLECTA.

Shell obovate, ventricose, smooth; margin strongly sinuated in front; dorsal valve convex, with two front and two lateral depressions; ventral valve with three depressions in front; beak not prominent; foramen minute; deltidium double, triangular. Lon. 8, lat. 7, alt. 5 lines.

Terebratula antiplecta, *Buch*, 1834, *Ueber Ter.* 80. t. 2. f. 39; *Mém. Soc. Géol. Fr.* 1838–39, t. 111. p. 187, pl. 17. f. 8.
Bronn, Index, p. 1229.
Quenst. 1851, *Handb.* p. 465.

Fossil. *Jura* (*Alpenkalk*?). Near Salzburg, Tyrol.

85. TEREBRATULA INVERSA. B.M.

Shell pentagonal, deeply folded, smooth; margins strongly 3-plaited; dorsal valve flat near the umbo, with two deep angular furrows in front; ventral valve with a central and two lateral depressions; beak small. Lon. & lat. 6, alt. $3\frac{1}{2}$ lines.

Terebratula inversa, *Quenstedt*, 1851, *Handb.* p. 465. t. 37. f. 22.

Fossil. *Trias* (*Alpenkalk*). Hallstadt.

86. TEREBRATULA REFLEXA.

Shell small, subpentagonal, tumid, smooth; dorsal valve much depressed in front, with a small longitudinal ridge in the middle; ventral valve with two longitudinal rounded ridges divided by a small central furrow, sides depressed; beak small, curved; aperture minute; area very wide. Lon. 4, lat. 4, alt. $2\frac{1}{2}$ lines.

Terebratula reflexa, *Koninck*, 1844, *Descr.* p. 298. pl. 20. f. 4.
D'Orb. Prod. i. p. 151.

Fossil. *Carb.* Belgium.

87? TEREBRATULA NUCLEATA. B.M.

Shell subcircular, smooth, with a deep, rounded sinus in the centre of the dorsal valve in front; ventral valve with a slight dorsal ridge; beak very prominent, inflated, recurved; foramen moderate; deltidium concealed; loop very small. Lon. 8, lat. 8, alt. 6 lines.

Terebratula nucleata, *Schlotheim*, 1820, *Petr.* p. 281.
Buch, Mém. Soc. Géol. Fr. iii. pl. 20. f. 10.
Zieten, 1830, *Petref.* p. 53. pl. 39. f. 10.
Quenst. Handb. p. 469. t. 37. f. 40–45.

Fossil. *Coral Rag.* Germany; France.

88. TEREBRATULA TRIQUETRA. B.M.

Shell triangular, smooth, depressed, truncated in front, the angles produced and rounded; sides nearly straight; beak obtuse, recurved, keeled; foramen moderate, round; deltidium nearly concealed. Lon. 17, lat. in front 18 lines.

Terebratula pileus, (*Brug.*) *E. M.* t. 241. f. 1. *a*, *b*, *c*.
Bronn, Index, p. 1245.
Terebratula triquetra, *Parkinson*, 1811, *Org. Rem.* iii. pl. 16. f. 8.
D'Orb. Prod. i. p. 344.
Dav. Ann. Nat. Hist. June 1850, pl. 13. f. 21.
Terebratula triangulus, *Val.* 1819, *in Lam. An. s. Vert.* no. 21.
Terebratula mutica, *Catullo*, 1830, *Geogn. Zool.* xxii. t. 2. f. 4.
Fossil. *Kelloway Rock*?. France (Gigondas).

89. TEREBRATULA DIPHYA. B.M.

Shell smooth, triangular, depressed, gibbose at the margins; when young two-lobed, the lobes coalescing in the adult, leaving a roundish opening (about 3 lines in diameter) through the centre of both valves; from this opening a sharp furrow passes to the front margin of each valve; margins even; sides slightly hollowed; front indented in the middle; angles rounded; beak rounded and recurved; foramen moderate, round; loop ?. Lon. 19, lat. 20, alt. 9 lines.

Concha diphya, *F. Colonna*, 1606, *Ecphras. Stirp.* 36. 49.
Terebratula diphya, *Buch, Ueber Terebrateln*, p. 88. t. 1. f. 12; *Mém. Soc. Géol. France*, iii. p. 196. pl. 18. f. 9.
Pusch, Polens Pal. 15. t. 3. f. 13.
Dav. Ann. Nat. Hist. June 1850, pl. 13. f. 20.
Quenst. Handb. p. 470. t. 37. f. 46.
Terebratula deltoidea, *Valenciennes*, 1819, *in Lam. Hist. Nat. Brug. Enc. Méth.* 1797, t. ii. pl. 240. f. 4.
Terebratula triquetra, *Parkinson* (part.), *Org. Rem.* iii. 229. t. 16. f. 4, 8.
Terebratula antinomia, *Catullo*, 1827, *Cat. Zool.* 169. t. 5; *Geogn. Zool.* t. 2. f. 3.
Terebratula Duvallii, *Newman*, 1844, *Zoologist*, p. 679 (figures).
Pygope diphya (*Link*), *King*, 1840, *Permian Fossils*, pp. 81, 144.
Fossil. *Kelloway Rock*?. France.

90. TEREBRATULA DIPHYOÏDES. B.M.

Shell smooth, depressed, expanded, triangular, perforated in the middle; valves unequal, the ventral most convex; beak short, with two dorsal ridges; foramen moderate, round. Lon. 22, lat. 25, alt. 11 lines.

Terebratula diphyoides, *D'Orb.* 1847, *Ter. Crét.* iv. p. 87. t. 509; *Prod.* ii. p. 108.

Fossil. *Neocomian.* France.

91. TEREBRATULA? QUADRIPLECTA *. B.M.

Shell pentagonal, with four prominent rounded ribs to each valve; ribs sometimes blending or becoming obsolete; margins strongly sinuated; dorsal valve prominent in the centre, depressed at the sides, with two subcentral and two remote lateral ribs, occasionally a small fifth rib in the mesial furrow, interior furnished with a prominent cardinal process having a dental pit on each side; ventral valve with two distinct or blended subcentral and two lateral ribs; beak small, laterally compressed, curved, truncated by a minute apical foramen; area small, flat, triangular, bounded by prominent beak-ridges; deltidium angular, sunk. Lon. 5, lat. 5, alt. 3½ lines.

Terebratula quadriplecta, *Münst.* 1841, *Beitr. Petref.* iv. p. 58. pl. 6. f. 9, 10.
Terebratula quadricostata, *Braun*, 1841, *Id.* pl. 9. f. 5.
Terebratula contraplecta, *Braun*, 1841, *Id.* pl. 9. f. 2?.
Rhynchonella quadriplecta et contraplecta, *D'Orb.* 1849, *Prod.* i. p. 203 (erroneous).
Spirigera quadricostata, *D'Orb. Id.* p. 204.

Fossil. *Trias.* St. Cassian, Tyrol.

92. TEREBRATULA? TRICOSTATA. B.M.

Shell suborbicular, depressed, trilobed, smooth; dorsal valve with a prominent middle lobe bounded by shallow furrows; ventral valve with a deep central and obscure lateral furrow; beak small, acute; foramen minute. Lon. 3, lat. 3, alt. 1½ line.

Terebratula tricostata, *Münst.* 1841, *Beitr.* iv. p. 57. pl. 6. f. 7.
Terebratula triplecta, *Klipstein, MS.*
Spirigera tricostata, *D'Orb. Prod.* i. p. 204.

Fossil. *Trias.* Tyrol.

93. TEREBRATULA? BIPARTITA. B.M.

Shell oval, smooth, depressed, with a longitudinal furrow in the centre of each valve; front slightly truncated, sides depressed; beak small, prominent, truncated by a small round foramen. Lon. 7, lat. 5 lines (*Münster*).

* Most of the *Triassic* and *Palæozoic* Terebratulæ were probably furnished with internal *spires*, and belong to the genera *Athyris*, M'Coy, and *Retzia*, King. (Woodward, MS.)

Terebratula bipartita, *Münst.* 1841, *Beitr.* iv. p. 60. pl. 6. f. 11.
Terebratula subbipartita, *D'Orb. Prod.* i. p. 204.
Terebratula Waterhousii, *Klipstein, MS.* (not *Dav.*).
Fossil. *Trias.* Tyrol.

94. TEREBRATULA? BRONNII. B.M.

Shell small, broadly ovate, tumid, depressed at the sides, smooth, with a broad mesial fold, and three obscure lateral folds on each side; margins undulated; beak prominent, rounded, recurved, with indications of an internal median septum. Lon. $4\frac{1}{2}$, lat. 4, alt. 3 lines.

Terebratula Bronnii, *Klipst.* 1845, *Beitr.* p. 215. pl. 15. f. 13.
Terebratula Cassiana, *D'Orb. Prod.* i. p. 204.
Fossil. *Trias.* Tyrol.

95. TEREBRATULA? WISMANNI. B.M.

Shell suborbicular, depressed, smooth; front margins slightly elevated; beak inconspicuous, truncated by a small foramen. Lon. 5, lat. 5, alt. $2\frac{1}{2}$ lines.

Terebratula Wismanni, *Münst.* 1841, *Beitr.* iv. p. 64. pl. 6. f. 18.
D'Orb. Prod. i. p. 204.
Terebratula Buchii, *Klipst.* 1844, *Beitr.* p. 218. pl. 15. f. 2.
Terebratula salinaria, *D'Orb.* 1849, *Prod.* i. p. 204.
Fossil. *Trias.* Tyrol.

96. TEREBRATULA? SUBCURVATA. B.M.

Shell suborbicular, trilobed, smooth; dorsal valve with a prominent mesial ridge and depressed sides; ventral valve with a longitudinal furrow, much depressed in front; beak small, prominent, truncated by a small foramen. Lon. and lat. $3\frac{1}{2}$, alt. 2 lines.

Terebratula subcurvata, *Münst.* 1841, *Beitr.* iv. p. 63. pl. 6. f. 17.
D'Orb. Prod. i. p. 204.
Terebratula Buchii, var., *Klipstein.*
Fossil. *Trias.* Tyrol.

97. TEREBRATULA? MÜNSTERII. B.M.

Shell oval, depressed, smooth, with numerous lines of growth near the margin; dorsal valve slightly trilobed, prominent in the centre, depressed at the sides; beak thick, rounded, recurved, truncated by a rather large foramen. Lon. 10, lat. 9 lines.

Terebratula Münsterii, *D'Orb. Prod.* i. p. 204.
Terebratula vulgaris, *Münst. Beitr.* iv. p. 61. pl. 6. f. 12 (not *Schl.*).

Terebratulites complanatus, *Schl.* 1816, *Denksch. Akad. Münch.* p. 27. t. 7. f. 12–14? (not *Brocchi*).

Fossil. *Trias.* Tyrol.

98. TEREBRATULA? ÆQUALIS. B.M.

Shell orbicular, smooth; valves equally and regularly convex; margins even; beak thick, prominent, rounded, recurved; foramen moderate, round. Lon. 7, lat. 6½, alt. 4 lines.

Terebratula æqualis, *Klipst. Beitr.* 1844, p. 223. pl. 15. f. 7. *D'Orb. Prod.* i. p. 204.

Fossil. *Trias.* Tyrol.

99. TEREBRATULA? HEMISPHÆROIDICA. B.M.

Shell suborbicular, depressed, truncated in front, widest near the hinge-line, smooth, with obscure lines of growth near the margin; dorsal valve convex near the umbo, depressed at the sides; margins even; beak small, prominent, truncated by a small foramen; indications of a long internal septum in the ventral valve. Lon. 4, lat. 4½, alt. 2½ lines.

Terebratula hemisphæroidica, *Klipst.* 1844, *Beitr.* p. 222. pl. 15. f. 10.

Fossil. *Trias.* Tyrol.

100. TEREBRATULA? HASTINGSIÆ. B.M.

Shell small, oblong, ventricose, smooth; front margin very slightly elevated; beak small, prominent, recurved, rounded, truncated by a minute foramen. Lon. 4, lat. 3, alt. 2½ lines.

Terebratula Hastingsiæ, *Klipst. MS.*

Fossil. *Trias.* St. Cassian.

101. TEREBRATULA? PENTAGONALIS.

Shell small, oblong, ventricose, smooth; ventral valve slightly sinuated in front; beak small, recurved.

Terebratula pentagonalis, *Klipstein*, 1844, *Beitr.* p. 220. pl. 15. f. 12, enlarged (not *Phil.*=*T. caput-serpentis*!).

Terebratula subpentagonalis, *D'Orb. Prod.* i. p. 204.

Terebratula Hastingsiæ, *Klipst. MS.*?

Fossil. *Trias.* Tyrol.

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102. TEREBRATULA ELONGATA. B.M.

Shell oblong, depressed, smooth, rather contracted and truncated in front; dorsal valve flattened longitudinally, much de-

pressed at the sides; ventral valve with a shallow longitudinal sinus; beak prominent, slightly curved; foramen moderate, complete, round; loop short and simple. Lon. 13, lat. 9, alt. 6 lines.

Terebratulites elongatus, *Schl.* 1816, *Denkschriften Akad. Münch.* vi. p. 27. pl. 7. f. 7–9.
Terebratula elongata, *King, Permian Foss.* p. 147. pl. 6. f. 30–45.
Geinitz, Zech. p. 4. pl. 4. f. 27–36.
Vern. Russ. p. 66. pl. 9. f. 9.
Münst. 1841, *Beitr.* iv. p. 62. pl. 6. f. 14?.
Buch, 1834, *Ueber Terebrateln*, p. 100; 1838, *Mém. Soc. Géol. Fr.* iii. p. 211. pl. 19. f. 10.
Terebratula plica, *Kutorga*, 1842, *Ib.* pl. 5. f. 11.
Terebratula canidea, *Geinitz*, 1846, *Grundriss*, p. 507.
Terebratula subclongata, *D'Orb.* 1847, *Prod.* i. p. 168.
Fossil. *Permian.* Germany; England; Russia.
Devonian. Boulonnais (*Bouchard*).

103. Terebratula Qualenii.

Shell elongated, depressed, widest in the middle, contracted at each end, smooth; dorsal valve with an elevated central ridge, sides depressed; ventral valve sinuated in front; beak prominent, rounded, recurved; foramen small. Lon. 10, lat. 7, alt. 4 lines.

Terebratula Qualenii (*Fisch.*), *Kutorga*, 1842, *Verh. Kaiserl. Petersb.* p. 26. pl. 6. f. 2.
D'Orb. Prod. i. p. 168.
Fossil. *Permian.* Russia.

104. Terebratula sufflata. B.M.

Shell broadly ovate, obtuse or slightly indented in front, depressed, smooth; valves moderately convex; margins even, sinuated in front; ventral valve with a medial sinus; beak short, rounded, recurved; foramen moderate. Lon. 8, lat. 7, alt. 4½ lines.

Terebratula sufflata, *Schl.* 1816, *Akad. Münch.* vi. p. 27. pl. 7. f. 10, 11; *Mem. Acad. Bavière*, 1817, pl. 7. f. 10.
Buch, Mém. Soc. Géol. France, iii. p. 213. pl. 19. f. 12 bis.
Murch. Geol. Russ. i. p. 222.
Münster, Beitr. iv. p. 63. pl. 6. f. 15?.
King, Permian Fossils, p. 149. pl. 7. f. 1–9.
Terebratula inflata, *Schl. Petref.* p. 617.
Buch, Ueber Terebrateln, p. 102.
Terebratula subsufflata, *D'Orb.* 1849, *Prod.* i. p. 204?.
Fossil. *Permian.* Germany; England; Russia.
Trias?. Tyrol.

105. TEREBRATULA SACCULUS. B.M.

Shell oblong, with a straight or emarginate front, which is sometimes elevated, and almost always defined by two broad, obtuse ridges, proceeding a short distance on the shell, on each side of a mesial broad shallow groove; beak prominent, incurved.

Anomites sacculus, *Martin*, 1809, *Petref.* t. 46. f. 1, 2.
Terebratula sacculus, *Koninck, Descr.* p. 293. pl. 20. f. 3.
D'Orb. Prod. i. p. 151.
Fossil. *Carb.* Britain; Belgium; Russia.

106. TEREBRATULA HASTATA. B.M.

Shell elliptical, subrhomboidal, rather depressed; front truncated and indented; edges sharp; beak thick, slightly recurved; foramen small; loop short, simple. Lon. 19, lat. 15, alt. 11 lines.

Terebratula hastata, *Sow.* 1824, *Min. Con.* v. p. 66. t. 446. f. 2, 3
Phil. Geol. Yorks. ii. pl. 12. f. 1; *Pal. Foss.* p. 91. pl. 35 f. 168?.
Rœmer, Nordd. Ool. p. 48.
Fossil. *Carb.* Britain; Belgium.

107. TEREBRATULA FUSIFORMIS.

Shell smooth, much elongated, fusiform, inflated, contracted at each end; valves equally convex; margins even; beak pointed recurved; foramen small, apical?; deltidium distinct?. Lon. 10 lat. 5½, alt. 4 lines.

Terebratula fusiformis, *Vern.* 1845, *Russ.* p. 65. pl. 9. f. 8.
D'Orb. Prod. i. p. 151.
Fossil. *Carb.* Russia.

108. TEREBRATULA? LACRYMA.

Shell subglobose, smooth, oblong; front straight, or slightly waved, scarcely raised except at the edge, which is deeply sinuated by the projection of the inferior valve, the central furrow of which is broad, flat, and bounded by two sharpish ridges; beak not prominent. Lon. 5, lat. 4½, alt. 4 lines.

Atrypa lacryma, *Sow. Geol. Trans.* 2nd ser. v. pl. 56. f. 9.
Fossil. *Devonian.* England.

109. TEREBRATULA? JUVENIS. B.M.

"*Shell* broad ovate, depressed, smooth, contracted toward the front; larger valve remarkably incurved at the minute, laterally angulated beak. In full-grown specimens the side margins are

undulated, and the front is rather depressed in the middle." Lon. 7, lat. 7, alt. 4 lines.

Terebratula juvenis, *Sowerby*, *Geol. Trans.* 2nd ser. v. pl. 56. f. 8.
Phil. 1841, *Pal. Foss.* pl. 35. f. 165.
D'Orb. Prod. i. p. 100.

Fossil. *Devonian.* Britain.

110. TEREBRATULA VIRGO.

Shell ovato-lanceolate, uniformly convex; beak prominent; front margin contracted, nearly straight; surface beautifully reticulated, and marked by a few faint, longitudinal striæ. Lon. 8, lat. $5\frac{1}{2}$ lines.

Terebratula virgo, *Phil. Pal. Foss.* p. 91. pl. 35. f. 167.

Fossil. *Devonian.* England.

111. TEREBRATULA CAÏQUA.

Shell much elongated, elliptical; valves equally ventricose, smooth, or with a few striæ of growth; beak inflated, much recurved, and touching the other valve; foramen round, moderate; deltidium concealed; front straight. Lon. $2\frac{5}{12}$, lat. $1\frac{7}{12}$, alt. $1\frac{5}{12}$ unc.

Terebratula caïqua, *Vern. & Arch.* 1842, *Trans. Geol. Soc.* 2nd ser. vi. pl. 35. f. 1.
D'Orb. Prod. i. p. 100.
Terebratula amygdalina, *Goldf. Bonn. Mus.*

Fossil. *Devonian.* Paffrath, Prussia.

112. TEREBRATULA BORDINI.

Shell subpentagonal, smooth, very finely punctate; edges sharp; margins even; ventral valve rather more convex than the dorsal; beak recurved, its summit perforated by a small round foramen; deltidium distinct. Lon. 10, lat. 9, alt. 4 lines.

Terebratula Bordini, *Vern.* 1850, *Bull. Soc. Géol. Fr.* t. 7. p. 36. pl. 1. f. 8.

Fossil. *Devonian.* Spain.

113. TEREBRATULA SCHULZII.

Shell much elongated, smooth; borders sharp; front margins quite even; ventral valve most convex; beak acute, perforated by a small foramen, below which is an elongated deltidium. Lon. 9, lat. 5, alt. 3 lines.

Terebratula Schulzii, *Vern.* 1850, *Bull. Soc. Géol. Fr.* vii. p. 37. pl. 1. f. 7.

Fossil. *Devonian.* Spain.

114. Terebratula Archiaci.

Shell subcircular, depressed, smooth; edges sharp; margins even; ventral valve rather more convex than dorsal; beak slightly curved; foramen apical, minute; deltidium triangular; interior of dorsal valve with a cardinal process, dental pits, and elongated adductor impressions. Lon. 26, lat. 25, alt. 9½ lines.

Terebratula Archiaci, *Verneuil*, 1850, *Bull. Soc. Géol. Fr.* t. vii. p. 40. pl. 2. f. 2.

Fossil. *Devonian.* Asturias.

115. Terebratula Haimeana.

Shell circular, depressed, smooth, with obscure lines of growth; valves nearly equally convex; margins even; beak obtuse, laterally keeled, recurved, truncated by a small round foramen; deltidium nearly concealed, solid. Lon. 28, lat. 30, alt. 16 lines.

Terebratula Haimeana, *Dav.* April 1852, *Ann. Nat. Hist.* pl. 14. f. 1.

Fossil. *Devonian.* Prussia.

2. TEREBRATULINA.

Shell finely striated; valve auriculate; beak straight; deltidium usually rudimentary; foramen incomplete; loop short, rendered annular by the union of the oral processes (fig. 4).

Terebratulæ striatæ, *Morris*, 1846, *Journ. Geol. Soc.* p. 385.
Terebratulina (caput-serpentis), *D'Orb.* 1848, *Ann. Sc. Nat.* viii. 67.
Dav. 1852, *Ann. Nat. Hist.* p. 365; *Mon. Cret.* p. 34.
Terebratulæ annuliferæ, *Quenstedt*, 1851, *Handbuch*, p. 462.

Terebratulina caput-serpentis.

Fig. 4.

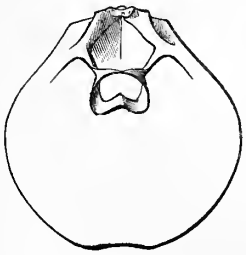


Fig. 5.

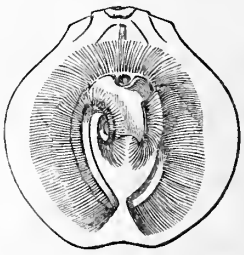


Fig. 4.—Dorsal valve of a young specimen in which the oral processes are not yet completely developed.

Fig. 5.—Shell with the animal; the intestine is seen projecting above the oral aperture and fringe. The œsophagus passes through the annular part of the loop.

1. TEREBRATULINA CAPUT-SERPENTIS. B.M.

Shell ovate, subpentagonal, tapering at the beak, slightly truncated in front, whitish, ornamented with fine, bifurcating, granulated ribs; beak nearly straight; foramen rather large, incomplete, oblique; deltidia rudimentary, disunited; valves eared; loop short, one-third the length of the shell, not reflected, oral processes united. Lon. 12, lat. 10 lines.

Anomia caput-serpentis, *Linn.* 1767, *Syst. Nat.* ed. 12. 1153.
Born, Mus. 119. t. 6. f. 13.
Chemnitz, viii. 103. t. 78. f. 712; xi. 248. t. 203. f. 2013, 2014.
Gmelin, S. N. 3344.
Dillw. Index Test. pl. 2. f. 22.
Poli, Test. Sicil. ii. 192. t. 30. f. 15 *y*.
Philippi, Moll. Sicil. i. 94. t. 6. f. 5; ii. 66.
Terebratulina Caput serpentis, *D'Orb. Ann. Sci. Nat.* 1848, viii. 67. t. 7. f. 7, 8, 17.
Terebratulina cornea, *D'Orb.* 1848, *Ann. Sci. Nat.* viii. t. 7. f. 9, 10.
Anomia pubescens, *L. Syst. Nat.* 1152; *Gmelin, S. N.* 3344.
Dillw. R. S. 293.
Schröter, Einl. Conch. iii. p. 397. pl. 9. f. 10.
Terebratula pubescens, *Retz. N. Gen.* 15?
Müller, Z. Dan. Prod. 249. no. 3007.
Terebratula, *Lamk. E. M.* t. 241. f. 2; "t. 246. f. 7, opt." *Lamk.*
Gründler, 1774, *Naturforscher*, p. 84. t. 111, animal.
Anomia retusa, *L. Syst. N.* 12. p. 1151; *Fauna Suecica*, ed. 2. p. 521.
Dillw. Recent Shells, i. p. 292.
Terebratula caput-serpentis, *Lamk. Hist.* vi. 247; *ed. Desh.* vii. 332.
Sow. Gen. f. 2; *Thes. Conch.* vii. 343. t. 68. f. 1–4; t. 72. f. 116.
Kuster, Conch. C. vii. 22. t. 1. f. 15, 16; t. 2. f. 16, 17.
Blainv. D. S. N. liii. 139.
Phil. Moll. Sicil. i. p. 94. pl. 6. f. 4, 5.
Forbes & Hanley, Brit. Moll. pl. 56. f. 1–4.
Delthyris spatula, *Menke, Syn.* ed. 2. 96.
Anomia aurita, *Linn. S. N.* 1151? *Gmelin*, 3342.
Terebratula aurita, *Fleming, Phil. Zool.* ii. p. 498. pl. 4. f. 5; *Brit. An.* p. 369.
Terebratula costata, *Lowe, Zool. Journ.* ii. 105. t. 5. f. 8, 9.
Desh. in Lamk. Hist. ed. 2. vii. 351.
Terebratula striata, *Leach, Brit. Moll.* t. 13. f. 1, 2.

Terebratula Gervillii, *S. Wood, Mag. Nat. Hist.* v. p. 253.
Hab. N. Britain; Norway; Mediterranean. At 10-50 fathoms.
Fossil. *Miocene.* Gibraltar (Jas. Smith, F.R.S.); Turin.
Pliocene. Suffolk (S. V. Wood).

2. TEREBRATULINA SEPTENTRIONALIS.

Shell ovate, whitish, radiately costellated with very slender, bifurcating, roughish ribs; beak obtuse; foramen large, incomplete; deltidia rudimentary; loop two-fifths the length of the shell, anelliform. Lon. 9, lat. 7, alt. lines.

Terebratula septentrionalis, *Couthouy.*
G. B. Sowerby, Thes. Conch. vii. 344. t. 57. f. 5, 6.
Hab. Massachusetts.

3. TEREBRATULINA JAPONICA.

Shell oblong, thin, whitish, radiately striated; striæ numerous, bifurcating; sides rather flattened near the hinge; beak truncated by a moderate, incomplete, very oblique foramen; deltidium obsolete; loop small, anelliform. Lon. 13, lat. 9 lines.

Terebratula Japonica, *G. B. Sowerby, Thes. Conch.* vii. 344. t. 68. f. 7, 8.
Adams & Reeve, Zool. Samarang, p. 71. pl. 21. f. 1?
Hab. Japan. (Mus. Cuming.)

4. TEREBRATULINA ANGUSTA.

Shell elongate-oval, slightly compressed, pellucid white, closely and very finely costellated longitudinally; ribs rough; beak truncated; valves nearly equal, slightly furrowed in the middle; front margin a little sinuated. Lon. 11, lat. 7 lines.

Terebratula angusta, *Adams & Reeve,* 1850, *Zool. Samarang.* p. 71. pl. 21. f. 2.
Terebratulina caput-serpentis, var.?
Hab. Seas of Japan.

5. TEREBRATULINA CANCELLATA.

Shell ovate-oblong, ventricose, brownish; striæ very slender, close-set, decussated by fine lines of growth; dorsal valve rather flat; ventral valve convex; foramen large, complete; deltidia large, united; loop short. Lon. 10, lat. 7, alt. 5 lines.

Terebratula cancellata, *Koch.*
Kuster, Conch. C. vii. t. 2 *b.* f. 11, 12, 13.
Sow. Thes. Conch. vii. 358. t. 71. f. 93.
Hab. ——? (Mus. Cuming.)

6. Terebratulina abyssicola.

Shell oval-elongated, tapering to the beak and a little truncated in front, pale flesh-colour, radiated with obscure, bifurcating striæ; beak produced; foramen moderate, entire; dorsal valve with a slight central depression. Lon. 8, lat. 7 lines.

Terebratula abyssicola, *Adams & Reeve*, 1850, *Zool. Samarang*, p. 72. pl. 21. f. 5.
Terebratulina abyssicola, *Dav.* May 1852, *Ann. Nat. Hist.* p. 366.
Hab. Cape of Good Hope; at 120 fathoms.

7. Terebratulina Cumingii.

Shell minute, somewhat pentagonal, gibbous, yellowish white, ornamented with very numerous, minute, elevated, radiating and intercalating striæ; valves with very small ears; beak small, obliquely truncated by a round, incomplete foramen; deltidia separate; margins slightly sinuated in front; loop anelliform. Lon. 3½, lat. 3, alt. 2 lines.

Terebratulina Cumingii, *Dav.* May 1852, *Ann. Nat. Hist.* p. 366; *Proc. Zool. Soc.* p. . pl. . f. 17–19.
Hab. Chinese Seas. (Mus. Cumiug.)

8. Terebratulina striatula. B.M.

Shell oval, slightly produced at the beak, depressed, minutely striated; striæ unequal, bifurcating and intercalating, 80–90 at the margin; margin slightly flexuous; beak truncated by a moderate, incomplete foramen; deltidia small; auricles indistinct. Lon. 10, lat. 8, alt. 4 lines.

Terebratula striatula, *Sow.* 1829 (in part., not *T. striatula*, Mant.), *Min. Con.* vi. p. 69. t. 536. f. 5 (not 3, 4).
Terebratulina striatula, *Dav. Mon. Tertiary Brach.* p. 14. pl. 1. f. 16.
Fossil. *Eocene.* England.

9. Terebratulina tenuistriata.

Shell small, oval, depressed, ornamented with radiating, granulated striæ; beak prominent, acute; foramen small, entire; deltidium double, complete. Lon. 5, lat. 4, alt. 2 lines.

Terebratula tenuistriata, *Leym.* 1846, *Mém. Soc. Géol. France*, i. p. 363. pl. 15. f. 11.
D'Arch. Mém. Soc. Géol. France, 2nd ser. t. ii. p. 214. pl. 7. f. 14.
Terebratula Defrancii, *Leym. id.* pl. 15. f. 12 (not *Bronyn.*).
Fossil. *Eocene.* France.

10. Terebratulina lacryma.

Shell tear-shaped; valves convex, marked with delicate longitudinal striæ; beak elongated; foramen large. Lon. 6, lat. 4 lines.

Terebratula lacryma, *Morton*, 1834, *Syn. Cret. group*, p. 72. pl. 16. f. 6.
D'Orb. Prod. ii. p. 396.

Fossil. *Eocene.* Alabama, U.S.

11. Terebratulina ? Venei.

Shell oval, gibbous, ornamented with concentric lines of growth and radiately striated; striæ not numerous, regular, seldom bifurcating; valves nearly equally convex; beak prominent, curved; foramen small, round; deltidium conspicuous, double. Lon. 6½, lat. 4½, alt. 3½ lines.

Terebratula Venei, *Leym.* 1846, *Mém. Soc. Géol. France*, t. 1. p. 362. pl. 15. f. 10.

Fossil. *Eocene.* France.

12. Terebratulina multistriata.

Shell ovate, subpentagonal, depressed; ornamented with radiating striæ crossed by numerous lines of growth; margins even, slightly arched in front; dorsal valve rather flat, depressed at the sides; ventral valve convex; beak large and thick, recurved, truncated by a large round foramen; deltidium triangular, solid. Lon. 26, lat. 20, alt. 12 lines.

Terebratula multistriata, *Dunker*, 1847, *Beitr.* p. 128. t. 18. f. 1–3.

Fossil. *Tertiary.* Ravensberg.

13. Terebratulina striata. B.M.

Shell tear-shaped, slender, slightly truncated or notched in front, ornamented with bifurcating, granulated striæ; beak short and tapering, ears distinct, foramen moderate, deltidia disunited. Lon. 11, lat. 8, alt. 4½ lines (Brit. sp.).

Anomites striata, *Wahl.* 1821, *Petr. Suec. Nov. Act. R. S. Upsal.* viii. p. 61 (not of *Brocchi*, 1814).

Terebratulina striata, *D'Orb. Ter. Crét.* iv. p. 65. pl. 504. f. 9–17.
Dav. Mon. Cret. p. 35. pl. 2. f. 18–28.

Terebratula striatula, *Mantell*, 1822, *Geol. Suss.* pl. 25. f. 7, 8, 12.
Phil. Geol. Yorks. i. pl. 2. f. 28.
Sow. Min. Con. vi. p. 69. pl. 336. f. 3, 4.
Buch, Mém. Soc. Géol. France, 1 ser. iii. p. 164. pl. 16. f. 8.

Desh. Lam. ed. 2. vii. p. 360.
Geinitz, Petr. Kreid. pl. 16. f. 12.
D'Orb. in Murch. Russia, ii. p. 463. pl. 43. f. 18–20.
Reuss, Bohem. Kreid. p. 49. pl. 26. f. 2.
Dixon, Geol. Sussex, pl. 27. f. 21.
Rœmer, Kreid. p. 40.

Terebratula Defrancii, *Brongn.* 1822, *Env. Paris,* p. 383. pl. 3. f. 6.
Nilsson, Petr. Suec. p. 35. pl. 4. f. 7.
Buch, Mém. Soc. Géol. France, p. 165. pl. 16. f. 8.
Hisinger, Leth. Suec. p. 78. t. 22. f. 10.
Rœmer, Nord. Kreid. p. 40.
Dalman, Vet. Acad. 1848, p. 136.

Terebratula scabra, *Fischer,* 1830–7, *Oryct. Moscow & Foss. Gouv. Mosc.* 1809, pl. 2. f. 1, 2 (indeterminable).

Terebratula pentagonalis, *Phil.* 1825, *Geol. Yorks.* i. pl. 1. f. 17 (founded on a specimen partly imbedded in chalk).

Young—

Terebratula chrysalis, *Schlotheim,* 1813, *in Leonhard's Min. Tasch.* vol. vii. (*ref. to Faujas, Mt. S. Pierre, Maestricht,* pl. 26. f. 7, 9.)
Schl. Petref. 1820, p. 39.
Buch, Mém. Soc. Géol. France, pl. 16. f. 9.
Bronn, Leth. Geog. p. 651. pl. 30. f. 6.
Reuss, Bohem. Kreid. p. 49. pl. 26. f. 3.
Dav. Lond. Geol. Journ. i. pl. 18. f. 18–20.
Dunker, Palæont. p. 56.
Rœmer, Kreid. p. 40.

Terebratula tenuissima, *Schl.* 1813, *Leonh. Min. Tasch.* vii.

Terebratula Gervillii, *Defrance,* 1828, *Dict. Sc. Nat.* liii. p. 157.
Woodward, Geol. Norf. t. 6. f. 14.

Terebratula Faujasii, *Rœmer, Kreid.* p. 40. t. 7. f. 8.
Reuss, Kreid. p. 50. pl. 26. f. 4.

Terebratula auriculata, *Rœmer, Kreid.* p. 39. t. 7. f. 9.
D'Orb. Prod. ii. p. 173.

Terebratulina microscopica, *Alth,* 1849, *in Haid. Abhandl.* 1850, p. 257. t. 13. f. 7.

Fossil. *Chalk, Upper Greensand, Speeton Clay.* England; France; Belgium; Germany; Russia.

14. Terebratulina Gisii.

Shell minute, trigonal, rounded in front, with 11–15 simple rounded and granulated ribs; dorsal valve with large ears. Lon. 1½ to 3 lines.

Terebratula Gisii, *Hag.* 1842, *Neues Jahrbuch*, p. 537.
Rœmer, Kreid. p. 40.
Bronn, Index, p. 1237.

Fossil. *Chalk.* Rügen.

15. Terebratulina elegans.

Shell orbicular, depressed, radiately ribbed; ribs curved, dichotomous, strongly granulated; beak prominent; ears conspicuous. Lon. 2½ lines.

Terebratulina Dutempleana, *D'Orb.* 1847, *Paléont.* iv. p. 14. pl. 504. f. 1–8.
Terebratulina elegans, *D'Orb.* 1850, *Prod.* ii. p. 258.
Terebratulina striata, *Wahl.* (young?)

Fossil. *Chalk.* France.

16. Terebratulina Guadalupæ.

Shell small, ovate-orbicular, inflated, radiately striated; striæ fine, smooth, close, bifurcated; dorsal valve orbicular, convex, eared; ventral valve more convex; beak prominent, rather recurved; foramen large, complete. Lon. 4, lat. 3½, alt. 2½ lines.

Terebratula Guadalupæ, *Rœmer*, 1852, *Kreid. Texas*, p. 82. t. 6. f. 3.

Fossil. *Chalk.* Guadaloupe.

17. Terebratulina Campaniensis.

Shell ovate-oblong, depressed, triangular, radiately ribbed; ribs granulated, entire, with smaller ribs disposed in their interspaces; beak angular; front nearly straight; ears short. Lon. 5 lines.

Terebratulina Campaniensis, *D'Orb.* 1847, *Ter. Crét.* iv. p. 60. t. 502. f. 13.
Terebratulina striata, *Wahl.* var. ?

Fossil. *Chalk-marl.* Belgium; France.

18. Terebratulina Martiniana.

Shell ovate, triangular, depressed, radiately ribbed; ribs blunt, simple, disposed in fasciculi; beak angular; front obtusely truncated; ears very small. Lon. 6½ lines.

Terebratulina Martiniana, *D'Orb.* 1847, *Ter. Crét.* iv. p. 59. t. 502. f. 8, 12; *Prod.* ii. p. 140.
Terebratulina striata, *Wahl.* var.?

Fossil. *Gault.* France.

19. Terebratulina biauriculata.

Shell angularly ovate, depressed, radiately ribbed; ribs elevated, angular, irregularly fasciculated; beak tapering; front truncated; ears short. Lon. 4 lines.

Terebratulina auriculata, *D'Orb.* 1847, *Ter. Crét.* iv. p. 58. pl. 502. f. 3–7 (not *Rœmer*).
Terebratulina biauriculata, *D'Orb. Prod.* ii. p. 85.
Terebratulina striata, *Wahl.* var.?

Fossil. *Neocomian.* France.

20. Terebratulina Floridana.

Shell subpentagonal, with obscure radiating striæ; valves slightly biplicated; beak produced, straight; foramen small. Lon. 7½, lat. 6½ lines.

Terebratula Floridana, *Morton*, 1834, *Syn. Cret.* p. 72. pl. 16. f. 7.
Terebratulina Floridana, *D'Orb. Prod.* ii. p. 258.

Fossil. *Chalk.* Alabama, U.S.

21. Terebratulina gracilis.

Shell orbicular, striated; dorsal valve flat or concave; ventral valve convex; beak small, recurved; foramen small; deltidium rudimentary; ears small; striæ fine, very variable in number (18–50), granulated, augmenting in number by the interealation of smaller ribs towards the margin. Lon. 5¼, lat. 5, alt. 2 lines.

Terebratulites gracilis, *Schl.* 1813, *Leonh. Min. Tasch.* vii. p. 112. t. 3. f. 3; *Petref.* p. 270. no. 35, 1820.
Terebratula gracilis, *Schl.* 1832, *Petref.*
Buch, Mém. Soc. Géol. France, 1st ser. iii. p. 167. pl. 16. f. 11.
Geinitz, Petref. Kreid. pl. 16. f. 13; *Grundriss Verst.* pl. 21. f. 10.
Reuss, Bohem. Kreid. p. 49. pl. 26. f. 1, pl. 42. f. 24.
Puggaard, Bull. Soc. Géol. France, vii. p. 534.
Quenst. Handb. p. 462. t. 37. f. 8, 9.
Terebratulina gracilis, *D'Orb. in Murch. Russia*, ii. p. 499. pl. 43. f. 24–26; *Ter. Crét.* iv. p. 61. t. 503. f. 1–6.
Dav. Mon. Cret. p. 38. pl. 2. f. 13–16.
Terebratula ornata, *Rœmer*, 1840, *Nord. Kreid.* p. 40. no. 26 pl. 7. f. 10.
Terebratulina ornata, *D'Orb. Prod.* ii. p. 258.
Terebratula rigida, *Sowerby*, 1829, *Min. Con.* vi. p. 69. pl. 536. f. 2.
Dav. Mon. Cret. pl. 2. f. 17.

Fossil. *Chalk.* England; Belgium; France; Germany; Russia.

22. Terebratulina? Bourgeoisii.

Shell minute, orbicular, depressed, radiately striated; striæ smooth, curved, diverging towards the sides; ventral valve con-

vex; dorsal valve flat; beak small; foramen minute; loop — ? Lon. 4, lat. 4 lines.

Terebratella Bourgeoisii, *D'Orb.* 1847, *Ter. Crét.* iv. p. 124. t. 518. f. 10–16.

Terebratulina gracilis, *Schl.* var.?

Fossil. *Chalk.* France.

23. TEREBRATULINA? ECHINULATA.

Shell ovate-oblong, depressed, closely radiately striated; striæ slightly prickly; margins bisinuated in front; foramen round, complete; deltidium solid, concave. Lon. 18, lat. 13, alt. 9 lines.

Terebratula echinulata, *Dujardin*, 1836, *Mém. Soc. Géol. France*, ii. p. 223. f. 222.

Terebratulina echinulata, *D'Orb. Ter. Crét.* iv. 63. t. 503. f. 7–11.

Fossil. *Chalk.* France.

24. TEREBRATULINA SANTONENSIS.

Shell oval, depressed, radiately ribbed; ribs granulose, curved, diverging towards the sides; ventral valve convex; area very small; foramen small; dorsal valve nearly flat. Lon. 9 lines.

Terebratula Santonensis, *D'Arch.* 1837, *Mém. Soc. Géol. France*, ii. p. 181. pl. 13. f. 14.

Terebratella Santonensis, *D'Orb.* 1847, *Ter. Crét.* iv. p. 123. t. 518. f. 5–9.

Fossil. *Chalk.* France.

25. TEREBRATULINA PARRACENA.

Shell rounded; not truncated in front.

Terebratulina parracena, (*Talavignes*) *D'Orb. Prod.* ii. p. 308.

Fossil. *U. Chalk.* France.

26. TEREBRATULINA MEGATREMA. Bristol Mus.

Shell "moderately convex, transversely obovate, with a few distinct ribs; the beak is large and produced, with a very large perforation." Lon. 3, lat. 3 lines.

Terebratula megatrema, *J. Sow.* 1836, *Geol. Trans.* iv. p. 242 & 343. pl. 18. f. 3.
D'Orb. Prod. ii. p. 172.

Fossil. *U. Greensand.* England.

27. TEREBRATULINA SUBSTRIATA. B.M.

Shell oval or subpentagonal, radiately striated; striæ unequal, very fine, dichotomous, crossed by frequent lines of growth;

front slightly elevated; sides depressed; beak short, tapering; foramen large, incomplete; deltidia large, separate; loop small, annular. Lon. 10, lat. 10, alt. 4 lines.

Terebratula substriata, *Schl.* 1820, *Petr.* p. 283.
Buch, Ter. 60.
D'Orb. Prod. i. p. 377.
Quenst. Handb. p. 461. t. 37. f. 6, 7.
Terebratula striatula, *Zieten*, 1830, *Würt.* p. 59. pl. 44. f. 2 (not *Mantell*).
Terebratulina substriata, *Davidson, Ann. Nat. Hist.*

Fossil. *Oxford Clay.* France; Germany.

3. WALDHEIMIA.

Shell: foramen complete; loop elongated and reflected; median septum of the smaller valve elongated.

Waldheimia (australis), *King*, 1849, *Permian Fossils*, p. 81.
Terebratulæ with long loops, *Dav.* 1852, *Ann. Nat. Hist.* p. 364.
Terebratulæ cinctæ et carinatæ (part.), *Buch.*

The extent of the septum may be readily ascertained in fossil species by a little acid, without injuring the specimens.

The sections into which *Waldheimia* has been grouped depend entirely upon modifications of external form.

Waldheimia flavescens.

Fig. 6. Fig. 7.

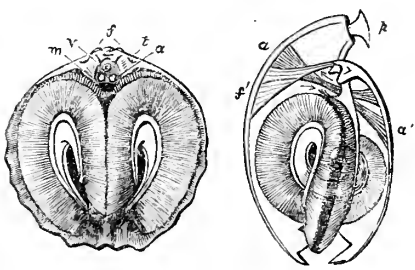


Fig. 6.—Interior of dorsal valve with the animal.
Fig. 7.—Section of both valves with the animal; the muscles of the peduncle are not represented.
a, *a'*. adductor muscle; *f*. retractor muscle; *p*. peduncle; *f*. cardinal process *t*. dental sockets; *m*. mouth; *v*. position of intestine.

a. Beak round; valves convex, smooth, or slightly plaited.

1. WALDHEIMIA FLAVESCENS. B.M.

Shell oval, rather produced at the beak, gibbous, smooth when young, border of the adult more or less strongly furrowed with unequal, radiating folds; front slightly truncated; colour yellowish, or horny brown; beak short and thick, not much recurved; foramen rather large, complete; deltidium large; loop elongated, reflected; margins at first even, afterwards more or less dentated. Lon. 17, lat. 14, alt. 8 lines.

Terebratula flavescens, *Lamk. Hist.* 1819, ed. 2. vii. 330.
Terebratula australis, *Quoy & Gaim.* 1834, *Voy. Astrol.* v. 551. t. 85. f. 1–5.
Sow. Thes. Conch. vii. 349. t. 69. f. 25–33.
Woodward, Manual, p. 8. f. 4, 5.
Terebratula dentata, *Lamk. Hist.* ed. 2. vii. 331.
Delessert, Icon. t. 18. f. 4.
Var. Terebratula recurva, *Quoy & Gaim.* 1834, *Voy. Astrol.* v. 552.
Sow. Thes. Conch. vii. 350. t. 69. f. 34, 35, 36.
Hab. Australia, Sydney, just below low-water-mark.

2. WALDHEIMIA LENTICULARIS. B.M.

Shell orbicular, smooth, red; margins even; beak small, recurved; foramen small; deltidium conspicuous; loop elongated, reflected. Lon. 24, lat. 22, alt. 14 lines.

Terebratula lenticularis, *Deshayes, Mag. Zool.* 1841, t. 41.
G. B. Sow. Thes. Conch. vii. 360. t. 72. f. 108, 109, 110.
Dav. Ann. Nat. Hist. May 1852, p. 365.
Hab. New Zealand, Strait of Fauveau, at 15 fathoms.
Fossil. In a modern deposit of New Zealand.

3. WALDHEIMIA CRANIUM. B.M.

Shell ovate, front margin sometimes a little truncated, smooth, pale, translucent; beak reflected; foramen large, incomplete; deltidian plates narrow, widely separated; loop reflected, two-thirds as long as the shell. Lon. 24, lat. 19·5, alt. 14 mil.

Petiver, Gaz. t. 93. f. 19.
Anomia cranium, *Gmelin, S. N.* 3247.
Dillw. R. S. i. 294.
Anomia obsoleta, *Solander, MSS.*
Anomia vitrea, *Chemnitz*, viii. 97. t. 78. f. 707–709.
Terebratula cranium, *Müller, Zool. Dan. Prod.* 247.
Sow. Thes. Conch. vii. 354. t. 70. f. 60, 61, 62.
Lovèn, Moll. Scand. p. 29.
Hab. Norway; Finmark; eastward of Bressay, Zetland, in deep water.

4. Waldheimia septigera.

Shell white, thin, subpellucid, tumid, smooth, ovate-triangular, truncated in front, and slightly biplicate; foramen large, round; deltidium entire; loop reflected, rather long (three-quarters as long as the shell); smaller valve with a raised median septum. Lon. 28, lat. 21·5, alt. 17 mill.

Terebratula septigera, *Lovèn*, 1846, *Index Moll. Scand.* p. 29.
Hab. Norway; Finmark.

5. Waldheimia globosa.

Shell ovate, ventricose, smooth, whitish; margins even, slightly sinuated in front; beak thick, slightly reflected, truncated; foramen large, nearly complete; deltidia large, disunited; dorsal valve with a broad, indistinct mesial ridge; loop reflected, two-thirds the length of the shell (*Sowerby*). Lon. 20, lat. 16, alt. 11 lines.

Terebratula globosa, *Lamk. Hist.* 1819, ed. 2. vii. 330.
Blainv. Man. Malac. t. 52. f. 2.
Sow. Thes. Conch. vii. 359. t. 71. f. 99, 100, 101.
Terebratula, *Lamk. E. M.* t. 239. f. 2.
Hab. ——? (Mus. Cuming.)

6. Waldheimia picta. B.M.

Shell ovate, rather narrowed in front and at the beak, smooth, thin, orange-red, ornamented with irregular pale rays; margins even; beak recurved; foramen small, entire; deltidia narrow, united; loop elongated, recurved. Lon. 12, lat. 10, alt.? lines.

Anomia picta, *Chemnitz, Conch. C.* xi. 247. t. 203. f. 2011, 2012.
Anomia cranium, var., *Dillw. R. S.* 295.
Terebratula picta, *Sow. Thes. Conch.* vii. 351. t. 70. f. 43, 44.
Var. Terebratula rubella, *G. B. Sow. Thes. Conch.* vii. 350. t. 69. f. 40–42.
Hab. Java.

7. Waldheimia dilatata. B.M.

Shell suborbicular, gibbous, horny; margins even; beak thick, rather tapering, with obtuse lateral ridges; foramen large, incomplete; deltidia large, separate; loop elongated, reflected. Lon. 19, lat. 18, alt.? lines.

Terebratula dilatata, *Lamk. Hist.* ed. 2. vii. 330.
Sow. Thes. Conch. vii. 352. t. 70. f. 48, 49.
Blainv. D. S. N. liii. 135. 1828.
Terebratula Gaudichaudi, *Blainv. D. S. N.* liii. 136, 1828.
Hab. Straits of Magellan.

8. Waldheimia Californica. B.M.

Shell suborbicular, slightly tapering to the beak, gibbous, smooth, brown; margins obscurely sinuated in front; beak recurved; foramen minute, entire; deltidium triangular; loop elongated, reflected. Lon. 25, lat. 23, alt.? lines.

Terebratula Californiea (*Koch*), *Kuster, Nov. Ed. Martini*, viii. pl. 2 *b*. f. 21–23.
G. B. Sow. Thes. Conch. vii. 352. t. 70. f. 50, 51, 52.
Dav. Ann. Nat. Hist. May 1852, p. 364.
Hab. California.

9. Waldheimia Patagonica. B.M.

Shell oval, smooth; valves nearly equally convex; beak of ventral valve produced, slightly curved, thick, laterally keeled, truncated by a large foramen; deltidium large and solid; loop elongated and reflected. Lon. 16, lat. 13, alt. 9 lines.

Terebratula Patagonica, *Sow.* 1846, *in Darwin's S. America*, p. 252. pl. 2. f. 26, 27.
D'Orb. Prod. iii. p. 134.
Fossil. *Miocene.* Patagonia.

b. Beak laterally keeled; valves convex, with corresponding ribs or prominences.

Terebratulæ cinetæ, *Buch.*
Quenstedt (part.), *Handb.* p. 465.

10. Waldheimia aculeata. B.M.

Shell pentagonal, with four corresponding ridges to each valve; ridges very prominent, narrow, radiating from the umbones and produced beyond the margins of the valves; interspaces ornamented with very fine radiating striæ; margins even, or slightly arched in front; beak truncated by a large round foramen; deltidium usually incomplete; loop elongated, reflected; septum very short. Lon. 16, lat. 15, alt. 9 lines.

Terebratula aculeata, *Catullo*, 1827, *Zool.* 119. t. 1. f. B.
Zieten, Verst. Würt. 1830, p. 58. t. 43. f. 3.
Terebratula Hœninghausii, *Defr.* 1828, *Dict. Sc. Nat.* liii. 152.
Terebratula trigonella, *Buch, Ter.* 83. t. 1. f. 8 (not *Schlotheim*).
Quenst. Handb. p. 465. t. 37. f. 29, 30.
Terebratula Fleuriausa, *D'Orb.* 1850, *Prod.* ii. p. 25.
Fossil. *Coral Rag.* Germany; France.

11. WALDHEIMIA MULTICOSTATA. B.M.

Shell suborbicular, ornamented with 6–11 corresponding ribs; ribs radiating, prominent, rounded, projecting beyond the margin, five or six extending to the umbo, the rest interealated; valves convex, margins straight; beak short, scarcely curved, truncated by a moderate-sized foramen. Lon. 6, lat. 6, alt. 4 lines.

Terebratula multicostata, *Klipst.* 1844, *Beitr.* p. 216. pl. 15. f. 5.
D'Orb. Prod. i. p. 204.

Fossil. *Trias.* Tyrol.

12. WALDHEIMIA? QUINQUECOSTATA. B.M.

Shell trigonal, ornamented with five radiating, corresponding ribs; ribs very prominent, rounded, projecting beyond the margin; interspaces narrow, flat; beak small, prominent, laterally compressed. Lon. 3, lat. $2\frac{1}{2}$ lines (*Münster*).

Terebratula quinquecostata, *Münst.* 1841, *Beitr.* iv. p. 59. pl. 6. f. 6.

Spirigera quinquecostata et crista-galli, *D'Orb. Prod.* i. p. 204.

Terebratula crista-galli, *Klipstein*, 1844, *Beitr.* p. 217. pl. 15. f. 9. (Dorsal valve only: lon. $3\frac{1}{2}$, lat. $4\frac{1}{2}$ lines.)

Fossil. *Trias.* St. Cassian.

13. WALDHEIMIA? FLEXUOSA. B.M.

Shell obovate, depressed, smooth at the umbones, bordered with numerous, unequal, corresponding ribs, those at the sides diverging and projecting beyond the margin; front obtuse or slightly truncated; beak prominent, laterally compressed; area small; foramen round, apical. Lon. $5\frac{1}{2}$, lat. $4\frac{1}{2}$, alt. 3 lines.

Terebratula flexuosa, *Münst.* 1841, *Beitr.* iv. p. 59. pl. 6. f. 8.
Klipstein, t. 15. f. 4.

Rhynchonella flexuosa, *D'Orb. Prod.* i. p. 203.

Fossil. *Trias.* St. Cassian, Tyrol.

14. WALDHEIMIA CELTICA. B.M.

Shell oblong, elongated, smooth, slightly truncated in front; margins even; dorsal valve inflated near the umbo, depressed in front; ventral valve convex; beak slightly produced, not much recurved, keeled; foramen moderate; deltidium obtusely triangular, double; loop elongated, reflected. Lon. 18, lat. 9, alt. 8 lines.

Terebratula longa, *Rœmer**, 1836, *Verst. Nordd. Ool.* p. 50. pl. 2. f. 11; *Kreid.* p. 44 (not *Rœmer, Ool.* 1839).
Morris & Davidson, 1847, *Ann. Nat. Hist.* xx. p. 255. pl. 19. f. 1 (not *Zieten*).
Terebratula celtica, *Morris, Cat.* 2nd ed.
Fossil. *Lower Greensand.* Kent; I. of Wight.
Hilsthon. Germany.

15. WALDHEIMIA? CYMBULA. B.M.

Shell elongated, cylindrical, smooth, ornamented with very numerous imbricating lines of growth; margins even, sinuous; dorsal valve much deflected in front; ventral valve deeply sinuated in front; beak thick, scarcely curved; foramen large; deltidium triangular. Lon. 14, lat. 8, alt. 9 lines.

Terebratula cymbula, *Pusch*, 1837, *Polens Pal.* p. 25. t. 4. f. 11.
Terebratula longa, *Rœmer*, 1839, *Nordd. Ool.* ii. p. 22. t. 18. f. 12 (not *Zieten* or *Rœmer*, 1836).
Bronn, Index, p. 1241.
Terebratula longirostris, *Münster, in Cambridge Museum* (not *Wahl.*).
Fossil. *U. Greensand* (*"Uebergangskalkstein?"*). Poland (*Pusch*); Belgium
Hilse. Elligser Brinkes, Saxony (*Rœmer*).

16. WALDHEIMIA TAMARINDUS. B.M.

Shell "oval, smooth; margin very obtuse; disk rather flattened; beak but little curved, with an angular, slightly prominent ridge on each side, passing down the sides of the valve." Lon. 7, lat. 6, alt. 4 lines.

Terebratula tamarindus, *J. Sow. Geol. Trans.* 1836, iv. pt. 2. p. 338. pl. 14. f. 8.
D'Orb. Ter. Crét. iv. t. 503. f. 1–10; *Prod.* ii. p. 85.
Fossil. *Neocomian.* England; France; Germany.

17. WALDHEIMIA PSEUDO-JURENSIS. B.M.

Shell ovate-oblong, or subpentagonal, truncated in front, smooth; valves convex, both slightly furrowed in front; edges sharp; margins quite even; beak scarcely curved; foramen moderate, round; deltidium conspicuous; loop elongated, reflected. Lon. 11, lat. 7, alt. 6 lines.

* *Terebratula longa*, Rœmer, is perhaps a distinct species; the beak is more prominent, the sides nearly parallel, the front margin broader, more truncated, and much depressed.

Terebratula pseudo-jurensis, *Leym.* 1841, *Mém. Soc. Géol. Fr.* iv. p. 342; v. p. 12. pl. 15. f. 5, 6.
D'Orb. Ter. Crét. iv. p. 74. t. 505. f. 11–16; *Prod.* ii. p. 85.

Fossil. *Neocomian.* France; Switzerland.

18. WALDHEIMIA PECTORALIS.

Shell orbicular, somewhat pentagonal, smooth, with obscure granulated rays; dorsal valve rather flat; ventral convex; beak depressed, keeled; foramen small.

Terebratula pectoralis, *Rœmer*, 1840, *Kreid.* 42. t. 7. f. 19.
Reuss, Böhm. Kreid. p. 52. t. 26. f. 12.

Fossil. *Neocomian.* Germany.

19. WALDHEIMIA FABA.

Shell elliptical, narrow, gibbose; front indented, but not elevated, very narrow; beak short, but prominent. Lon. 7, lat. 4, alt. 4 lines.

Terebratula faba, *J. Sow.* 1836, *Geol. Tr.* iv. 2. p. 338. pl. 14. f. 10.
D'Orb. Ter. Crét. iv. t. 506. f. 8–12?; *Prod.* ii. p. 85.

Fossil. *Lower Greensand.* Between Folkestone and Sandgate (Mus. Rev. G. E. Smith).

20. WALDHEIMIA DIGONA. B.M.

Shell oblong, triangular, smooth; front margin straight, with two prominent angles; beak rather produced, with short lateral ridges; foramen small and round; deltidium rather long; loop simple, elongated. Lon. 13, lat. 9, alt. 8 lines.

Terebratula sacculus minor, *Llhwyd*, 1699, *Lith. Brit. Ichn.* t. 10. f. 873.

Terebratula digona, *Sow. Min. Con.* 1812, i. p. 217. t. 96. f. 1–5; *Encycl. Meth.* pl. 240. f. 5.
Smith, Strat. Syst. 1816.
Buch, Mém. Soc. Géol. France, iii. p. 194. pl. 17. f. 6.
Davidson, Mon. Ool. p. 38. pl. 5. f. 18–24.
Rœmer, Nordd. Ool. p. 49.
Quenst. Handb. p. 467. t. 37. f. 35.

Fossil. *Bath Oolite* (*Bradford Clay*). England; France; Germany.

21. WALDHEIMIA ARDUENNENSIS.

Shell subtrigonally inflated, wider than long, much enlarged and truncated in front, and diminishing gradually to the beak.

Terebratula Arduennensis, *D'Orb.* 1850, *Prod.* i. p. 377.

Fossil. *Oxford Clay.* France.

22. Waldheimia Royeriana.

Shell oval, inflated, smooth or marked (especially near the border) with numerous lines of growth; rounded and compressed when young; oblong and slightly truncated in front when old; beak obtuse, recurved, keeled; foramen small, round. Lon. 12, lat. 8, alt. 7 lines.

Terebratula Royeriana, *D'Orb.* 1845.
Murch. Russia, ii. p. 484. pl. 42. f. 33, 34.
D'Orb. Prod. 1850, p. 344 & 377.
Terebratula vulgaris, *Fischer*, 1843, *Bull. Nat. Moscow*, xvi. p. 26 (not *Schl.*).
Terebratula ornithocephala, *Id.* p. 27. pl. 4. f. 1, 2 (not *Sow.*).
Fossil. *Kelloway Rock?* France.
Oxford Clay. Russia.

23. Waldheimia Strogonofii.

Shell oval, elongated, slightly truncated in front, ventricose, smooth; margins even; ventral valve most convex; beak rounded, recurved; forameu moderate, circular; deltidium nearly concealed. Lon. 28, lat. 17, alt. 14 lines.

Terebratula Strogonofii, *D'Orb.* 1845, *Murch. Russia*, ii. p. 483. pl. 42. f. 31, 32; *Prod.* i. p. 377.
Fossil. *Oxford Clay*. Russia.

24. Waldheimia obovata. B.M.

Shell oval, truncated in front, with obscure angles, smooth, ventricose; beak short, rather recurved, with short curved lateral ridges; deltidium more or less concealed; loop simple, elongated. Lon. 15, lat. 13, alt. 10 lines.

Terebratula obovata, *Sow.* 1812, *Min. Con.* i. p. 228. t. 101. f. 5.
Davidson, Mon. Ool. p. 39. pl. 5. f. 14–17.
Fossil. *Bath Oolite* (*Cornbrash*). England; France.

25. Waldheimia lagenalis. B.M.

Shell smooth, ovate, elongated, ventricose, wide and straight in front; beak rounded, much recurved, with indistinct lateral ridges; foramen moderate; deltidium concealed; loop simple, elongated. Lon. 22, lat. 12, alt. 11 lines.

Terebratula sacculus longissimus, *Idhwyd*, 1699, *Lith. Brit.* t. 10. f. 871.
Terebratula lagenalis, *Schl. Petref.* 1820, p. 284.
Lam. ed. Desh. vii.
Buch, Mém. Soc. Géol. France, iii. p. 194. pl. 18. f. 7.
Dav. Mon. Ool. p. 42. pl. 7. f. 1–4.
Quenst. Handb. p. 468. t. 37. f. 48.

Terebratula umbonella, *Val.* 1819, *in Lam. An. s. Vert. Dav. Ann. Nat. Hist.* June 1850, pl. 13. f. 18.

Fossil. *Cornbrash.* England; France; Germany.

26. WALDHEIMIA SUBLAGENALIS. B.M.

Shell smooth, oblong, ventricose; front margin wide, truncated, slightly indented; beak rounded, recurved; valves slightly hollowed in the middle, in front, with rounded lateral ridges and prominent angles. Lon. 15, lat. 8, alt. 9 lines.

Terebratula sublagenalis (*Rœmer*?, 1836, *Verst. Nordd. Ool.* p. 49), *Dav. Mon. Ool. Brach.* p. 42. pl. 7. f. 14.

Fossil. *Cornbrash.* England; France.
(*Lias.* Germany; Willershausen.)

27. WALDHEIMIA ORNITHOCEPHALA.

Shell smooth, rhombic-ovate, becoming elongated and ventricose with age, rather narrow and truncated in front; beak rounded and recurved; foramen moderate; deltidium concealed; loop simple, elongated. Lon. 16, lat. 11, alt. 10 lines.

Llhwyd, Lith. Brit. pl. 10. f. 873.

Terebratula ornithocephala, *Sow.* 1812, *Min. Con.* i. p. 227. t. 101. f. 2, 3, 4.
Smith, Strat. Syst. 1816.
Lam. ed. Desh. vii. p. 361.
Phil. Geol. Yorks. i. t. 6. f. 7.
Zieten, Würt. t. 39. f. 2.
Davidson, Mon. Ool. p. 40. pl. 7. f. 6, 13, 23.
Rœmer, Nordd. Ool. p. 51.
Pusch, Polens Pal. p. 19. t. 3. f. 17.

Terebratula lampas, *Sow. Min. Con.* p. 228 (cast).
D'Orb. Prod. i. p. 239.

Terebratula subovalis et subovoides, *Rœmer, Ool.* pl. 2. f. 9, 10?

Terebratula triquetra, *Sow. Min. Con.* v. p. 65. t. 445. f. 1 (not *Rœmer, Nordd. Ool.* p. 48).

Terebratula subtriquetra, *D'Orb. Prod.* i. p. 216.

Fossil. *Kelloway Rock—Fuller's Earth.* England; France; Germany.

28. WALDHEIMIA IGNACIANA.

Shell oval-oblong, slightly convex, smooth, truncated in front; ventral valve deep; beak short, recurved; foramen moderate. Lon. 16, lat. 11, alt. 8 lines.

Terebratula Ignaciana, *D'Orb.* 1842, *Pal. Amer. Merid.* p. 63. pl. 22. f. 14, 15; *Prod.* i. p. 221.

Fossil. *Lias.* Chili.

29. Waldheimia bucculenta. B.M.

Shell oval, attenuated in front, smooth, ventricose; margins almost straight; beak small, recurved; foramen small; deltidium concealed. Lon. 13, lat. 12, alt. 8 lines.

Terebratula bucculenta, *Sow.* 1825, *Min. Con.* v. p. 54. t. 438. f. 2.
D'Orb. Prod. i. p. 376, ii. p. 24.
? *Zieten, Würt.* t. 39. f. 6.
Deslong. Soc. Lin. Normandie.
Davidson, Mon. Ool. p. 55. pl. 13. f. 8.
Terebratula bullata, syn., *Buch, Mém. Soc. Géol. France*, iii. p. 195.
Morris, Cat. p. 132.
Bronn, Index Pal. ii. p. 1231.

Fossil. *Coralline Oolite.* Malton, Yorkshire. (Mus. Sow.)

30. Waldheimia subovoïdes.

Shell ovate, smooth; valves convex, slightly truncated in front; beak small, recurved; foramen small, round; deltidium distinct. Lon. 14, lat. 11, alt. 8 lines.

Terebratula subovoides (*Münster*), *Braun, Bair.* p. 43.
Rœmer, Nordd. Ool. p. 50. t. 2. f. 9.
Bronn, Index, p. 1252.
Terebratula subovalis, *Rœmer*, 1836, *Nordd. Ool.* p. 50. t. 2. f. 10 (according to *Bronn, Index*, p. 1252).

Fossil. *Lias.* Germany.

31. ? Waldheimia Sarthacensis.

Terebratula Sarthacensis, *D'Orb. Prod.* 1850 (T. ornithocephala, *Sow.* pl. 101. f. 5?).

Fossil. *Lias* (*Upper*). France.

32. Waldheimia Crithea.

"An oval shell, resembling *T. Sarthacensis*, but with a large foramen, and not truncated in front."

Terebratula Crithea, *D'Orb. Prod.* 1850, p. 258.

Fossil. *Lias* (*Upper*). France.

33. Waldheimia Linneana.

Shell wide and short; front straight, without inflections.

Terebratula Linneana, *D'Orb.* 1850, *Prod.* i. p. 344.

Fossil. *Kelloway Rock*? France.

34. WALDHEIMIA NUMISMALIS. B.M.

Shell depressed, somewhat pentagonal, smooth, with distant concentric striæ; both valves with a sinus in front; beak short, keeled; foramen minute; deltidium wide and short; loop elongated, reflected. Lon. and lat. 11–13, alt. 4–6 lines.

Terebratula numismalis, *Val. in Lamk.* 1819, *Hist.* vii. 334. n. 17.
Brug. Encyc. Méth. t. 240. f. 1.
Buch, Mon. Tereb. 84. n. 4.
Desh. E. M. iii. 2028. n. 18.
Zieten, Petref. t. 39. f. 4.
Davidson, Mon. Ool. p. 27. pl. 5. f. 1–3.
Rœmer, Nordd. Ool. p. 47.
Quenst. Handb. p. 467. t. 37. f. 32, 33.
Terebratula orbicularis (*Schlotheim*), *Zieten, Petref. Würt.* t. 39. f. 15.
Terebratula Cor, *Val. in Lam. Hist. Nat.*
Dav. Ann. Nat. Hist. June 1850, pl. 15. f. 22.
Terebratula pentagona, *Münster, in Cambridge Museum?*
Terebratula quadrifida, *Quenst. Handb.* p. 467. t. 37. f. 28.

Fossil. *Lias.* Britain; France; Wurtemberg.

35. WALDHEIMIA QUADRIFIDA. B.M.

Shell broader than long, somewhat pentagonal, depressed, produced into four angles in front; valves with corresponding ridges and depressions; beak small, with acute lateral ridges; foramen moderate; deltidium double, obtuse; loop elongated, reflected. Lon. 14, lat. 18, alt. 7 lines.

Terebratula quadrifida, *Val. in Lam.* 1819, *An. sans Vert.* vi. p. 35.
Buch, Mém. Soc. Géol. France, iii. p. 190. pl. 17. f. 3.
Davidson, Mon. Ool. p. 28. pl. 3. f. 8–10; *Ann. Nat. Hist.* June 1850, pl. 14. f. 35.

Fossil. *Lias* (Marlstone). England; France.

36. WALDHEIMIA CAUSONIANA.

Allied to *T. cornuta*, but always much wider, and the two projections from the pallial region wider apart.

Terebratula Caussonia, *D'Orb.* 1847, *Prod.* i. p. 221.

Fossil. *Lias.* France.

37. WALDHEIMIA CORNUTA. B M.

Shell smooth and shining, irregularly pentagonal, longer than wide; valves equally convex, deeply indented in front, with corresponding projections and depressions; beak large, recurved, with strong lateral ridges; foramen moderate; deltidium double;

loop simple, nearly reaching the front margin. Lon. 20, lat. 13, alt. 12 lines.

Terebratula cornuta, *Sow. Min. Con.* 1825, v. p. 66. pl. 446. f. 4.
Davidson, Mon. Ool. p. 29. pl. 3. f. 11–18.
Terebratula vicinalis, *Buch*, 1838, *Mém. Soc. Géol. France*, iii. p. 192. pl. 17. f. 5 (not *Schloth.*).
Rœmer, Nordd. Ool. p. 47.

Fossil. *Lias.* England; France; Germany.

38. WALDHEIMIA BIDENTATA.

Shell small, oblong, ventricose, contracted and indented in front; valves smooth, each with a deep mesial furrow in front; dorsal valve inflated; beak very small, keeled; foramen minute. Lon. 7, lat. 4, alt. 4 lines.

Terebratula bidentata, *Zieten*, 1830, p. 59. pl. 44. f. 3 (not *His.*).
Terebratula sub-bidentata, *D'Orb. Prod.* i. p. 288.

Fossil. *Inferior Oolite.* Germany.

39. WALDHEIMIA VICINALIS. B.M.

Shell trigonal or oval, truncated and indented in front, smooth; valves equally convex, each with a shallow sinus in front, between very obtuse corresponding ridges; edges thick, obtuse; margins quite even; beak small, recurved, sharply keeled at the sides; foramen minute; loop elongated, reflected. Lon. 11, lat. 9, alt. 6½ lines.

Terebratula vicinalis, *Schl.* 1820, *Petref.* p. 281*.
Buch, Mém. Soc. Géol. France, iii. p. 192 (excl. plate).
Terebratula digona, *Zieten*, pl. 39. f. 8? (not *Sow.*).
Terebratula cornuta, *Rœmer* (not *Sow.*).
Terebratula numismalis δ, *Quenst. Handb.* p. 467. t. 37. f. 26.

Fossil. *Lias.* Wurtemberg.

40. WALDHEIMIA REHMANNI.

Shell widely ovate, or subpentagonal, truncated and slightly indented in front, rounded at the sides, ventricose, smooth; beak small, recurved, sharply keeled; foramen minute; deltidium triangular, solid. Lon. 10, lat. 9, alt. 6 lines.

Terebratula Rehmanni (*Buch*), *Rœmer*, 1839, *Nordd. Ool.* p. 21. t. 18. f. 11.

Fossil. *Lias.* Saxony.

* The reference made by Schlotheim to Parkinson, iii. 16. f. 4, shows that he did not intend the shell afterwards named *T. cornuta* by Sowerby.

41. WALDHEIMIA FISCHERIANA. B.M.

Shell oblong, truncated and indented in front, smooth; edges very obtuse; margins even; ventral valve gibbose; beak short, recurved, laterally keeled; foramen small, round; deltidium solid, triangular. Lon. 4 lines (*D'Orb.*). Lon. 11, lat. 8, alt. 6 lines (Brit. Mus.).

Terebratula Fischeriana, *D'Orb.* 1845, *Murch. Russia*, ii. p. 482. pl. 42. f. 27–30; *Prod.* i. p. 377.
Terebratula digona, *Zieten, Würt.* p. 53. pl. 39. f. 8 (*D'Orb.*). *Fischer, Oryct. Moscow*, pl. 23. f. 7 (not *Sow.*).
Terebratula indentata, *Fischer, Bull. Moscow*, xvi. p. 24. pl. 4. f. 3, 4 (not *Sow.*).
Terebratula nucleata, *Fischer, id.* p. 25. pl. 4. f. 5, 6 (not *Zieten*).

Fossil. *Oxford Clay.* Russia.
Coral Rag. Germany.

42. WALDHEIMIA LUNARIS.

Shell crescent-shaped, smooth; valves gibbose, concave in front; margins even; beak very small, depressed, keeled; foramen minute. Lon. $5\frac{1}{2}$, lat. 7, alt. 4 lines.

Terebratula lunaris (*Schübler*), *Zieten*, p. 59. pl. 44. f. 4. *D'Orb. Prod.* i. p. 288.

Fossil. *Inferior Oolite.* Germany.

43. WALDHEIMIA PLANA. B.M.

Shell small, pentagonal, smooth; front truncated; margins even; dorsal valve rather flat, slightly depressed centrally in front, with indications of a long central septum; ventral valve convex, flattened in the centre, with two obscure ridges; beak recurved, laterally keeled; foramen small, round; deltidium incomplete. Lon. 5, lat. 5, alt. 3 lines.

Terebratula plana, *Münster in Cambridge Museum.*
Terebratula pentahedra, *id.*
Terebratula pentahedra, minor, (*Münster*) *Dr. Braun in British Museum.*
Terebratula nana, *id.*

Fossil. *Oxfordian—Coral Rag.* Bavaria.

44. WALDHEIMIA MARIÆ.

Like *T. cornuta*, but shorter, truncated, and straight in front.

Terebratula Mariæ, *D'Orb.* 1847, *Prod.* i. p. 240.

Fossil. *Lias.* France.

45. WALDHEIMIA EDWARDSII. B.M.

Shell ventricose, smooth, oval, truncated in front; smaller valve rather flat; margins quite straight; beak much recurved, with distinct lateral ridges; foramen small; deltidium scarcely visible; loop simple, elongated. Lon. 15, lat. 13, alt. 10 lines.

Terebratula Edwardsii, *Dav. Mon. Ool. Brach.* p. 30. pl. 6. f. 11–15.

Fossil. *Lias.* England.

46. WALDHEIMIA LYCETTII. B.M.

Shell smooth, subcircular, ventricose; beak rounded, lateral ridges indistinct; deltidium rudimentary, almost separated by the foramen; front margin slightly waved. Lon. 8, lat. 7, alt. 4 lines.

Terebratula Lycettii, *Dav. Mon. Ool. Brach.* p. 44. pl. 7. f. 17–22.
Terebratula numismalis, ovalis, *Quenst. Handb.* p. 467. t. 37. f. 27?

Fossil. *Lias.* Somersetshire; Germany.

47. WALDHEIMIA GLOBULINA. B.M.

Shell minute, circular, ventricose, smooth; margins even; beak minute, recurved, with short and curved lateral ridges; loop simple, short. Lon. 2, lat. 2, alt. 1 line.

Terebratula globulina, *Dav.* 1847, *Ann. Nat. Hist.* xx. pl. 19. f. 4; *Mon. Ool. Brach.* p. 57. pl. 11. f. 20, 21.

Fossil. *U. Lias.* Ilminster.

48. WALDHEIMIA COMMUNIS. B.M.

Shell oval, depressed, smooth, ornamented with diverging coloured rays; margins even, slightly raised in front; dorsal valve moderately convex, with a flattened, rounded ridge in front, depressed at the umbo and sides, furnished internally with a long central septum; ventral valve convex; beak not much curved, keeled at the sides; foramen moderate; deltidium concave. Lon. 16, lat. 14, alt. 8 lines.

Terebratula communis, *Bosc.* 1801, *Bourguet*, pl. 30. f. 194.
D'Orb. Prod. i. p. 177.
Terebratula vulgaris, *Schl. Petref.* pl. 37. f. 5, 6.
Zieten, Würt. pl. 39. f. 1.
Pusch, Polens Pal. p. 17. t. 3. f. 14, 15.
Quenst. Handb. p. 474. t. 5. f. 6.
Terebratula vulgaris, minor, *Münster, Beitr.* p. 62. t. 6. f. 13?

Fossil. *Muschelkalk.* Franee; Wurtemberg; Poland.
Trias? Tyrol.

c. Beak laterally keeled; dorsal valve with a longitudinal depression in the centre.

Terebratulæ Carinatæ acutæ, *Buch.*
Terebratulæ Impressæ, *Quenst.* 1851, *Handb.* p. 469.

49. Waldheimia impressa. B.M.

Shell subcircular, polished; smaller valve flat, depressed in the middle in front; ventral valve convex; beak recurved, with lateral ridges; foramen minute; deltidium double; loop elongated, reflected, lamella very broad; septum nearly as long as the valve. Lon. 9 or 10, lat. 9, alt. 5 lines.

Terebratula impressa, *Buch*, 1832, *Ueber Terebrateln, Mém. Soc. Géol. France*, 1 ser. p. 226. pl. 20. f. 7, 1838.
Zieten, Würt. Verst. p. 53. pl. 39. f. 11.
Davidson, Mon. Ool. Brach. p. 33. pl. 4. f. 8–10.
Quenst. Handb. p. 468. t. 37. f. 36, 37.

Fossil. *Inferior Oolite.* Dorset; Cheltenham.
Oxford Clay. Huntingdonshire; Germany.

50.? Waldheimia Bernardina.

"*Shell* like *T. pala*, but oval-obround, truncated in front, enlarged in the middle; small valve much depressed, with a furrow in the middle."

Terebratula Bernardina, *D'Orb.* 1850, *Prod.* i. p. 377.
Fossil. *Oxford Clay.* France.

51. ? Waldheimia labiata.

Shell smooth, round or oval, depressed, truncated in front, or with the front of the little valve sunk, forming a deep sinus in the larger valve.

Terebratula labiata, *D'Orb.* 1850, *Prod.* i. p. 377.
Fossil. *Oxford Clay.* France.

52. ? Waldheimia Chauviniana.

Shell oblong; obtuse in front; beak pointed; small valve nearly flat, the other ventricose.

Terebratula Chauviniana, *D'Orb. Prod.* i. p. 344.
Fossil. *Kelloway Rock*? France.

53. ? WALDHEIMIA CALLOVIENSIS.

Shell like *T. Chauviniana*, but more inflated, especially the little valve; oval; front very variable, square or rounded, or even bilobed; small valve provided with a sinus.

Terebratula Calloviensis, *D'Orb.* 1850, *Prod.* i. p. 344.

Fossil. *Kelloway Rock*? France.

54. ? WALDHEIMIA RUPPELLENSIS.

Shell like *T. resupinata*, but with the small valve quite flat.

Terebratula Rüppellensis, *D'Orb.* 1850, *Prod.* ii. p. 24.

Fossil. *Coral Rag.* France.

55. WALDHEIMIA RESUPINATA. B.M.

Shell smooth, oval; smaller valve with a deep longitudinal depression; beak small, incurved, with prominent lateral ridges; foramen minute; deltidium wide, obtuse; loop simple, elongated. Lon. 16, lat. 14, alt. 12 lines.

Terebratula resupinata, *Sow. Min. Con.* 1818, ii. p. 116. t. 150. f. 3, 4.
Phil. Geol. Yorks. pl. 13. f. 23.
Buch, Mém. Soc. Géol. France, p. 229. pl. 20. f. 11.
Dav. Mon. Ool. Brach. p. 31. pl. 4. f. 1–5.
Quenst. Handb. p. 469. t. 37. f. 38.
Torrubia, Hist. Nat. Hispan. 1773, t. 9. f. 3.

Fossil. *Lias.* Britain; France; Germany.

56. ? WALDHEIMIA FLORELLA.

"Like *T. resupinata*, but without any depression in the middle of the smaller valve."

Terebratula florella, *D'Orb. Prod.* 1850, p. 258.

Fossil. *Lias* (*upper*). France.

57. WALDHEIMIA MOOREI. B.M.

Shell oblong, ventricose, smooth, with numerous strong lines of growth; smaller valve with an obscure longitudinal depression; margins depressed in front; beak small, laterally compressed and keeled; foramen minute; loop simple, elongated. Lon. 18, lat. 14, alt. 11 lines.

Terebratula Moorei, *Dav.* 1851, *Mon. Ool. Brach.* p. 33. pl. 4. f. 6, 7.

Fossil. *Lias.* England.

58. ? WALDHEIMIA SUBRESUPINATA.

"Like *T. resupinata*, but with the small valve not ventricose, and marked by a strong, medio-longitudinal impression."

Terebratula subresupinata, *D'Orb. Prod.* 1850, p. 287.

Fossil. *Inferior Oolite.* France.

59. WALDHEIMIA BAJOCINA.

"Like *T. subresupinata*, but more oval, more attenuated in front, and without the depression in the small valve."

Terebratula Bajocina, *D'Orb.* 1850, *Prod.* i. p. 288.

Fossil. *Inferior Oolite.* France.

60. WALDHEIMIA CARINATA. B.M.

Shell oblong, smooth, narrow and slightly truncated in front; smaller valve flat, with a central longitudinal depression; ventral valve convex, laterally compressed; beak slightly recurved, keeled; foramen moderate; deltidium double, rather long; loop simple, elongated. Lon. 13–20, lat. 9–17, alt. 5–10 lines.

Terebratula carinata, *Val.* 1819, *in Lam. An. sans Vert.* vi. p. 25.
Davidson, Mon. Ool. p. 35. pl. 4. f. 11–17; *Ann. Nat. Hist.* June 1850, pl. 13. f. 25.

Fossil. *Inferior Oolite.* England; Normandy.

61. WALDHEIMIA PENTAHEDRA. B.M.

Shell pentagonal, depressed, smooth, with numerous imbricating lines of growth; dorsal valve nearly flat, ventral convex; beak prominent, scarcely curved, keeled at the sides; foramen rather large, deltidium distinct. Lon. 8, lat. 7, alt. 5 lines.

Terebratula pentahedra, *Münster, Beitrage*, p. 109.
Bronn, Index, p. 1244 (not *Ter. pentahedra minor*, Münst.).
Terebratula tetragona, *Rœmer*, 1836, *Nordd. Ool.* p. 52. t. 2. f. 13.

Fossil. *Coral Rag.* Saxony; Bavaria.
Inferior Oolite. Stroud (Brit. Mus.).

62. WALDHEIMIA SUBIMPRESSA. B.M.

Shell diamond-shaped, depressed, smooth, with a few strongly imbricated lines of growth; edges square; margins quite even; dorsal valve flat; ventral valve rather prominent along the centre; beak prominent, straight, with strong lateral ridges; foramen round; deltidium narrow, solid. Lon. 10, lat. 8, alt. $4\frac{1}{2}$ lines.

Terebratula subimpressa, var. elongata, *Münster in Cambridge Museum.*

Terebratula bucculenta? *Zieten*, p. 52. pl. 39. f. 6 (not *Sow.*).
Terebratula emarginata, *Quenst. Handb.* p. 471. t. 37. f. 52 (not *Sow.*).

Fossil. *Inferior Oolite.* Bavaria.

63. WALDHEIMIA EMARGINATA. B.M.

Shell subrhombic, truncated and indented in front; smaller valve flat, sometimes longitudinally depressed in front; ventral valve convex; beak slightly recurved; deltidium distinct; foramen moderate; loop simple, elongated. Lon. 11, lat. 10, alt. 6 lines.

Terebratula emarginata, *Sow.* 1825, *Min. Con.* v. p. 50. pl. 435. f. 5.
Deslong. 1837, *Soc. Lin. Normandie.*
Davidson, Mon. Ool. p. 35. pl. 4. f. 18–21.

Fossil. *Inferior Oolite.* England; Normandy.

64. WALDHEIMIA HUMERALIS. B.M.

Shell obovately pentagonal, widest above the centre, narrow in front, depressed, smooth; dorsal valve rather flat; ventral valve convex, with an obtuse longitudinal ridge; beak small, incurved, keeled at the sides. Lon. 8, lat. $6\frac{1}{2}$, alt. 4 lines ($12\frac{1}{2} : 10\frac{1}{2} : 7\frac{1}{2}$ Cambr.).

Terebratula humeralis, *Rœmer*, 1839, *Nordd. Ool.* ii. p. 21. t. 18. f. 14.
Bronn, Index, p. 1238.

Fossil. *Portland Oolite.* Germany.

65. WALDHEIMIA WATERHOUSII. B.M.

Shell smooth, subquadrate, longer than wide; small valve concave in front; beak small, with acute lateral ridges; deltidium double; loop simple, elongated. Lon. 9, lat. 7, alt. 6 lines.

Terebratula Waterhousii, *Dav.* 1851, *Mon. Ool.* p. 31. pl. 5. f. 12, 13.

Fossil. *Lias.* England; Wurtemburg.

66. WALDHEIMIA BAKERIÆ. B.M.

Shell smooth, semicircular; dorsal valve depressed in the middle in front; wider than long; ventral valve convex; beak small, with indistinct lateral ridges; foramen entire, nearly touching the umbo of dorsal valve. Lon. 4, lat. 5, alt. $2\frac{1}{2}$ lines.

Terebratula Bakeriæ, *Dav. Mon. Ool. Brach.* 1851, p. 38. pl. 5. f. 11.
Terebratula Heyseana, *Dunker*?
Fossil. *Inferior Oolite.* Northampton (Brit. Mus.).

67. WALDHEIMIA HEYSEANA. B.M.

Shell transverse, somewhat trigonal, winged, smooth; dorsal valve slightly convex, deeply depressed in the centre in front; ventral valve more convex, with a prominent central rounded ridge; beak depressed, curved, sharply keeled; foramen minute; deltidium triangular. Lon. 5, lat. 6, alt. 3 lines.

Terebratula Heyseana, *Dunker*, 1847, *Pal.* i. p. 129. pl. 18. f. 5.
Quenst. Handb. p. 471. t. 37. f. 47.
Terebratula resupinata, *Rœmer*, 1836, *Nordd. Ool.* p. 55. t. 12. f. 7 (not *Sow.*).
Fossil. *Lias.* Germany.

68. WALDHEIMIA HEMISPHÆRICA. B.M.

Shell minute, hemispherical, striated; dorsal valve flat, or slightly concave; ventral valve convex; beak recurved, with lateral ridges, forming a small flattened hinge-area; foramen rather large, round, incomplete; deltidium plates disunited. Lon. 4, lat. $3\frac{1}{2}$, alt. 2 lines.

Terebratula hemisphærica, *Sow.* 1829, *Min. Con.* vi. p. 69. t. 536. f. 1.
Desh. 1837, *Soc. Lin. Normandie.*
Davidson, Mon. Ool. p. 64. pl. 13. f. 17, 18.
Terebratella hemisphærica, *D'Orb. Prod.* i. p. 316.
Fossil. *Bath Oolite.* England; France.

69. WALDHEIMIA PALA. B.M.

Shell oval when young, afterwards elongated, and truncated in front; sides parallel, straight; valves smooth, or with a few lines of growth near the margin; margins even; dorsal valve flat, with a longitudinal furrow, becoming wide and shallow in front; beak prominent, recurved, laterally keeled; foramen minute; deltidium wide, solid; internal septum elongated, prominent. Lon. 12, lat. 7, alt. 6 lines.

Terebratula pala, *Buch*, 1843, *über Terebrateln*, p. 115. t. 3. f. 44; *Mém. Soc. Géol. Fr.* iii. p. 228. pl. 20. f. 9.
Bronn, Index, p. 1244.
Quenst. Handb. p. 469. t. 37. f. 46.
Fossil. *Alpenkalk.* Tyrol.

70. Waldheimia Seatoniana.

Shell resembling *T. pala.*

Terebratula Seatoniana, *Portlock*, 1844, *Proc. Geol. Soc.* p. 357.
Fossil. *Jurassic ? limestone.* Corfu.

71. Waldheimia subangusta. B.M.

Shell small, oval, smooth, with a few strong lines of growth, punctate; dorsal valve circular, nearly flat, with a medio-longitudinal furrow, and indications of an internal median septum; ventral valve convex; beak prominent, rounded, recurved, truncated by a small foramen. Lon. $5\frac{1}{2}$, lat. $4\frac{1}{2}$, alt. 3 lines.

Terebratula subangusta, *Münst.* 1841, *Beitr.* iv. p. 64. pl. 6. f. 16.
D'Orb. Prod. i. p. 204.
Terebratula præmarginata, *Klipst.* 1844, p. 222. pl. 15. f. 6.
D'Orb. Prod. i. p. 204.
Fossil. *Trias.* Tyrol.

72. Waldheimia angusta.

Shell small, elongated, oval, smooth; dorsal valve slightly convex, impressed in the middle in front; margins even; beak rounded, recurved; foramen small. Lon. 5, lat. 3, alt. $2\frac{1}{2}$ lines.

Terebratula angusta, *Schl.* 1820, *Petref.* p. 285.
Buch, Mém. Soc. Géol. Fr. iii. p. 217. pl. 20. f. 80.
Dunker & Meyer, Palæont. p. 285. pl. 34. f. 1–4.
D'Orb. Prod. i. p. 177.
Fossil. *Muschelkalk.* Silesia.

73. Waldheimia ? navicula. B.M.

Shell oval, boat-shaped, smooth; dorsal valve concave, raised at the sides, depressed in front, with a prominent longitudinal septum inside; ventral valve convex, with a very prominent, obtuse, longitudinal ridge; beak prominent, closely recurved; foramen minute, complete; muscular impressions deep. Lon. 6, lat. 4, alt. 4 lines.

Terebratula navicula, *J. Sow.* 1839, *in Murch. Silur. Syst.* p. 611. pl. 5. f. 17.
Barrande, Silur. Böhm. p. 46. pl. 15. f. 4.
D'Orb. Prod. i. p. 43.
Hemithyris navicula, *M'Coy, Pal. Foss.* p. 204.
Fossil. *Upper Silurian**. England; Germany.

* Nearly all the Silurian "Terebratulæ" have been ascertained to possess calcareous spires and must therefore be removed from the family.

74. WALDHEIMIA? UMBRA.

Shell orbicular, depressed, slightly truncated in front, smooth; dorsal valve with a deep longitudinal furrow becoming wider in front; margins evenly sinuated; ventral valve with an obtuse longitudinal ridge; beak very small, recurved. Lon. and lat. 7, alt. 3 lines.

Terebratula umbra, *Barrande*, 1847, *in Haidinger's Abhandl.* p. 401. t. 17. f. 3.
Atrypa umbra, *D'Orb. Prod.* i. p. 38.
Fossil. *U. Silurian.* Bohemia.

75. WALDHEIMIA? UPSILON. B.M.

Shell subpentagonal, truncated and indented in front, ventricose, smooth; margins even, slightly arched in front; edges thick, rounded; valves equally convex, each with two rounded ridges, separated by a shallow sinus, in front; beak small, laterally compressed, recurved. Lon. 11, lat. 10, alt. 7 lines.

Terebratula upsilon, *Barrande*, 1847, *in Haidinger's Abhandl.* p. 405. t. 15. f. 9.
Atrypa? upsilon, *D'Orb. Prod.* i. p. 40.
Hemithyris upsilon, *M'Coy, Pal. Foss.* p. 207.
Fossil. *U. Silurian.* Bohemia; Wales.

76. WALDHEIMIA? JUNO.

Shell oval, widely truncated in front, depressed, smooth; margins even; valves equally convex, slightly sinuated in front; beak small, compressed. Lon. 8, lat. 7, alt. 4 lines.

Terebratula Juno, *Barrande*, 1847, *in Haidinger's Abhandl.* p. 407. t. 15. f. 10.
Atrypa Juno, *D'Orb. Prod.* i. p. 40.
Fossil. *U. Silurian.* Bohemia.

77. WALDHEIMIA? CANALIS.

Shell oval or orbicular, smooth; both valves with a deep mediolongitudinal furrow; margins even, deeply indented in front; beak small, recurved. Lon. 6, lat. 4½ lines.

Terebratula canalis, *J. Sowerby*, 1839, *in Murch. Silur. Syst.* p. 611. t. 5. f. 18.
Barr. Silur. Böhm. p. 410. t. 16. f. 13.
Atrypa canalis, *D'Orb. Prod.* i. p. 40.
Fossil. *U. Silurian.* England; Bohemia.

78. Waldheimia? inelegans.

Shell orbicular, ventricose, smooth; margins even; valves equally convex; edges obtuse; ventral valve with an obscure longitudinal furrow; beak small, recurved. Lon. and lat. 7, alt. 4½ lines.

Terebratula inelegans, *Barrande*, 1847, *in Haidinger's Abhandl.* p. 408. t. 17. f. 1.
Atrypa inelegans, *D'Orb. Prod.* i. p. 38.
Fossil. *U. Silurian.* Bohemia.

79. Waldheimia? ephemera.

Shell orbicular, smooth, slightly indented in front; margins even; valves equally convex, slightly sinuated in front; beak small, recurved. Lon. and lat. 5, alt. 3½ lines.

Terebratula ephemera, *Barrande*, 1847, *in Haidinger's Abhandl.* p. 408. t. 16. f. 11.
Atrypa? ephemera, *D'Orb. Prod.* i. p. 38.
Fossil. *U. Silurian.* Bohemia.

80. Waldheimia? Hecate.

Shell orbicular, slightly pentagonal, smooth; valves convex, margins sinuous, slightly arched in front; beak small, prominent, recurved. Lon. 9, lat. 10, alt. 6 lines.

Terebratula Hecate, *Barrande*, 1847, *in Haidinger's Abhandl.* p. 409. t. 16. f. 12.
Spirigera Hecate, *D'Orb. Prod.* i. p. 43.
Fossil. *U. Silurian.* Bohemia.

81. Waldheimia? securis.

Shell trigonal, smooth, umbones convex; margins even; edges sharp; front very wide, and like the sides nearly straight; beak very small. Lon. 9, lat. 10, alt. 4½ lines.

Terebratula securis, *Barrande*, 1847, *in Haidinger's Abhandl.* p. 388. t. 16. f. 1.
Atrypa securis, *D'Orb. Prod.* i. p. 39.
Fossil. *U. Silurian.* Bohemia.

82. Waldheimia? obolina.

Shell transversely oblong, smooth; valves equally convex; margins even; edges sharp; beak minute. Lon. 7, lat. 8, alt. 4 lines.

Terebratula obolina, *Barrande*, 1847, *in Haidinger's Abhandl.* p. 404. t. 20. f. 9.
Atrypa obolina, *D'Orb. Prod.* i. p. 40.
Fossil. *U. Silurian.* Bohemia.

83. WALDHEIMIA? HAMIFERA.

Shell orbicular, convex, smooth, with very obscure radiating striæ. Lon. 18, lat. 19 lines.

Terebratula hamifera, *Barrande*, 1847, *in Haidinger's Abhandl.* p. 417. t. 20. f. 9.
D'Orb. Prod. i. p. 43.
Fossil. *U. Silurian.* Bohemia.

d. Beak round; valves sharply plaited. Eudesia.

Terebratulæ costatæ, *Morris*, 1846, *Journ. Geol. Soc.* p. 385.
Eudesia (orbicularis), *King*, 1849, *Permian Fossils*, 81. 144.

84. WALDHEIMIA GRAYII. B.M.

Shell suborbicular, ornamented with numerous radiating ribs; ribs unequal, bifurcating and intercalating; colour reddish yellow, becoming deep red at the lines of growth; dorsal valve rather flat; ventral valve convex; beak obtuse, with distinct lateral ridges; foramen very large, incomplete; deltidia disunited; loop elongated, reflected. Lon. 14, lat. 15, alt. 9 lines.

Terebratula Grayii, *Davidson*, May 1852, *Ann. Nat. Hist.* p. 365; *Zool. Proc.* 1852, p. . pl. . f. 1–3.
Hab. Korea.

85. WALDHEIMIA BEAUMONTI. B.M.

Shell oval, inflated, ornamented with 12–14 elevated, radiating plaits, sometimes bifurcating, and crossed by numerous lines of growth; valves equally convex; beak prominent, nearly straight, pointed; foramen small; area concave; deltidium large, triangular. Lon. 6½, lat. 5, alt. 4 lines.

Terebratula Beaumonti, *D'Arch.* 1847, *Mém. Soc. Géol. Fr.* ii. p. 331. pl. 21. f. 12–14.
D'Orb. Prod. ii. p. 172.
Fossil. *U. Greensand.* Belgium.

86. WALDHEIMIA MARCOUSANA.

Shell orbicular, ventricose, with 18–20 sharp radiating plaits; valves equally convex, margins dentated; beak short, curved,

truncated by a moderate, round foramen; deltidium triangular, distinct. Lon. 13, lat. 13, alt. 8 lines.

Terebratula Marcousana, *D'Orb. Ter. Crét.* iv. p. 82. t. 507. f. 11–14; *Prod.* ii. p. 85.

Fossil. *Neocomian.* France.

87. WALDHEIMIA SEMISTRIATA. B.M.

Shell angularly ovate or rounded, with 24–30 sharp radiating plaits; umbones smooth; beak prominent; foramen moderate; deltidium elongated; dorsal valve with two elevated ridges or angles in front. Lon. 14, lat. 12, alt. 8 lines.

Terebratula semistriata, *Defrance*, 1828, *Dict. Sc. Nat.* t. liii. p. 156.

D'Orb. Ter. Crét. iv. p. 83. t. 508. f. 1–11; *Prod.* ii. p. 85.

Terebratula suborbicularis, *D'Arch.* 1839, *Mém. Soc. Géol. Fr.* iii. p. 311.

Leym. 1842, *Mém. Soc. Géol. Fr.* v. p. 18. pl. 14. f. 2, 3.

Terebratula biangularis, (*Desh.*) *Leym.* 1842, *Mém. Soc. Géol. Fr.* v. p. 11. pl. 14. f. 4.

Reuss, Verst. Böhm. Kreid. p. 51.

Terebratula propinqua, *Münster MS., Jura, Hildesheim.*

Fossil. *Neocomian.* France; Switzerland.

88. WALDHEIMIA RETICULATA.

Shell oblong, inflated, partly smooth, or ornamented with radiating dichotomous striæ; dorsal valve with a sharp central elevation and two lateral folds; beak prominent, curved, laterally keeled; foramen moderate, round; deltidium double, elongated. Lon. 14, lat. 10, alt. 8 lines.

Terebratula reticulata, *Pusch*, 1837, *Polens Pal.* t. 3. f. 11 (not *Sow.*).

Terebratula Puscheana, *Rœmer*, 1841, *Kreid.* p. 114. no. 3. t. 16. f. 29.

Terebratella reticulata, *D'Orb. Ter. Crét.* iv. p. 112. t. 515. f. 1–6.

Fossil. *Neocomian.* France; Poland; Germany.

89. WALDHEIMIA OBLONGA. B.M.

Shell oblong, sharply plaited; plaits 20–40, simple or bifurcating, and becoming more numerous by intercalation; dorsal valve rather flat when young, becoming more convex with age; beak rather produced, nearly straight, with well-defined lateral ridges forming a flat area; foramen entire, slightly truncating the beak; deltidium double, distinct. Lon. 12, lat. 9, alt. 7 lines.

Terebratula oblonga, *Sow.* 1829, *Min. Con.* vi. p. 68. t. 535. f. 4-6.
Buch, Mém. Soc. Géol. Fr. iii. p. 359. pl. 16. f. 2.
Rœmer, Nordd. Ool. p. 46. t. 2. f. 23; *Kreid.* p. 39. no. 18.
Davidson, Mon. Cret. p. 51. pl. 2. f. 29–32.
Terebratella oblonga, *D'Orb. Ter. Crét.* iv. p. 113. pl. 515. f. 7–19.
? Terebratula quadrata, *J. Sow. Trans. Geol. Soc.* iv. pl. 14. f. 9.

Fossil. *Lower Greensand* (*Neocomian*). England; France; Switzerland; Germany.

90. Waldheimia Cardium. B.M.

Shell oval, strongly plaited; ribs broad and sharp, about eighteen in number, simple or forked; dorsal valve subcircular, rather flat when young; ventral valve deep, with a large, truncated beak; foramen large, round; deltidium narrow, concave; loop simple, elongated. Lon. 16, lat. 12, alt. 11 lines.

Terebratula Cardium, *Val. in Lam.* 1819, *An. sans Vert.* vi. no. 47; *Encyc. Méth.* pl. 141. f. 6.
Deslong. Soc. Lin. Normandie.
Davidson, Ann. Nat. Hist. June 1850; *Mon. Ool.* p. 43. pl. 12. f. 13–18; *Ann. Nat. Hist.* June 1850, pl. 14. f. 47.
Terebratula orbicularis, *Sow.* 1829, *Min. Con.* vi. p. 68. t. 535. f. 3.
Buch, Mém. Soc. Géol. France, iii. ser. 1. p. 160. pl. 16. f. 3.
Rœmer, Nordd. Ool. p. 46.
Bronn, Index Paleont. p. 1243.
D'Orb. Prod. p. 315.
Quenst. Handb. p. 466. t. 37. f. 31.
Terebratula furcata, *Sow. Min. Con.* vi. p. 67. t. 535. f. 2 (young).

Fossil. *Bath Oolite* (*Bradford Clay*). England; France.

91. Waldheimia? Adrieni.

Shell suborbicular, rather depressed, ornamented with 17–20 sharp radiating plaits; valves nearly equally convex; beak rounded, curved, truncated by a circular foramen; deltidium distinct. Lon. 9, lat. 8, alt. 5 lines.

Terebratula Adrieni, *Vern. & Arch.* 1845, *Bull. Soc. Géol. Fr.* ii. pl. 14. f. 11.
D'Orb. Prod. i. p. 100.

Fossil. *Devonian.* Spain; Eifel.

92. Waldheimia? prominula.

Shell oblong, rather truncated in front, ornamented with twenty-four sharp radiating ribs; valves convex, slightly flattened along the centre; margins dentate; beak prominent, slightly curved, truncated by a round foramen; deltidium elongated, bordered by a smooth space. Lon. 10, lat. 8, alt. 5 lines.

Terebratula prominula, *Rœmer, Rhein. Ueberg.* p. 66. pl. 5. f. 3.
D'Orb. Prod. i. p. 100.

Fossil. *Devonian.* Prussia.

93. Waldheimia? ulothrix.

Shell somewhat transverse, rounded, with 9–11 sharp radiating plaits; surface ornamented with wavy, concentric lines, especially near the margin; beak small, recurved; aperture rounded; area small, triangular, distinct. Lon. 6, lat. $7\frac{1}{2}$, alt. 4 lines.

Terebratula crispata, *Koninck, Descr.* p. 292 (not *Sow.*).
Terebratula ulothrix, *Kon.* 1844, *id.* pl. 19. f. 5, note.
Terebratula subcrispata, *D'Orb.* 1847, *Prod.* i. p. 151.

Fossil. *Carboniferous.* Belgium.

94. Waldheimia? trilatera.

Shell small, triangular, elongated, laterally compressed, ornamented with 18–22 sharp radiating plaits, each valve with a medio-longitudinal depression; beak short, acute, straight; foramen minute; area inconspicuous. Lon. $5\frac{1}{2}$, lat. $4\frac{1}{2}$, alt. $2\frac{1}{2}$ lines.

Terebratula trilatera, *Koninck,* 1844, *Descr.* p. 292. pl. 19. f. 7.
D'Orb. Prod. i. p. 151.

Fossil. *Carboniferous.* Belgium.

e. Beak elongated; valves ornamented with rounded ribs. Lyra.

Lyra (Meadi), *Cumberland,* 1816, *in Sow. Min. Con.*
Trigonosemus, *Kœnig, Icon. Sect.* (part.) 1825.
? Rhynchora (costata), *Dalman,* 1828, *Vetens. Acad.* p. 136.
Hisinger, Lethæa Suecica.
Terebratulæ rostratæ, *Morris,* 1846, *Journ. Geol. Soc.* p. 385.
Rhynchoridæ, *King, Permian Fossils,* 81, 141.
Terebrirostra (lyra), *D'Orbigny,* 1848, *Ann. Sc. Nat. Terr. Crét.* iv. t. 519.
Dav. 1852, *Mon. Cret.* p. 31.

95. WALDHEIMIA DAVIDSONIANA.

Shell suborbicular, with a produced, tapering beak; valves trilobed, ornamented with simple, radiating ribs, decussated by a few marked lines of growth; dorsal valve transverse, with a raised central lobe; ventral valve with a longitudinal furrow; hinge-line nearly as wide as the shell; area triangular; foramen oval, small; deltidium elongated, triangular. Lon. 11, lat. 9, alt. 5 lines.

Terebrirostra Davidsoniana, *Ryckholt*, 1852, *Notice sur les genres Nautilus, &c.*, p. 10. f. 4–7.

Fossil. *U. Chalk.* Ciply, Belgium.

96. WALDHEIMIA PECTINATA. B.M.

Shell oblong, ventricose, truncated posteriorly, ornamented with rugose, bifurcating ribs; margins toothed, not sinuous; *dorsal valve* convex, with a wide and nearly straight hinge-line, furnished inside with a very wide cardinal process, and a short, prominent median septum; crura slender, contiguous; loop doubly attached?; *ventral valve* deep, truncated by a very large foramen*; area and deltidium nearly obsolete; teeth at the angles of the hinge. Lon. 16, lat. 19, alt. 9 lines (*Morris*).

Anomia pectinata, *Linn.* 1767, *Syst. Nat.* iii. p. 1150.
Anomites costatus, *Wahlenberg*, 1821, *Acta Upsal.* viii. p. 62. t. 4. f. 12–14.
Terebratula costata, *Nilsson*, *Petref. Suec.* p. 37. t. 3. f. 13.
Rhynchora costata, *Dalman*, 1828, *Vet. Acad.* p. 136.
Hisinger, *Leth. Suec.* t. 20.
Terebratula lyra, (not *Sow.*), *Dalman*; *Hisinger*; *Bronn*; *Morris*.
Terebratula pectinata, *L. Appendix to Morris's Catalogue*, p. 216.

Fossil. *U. Chalk.* Sweden.

97. WALDHEIMIA LYRA. B.M.

Shell lyre-shaped, straight or slightly curved, striato-costate; beak about half as long as the shell, slender, tapering, truncated by a small, transverscly oval foramen; deltidium narrow, as long as the beak, bordered on each side by a narrow flat area; dorsal valve oval, obtuse in front; ribs rounded, undulating, simple or bifurcating, or intercalary. Lon. 27, lat. 10, alt. 7 lines.

* The umbones of both valves are worn, as if by contact with the rock, in all the examples in London cabinets (*Woodward*).

Lyra Meadi, *Cumberland* (1816) *in Sowerby's Min. Con.*
Terebratula lyra, *Sowerby*, 1816, *Min. Con.* ii. p. 87. t. 138. f. 2.
Lam. An. sans Vert. vi. p. 255.
Smith, Strata Identified, f. 3.
Defr. Dict. Sc. Nat. liii. p. 160. pl. 62. f. 7.
Desh. Enc. Méth. iii. p. 1029; *in Lam.* ed. 2. vii. p. 344.
Buch, Mém. Soc. Géol. France, iii. p. 173. pl. 16. f. 17.
Dujardin, Dict. Univ. Hist. Nat. pl. 9. f. 5, 6.
Trigonosemus lyra, *König, Icones*, 1825, p. 4. pl. 6. f. 76, 77.
Bronn, Illust. Conch. pl. 49. f. 5–13.
Terebrirostra Lyra, *D'Orb. Ter. Crét.* iv. t. 519. f. 11–19; *Prod.* ii. p. 173.
Davidson, Mon. Cret. p. 32. pl. 3. f. 17–28.

Fossil. *U. Greensand.* England; France.

98. Waldheimia Arduennensis.

Shell elongated, depressed, radiately ribbed; ribs dichotomous, irregular, wavy; beak very long, often curved; deltidium channelled. Lon. 24, dorsal valve 13, lat. 8 lines.

Terebrirostra Arduennensis, *D'Orbigny*, 1847, *Ter. Crét.* iv. p. 128. t. 519. f. 6–10.
Terebratula lyra, var.?

Fossil. *Gault.* France.

99. Waldheimia Bargesana. B.M.

Shell lyre-shaped, ornamented with radiating, bifurcating ribs; dorsal valve oblong, slightly truncated and depressed in front; beak moderately produced, tapering, with a very small, apical foramen; area level, triangular; deltidium tapering, trilineate. Lon. 12, lat. 9, alt. 7 lines.

Terebrirostra Bargesana, *D'Orbigny*, 1851, *Journ. de Conch.* ii. p. 225. pl. 4. f. 2–5.
Dav. Ann. Nat. Hist. April 1852, pl. 14. f. 5.

Fossil. *Greensand.* Santander, N. Spain.

100. Waldheimia Neocomiensis.

Shell elongated, triangular, depressed, radiately ribbed; ribs dichotomous; valves very unequal, the dorsal slightly convex, the ventral with a straight, tapering beak; foramen small; deltidium elongated, triangular. Lon. 10 lines.

Terebrirostra neocomiensis, *D'Orb.* 1847, *Ter. Crét.* iv. p. 127. t. 519. f. 1–5; *Prod.* ii. p. 85.

Fossil. *Neocomian.* France.

101. WALDHEIMIA? LYRATA. B.M.

Shell orbicular, with a prominent beak; valves convex, ornamented with nine radiating rounded ribs; dorsal valve circular; beak produced, tapering, truncated by a minute foramen; area triangular, flat, sharply bordered; deltidium triangular, sunk. Lon. 4, lat. $3\frac{1}{2}$, alt. $2\frac{1}{2}$ lines.

Terebratula lyrata, *Münster*, 1841, *Beitr.* iv. p. 57. t. 6. f. 5 *c*.

Fossil. *Trias.* Tyrol.

102. WALDHEIMIA? HUMBOLDTII. B.M.

Shell obovate, with nine radiating plaits, crossed by a few imbricating lines of growth; middle plait smaller than the next; dorsal valve transverse, depressed in the centre, indented in front; beak elongated, tapering, truncated by a small round foramen; area triangular, flat, sharply bounded; deltidium narrow, sunk. Lon. , lat. , alt. lines.

Spirifer Humboldtii, *Klipstein*, 1844, *Beitr.* p. 233. t. 15. f. 17.
Terebratula lyrata (part.?), *Münst.* t. 6. f. 5 *a*, *b*?

Fossil. *Trias.* Tyrol.

103. WALDHEIMIA? PROCERRIMA. B.M.

Shell oval, with a long slender beak; valves ornamented with 12–13 radiating ribs; dorsal valve auriculate, with a small prominent umbo; central rib small, occupying a slight depression; hinge-line short and straight; beak elongated, tapering, curved, truncated by a minute foramen (or three foramina when broken); area long and narrow, sharply bounded. Lon. 5, lat. 3, alt. $2\frac{1}{2}$ lines.

Spirifer procerrimus, *Klipstein*, 1844, *Beitr.* p. 233. pl. 15. f. 8.
D'Orb. Prod. i. p. 204.

Fossil. *Trias.* Tyrol.

Tribe II. MAGASINA.

Shell smooth or radiately plaited; dorsal valve with a longitudinal depression; hinge-line straight, or only slightly curved; area usually distinct; deltidium frequently incomplete; loop attached to the septum of the dorsal valve (fig. 8).

Magas, *Sow. Min. Conch.* 1816, t. 119.
Terebratula, § C, *Blainv. Dict. Sci. Nat.* liii. 145, 1828.
Terebratulidæ, § 2, *Gray, Ann. & Mag. Nat. Hist.* 1848, ii. 435.
Wiegm. Arch. 1849, 98.
Lovén, Arsb. 1848 and 1849, 213, & p. 8.
Terebratulidæ, part., et Magasidæ, part., *D'Orb. Ann. Sci. Nat.* 1847.
Terebratula, *Retzius, Gen.*

Mr. James Sowerby the elder gives a "partial longitudinal septum with appendages attached to the hinge within," as the character of the genus *Magas*, which is that of the whole tribe. He first pointed out the advantage of studying the internal apparatus, and observed in 1816, "It is much to be wished that some person would publish an account of the curious internal appendages of these shells."—*Mineral Conch.* t. 119.

M. de Blainville in 1828 (*Dict. Sci. Nat.* liii. 145) used the form of the internal apparatus to divide the Terebratulæ into six divisions. Section A. "Gripus, *Megerle*" = Terebratulinina. B. = Terebratella. C. = Terebratulinina. D. = Megerlia. E. = Bouchardia. F. = Argiope.

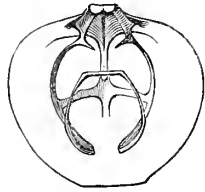
The genera into which the *Magasina* have been divided depend chiefly on modifications of the internal skeleton; these do not always correspond with the peculiarities of external form, or the character of the foramen and deltidium.

4. TEREBRATELLA.

Loop elongated, reflected, doubly attached;—to the hinge-plate, and also to the longitudinal septum by processes given off at right angles from the crura, near the centre of the valve.

Terebratella (chilensis), *D'Orb.* 1848, *Ann. Sc. Nat.* viii. 67.
King, 1849, *Permian Fossils*, 81, 144.
Dav. 1852, *Ann. Nat. Hist.* p. 366; *Mon. Cret.* p. 24.
Terebratulæ loricatæ, *Buch*, 1834, *über Terebrateln.*
Quenstedt, Handb. p. 463.
Terebratula (dorsata), *Retzius.*
Terebratella (dorsata), *D'Orbigny, Paleont. Franç.*
Delthyris (dorsata), *Menke, Syn.* ed. 2. p. 96.

Fig. 8. *Dorsal valve of Terebratella dorsata.*



1. TEREBRATELLA DORSATA. B.M.

Shell broadly ovate, somewhat trilobed, whitish, radiately ridged, the lateral ridges more oblique than the mesial; margins denticulate; dorsal valve with a broad and shallow central depression; beak short; foramen very large, incomplete; deltidia small, triangular, separate; hinge-area large, rather flattened; loop elongated, reflected, attached to a central septum. Lon. 14, lat. 14, alt. 6 lines.

Anomia dorsata, *Gmelin*, 1788, *S. N.* 3348.
Dillwyn, *R. S.* i. p. 295.
Anomia striata Magellanica, *Chemnitz*, *Conch. Cab.* viii. p. 101. t. 78. f. 710, 711.
Terebratula, *Lamk. E. M.* t. 242. f. 1.
D'Avila, i. t. 20. f. A. *Da Costa*, *Elem.* t. 6. f. 7.
Terebratula dorsata, *Schum. N. S.* p. 133.
Lamk. Hist. ed. 2. vii. p. 331.
Blainv. Man. Malac. t. 51. f. 1; *D. S. N.* liii. p. 137, 145.
Sow. Gen. Shells, f. 3; *Thes. Conch.* viii. p. 346. t. 68. f. 15, 16, 17.
Küster, *Conch. Cab.* vii. p. 22. t. 1. f. 17; t. 2. f. 14, 15.
Delthyris dorsata, *Menke*, *Syn.* ed. 2. p. 96.
Hab. Straits of Magellan.

2. TEREBRATELLA FLEXUOSA. B.M.

Shell wider than long, somewhat pentagonal, rather gibbous, pale brown, with prominent, bifurcating, radiated ridges; margins sinuated and denticulated; dorsal valve with a broad, indistinct mesial groove; ventral valve with a short beak and a wide, flattened hinge-area; foramen large, incomplete; deltidia small, separate; loop elongated, doubly attached. Lon. 15, lat. 16 lines.

Terebratula flexuosa, *King*, *Zool. Journ.* v. p. 337.
G. B. Sow. Thes. Conch. vii. p. 347. t. 69. f. 23, 24.
Hab. Straits of Magellan.

3. Terebratella Chilensis.

Shell transversely oval, slightly gibbous, pale brown, with radiating ridges; margins crenulated; dorsal valve with a smooth, wide and shallow longitudinal groove in the centre; beak obtuse; hinge-area large and flattened; foramen large, incomplete; deltidia moderate, separate; loop elongated, doubly attached. Lon. 14, lat. 16 lines.

Terebratula Chilensis, *Broderip, Proc. Zool. Soc.* 1836, p. 134.
G. B. Sow. Thes. Conch. vii. p. 347. t. 68. f. 18, 19.
Terebratella Chilensis, *D'Orb. Ann. Sc. Nat.* 1848, viii. p. 67. t. 7. f. 13.
King, Permian Fossils, p. 81, 1850.
Hab. Valparaiso, at 90 fathoms.

4. Terebratella Soverbii. B.M.

Shell rounded, trilobed, rusty brown, with obscure radiating ribs; margins sinuated in front; dorsal valve with a broad, longitudinal, central depression; hinge-area large and flattened; foramen large and incomplete; deltidia small, disunited; loop elongated, doubly attached. Lon. 17, lat. 17, alt. lines.

Terebratula Soverbii, *King, Zool. Journ.* v. p. 338.
G. B. Sow. Thes. Conch. vii. p. 348. t. 68. f. 20, 21, 22.
Terebratella Soverbii, *Dav. Ann. Nat. Hist.* 1852, p. 367.
Hab. Straits of Magellan.

5. Terebratella Coreanica. B.M.

Shell quadrangular, smooth, pale brown with crimson rays; beak obtuse, with lateral ridges; hinge-area large; foramen large, complete; deltidia united; dorsal valve flattish; loop elongated, doubly attached. Lon. 13, lat. 13½ lines.

Terebratula Coreanica, *Adams & Reeve*, 1850, *Zool. Samarang*, p. 71. pl. 21. f. 3.
Terebratella Coreanica, *Dav.* 1852, *Ann. Nat. Hist.* p. 367.
Hab. Corean Archipelago.

6. Terebratella Bouchardii.

Shell suborbicular, smooth, of a uniform light yellow colour; beak produced, recurved, furnished with lateral ridges, and truncated by a large, circular and entire foramen; deltidia united; hinge-area slightly concave; dorsal valve depressed in the centre in front; loop elongated, doubly attached. Lon. 14, lat. 13, alt. 8 lines.

Terebratella Bouchardii, *Davidson*, 1852, *Ann. Nat. Hist.* p. 367; *Proc. Zool. Soc.* p. . pl. . f. 4–6.
Hab. —— ? (Mus. Cuming.)

7. TEREBRATELLA RUBICUNDA. B.M.

Shell rounded, trilobed, gibbous, smooth, yellow-red, deeper at the lines of growth; margins sinuated in front; dorsal valve with a central, longitudinal furrow; beak rather produced, blunt; foramen large, nearly complete; deltidia large, separate; loop elongated, doubly attached. Lon. 12, lat. 11 lines.

Anomia rubicunda, *Solander MSS. Mus. Banks.*
Terebratula rubicunda, *Donovan, Nat. Repos.* t. 56. f. 2–4.
G. Sow. Thes. Conch. vii. p. 351. t. 70. f. 45–47.
Davidson, Ann. Nat. Hist. 1852, p. 367.
Terebratula inconspicua, *G. Sow. Thes. Conch.* vii. p. 359. t. 71. f. 102–104.
Hab. New Zealand.

8. TEREBRATELLA CRUENTA. B.M.

Shell rounded, ventricose, ornamented with radiating, dichotomous ribs, orange-red, deepest at the lines of growth; margins crenulated; dorsal valve with a central, longitudinal depression; beak somewhat produced, lateral ridges distinct; area large, rounded; foramen large, complete; deltidium large; loop elongated, doubly attached. Lon. 18, lat. 19, alt. 12 lines.

Lampas sanguineus, *Humph. Calonne Cat.* (not described).
Anomia sanguinea, *Solander MSS.* (*Humph. Cat.*) (not *Chemnitz*).
Terebratula sanguinea, *Leach, Zool. Misc.* t. 76.
Lam. An. sans Vert. vi. p. 243.
Donovan, Nat. Repos. t. 34.
Anomia cruenta, *Dillw. Syn.* p. 295, 1817.
Terebratula rubra, *Sow. Thes. Conch.* pl. 68. f. 9–11.
Terebratula Zelandica, *Deshayes*, 1830, *Mag. Zool.* 1841, t. 42.
Sow. Thes. Conch. vii. p. 361. t. 72. f. 111–113.
Terebratella Zelandica, *Davidson, Ann. Nat. Hist.* 1852, p. 367.
Hab. Cook's Straits, New Zealand, in 15 fathoms.

9. TEREBRATELLA TRANSVERSA.

Shell transversely ovate, thin, smooth, slightly wrinkled by lines of growth, pale horn-colour; margins flexuous; dorsal valve deeply depressed in the centre in front; ventral valve with an obtuse beak, perforated by a large, incomplete foramen; area wide and flattened; deltidia small, distant; loop elongated, doubly attached. Lon. 14, lat. 17 lines.

Terebratula transversa, *G. Sowerby, Thes. Conch.* vii. p. 361. t. 72. f. 114, 115.
Terebratella transversa, *Dav. Ann. Nat. Hist.* 1852, p. 368.
Hab. —— ? (Cab. Mr. Norris.)

10. Terebratella rubella.

Shell oval, pointed at the beak and truncated in front, smooth, red-yellow, with diverging rays of bright red; dorsal valve with a slight central depression in front; beak recurved; hinge-area narrow; foramen small; deltidia large, united; loop elongated, doubly attached. Lon. 10, lat. 8, alt. 5 lines.

Terebratula rubella, *G. Sowerby*, 1846, *Thes. Conch.* vii. p. 350. pl. 69. f. 10–12.
Terebratella rubella, *Dav. Ann. Nat. Hist.* 1852.
Hab. Japan. (Mus. Norris, Cuming.)

11. Terebratella sanguinea.

Shell suborbicular, slightly notched in front, pale yellowish, with bright red, spotted rays; margins slightly sinuated in front; dorsal valve rather depressed in front; beak short, rather pointed, with well-defined lateral ridges; perforation moderate, complete; deltidia rather large, united; area broad and well defined; loop elongated, doubly attached. Lon. 5, lat. $5\frac{1}{2}$, alt. 2 lines.

Anomia sanguinea, *Chemnitz*, *Conch. Cab.* viii. p. 96. t. 78. f. 706.
Dillwyn, *R. S.* p. 293, 1817.
Anomia sanguinolenta, *Gmelin*, *S. N.* p. 3347.
Terebratula sanguinea, *Sow. Thes. Conch.* vii. p. 357. t. 71. f. 71, 73.
Anomia cruenta, *Solander MS. in Mus. Banks.*
Terebratula cruenta, *Donovan*, *Nat. Repos.* t. 56. f. 1.
Terebratula erythroleuca, *Quoy & Gaim. Voy. Astrol.* iii. p. 557. t. 85. f. 8, 9.
Desh. in Lamk. Hist. ed. 2. vii. p. 350.
Terebratella sanguinea, *Dav. Ann. Nat. Hist.* 1852, p. 368.
Hab. Philippines, attached to coral.

12. Terebratella frontalis.

"*Shell* suborbicular, rather solid, calcareous, rough, with irregular lines of growth and tessellated with microscopic dots, dirty yellowish; valves equally convex; marginal line straightish, entire; *ventral* valve produced posteriorly, slightly recurved, widely truncated by a large foramen, cardinal area narrow; *dorsal* valve suborbicular or transversely oval, without any median furrow; loop elongated, doubly attached."

Terebratula frontalis, *Middendorff*, 1849, *Malac. Rossica*, ii. p. 518 (*Mém. Acad. Petersb. Sc. Nat.* vi.).
Hab. S. coasts of Sea of Ochotsk.

13. Terebratella Labradorensis. B.M.

Shell ovate, produced at the beak, whitish, with obscure radiating ribs; dorsal valve nearly orbicular, flattish; ventral valve with a prominent beak, perforated by a large, entire foramen; deltidium rather large; loop elongated, doubly attached. Lon. 7, lat. 6, alt. lines.

Terebratula Labradorensis, *G. Sowerby, Thes. Conch.* vii. p. 362. t. 71. f. 89, 90.
Terebratella Labradorensis, *Dav. Ann. Nat. Hist.* 1852, p. 368.
Hab. Labrador (Goodsir).

14. Terebratella Spitzbergensis.

Shell small, oval, elongated, smooth, pale horn-colour; valves almost equally convex, margins even; dorsal valve slightly depressed in front; beak produced, recurved, obscurely keeled; foramen moderate, incomplete; deltidium of two distinct elongated plates; loop elongated, reflected, attached near the extremity of the prominent central septum. Lon. 4, lat. 3, alt. 2 lines.

Terebratella Spitzbergensis, *Davidson*, 1852, *Proc. Zool. Soc.*
Hab. Spitzbergen. (Mus. Cuming.)

15. Terebratella pusilla.

Shell small, thin, nearly circular, depressed, smooth; area large; foramen large, incomplete; deltidia rudimentary. Lon. and lat. $2\frac{1}{2}$, alt. 1 line.

Terebratula pusilla, *Philippi*, 1844, *Foss. Tert. Allem.* p. 17. pl. 2. f. 15.
Terebratella pusilla, *D'Orb. Prod.* iii. p. 134.
Fossil. *Miocene.* Cassel.

16. Terebratella Sayi. B.M.

Shell orbicular, depressed, ornamented with about eleven radiating plaits, crossed by a few conspicuous lines of growth near the margin; plaits strong, sometimes plicated near the edge; dorsal valve rather flat; ventral convex; beak scarcely prominent; area small and flat; foramen small, incomplete; deltidium rudimentary. Lon. 9, lat. 9, alt. 5 lines.

Terebratula Sayi, *Morton*, 1829, *Journ. Philad.* p. 76. pl. 3. f. 5, 6; 1834, *Syn. Cret. Group*, p. 71. pl. 3. f. 3, 4.
Terebratula plicata, *Say*, 1830, *Amer. Journ.* ii. p. 43.
Terebratella plicata, *D'Orb. Prod.* ii. p. 259.
Fossil. *Chalk.* New Jersey, U.S.

17. Terebratella Vanuxemiana.

Shell suborbicular, ornamented with unequal radiating ribs; each valve with a central furrow, bordered by more prominent ribs; beak not prominent; area widely triangular; foramen large; deltidium incomplete. Lon. 8, lat. 7, alt. 4 lines.

Terebratula Vanuxemiana, *Forbes*, 1844, *Proc. Geol. Soc.* p. 308 (figured).
Terebratella Vanuxemiana, *D'Orb. Prod.* ii. p. 259.
Fossil. *Chalk.* New Jersey, U.S.

18. ?Terebratella Parisiensis.

Shell small, round, very inequivalve, ornamented with broad, keeled, dichotomising ribs.

Terebratella Parisiensis, *D'Orbigny*, 1850, *Prod.* ii. p. 259.
Fossil. *Chalk.* France.

19. Terebratella spathulata. B.M.

Shell smooth, with concentric lines of growth; *ventral* valve semicircular, strongly curved, truncated at the hinge-line, toothed at the angles; *dorsal* valve nearly flat, smooth, oblong, rounded in front; hinge-line straight, as wide as the shell; dental sockets at the angles of the hinge-line; cardinal process obtuse; hinge-plate broad, divided into four concave spaces; median septum narrow; loop (indicated at the hinge and septum) doubly attached. Lon. 10–15, lat. 10–12, alt. 8–10 lines.

Anomites spathulatus, *Wahlenberg*, 1821, *Act. Ups.* viii. p. 62. t. 4. f. 10, 11.
Terebratula spathulata, *Nilsson*, *Petr. Suec.* p. 35. t. 3. f. 15.
Bronn, *Index*, p. 1251.
Rhynchora spathulata, *Dalman*, 1828, *Vet. Akad.* p. 136.
Hisinger, *Leth. Suecica*, t. 20.
Fossil. *Chalk.* Sweden; Belgium.

20. Terebratella Davidsoniana. B.M.

Shell wedge-shaped, semicircular, truncated at the hinge-line; surface ornamented with lines of growth and radiated with prominent punctations; *dorsal valve* flat, with a narrow mesial fold; hinge-line straight, bordered by a plate with four cavities (for the pedicel-muscle) and with a small dental pit at each angle; a single prominent septum in the middle: *ventral valve* a simple bent plate, with a narrow mesial groove externally, a slight muscular ridge inside, and a tooth at each angle of the hinge-line. Lon. 4, lat. 6 lines.

Rhynchora Davidsoniana, *Koninck MS.*
? Rhynchora minima, *id.*
Fossil. *Chalk.* Ciply, Belgium.

21. TEREBRATELLA PECTITA.

Shell subcircular, or somewhat pentagonal, plicato-striated; striæ 30–60, increasing by intercalation; dorsal valve slightly convex, longitudinally depressed in the centre in front; hinge-line nearly as wide as the shell, almost straight; area distinct, flat, triangular; foramen moderate; deltidium double. Lon. 10, lat. 9, alt. 6 lines.

Terebratula pectita, *Sow. Min. Con.* 1818, ii. p. 87. t. 138. f. 1.
Lam. An. sans Vert. vi. p. 255. no. 46; ed. 2. vii. p. 343.
Brongn. Env. Paris, pl. 9. f. 3.
Defr. Dict. Sc. Nat. liii. p. 159.
Buch, Mém. Soc. Géol. Fr. iii. p. 168. pl. 16. f. 12.
Rœmer, Kreid. p. 40.
Terebratula pectinata, *Smith, Strata identified,* 1816, f. 4.
Terebratella pectita, *D'Orb. Ter. Crét.* iv. p. 120. t. 517. f. 16–20.
Dav. Mon. Cret. p. 26. pl. 3. f. 29–33.
Fossil. *U. Greensand.* England; France.

22. TEREBRATELLA VERNEUILLIANA. B.M.

Shell circular, ornamented with about 15 unequal, sharp, radiating plaits; valves nearly equally convex; beak scarcely curved; area short, wide and flat; foramen large, circular; deltidium complete, double. Lon. 6, lat. 6½, alt. 3 lines.

Terebratella Verneuilliana, *Davidson,* April 1852, *Ann. Nat. Hist.* pl. 14. f. 4.
Fossil. *Greensand.* Santander.

23. TEREBRATELLA CANALICULATA. B.M.

Shell ovoid, ornamented with 12–14 radiating and bifurcating plaits; dorsal valve semicircular, convex; ventral valve produced into a long straight beak, truncated by a large foramen; area large and flat; deltidium elongated; loop reflected and doubly attached. Lon. 5, lat. 4, alt. 2½ lines.

Terebratula canaliculata, *Rœmer,* 1840, *Kreid.* p. 41. no. 30. pl. 7. f. 1.
D'Archiac, Mém. Soc. Géol. Fr. 2nd ser. ii. p. 331. pl. 21. f. 15.
Terebratella canaliculata, *D'Orb. Prod.* ii. p. 173.
Terebrirostra canaliculata, *D'Orb. Prod.* ii. p. 173.
Fossil. *U. Greensand.* Westphalia; Belgium.

24. Terebratella Carantonensis.

Shell orbicular, depressed, ribbed; ribs fine (about 58), radiating, dichotomous; ventral valve with a slight dorsal furrow; area wide, foramen minute. Lon. 14, lat. 14, alt. 6 lines.

Terebratella Carantonensis, *D'Orb.* 1847, *Ter. Crét.* iv. p. 122. t. 518. f. 1–4.

Fossil. *U. Greensand.* France.

25. Terebratella Moreana.

Shell transversely ovate, depressed, radiately ribbed; ribs 10, wide, nearly simple, angular; ventral valve convex, with a deep central furrow; area wide, foramen small, deltidium large, double; dorsal valve rather flat. Lon. 6, lat. 6, alt. 3 lines.

Terebratella Moreana, *D'Orb.* 1847, *Ter. Crét.* iv. p. 117. t. 516. f. 13–19.

Fossil. *Gault.* France.

26. Terebratella Menardi. B.M.

Shell subcircular, trilobed, truncated or obtusely angular at the beak; valves ornamented with sharp, bifurcating plaits, about 6 or 7 on the mesial fold and 6–12 on each side, decussated by close imbricating lines of growth; area triangular, well defined; foramen large; deltidium small, indented; cardinal fulcrum prominent. Lon. 6½, lat. 7, alt. 4 lines.

Terebratula Menardi, *Valenciennes*, 1819, *in Lam. An. sans Vert.* vi. p. 256. no. 50.
Defr. Dict. Sc. Nat. liii. p. 160.
Buch, Mém. Soc. Géol. Fr. iii. pl. 17. f. 6.
Morris, 1846, *Journ. Geol. Soc.* p. 384. f. 2.
Dav. Ann. Nat. Hist. June 1850, pl. 14. f. 50.
Terebratella Menardi, *D'Orb. Ter. Crét.* iv. t. 517. f. 1–15.
Dav. Mon. Cret. p. 24. pl. 3. f. 34–42.
Terebratula truncata, *Sow.* 1829, *Min. Con.* vi. p. 71. t. 537. f. 3 (not *Lam.*).
Forbes, Journ. Geol. Soc. 1845, p. 346.
Austen, Journ. Geol. Soc. vi. p. 454.
Terebratella Astieriana, *D'Orb.* 1847, *Ter. Crét.* iv. p. 116. pl. 516. f. 6–12.

Fossil. *U. Greensand*; *Neocomian.* England; France.

27. Terebratella Neocomiensis.

Shell orbicular, depressed, radiately ribbed; ribs wide, oblique, dichotomous; valves nearly equal; beak small, curved, laterally

keeled; foramen small, complete; deltidium double. Lon. 11, lat. 10, alt. 4 lines.

Terebratella neocomiensis, *D'Orb. Ter. Crét.* iv. p. 115. t. 516. f. 1–5.

Fossil. *Neocomian.* France.

28. Terebratella pectunculoides. B.M.

Shell suborbicular, with seven broad and sharp radiating plaits; surface ornamented with lines more acutely angulated than the lines of growth, which are regular and distinct, especially near the margin; margins deeply dentated; beak short, truncated by a large round foramen; deltidium incomplete; area sharply bordered; loop elongated, doubly attached. Lon. 8, lat. 8, alt. 5 lines.

Terebratulites pectunculoides, *Schlotheim*, 1820, *Petr.* p. 271.
Terebratula pectunculoides, *Buch, Mém. Soc. Géol. Fr.* iii. p. 179. pl. 17. f. 1.
Quenst. Handb. p. 464. pl. 37. f. 24, 25.
Terebratula tegulata, *Schl. Petr.* p. 269.
Zieten, Verst. Würt. p. 58. pl. 43. f. 4.
Terebratula plicata, *Bors.* 1825, *Mem. Tor.* xxix. p. 299. t. 1. f. 17 (not *Lam.*).

Fossil. *Coral Rag.* Germany.

29. Terebratella loricata. B.M.

Shell trilobed, radiately plaited; plaits numerous, unequal, fasciculated, imbricated by numerous lines of growth; mesial lobe prominent; hinge-line as wide as the shell; beak moderately prominent, truncated by a large foramen; area flat, sharply bordered; deltidium incomplete. Lon. 5, lat. 5, alt. 3 lines.

Terebratulites loricatus, *Schlotheim*, 1820, *Petr.* p. 270.
Terebratula loricata, *Buch, Mém. Soc. Géol. Fr.* p. 183. pl. 17. f. 5.
Quenst. Handb. p. 464. pl. 37. f. 19.
Terebratula truncata, *Zieten, Verst. Würt.* p. 58. pl. 43. f. 6 (not *Sow.*).

Fossil. *Coral Rag.* Germany.

30. Terebratella subpentagona.

Shell subquadrate, ornamented with 10–11 radiating plaits; dorsal valve flattened, slightly depressed in front; front truncated; hinge-line wide and rather straight; beak short and wide; area flat; foramen small; deltidium double, complete. Lon. 7½, lat. 6, alt. 4 lines.

Terebratella subpentagona, *Koch*, 1837, *Beitr. zur Kenn. Ool.* p. 21. pl. 1. f. 8.
D'Orb. Prod. i. p. 221.
Fossil. *Lower Lias.* Germany.

5. TRIGONOSEMUS.

Shell plaited, beak produced, curved, with a narrow apical foramen; area large, triangular, flat, marked by the outline of the flat deltidium; cardinal process very prominent.

Trigonosemus (elegans), *König*, 1822, *Icones Foss.* p. 3. f. 73.
Davidson, 1852, *Mon. Cret.* p. 28.
Delthyridæa (pectiniformis), *M'Coy*, 1845, *Griffith's Irish Carb. Fossils* (unpublished).
Fissurirostra (recurva), *D'Orb. Ter. Crét.* iv. p. 133. t. 520; *Ann. Sc. Nat.* 1848.
Fissirostra, *D'Orb.* 1849, *Cours Elem. Palæont.* p. 89.

1. Trigonosemus elegans. B.M.

Shell oval, striato-costate; striæ 30–40, often intercalated; dorsal valve slightly convex, longitudinally depressed in front; beak much produced, rather recurved; area very large, triangular, nearly flat; foramen small and narrow, apical; loop elongated, reflected, doubly attached; cardinal process very prominent. Lon. 11, lat. 9, alt. 5 lines.

Trigonosemus elegans, *König*, 1825, *Icones Foss.* p. 3. pl. 6. f. 73.
Davidson, Mon. Cret. p. 29. pl. 4. f. 1–4.
Terebratula elegans, *Defr.* 1828, *Dict. Sc. Nat.* liii. p. 157.
Terebratula recurva, *id.* p. 161.
Fissurirostra recurva, elegans, et pectita, *D'Orb.* 1847, *Ter. Crét.* iv. p. 133–136. t. 520.

Fossil. *Chalk.* England (Norwich); Belgium (Ciply); France.

2. Trigonosemus pectiniformis. B.M.

Shell trapezoidal, depressed, radiately ribbed; ribs straight, dichotomous; *ventral* valve elevated in the middle, depressed at the sides; beak recurved; area nearly as wide as the shell, deep, sharply margined; deltidium triangular, flat; foramen minute, apical; *dorsal* valve triangular, depressed in the centre; cardinal process prominent; loop elongated, reflected, doubly attached. Lon. 6, lat. 6, alt. 3 lines.

Terebratulites pectiniformis, *Schlotheim*, 1813, *Taschb.* vii. p. 113.

Terebratula pectiniformis, *Buch, Ter.* p. 65. t. 3. f. 31.
Bronn, Leth. p. 652. t. 30. f. 5.
Rœmer, Kreid. p. 41.
Quenst. Handb. p. 463. t. 37. f. 14 (not 12, 13).
Terebratula Hilseana, *Rœmer, Ool.* ii. p. 20. t. 18. f. 9; *Kr.* p. 41.
Fossil. *U. Chalk.* Maestricht.

3. Trigonosemus Palissii. B.M.

Shell orbicular, depressed, radiately plaited; plaits numerous, intercalating; margins crenulated; dorsal valve slightly concave, sinuated in front; hinge-line curved, narrower than the shell; cardinal process prominent; loop doubly attached; ventral valve convex; beak prominent, curved, with a minute apical foramen; hinge-area large, triangular, concave, sharply bordered; deltidium large, triangular, flat. Lon. 7½, lat. 7, alt. 3 lines.

Terebratella Palissii, *Woodward*, 1852, *Mus. Brit.*
Trigonosemus pulchellus (not *Nilsson*), *Dav. Ann. Nat. Hist.* June 1850, pl. 15. f. 4 (incorrect).
Terebratula pulchella (part.), *Quenst. Handb.* t. 37. f. 12, 13?
Fossil. *Upper Chalk.* Ciply, Belgium.

4. Trigonosemus pulchellus. B.M.

Shell suborbicular, depressed, radiately plaited; plaits intercalating; *dorsal* valve slightly concave, truncated at the hinge-line; *ventral* valve convex, with a prominent, incurved and sharp-edged beak; hinge-area large, triangular, concave; foramen apical, minute; deltidium large, triangular, flat; loop elongated, reflected, attached to a septum which reaches the opposite valve. Lon. 7, lat. 6, alt. 2 lines.

Terebratula pulchella, *Nilsson*, 1827, *Petref. Sues.* p. 36. pl. 3. f. 14.
Rœmer, Kreid. p. 41.
Dalman, Vet. Akad. p. 138.
Fossil. *Upper Chalk.* Sweden.

5. Trigonosemus incertus.

Shell elongated, oval, striated; valves almost equally convex; beak produced, rounded, moderately recurved; area triangular, nearly flat, short; foramen small, oval; deltidium bordering a small portion of the foramen; striæ about 34, frequently intercalated, and decussated by numerous, fine, concentric lines of growth. Lon. 4½, lat. 4, alt. 2½ lines.

Trigonosemus incertus, *Davidson, Mon. Cret.* p. 31. pl. 4. f. 5.
Fossil. *Lower Chalk* (*Craie chloritée*). Chard, Somerset.

6. MAGAS.

Shell with a reflected loop attached near the bend to a very prominent central septum (figs. 9–12).

Magas, *Sowerby*, 1816, *Min. Con.* ii. p. 39. t. 119.
Dav. 1852, *Mon. Cret.* p. 19; *Ann. Nat. Hist.* 1852, p. 371.
D'Orb. Ter. Crét. 1847, iv. p. 54.
Terebratulæ spiriferinæ (part.), *Quenst. Handb.* p. 476.
Terebratula, E. 1, *Blainv. Man. Malac.* p. 512.

Figs. 9 & 10. *Magas pumila.*

Fig. 9.

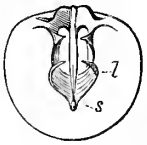


Fig. 10.

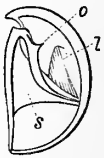


Fig. 9.—Interior of dorsal valve.
Fig. 10.—Section of both valves: *s.* septum; *l.* loop; o. oral processes.

Figs. 11 & 12. *Magas Evansii.*

Fig. 11.

Fig. 12.

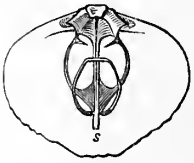


Fig. 11.—Section of dorsal valve.

Fig. 12.—Front view of interior.

In *M. pumila* the reflected portions of the loop are not united, and the deltidium consists of two narrow plates bordering the angular foramen.

1. Magas crenulata.

Shell suborbicular, pale horn-colour, with radiating ribs; margins crenulated; beak short, slightly reflected; hinge-area large and flattened; foramen large, nearly complete; deltidia large,

separate; dorsal valve depressed in the centre; loop elongated, doubly attached; central septum more or less elevated, sometimes touching the opposite valve. Lon. 7, lat. 7, alt. 4 lines.

Terebratula crenulata, *G. Sowerby, Thes. Conch.* vii. p. 358. t. 71. f. 96, 97, 98.
Terebratella crenulata, *Dav. Ann. Nat. Hist.* 1852, p. 368.
Hab. Santa Cruz.

2. Magas Evansii.

Shell subovate, with a few unequal, bifurcating ribs, pale red; beak tapering, slightly recurved, with well-defined lateral ridges; foramen incomplete; deltidia small; area flattened; dorsal valve rather flat; loop elongated, doubly attached; septum produced, nearly touching the opposite valve. Lon. 4, lat. $3\frac{1}{2}$, alt. $1\frac{1}{2}$ lines (figs. 11, 12).

Terebratella Evansii, *Davidson*, 1852, *Ann. Nat. Hist.* p. 368; *Proc. Zool. Soc.* p. . pl. . f. 7–9.
Hab. New Zealand. (Mus. Cuming.)

3. Magas Cumingii.

Shell oval, thick, smooth, white, slightly tinged with red; beak produced, tapering, slightly curved, grooved to the summit; area triangular, concave; deltidium obsolete; dorsal valve with a prominent muscular fulcrum; loop doubly attached; septum elevated, reaching the ventral valve. Lon. 5, lat. 4, alt. $2\frac{1}{2}$ lines.

Terebratella Cumingii, *Davidson*, 1852, *Ann. Nat. Hist.* p. 368; *Proc. Zool. Soc.* p. . pl. . f. 10–16.
Hab. New Zealand. (Mus. Cuming.)

4. Magas pumila. B.M.

Shell oval, smooth, ornamented with radiating coloured bands; dorsal valve nearly flat, or slightly concave; ventral valve deep, with a well-defined hinge-area; beak recurved; foramen minute; deltidium rudimentary. Lon. 4, lat. 3, alt. lines (figs. 9, 10).

Magas pumila, *Sowerby*, 1818, *Min. Con.* ii. p. 40. t. 119. f. 1–5.
Park. Org. Rem. p. 227. pl. 7. f. 14.
Brongn. Env. Paris, pl. 4. f. 9.
Defr. Dict. Sc. Nat. xxviii. p. 13. f. 1.
Bronn, Leth. Geog. p. 662. pl. 30. f. 1.
D'Orb. in Murch. Russia, ii. p. 495. pl. 43. f. 27–30; *Ter. Crét.* iv. p. 54. pl. 501.
Bouchard & Dav. Bull. Soc. Géol. France, v. 2nd ser. p. 139. pl. 2. f. 1–11.

Magas pumila, *Sow. Thes.* vii. p. 62. pl. 1. f. 7–9.
Dav. Ann. Nat. Hist. v. pl. 15. f. 2, 1850.
Quenst. Handb. p. 476. t. 38. f. 15.
Magas truncata, *Rose, in Woodw. Geol. Norf.* t. 6. f. 9.
Magas magna et punctata, *Woodw. Synopt. Table,* p. 22.
Terebratula concava, *Lamarck,* 1819, *An. sans Vert.* vi. p. 251. no. 26.
Dav. Ann. Nat. Hist. v. June 1850.
Desh. Lam. ed. 2. vii. no. 26.
Terebratula (G.) magas, *Blainv. Man. Malac.* p. 512. t. 54. f. 1, 1825.
Terebratula pumila, *Buch, Mém. Soc. Géol. France,* iii. 1st ser. p. 216. pl. 19. f. 5.
Fossil. *Chalk.* England; Belgium; France; Russia.

5. MAGAS ORTHIFORMIS.

Shell semicircular, wedge-shaped, depressed, ornamented with obscure, unequal radiating plaits, crossed by distinct lines of growth; hinge-line straight, nearly as wide as the shell; dorsal valve flat; ventral valve convex, truncated at the beak; area flat; foramen a wide, angular notch, bored by the deltidia. Lon. 4, lat. $4\frac{1}{2}$, alt. 3 lines.

Terebratula orthiformis, *D'Archiac,* 1847, *Mém. Soc. Géol. Fr.* 2 ser. p. 333. pl. 22. f. 4.
Terebratella orthiformis, *D'Orb. Prod.* ii. p. 173.
Orthis millepunctata, *Koninck.*
Magas orthiformis, *Dav. Monogr. Cret. Brach.* p. 22.
Fossil. *U. Greensand.* Belgium.

7. BOUCHARDIA.

Shell with a minute foramen at the apex of the beak; deltidium solid; apophysis anchor-shaped, the central septum being furnished with two short lamellæ.

Terebratula, § E, *Blainv. D. S. N.* liii. 145, 1828.
Bouchardia (rosea), *Davidson, Bull. Soc. Géol. France,* 1849; *Ann. Nat. Hist.* 1852, p. 372.
King, Permian Fossils, p. 81, 1850.

Bouchardia tulipa.

Fig. 13. Fig. 14.

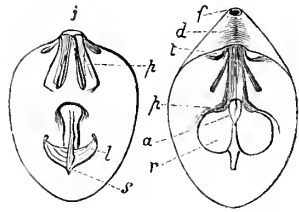


Fig. 13.—Interior of dorsal valve: *j*. cardinal process; *p*. hinge-plate; *l*. loop; *s*. septum.

Fig. 14.—Interior of ventral valve: *f*. foramen; *t*. teeth; *a*, adductor scar; *p*. peduncle scars; *r*. retractor scars.

The great muscular impressions in *Producta*, which correspond to these retractor scars, have been mistaken for points of attachment of the peduncle.

1. BOUCHARDIA TULIPA. B.M.

Shell oblong-oval, rather depressed, thick, smooth, pale rose-red, with darker rays; margins even; beak rather produced, straight; perforation very small, entire; hinge-area rather wide; deltidia united; dorsal valve oval, flattish; cardinal fulcrum (figs. 13, 14).

Terebratula tulipa, *Blainv. Dict. Sci. Nat.* liii. 144, 1828.
Terebratula rosea, *Mawe, Introd. Conch.* t. . f. .
Sow. Gen. f. 4; *Thes. Conch.* vii. p. 357. t. 71. f. 74–77.
Desh. in Lamk. Hist. ed. 2. vii. p. 350.
King, Ann. & Mag. N. H. xviii. 34. 38. 1846.
Pachyrhynchus roseus, *King, Permian Fossils*, p. 70.
Bouchardia rosea, *Davidson, Bull. Soc. Géol. France*, 1849, pl. 1. f. 1–6.
King, Permian Fossils, p. 81.
Hab. Brazil (Rio, 13 fathoms, J. M'Gillivray).

7*. WALTONIA?

Shell oval, smooth, punctate; valves convex; margins sinuated; beak truncated by a large, incomplete foramen; deltidia separate; loop reduced to two simple lamellæ, furnished with oral processes, and attached to a prominent central septum.

Waltonia (Valenciennii), *Dav.* 1850, *Ann. Nat. Hist.* v. p. 475: 1852, p. 372.

Waltonia differs from *Terebratella* in wanting the reflected portion of the loop; it may, possibly, have been broken away; only one minute specimen is known.

1. WALTONIA VALENCIENNII.

Shell small, oval, red, smooth, with the margin fimbriated, the plaits radiating in front, diverging at the sides; dorsal valve nearly flat; ventral valve convex; beak prominent; foramen large and incomplete; deltidia disunited. Lon. 2½, lat. 2, alt. 1 line.

Waltonia Valenciennii, *Davidson*, 1850, *Ann. Nat. Hist.* pl. 15. f. 1; 1852, p. 370.
Hab. New Zealand (Mus. Paris).

8. MEGERLIA.

Shell transversely oblong, with a wide and rather straight hinge-line; area distinct; foramen incomplete; loop rather short, reflected, triply attached,—once to the hinge-plate, and twice to the septum, by processes from the crura and also from the reflected portion of the loop (fig. 16).

Terebratula, § D, *Blainv. Dict. Sci. Nat.* liii. 145, 1828.
Megerlia (truncata), *King*, 1850, *Permian Fossils*, 81. 145.
Dav. 1852, *Ann. Nat. Hist.* p. 369.
Ismenia (pectunculus), *King*, *Perm. Foss.* 81. 142, 1850.
Orthis, sp., *Philippi*, *Moll. Sicil.*
Kingena (lima), *Davidson*, 1852, *Mon. Cret.* p. 41. f. 5, 6.
Terebratulæ expansæ, *Morris*, 1846, *Journ. Geol. Soc.* p. 385.
Terebratulæ annuliferæ (part.), *Quenst. Handb.* p. 462.

Megerlia truncata.

Fig. 15.

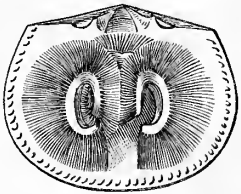


Fig. 16.

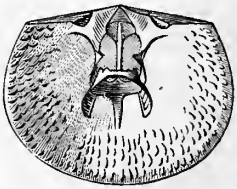


Fig. 15.—Interior of dorsal valve with the animal.
Fig. 16.—Ditto, showing the loop.

The *Megerliæ* often resemble *Argiope* in shape, and in having corresponding ribs; the denticulation of the internal margin of the valves in some species may be compared with the larger marginal processes of the latter genus.

* *Loop doubly attached.* Megerlia.

1. MEGERLIA TRUNCATA. B.M.

Shell transversely oblong, or suborbicular, with a long straight hinge-line, horn-coloured, with very fine radiating striæ; beak truncated; hinge-area flat and wide; foramen large, incomplete; deltidia minute, separate; dorsal valve nearly flat, slightly depressed in front; interior of both valves spinulose; loop short, doubly attached, and giving off from its reflected portion two additional processes to the central septum. Lon. 6, lat. 9 lines (figs. 15, 16).

List. Conch. t. 462. f. 23.
Anomia truncata, *Linn. S. N.* 1152.
Born, Mus. 118. t. 6. f. 14.
Chemnitz, Conch. Cab. viii. 90. t. 77. f. 701.
Gmelin, S. N. 3343.
Dillw. R. S. i. p. 292.
Poli, Test. Sicil. p. 191. t. 30. f. 16, 17.
Pallas, Misc. Zool. t.
Terebratula, *Lamk. E. M.* t. 243. f. 2.
Terebratula truncata, *Retz. Nov. Gen.* p. 14.
Lamk. Hist. vi. p. 247; ed. 2. vii. p. 333.
Sow. Thes. Conch. vii. p. 354. t. 71. f. 64–67.
De Buch, Mem. p. 66.
Blainv. D. S. N. liii. p. 139.
Philippi, Moll. Sicil. i. p. 95. t. 6. f. 12.
Quenst. Handb. p. 462. t. 37. f. 10.
Terebratella truncata, *D'Orb. Ann. Sci. Nat.* 1848, viii. p. 66. t. 7. f. 11, 12, 16, 37.
Terebratula monstrosa, *Scacchi, Oss. Zool.* ii. p. 1.
Anomia discuius, *Pallas, Misc. Zool.* p. 184. t. 14. f. 1 (1766).
Terebratula (D.) discuius, *Blainv. D. S. N.* liii. p. 138.
Orthis truncata, *Philippi, Sicil.* ii. p. 69.
Megerlia truncata, *King*, 1850, *Permian Fossils*, 81. 145.
Dav. Ann. Nat. Hist. 1852, p. 369.
Terebratula oblita, *Michelotti, Brach.* p. 4.
Orthis oblita, *Mich. Faun. Mioc.* pl. 2. f. 21.

Megathyris oblita, *D'Orb.* 1852, *Prod.* iii. p. 134.
Hab. Mediterranean, on corals, at 60–105 fathoms.

Fossil. *Miocene.* Turin; Gibraltar; Malta.

Terebratula irregularis, *Blainv. D. S. N.* liii. 140=? Terebratula ostracea, *Blainv. D. S. N.* liii. 145, is perhaps a variety.

** *Loop trebly attached.* Ismenia.

2. MEGERLIA PULCHELLA.

Shell oval, pointed at the beak, smooth, whitish, with a few radiating red lines; margins rather flexuous; foramen large, incomplete; deltidia small, separate; area indistinct; dorsal valve flattened; loop small, trebly attached. Lon. 3, lat. 2, alt. 1 line.

Terebratula pulchella, *G. Sowerby, Thes. Conch.* vii. p. 360. pl. 71. f. 105–107.
Megerlia pulchella, *Dav. Ann. Nat. Hist.* 1852, p. 369.
Hab. Philippines; Cocos Island.

3. MEGERLIA PECTUNCULUS. B.M.

Shell pentagonal, with seven corresponding ribs to each valve; ribs unequal, projecting beyond the margin, four large and three intermediate smaller; both ribs and interspaces ornamented with regular squamose lines of growth; margins even; beak short, truncated by a large foramen; deltidium incomplete; loop small, trebly attached. Lon. 6, lat. 7, alt. 4 lines.

Terebratulites pectunculus, *Schlotheim*, 1820, p. 272.
Terebratula pectunculus, *Buch, Mém. Soc. Géol. Fr.* iii. p. 188. pl. 17. f. 1*.
Quenst. Handb. p. 466. t. 37. f. 23, 25.
Terebratella pectunculus, *D'Orb. Prod.* i. p. 377.
Ismenia pectunculus, *King, Permian Foss.* 81. 142.

Fossil. *Oxford Clay.* France.
Coral Rag. Bavaria; Wurtemburg.

4. MEGERLIA LIMA. B.M.

Shell orbicular or slightly pentagonal, smooth, or minutely granulated; dorsal valve nearly flat; ventral deeply convex; beak short, recurved; foramen moderate; deltidium rudimentary, concealed; loop rather long, attached to the median septum by crural processes and also by processes from the reflected and expanded termination. Lon. 9, lat. 6, alt. 5 lines.

Terebratula lima, *Defrance, Dict. Sc. Nat.* 1828, t. liii. p. 156. *D'Orb. Ter. Crét.* iv. p. 98. pl. 512. f. 1–5.
Terebratula pentangulata, *Woodward, Geol. Norf.* 1833, pl. 6. f. 10.
Terebratula ventro-plana, *Rœmer, Nordd. Ool.* p. 51. t. 2. f. 7.
Terebratula Hebertiana, *D'Orb.* 1847, *Ter. Crét.* pl. 514. f. 5, 11.
Terebratula spinulosa, *Morris,* 1847, *Ann. Nat. Hist.* xx. p. 253. pl. 18. f. 6.
Terebratula sex-radiata, *J. Sow.* 1850, *Dixon's Geol. Sussex,* p. 348. pl. 27. f. 10.
Kingena lima, *Davidson, Mon. Cret.* p. 42. pl. 4. f. 15–28; pl. 5. f. 1–4.
? Terebratula arenosa, Deshayesii, subconcava, et subarenosa, *D'Archiac,* 1847, *Mem. Soc. Géol. Fr.* ii. pt. 2.

Fossil. *Gault, Upper Greensand, Chalk.* England; France.

*** *Doubtful species.*

5. Megerlia? Wacoensis.

Shell subpentagonal, ventricose, smooth; margins even, front straight; dorsal valve convex, with indications of a long internal septum; ventral valve gibbose; beak obtuse, recurved, laterally keeled; foramen small and round; deltidium distinct. Lon. 9, lat. 8, alt. 6½ lines.

Terebratula Wacoënsis, *Rœmer,* 1852, *Kreid. Texas,* p. 81. t. 6. f. 2.

Fossil. *Chalk.* Guadaloupe.

6. Megerlia? ovata. B.M.

Shell oval or elongated, depressed; surface ornamented with minute, wavy, spinulose striæ; dorsal valve nearly flat, with a central depression in front, increasing with age; ventral valve convex; beak produced, nearly straight, lateral ridges distinct; foramen moderate, circular; deltidium small, complete. Lon. 19, lat. 13, alt. 11 lines (large specimen).

Terebratula ovata, *Sowerby,* 1812, *Min. Con.* i. p. 46. t. 15. f. 3. *Davidson, Mon. Cret.* p. 47. t. 4. f. 6–13 (not *Mantell, Geol. S. Downs,* 1822).
Terebratula lachrymosa, *D'Orb.* 1847, *Ter. Crét.* iv. p. 99. pl. 512. f. 6–11.
Terebratula Keyserlingi, *D'Arch.*

Fossil. *Upper Greensand.* England; France.

7. MEGERLIA? ARCUATA.

Shell oval, attenuated posteriorly, slightly truncated in front, ornamented with diverging spinulose striæ; dorsal valve gibbous at the umbo, depressed in front; beak pointed, foramen minute, deltidium elongated, triangular, double. Lon. 5, lat. 3½, alt. 3 lines.

Terebratula arcuata, *Rœmer*, 1840, *Nordd. Kreid.* p. 44. t. 7. f. 18.
Bronn, Index, p. 1229.

Fossil. *Neocomian* (*Hilsconglomerate*). Westphalia.

8. MEGERLIA? RUGULOSA. B.M.

Shell oblong, front margin truncated or slightly indented, surface minutely wrinkled; dorsal valve convex, sometimes depressed in front; ventral valve deep; beak rather produced, lateral ridges obscure; foramen large, circular; deltidium small; loop——? Lon. 11, lat. 8, alt. 7 lines.

Terebratula rugulosa, *Morris & Davidson*, 1847, *Ann. Nat. Hist.* xx. p. 253. pl. 18. f. 5.
Dav. Mon. Cret. p. 49. pl. 4. f. 14.
Terebratula disparialis (part.), *D'Orb. Ter. Crét.* 1847, iv. p. 100. pl. 512. f. 12, 13 (not 16, 17, which represent *T. squamosa*).

Fossil. *U. Greensand*; *Chalk-marl.* England; France.

9. MEGERLIA? VERNEUILI.

Shell oval, elongated, depressed, ornamented with squamose lines of growth and diverging spinulose striæ; margins slightly flexuose in front; beak produced, nearly straight, truncated by a large circular foramen; deltidium elongated. Lon. 5, lat. 3, alt. 2 lines.

Terebratula Verneuili, *D'Arch.* 1847, *Mem. Geol. Soc. Fr.* ii. p. 326. pl. 20. f. 4.
D'Orb. Prod. ii. p. 172.

Fossil. *U. Greensand.* Belgium.

10. MEGERLIA? NANA. B.M.

Shell small, orbicular, depressed, smooth, with obscure radiating furrows, and numerous lines of growth near the margin; punctation conspicuous; dorsal valve flat, with a strong internal median plate; ventral valve convex; beak rounded, much recurved; foramen small; deltidium concealed*. Lon. 6, lat. 5½, alt. 3½ lines.

* Three species having been sent with this name, by Dr. Braun, the description is taken from the specimen to which the label was affixed.

Terebratula nana, *Münster, Bair.* p. 48.
Braun, Bair. p. 44.
Rœmer, Nordd. Ool. p. 52. t. 2. f. 20.
Bronn, Index, p. 1242.

Fossil. *Oxford Clay.* Bavaria.

11. MEGERLIA? DESLONGCHAMPSII.

Shell small, oval, rather depressed, covered with minute tubular asperities, between which the punctations are visible; margins even; front truncated; beak prominent; foramen moderate, incomplete; deltidia separate. Lon. 3½, lat. 3, alt. 1½ lines.

Terebratula Deslongchampsii, *Davidson*, June 1850, *Ann. Nat. Hist.* pl. 15. f. 6.

Fossil. *Lias.* Normandy.

12. MEGERLIA? HIPPOPUS. B.M.

Shell ovate or rounded, inflated, smooth; valves unequal, the ventral largest, ventricose, with a short recurved umbo; foramen small; deltidium triangular; dorsal valve convex, with a deep medio-longitudinal depression. Lon. 14, lat. 14, alt. 10 lines.

Terebratula hippopus, *Rœmer*, 1841, *Kreid.* p. 114. t. 16. f. 28.
D'Orb, Ter. Crét. iv. p. 85. t. 508. f. 12–18.
Geinitz, Kreid. p. 87.
Terebratula resupinata, *Pusch, Polens Pal.* p. 23. t. 4. f. 6 (not *Sow.*).

Fossil. *Neocomian*; *Chalk.* France; Belgium.

See also Terebratula irregularis, *Blainv. D. S. N.* liii. 140=Terebratula ostracea, *Blainv. D. S. N.* liii. 146.

9. MORRISIA.

Shell with a large foramen, encroaching equally on both valves; ventral valve with a small, straight area; loop not reflected, united to a small forked process in the centre of the valve; structure coarsely punctate (fig. 18).

Animal with sigmoid arms, destitute of spiral termination (fig. 17).

Morrisia (appressa), *Dav.* 1852, *Ann. Nat. Hist.* p. 371.
Orthis, sp., *Philippi*, 1844, *Moll. Sicil.* ii. p. 69.

Morrisia anomioides.

Fig. 17.

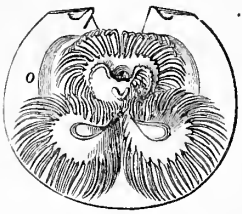


Fig. 18.

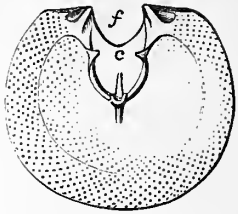


Fig. 17.—Interior of the dorsal valve with the animal: *o.* the orange-coloured ovaries.
Fig. 18.—Ditto showing the loop: *c.* oral processes; *f.* foramen.

1. MORRISIA ANOMIOIDES.

Shell minute, circular, depressed, smooth, olive-green, translucent; foramen large and round, encroaching equally on both valves; area of ventral valve chiefly occupied by the foramen; deltidia rudimentary; dorsal valve deeply notched at the umbo; loop consisting of two simple plates (*crura*) attached to the sides of the umbonal notch, and to a central, bifurcated process. Lon. 1, lat. $1\frac{1}{4}$, alt. $\frac{1}{2}$ line (lat. 3 lines, *Forbes*) (figs. 17, 18).

Terebratula anomioides, *Scacchi.*
Philippi, Moll. Sicil. ii. p. 69. t. 18. f. 9, 1844.
Terebratula appressa, *Forbes*, 1844, *Brit. Assoc. Report on Egean Moll.* p. 167, 193 (read 1843).
Morrisia seminulum, *Dav. Ann. Nat. Hist.* 1852, p. 371 (not *Ter. seminulum*, Phil.).
Morrisia anomioides, *Dav.* 1852, *Proc. Zool. Soc.* p. . pl. . f. 29.
Hab. Mediterranean, at 95 fathoms.

2. MORRISIA LUNIFERA.

Shell minute, subcordate, compressed, front margin slightly indented; area moderate; internal skeleton consisting of a semilunar plate in the centre of the dorsal valve. Lon. and lat. $1\frac{1}{2}$ line.

Terebratula lunifera, *Philippi*, 1836, *Moll. Sicil.* i. p. 97. t. 6. f. 16 (not *Sow.*).
Orthis lunifera, *Philippi, Moll. Sicil.* ii. p. 69.
Argiope Forbesii (syn.), *Dav. Ann. Nat. Hist.* May 1852, p. 373.
Hab. Mediterranean.

3. Morrisia? eusticta.

Shell small, orbicular, depressed, smooth, with a few obscure lines of growth, densely punctate and ornamented with radiating rows of minute points; dorsal valve convex, with an obtuse longitudinal ridge; beak not prominent; foramen large, incomplete; deltidium rudimentary. Lon. 5½, lat. 5 lines.

Terebratula eusticta, *Philippi*, 1836, *Moll. Sicil.* i. p. 98. t. 6. f. 9.
Orthis eusticta, *Phil.* 1844, *Moll. Sicil.* ii. p. 70.

Fossil. *Pliocene.* Palermo.

10. KRAUSSIA.

Shell subcircular, with a nearly straight hinge-line; beak truncated; foramen large and round; deltidia small, disunited; beak laterally keeled; hinge-area flat; dorsal valve longitudinally depressed; internal skeleton consisting of a small forked process arising from the septum, near the centre of the valve (fig. 19).

Kraussia (rubra), *Davidson*, 1852, *Ann. Nat. Hist.* p. 369.
Terebratulæ annuliferæ (part.), *Quenst. Handb.* p. 463.

Fig. 19. *Kraussia rubra.*

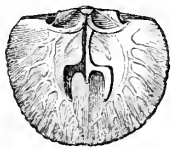


Fig. 20. *K. Lamarckiana.*

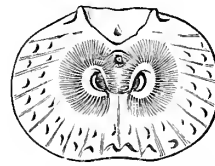


Fig. 19.—Interior of dorsal valve, showing the forked apophysis in the centre, and the branching pallial vessels on each side.
Fig. 20.—Interior of dorsal valve with the animal, from a dry specimen in the British Museum.

The brachial apparatus of *Kraussia Lamarckiana* (fig. 20) is like that of *Terebratula* and *Terebratella*, but the arms are unusually small in the species examined, and their fringes do not extend more than half way towards the border of the shell; they are supported solely by the small forked process above described, no other part of the apophysary system being calcified.

1. Kraussia rubra. B.M.

Shell suborbicular, ornamented with numerous, radiating ribs, sometimes bifurcating, or augmenting by intercalation; colour pale, with red rays and bands of growth; *dorsal valve* (see fig. 19) slightly depressed in the centre, in front, furnished internally with

a forked central process, expanded at the extremities; *ventral valve* deep, simple; hinge-area flat, encroached upon by the large irregular foramen; deltidium small, incomplete. Lon. 11, lat. 13, alt. 6 lines (fig. 19).

Anomia rubra, *Pallas*, 1766, *Misc. Zool.* t. 14. f. 2, 11.
Anomia striata P. B. Spes, *Chemnitz*, 1785, viii. p. 94. t. 77. f. 703.
Anomia capensis, *Gmelin*, 1788, *S. N.* p. 3347.
Dillw. R. S. i. p. 292.
Terebratula rubra, *Blainv. D. S. N.* liii. p. 138, 1828.
Sow. Thes. Conch. vii. t. 68. f. 10 (not 9 & 11).
Terebratula capensis, *Krauss, Sudafr. Moll.* p. 32. t. 2. f. 10 (not *Adams*).
Kraussia rubra, *Davidson, Ann. Nat. Hist.* 1852, p. 370.
Hab. S. Africa.

2. KRAUSSIA COGNATA. B.M.

Shell trapezoidal, rounded in front, pale horn-colour, with obscure radiating striæ; beak obtuse, reflected; hinge-area small; perforation large, incomplete; deltidia small, triangular; dorsal valve flattish, with a longitudinal central depression; apophysis central, forked. Lon. 10, lat. 9, alt. 4 lines.

Cognata Anomia craniolaris, *Chemn. C. C.* viii. p. 78. t. 76. f. 688.
Anomia craniolaris, var., *Dillw. R. S.* i. p. 285.
Terebratula cognata, *G. Sowerby, Thes. Conch.* vii. p. 346. t. 68. f. 12, 13, 14.
Sow. Ann. Nat. Hist. 1847, p. 464.
Krauss, Sudafr. Moll. p. 33.
Kraussia cognata, *Davidson, Ann. Nat. Hist.* 1852, p. 370.
Hab. S. Africa.

3. KRAUSSIA PISUM. B.M.

Shell transversely ovate, trilobed, with obscure radiating ribs, slightly reddish; margins minutely crenulated, deeply sinuated in front; beak slightly produced, obtuse; foramen large, incomplete; deltidia small; hinge-area small; dorsal valve with a rather straight hinge-line and a deep central longitudinal furrow; apophysis central, forked. Lon. 4½, lat. 5, alt. 3 lines.

Terebratula pisum, *Valenciennes, in Lamarck, Hist.* 1819, ed. 2. vii. p. 330.
G. B. Sow. Thes. Conch. vii. p. 345. t. 69. f. 37, 38, 39.
Kraussia pisum, *Dav. Ann. Nat. Hist.* 1852, p. 370.
Terebratula Natalensis, *Krauss, Sudafr. Moll.* p. 33. t. 2. f. 11.
Küster, Neue Conch. vii. p. 1. t. 2. f. 4–7.
Quenst. Handb. p. 463. t. 37. f. 11.
Hab. S. Africa (not Sydney).

4. Kraussia Algoensis. B.M.

"Shell suborbicular, slightly acuminated behind, rather lobed in front, whitish, radiately striated; mesial ridge distinct, roundish; perforation large, incomplete; margin very minutely crenulated." Lon. $5\frac{1}{2}$, lat. 5 lines.

Terebratula Algoënsis, *G. Sowerby, Thes. Conch.* vii. p. 362. t. 91. f. 91, 92.
Dav. Ann. Nat. Hist. 1852.
Hab. Algoa Bay (Bowerbank).

(Founded on a single ventral valve, which is scarcely different from *T. pisum.*)

5. Kraussia Lamarckiana. B.M.

Shell suborbicular, striated with fine, bifurcating ridges, light yellow; hinge-area well-defined, flat; foramen large, incomplete; deltidia small; dorsal valve with central longitudinal groove; apophysis central, bifurcating; margins of the valves thickened internally and spinulose. Lon. 3, lat. 3, alt. $1\frac{1}{2}$ lines (fig. 20).

Terebratella Lamarckiana, *Davidson*, 1852, *Ann. Nat. Hist.* p. 370; *Proc. Zool. Soc.* p. . pl. . f. 22, 23.
Hab. Sydney, Australia; New Zealand.

6. Kraussia Deshayesii.

Shell suborbicular, radiately ribbed, reddish brown, with six red rays; beak rather produced; foramen moderate, incomplete; deltidia separate; dorsal valve depressed in the centre; apophysis central, forked. Lon. 6, lat. $6\frac{1}{2}$ lines.

Terebratula Capensis, *Adams*, 1850, *Zool. Samarang*, p. 71. pl. 21. f. 4 (not *Gmelin*).
Kraussia Deshayesii, *Davidson*, 1852, *Ann. Nat. Hist.* p. 370.
Hab. Cape of Good Hope, at 120 fathoms.

Order II. CRYPTOBRACHIA.

Oral arms sunk into grooves in the convex centre of the inner surface of the ventral valve.

Cryptobrachia, *Gray, Ann. & Mag. N. H.* ii. 1848, p. 435; *in Wiegm. Arch.* 1849, p. 98; *and this Cat.* p. 8.
Brachiopodes cirrides (Cirrhidæ), part., *D'Orb. Cour. Elem. Paleont.* p. 80, 1849.

ARGIOPE.

Shell transversely oblong, or semicircular, smooth, or ornamented with corresponding ribs, strongly punctate; hinge-line wide; margins even; dorsal valve depressed; ventral valve truncated at the beak; area flat; foramen large, rounded; deltidium rudimentary; interior of dorsal valve furnished with one or more prominent, submarginal septa (fig. 21–23); loop originating at the base of the dental sockets, and folded into two or more lobes occupying the interspaces of the radiating septa, to which they adhere on their inner sides.

Animal with oral arms united by membrane, forming a disk, and folded so as to form two or four lobes; mantle extending to the margin of the valve and closely adherent (fig. 21).

Terebratula, § F. (& D. part.), *Blainv. D. S. N.* liii. 145, 1828.
Gray, P. Z. Soc. 1847.
Argiope (decollata), *Desl.* 1842, *Mém. Soc. Lin. Normand.* viii.
Dav. 1852, *Ann. Nat. Hist.* p. 372.
Megathyris (decollata), *D'Orb.* 1848, *Ann. Sc. Nat.*
Forbes & Hanley, Brit. Moll.
Orthis, sp., *Philippi, Moll. Sicil.*
Hagenow, Neues Jahrb.
Terebratula, sp., *Lamarck.*
Argiopidæ, *King, Permian Foss.* 81. 142.

Fig. 21. *Argiope decollata.*

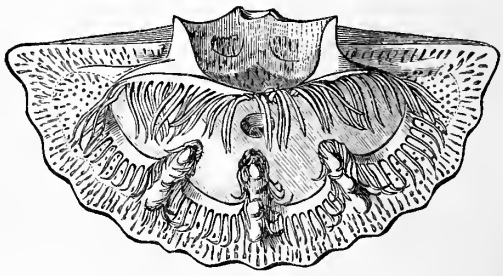


Fig. 21.—Dorsal valve with the animal, highly magnified, from a specimen in the cabinet of Thomas Davidson, Esq. The oral aperture is seen in the centre of the fringed brachial disk.

Fig. 22. *A. decollata.*

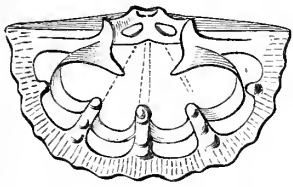
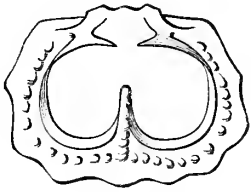


Fig. 23. *A. Neapolitana.*



* *Loop four-lobed.* Argiope.

1. ARGIOPE DECOLLATA. B.M.

Shell transversely semicircular, with a few, smooth, obtuse, radiating ribs, which correspond in each valve; colour pale brown; margins thickened internally; hinge-line straight, as wide as the shell; ventral valve deep, truncated by the wide and flat hinge-area; foramen a wide and deep notch, bordered by the rudimentary deltidia; dorsal valve furnished interiorly with three or five radiating septa, and a four-lobed loop attached to the septa, and sometimes blending with the shell in their interspaces. Lon. 4, lat. $2\frac{1}{2}$, alt. $1\frac{1}{2}$ lines (figs. 21, 22).

Anomia decollata, *Chemnitz, Conch. C.* viii. p. 96. t. 78. f. 705. *Dillw. R. S.* i. p. 292.
Anomia detruncata, *Gmelin, S. N.* p. 3347.
Terebratula, *Lamk. E. M.* t. 243. f. 10.
Terebratula decollata, *Desh. in Lamk. Hist.* ed. 2. vii. p. 351. *Sow. Thes. Conch.* vii. p. 355. t. 71. f. 68, 69, 70.
Terebratula detruncata, *Blainv. D. S. N.* liii. p. 141, 1828. *Philippi, Moll. Sicil.* i. p. 96. t. 6. f. 14 *a–h.*
Megathiris detruncata, *D'Orb. Ann. Sc. Nat.* 1848.
Terebratula aperta, *Blainv. Dict. Sci. Nat.* liii. 144, 1828.
Terebratula dimidiata, *Scacchi, Oss. Zool.* ii. p. 17.
Terebratula cardita, *Risso, E. Merid.* f. 180? 1826.
Terebratula urna antiqua, *Risso, Eur. Mer.* f. 177, 1826.
Terebratula squamata, (*Eichw.*) *Bronn, Leth.* 1837, p. 908. *Eichwald,* 1852, *Leth. Ross.* p. 54. t. 3. f. 12 (incorrectly figured?).
Orthis detruncata, *Philippi, Moll. Sicil.* ii. p. 69, 70.
Argiope detruncata, *Deslongchamps, Mém. Lin. Soc. Normand.* vii. p. 1, 1839.
Argiope decollata, *Dav. Ann. Nat. Hist.* 1852, p. 373.
Hab. Mediterranean, on corals, 45–105 fathoms.
Fossil. *Pliocene.* Calabria.
Miocene. Gibraltar (James Smith, F.R.S.).

** *Loop two-lobed.* Cistella (*Gray*).

2. Argiope cuneata.

Shell very small, transversely subquadrate, with a few obscure radiating ribs; colour pale, with the interspaces of the ribs bright red; interior of dorsal valve with a single, central septum and a two-lobed loop. Lon. 2, lat. 2½ lines.

Terebratula cuneata, *Risso, Eur. Merid.* f. 179, 1826.
Blainv. D. S. N. liii. 146.
Philippi, Moll. Sicil. i. p. 96. t. 6. f. 13.
Sow. Thes. Conch. p. 355. t. 71. f. 83, 84.
Anomia Pera, *Mühlfeldt, Berlin Gesell.* i. p. 205, 1829.
Orthis Pera, *Philippi, Moll. Sicil.* ii. p. 69.
Terebratula Soldaniana, *Risso, Eur. Merid.* f. 178, 1826.
Blainv. D. S. N. liii. 146.
Terebratula detruncata, *Scacchi, Catal.* p. 17 (not *Gmel.*).
Argiope cuneata, *Dav. Ann. Nat. Hist.* 1852, p. 373.
Hab. Mediterranean, 28–69 fathoms.

3. Argiope Neapolitana. B.M.

Shell minute, pale brown, translucent, smooth, or obscurely ribbed; beak produced and pointed; area narrow; foramen deep, bordered by the deltidia; dorsal valve subquadrate, slightly lobed in front; margins thickened internally; septum single, central; loop two-lobed. Lon. 2, lat. 2 lines (fig. 23).

Terebratula Neapolitana, *Scacchi, Oss. Zool.* ii. p. 18, 1833.
Orthis Neapolitana, *Philippi, Moll. Sicil.* ii. p. 69.
Terebratula seminulum, *Phil. Moll. Sicil.* i. p. 97. t. 6. f. 15 (bad).
G. B. Sow. Thes. Conch. vii. p. 356. t. 71. f. 87, 88.
Terebratula lunifera, *G. Sow. Thes. Conch.* t. 71. f. 85, 86 (not *Phil.*).
Argiope Forbesii, *Davidson, Ann. Nat. Hist.* May 1852, p. 373.
Argiope Neapolitana, *Dav.* June 1852, *Proc. Zool. Soc.* p. . pl. . f. 24, 25.
Hab. Mediterranean, in deep water (60–105 fathoms).
Fossil. *Pliocene.* Tarentum.

4. Argiope cistellula.

Shell minute, smooth, horn-coloured, globular, truncated or slightly indented in front; beak prominent; foramen large; deltidia narrow; interior of dorsal valve with a single median septum and a two-lobed loop. Lon. 1, lat. 1, alt. ½ line.

Terebratula cistellula, *Searles Wood*, 1840, *Ann. Nat. Hist.* 5.
Megathyris cistellula, *Forbes & Hanley, Brit. Mollusca*, pl. 57. f. 9.

Argiope cistellula, *Dav. Mon. Tertiary Brach.* part 1. p. 10. pl. 1. f. 13; *Ann. Nat. Hist.* 1852, p. 373; *Proc. Zool. Soc.* p. . pl. . f. 28.

Hab. Zetland, in 40 fathoms (M'Andrew).

Fossil. *Miocene.* Suffolk (Searles Wood).

5. Argiope? pusilla.

Shell minute, obtusely subtriangular, depressed, smooth; dorsal valve transversely oblong, depressed in front; ventral valve with a prominent beak; hinge-line straight, nearly as wide as the shell (area flat; deltidium large, triangular, striated transversely; foramen minute, apical??). Lon. 1 line.

Terebratula pusilla, *Eichwald*, 1852, *Leth. Ross.* p. 55. t. 3. f. 13.
Bronn, Index, p. 1247 (not *Sow.* or *Philippi*).

Terebratula pygmæa, (*Eichw.*) *Bronn, Leth.* p. 908 (not *Schl.*).

Fossil. *Miocene.* Volhynia.

Argiope cistellula, variety of?

6. Argiope decemcostata. B.M.

Shell minute, somewhat pentagonal, ornamented with about ten corresponding ribs; larger valve deep; area as wide as the shell, deep, triangular; foramen large; deltidia narrow, rudimentary; dorsal valve rather flat, furnished internally with a single elevated, central septum (and a very fragile two-lobed loop. *Suess*). Lon. 1, lat. 1, alt. ½ line.

Terebratula decemcostata, *Rœmer*, 1840, *Nord. Kreid.* p. 41. t. 7. f. 13.
Bronn, Index Pal. p. 1234.

Argiope decemcostata, *Dav. Mon. Cret.* p. 16. pl. 3. f. 1–13.

Terebratula Duvalii, *Dav.* 1847, *Charlesworth's Journal*, p. 113. pl. 18. f. 15–18.

Megathiris cuneiformis, *D'Orb.* 1847, *Ter. Crét.* p. 147. pl. 521. f. 1–11; *Prod.* ii. p. 259.

Fossil. *Chalk.* Sweden; England; Belgium; Germany; France; Transylvania.

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7. Argiope Bronni.

Shell minute, cuneiform, depressed, with eight corresponding ribs to each valve; area wide and distinct; foramen large. Lon. 2, lat. 3, alt. 1 lines.

Orthis Bronni, *Hagenow*, 1842, *Neues Jahrbuch*, p. 543. t. 9. f. 7.

Terebratula Bronni, *Rœmer, Kreid.* p. 41.
Bronn, Index, p. 1231.

Fossil. *Chalk.* Rügen, Baltic.

8. Argiope Buchii.

Shell minute, transverse, subquadrate, depressed; valves ornamented with six corresponding ribs; hinge-line wide as the shell, straight; area narrow; foramen small. Lon. and lat. $1\frac{1}{2}$ line.

Orthis Buchii, *Hagenow*, 1842, *Neues Jahrb.* p. 544. t. 9. f. 8.
Terebratula Buchii, *Bronn, Index*, p. 1231.
Fossil. *Chalk*. Rügen.

9. ? Argiope depressa.

Shell transverse, depressed, radiately 10-ribbed; ribs straight, narrow; valves unequal, the ventral convex, the dorsal flat; area triangular, narrow. Lon. 2, lat. 3 lines.

Megathyris depressa, *D'Orbigny*, 1847, *Ter. Crét.* iv. p. 149. t. 521. f. 12–16.
Fossil. *Chalk*. France.

10. Argiope hirundo.

Shell minute, quadrate, depressed, side and front deeply indented; valves with two diverging ribs; beak small; foramen large. Lon. and lat. 1 line.

Orthis hirundo, *Hagenow*, 1842, *Neues Jahrb.* p. 545. t. 9. f. 9.
Terebratula hirundo, *Bronn, Index*, p. 1238.
Fossil. *Chalk*. Rügen.

Fam. 2. THECIDEIDÆ.

Shell thick, punctate, rounded or oval, more or less regular, attached by the umbo of the ventral valve, or free: *ventral* valve (fig. 25) with the umbo rather produced and perforated by a minute apical foramen (*f*) usually closed at an early age; hinge-area flat, triangular; deltidium (*d*) triangular, scarcely distinct from the area; interior deeply concave, furnished with two prominent cardinal teeth (*t*); surface striated, with smooth depressions indicating the points of attachment of the adductor (*a*), retractor (*r*), and pedicel muscles (*p*); *dorsal* valve (fig. 24) small, rounded, opercular, furnished interiorly with a prominent cardinal process (*j*) between the dental sockets; oral processes united, forming a bridge over the small and deep visceral cavity and separating the anterior (oral) from the posterior (anal) orifice; disc grooved for the reception of the loop, the grooves separated by branches from a central septum; loop often unsymmetrical, divided into two or more lobes, united more or less intimately with the sides of the grooves.

Animal:—Mantle extending to the margin of the valves, closely adherent; oral arms elongated, folded upon themselves, fringed with long cirri on their outer margins, and supported by a complicated shelly loop (fig. 26).

Craniaceæ (part.), *Menke, Syn.* ed. 1. p. 56, 1828.
Craniacea (part.), *Menke, Syn.* ed. 2. p. 96, 1830.
Craniæ (Les Cranies), part., *Féruss. Tabl. Syst.* p. 38, 1821.
Thecideidæ, *Gray, Syn. B. M.* 1842, 85. 92.
Thecidæidæ, *King, Permian Fossils*, 81. 142.
Thecidiæ, *D'Orbigny, Ann. Sci. Nat.* 1848.
Cryptobrachia, *Gray, Ann. Nat. Hist.* 1848, vii. p. 435.
Ancylobrachia (part.), *King, Permian Fossils*, 81. 142.
Thecideæ (Théeidées), *Desh. Ency. Méth.* iii. t. , 1836.
Thecidiodæ, *Agassiz, Nomen.* 1847.

1. THECIDIUM.

Char. of Fam.

Thecidium pumilum.

Fig. 24.

Fig. 25.

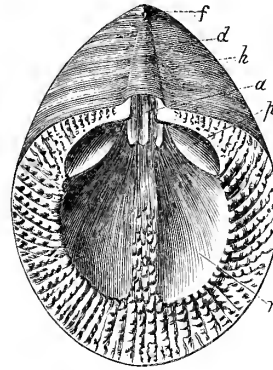

Fig. 24. Dorsal valve:—*j.* cardinal process.
Fig. 25. Ventral valve:—*f.* foramen (closed); *d.* deltidium; *t.* teeth; *a.* adductor impressions; *r.* retractors; *p.* pedicel-muscles.

Fig. 26. *Thecidium Mediterraneum.*

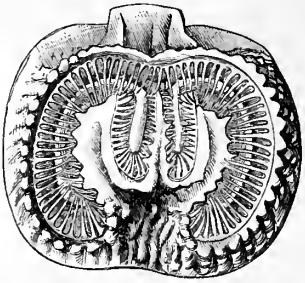

Fig. 26.—Interior of the dorsal valve, from a specimen in the cabinet of Thomas Davidson, Esq.

Thecidea (radiata), *Defr. in Fer. Tabl. Syst.* 38, 1821.
Blainv. Man. Malac. 516. 629, 1825; *Dict. Sci. Nat.* liii. p. 434, 1828.
Risso, Europ. Merid. 393, 1826.
Thecidium, *G. B. Sowerby, Gen.* xx. 1844; *Thes. Conch.* vii. 1846.
Terebratula, *Faujas, Mont St. Pierre,* t. 27. f. 8.
Terebratula, sp., *Lamk. Hist.*

1. Thecidium Mediterraneum.

Shell small, pale yellow, smooth, subquadrate, slightly bilobed in front, attached by the produced and pointed beak; hinge-area triangular, smooth; margins thickened and granulated internally; brachial septum 3-lobed; loop rudimentary, 4-lobed. Lon. 5, lat. 4½ lines (fig. 26).

Thecidea Mediterranea, *Blainv. Man. Malac.* 629, 1825; *Dict. Sci. Nat.* liii. p. 434, 1828.
Desh. in Lamk. Hist. ed. 2. vii. p. 348; *Ency. Méth.* iii. p. 135.
Risso, Eur. Merid. iv. f. 183 (bad).
Philippi, Moll. Sicil. i. p. 99. t. 6. f. 17; ii. p. 70.
Dav. Ann. Nat. Hist. 1852, p. 374.
Thecidium Mediterraneum, *Sow. Gen.* f. 6, 7; *Thes. Conch.* vii. p. 371. t. 73. f. 30–32.
Thecidea testudinaria, *Michelotti, Brach.* p. 5; *Préc. Faun. Mioc.* pl. 2. f. 26.
Thecidæa spondylea, *Scacchi, Cat.* 8. f. 7–10.
Hab. Mediterranean, attached to corals.
Fossil. *Miocene.* Turin.

2. THECIDIUM WETHERELLI. B.M.

Shell somewhat pentagonal, slightly indented in front, smooth, attached by the beak or whole surface of the ventral valve; hinge-area narrow; deltidium large, triangular, elongated; interior of larger valve furrowed by close, granular, longitudinal striæ; dorsal valve with a single deep curved sinus on each side; cardinal process large; margin minutely granulated. Lon. lat.

Thecidea Wetherelli, *Morris*, 1851, *Ann. Nat. Hist.* pl. 14. f. 1–3.
Davidson, Mon. Cret. Brach. p. 14. pl. 1. f. 15–26.

Fossil. *Chalk.* England (attached to shells and Echinidæ).

3. THECIDIUM PUMILUM. B.M.

Shell nearly circular, free, ornamented with diverging, interrupted, granular ribs; dorsal valve circular, flat, furnished internally with a broad granular border; loop 5–7-lobed, the lobes augmenting regularly from the centre outwards; central process granulated; ventral valve with a produced uncinate beak. Lon. 4, lat. 3½, alt. 1 line (figs. 24, 25).

Terebratulites papillatus, *Schlotheim*, 1813, *Min. Tasch.* vii. p. 113. (name only).
Terebratula pumila, *Valenc. in Lamk.* 1819, *Hist. Nat.* 58.
Dav. Ann. Nat. Hist. June 1850, pl. 14. f. 58 (not *Sow*).
Thecidea radians, *Brongn.* 1825, *Env. Paris*, p. 325.
Thécidée rayonnante, *Defrance*, 1828, *Dict. Sci. Nat.* liii. p. 434. t. 80. f. 1.
Thecidea radiata, *Desh. Enc. Méth.* iii. p. 1035.
Lamk. Hist. ed. 2. vii. p. 346.
Goldf. Petr. Germ. p. 289. pl. 161. f. 2.
Thecidea papillata, *Bronn*, 1837, *Leth. Geog.* p. 633. t. 30. f. 3.
D'Orb. Ter. Crét. p. 154. pl. 523. f. 18.
Thecidea recurvirostra, *D'Orb. Ter. Crét.* p. 156 (exclud. synon.). pl. 523. f. 9–17; *Prod.* ii. p. 260 (not *Gerv.*).

Fossil. *Chalk.* Belgium; France.

4. THECIDIUM RECURVIROSTRE. B.M.

Shell regular, oval, smooth, or only marked with concentric lines of growth; free, or attached when young by the extremity of the beak; beak pointed, thick, rounded and recurved; deltidium narrow, raised; dorsal valve deeply concave, furnished internally with a wide border, radiately striated; loop unsymmetrical, 5-lobed, grooves deep, parallel with the margin. Lon. 3, lat. 2, alt. 1½ lines.

Thecidea recurvirostris, *Gerville, MSS.*
Defr. 1828, *Dict. Sc. Nat.* liii. p. 435.
Goldf. Petr. Germ. ii. p. 289. t. 161. f. 3.

Thecidium curvirostre, *Sow. Genera*, f. 4, 5.
Desh. ed. Lam. vii. p. 349.
Fossil. *U. Chalk.* France.

5. THECIDIUM HIPPOCREPIS. B.M.

Shell ovate-orbicular, smooth, attached by the truncated umbo; dorsal valve concave; interior with broad striated margin, impressions curved, slightly digitated on their inner sides, separated by a wide space. Lon. $3\frac{1}{2}$, lat. 3 lines.

Thecidea hippocrepis, *Goldfuss, Petr.* ii. p. 289. t. 161. f. 4.
D'Orb. Prod. ii. p. 260.
Thecidea vermicularis, *Bronn, Index*, p. 1267.
Terebratulites vermicularis, *Schl. Taschb.* 1813, vii. 1. 113.
? Thecidea prisca, *Münster MS. Jura, Thurnau.*
Fossil. *Chalk.* Maestricht; Essen.

6. THECIDIUM HIEROGLYPHICUM. B.M.

Shell ovate-orbicular, smooth, attached by the truncated apex of the produced umbo; interior of ventral valve exhibiting two reniform vascular impressions in front of the retractor scars; dorsal valve flat; internally with a broad striated border; brachial impression palmate, 6-lobed, converging. Lon. 5, lat. $4\frac{1}{2}$ lines.

Thecidea hieroglyphica, *Defrance, Dict. Sc. Nat.* liii. 435.
Goldf. Petr. ii. p. 290. t. 161. f. 6.
Terebratula hieroglyphica, *Kefst. Natg.* ii. p. 680.
Thecidium pumilum, *G. Sow. Genera of Shells*, f. 1, 2 (not *Ter. pumila*, Lamk.).
Fossil. *Chalk.* Maestricht.

7. THECIDIUM DIGITATUM. B.M.

Shell irregular, smooth, attached by the truncated apex of the ventral valve; cavity of the ventral valve striated; retractor impressions large, deep and smooth; dorsal valve transversely oval, with a wide hinge-line; internally with a broad margin, and two diverging, symmetrical, palmated and 5-lobed impressions. Lon. 5, lat. 6 lines.

Thecidium digitatum, *G. Sowerby, Genera*, no. 20. f. 3.
Thecidea digitata, *Bronn, Lethæa*, p. 664. t. 30. f. 4.
Goldf. Petr. ii. p. 290. t. 161. f. 6.
Thecidea Essensis, *Rœmer, Kreid.* p. 36.
D'Orb. Prod. ii. p. 173.
Fossil. *U. Greensand.* Westphalia.

8. THECIDIUM RUGOSUM.

Shell irregular, attached by the truncated apex of the ventral valve; ventral valve striated lengthwise and squamose with lines of growth; dorsal valve round, slightly truncated by the hinge-line, smooth, furnished internally with a granulated margin and two 3-lobed impressions, the lobes straight and diminishing in length inwards. Lon. 2½ lines.

Thecidea rugosa, *D'Orbigny*, 1847, *Ter. Crét.* p. 153 (" *T. hippocrepis* ") pl. 522. f. 8–14.

Fossil. *U. Greensand.* France.

9. THECIDIUM TETRAGONUM.

Shell roundish, attached by the truncated apex of the ventral valve, smooth, with obscure lines of growth; hinge-line wide; ventral valve with two, nearly symmetrical palmate, 4-lobed impressions, the right side largest. Lon. 2½ lines.

Thecidea tetragona, *Rœmer*, 1839, *Ool.* t. 18. f. 4.
D'Orb. Ter. Crét. iv. p. 152. t. 522. f. 1–7.

Fossil. *Neocomian.* Hanover; France.

10. THECIDIUM MOREANUM.

Shell minute, rounded, trigonal, equilateral, with an acute apex; dorsal valve convex, concentrically substriated, tuberculated near the front margin; ventral valve attached by its whole breadth, area triangular, interior with a longitudinal ridge. Lon. and lat. ½ line.

Thecidea Moreana, *Buvignier*, 1852, *Géol. de la Meuse*, p. 26. pl. 20. f. 30–32.

Fossil. *Coral Rag.* France.

10*. ? THECIDIUM CORALLINUM.

Shell like *T. antiqua*, but triangular, and much narrower at the hinge-line.

Thecidea Corallina, *D'Orbigny*, 1850, *Prod.* ii. p. 25.

Fossil. *Coral Rag.* France.

11. ? THECIDIUM CORDIFORME.

Shell oval; beak pointed; front bilobed.

Thecidea cordiformis, *D'Orbigny*, 1850, *Prod.* i. p. 344.

Fossil. *Kelloway Rock*? France: attached to *Ammonites*.

12. Thecidium Dickinsonii.

Shell minute, transversely oval, smooth; dorsal valve convex; ventral valve attached by its whole surface; area nearly as wide as the shell, straight. Lon. $1\frac{1}{2}$, lat. $2\frac{1}{2}$ lines.

Thecidea Dickinsonii, (*Moore*) *Davidson, Mon. Ool.* p. 14.

Fossil. *Inferior Oolite.* Somersetshire, attached to *Terebratulæ.*

13. ? Thecidium dubium.

Thecidea dubia, *D'Orb. Prod.* i. p. 288 (undescr.).

Fossil. *Inferior Oolite.* France.

14. Thecidium triangulare.

Shell triangular, slightly bilobed, smooth, gibbose; hinge-area triangular, high and narrow; deltidium distinct. Lon. 1, lat. 1 line.

Thecidea triangularis, *Davidson*, 1851, *Mon. Ool.* p. 14. pl. 1. f. 11, 12; *Ann. Nat. Hist.* April 1852, pl. 14. f. 13.
D'Orb. MS. 1849, *Prod.* i. p. 316? not described.

Thecidea Virdunensis, *Buvignier*, 1852, *Géol. de la Meuse*, p. 27. pl. 20. f. 33–35.

Thecidea Davidsoni, *Buv. id.* p. 26. pl. 20. f. 36–38.

Fossil. *Lias* (*Marlstone*). Somerset (Moore).
Inferior Oolite. Cheltenham (Wright).
Bath Oolite. Caen (D'Orb.)?

15. Thecidium rusticum.

Shell minute, squarish, slightly convex, smooth; interior of dorsal valve with a prominent muscular fulcrum; internal margin thickened and granulated; apophysary ridge simple, parallel with the margin, and a little within it, deeply bilobed. Lon. 1, lat. 1 line.

Thecidea rustica, (*Moore*) *Davidson*, 1851, p. 15. pl. 1. f. 14.

Fossil. *Upper Lias.* Ilminster.

16. Thecidium Bouchardii.

Shell transversely elongated, smooth, attached by the whole surface of the ventral valve; hinge-area long and narrow; deltidium broad, short and elevated; dorsal valve convex; margin shelving. Lon. 3, lat. 4 lines.

Thecidea Bouchardii, *Dav. Mon. Ool.* 1851, p. 14. pl. 1. f. 15, 16; *Ann. Nat. Hist.* April 1852, pl. 14. f. 10–12.

Fossil. *Lias* (*Marlstone*). Ilminster, attached to *Rhynchonellæ*; France.

17. THECIDIUM MOOREI.

Shell subquadrate, smooth, attached by the whole surface of the ventral valve; valves slightly indented in front; front margins much thickened, steep; dorsal valve almost flat; lower valve with a well-defined triangular area; deltidium large, elevated. Lon. 2, lat. 2, alt. 1 line.

Thecidea Moorei, *Davidson*, 1851, *Mon. Ool. Brach.* p. 13. pl. 1. f. 10.

Fossil. *Lias* (*Marlstone*). Ilminster, attached to *Rhynchonellæ*.

18. THECIDIUM DESLONGCHAMPSII.

Shell irregularly oblong, smooth, attached by the truncated beak of the ventral valve; *ventral valve* deep; area wide, short and irregular; deltidium indistinct; *dorsal valve* subcircular, slightly convex, its interior surface surrounded by a broad, granulated border; a single central septum divides the brachial cavities, in each of which there is a granulated lobe. Lon. 2, lat. $1\frac{1}{2}$, alt. $1\frac{1}{2}$ lines.

Thecidea Deslongchampsii, *Davidson*, 1852, *Ann. Nat. Hist.* April, pl. 14. f. 6–9.

Fossil. *Lias*. Normandy.

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