scarcely a tinge of olive-green; feathers of the middle of back, uropygium, and upper tail-coverts dark ashy at base, with yellowish olive-green tips; quills brown, with bright yellowish-green outer edges; rectrices above paler brown, edged near their insertion and more or less throughout their length with the bright yellowish green of the quills; outer rectrices decidedly darker brown than the middle pair; the middle pair, which is longest, with a faint subterminal bar or drop; the next pair with an obvious dark subterminal drop, which is still more evident in the remaining rectrices; all the rectrices with a narrow albescent terminal fringe; on their under surfaces the green edgings appear brighter than when seen from above; a few of the chin-feathers fulvous; throat and cheeks ashy white; feathers of the breast pale ash, with broad luteous or yellowish-white centres, giving the breast a striped appearance; the remainder of the feathers of the under plumage silky white, ashy at the base; those of the flanks with a faint yellowish tinge; shoulder-edge and under carpals yellowish white; axillaries silky white, tipped with yellowish green; thigh-coverts pale ferruginous; maxilla pale horn-brown; mandible yellowish white; legs like the maxilla, only paler. A large species with a long and stout bill.

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Obtained in the Philippine island of Guimaras by Dr. B. Meyer during the month of March. The single example procured is labelled a "male."


Part XV. The Species figured by Ehrenberg.

[Continued from p. 200.]

XIX. Miscellaneous Recent Foraminifera.

§ 1. Tripoli from San Francisco. (Monatsber. 1853, p. 216.) Pl. xxxiii. xiii. fig. 27, Grammmostomum simplex, seems to be a young Bolivina dilatata (?)


Pl. xxxiv. x. a. 6. Triloculina? Indeterminable.

§ 3. Blown Sand, Baltic, near Wismar, Mecklenburg.

Pl. xxxiv. x. b. 1. Rotalia globulosa = Planorbilina globulosa.
Pl. XXXV. A. XIX. A. 6. Rotalia globulosa? = _Planorbulina globulosa_ (Ehr.), or _Globigerina_? 
With Spicules, Diatoms, Polycystines, and sand.*.

§ 5. Anchor-mud, Cape Blanco, West Africa.  
Pl. XXXV. A. XIX. B. 3. _Calcarina atlantica_ = _Planorbulina_? 
With Spicules and Diatoms.

§ 6. Anchor-mud, Spitzbergen. (Monatsb. 1841, p. 206; Abhandl. 1841, p. 364.)  
Pl. xxv. A. xx. 9. _Uvigerina? borealis_. Indeterminable; but it may be four chambers of a _Planorbulina_ (Truncatulinida)? 
With Spicules, Diatoms, and sand.

Pl. XXXV. A. XXII. 22. _Guttulina? diversens_ (≡ "_Grammostomum, 1844_"). Indeterminable; it may perhaps be a _Bulimina_. 
With Diatoms, Spicules, Polycystines, and sand.

Pl. xxxv. b. iv. A. Group of Foraminifera, Spicules, Diatoms, Polycystines, and sand; from 10800 feet depth: magnified 100 diameters.  
e, f, m. _Globigerina, sp.?_ _Globigerina bulloides._  
g, h. _Planulina, sp.?_ 
   i. erosa. Small thick-set _Globigerina bulloides._  
   j, porosa.  
   k, l. _, sp.? _Globigerina_ (small).  
n. _Rotalia, sp.?_ Small _Cristellaria_ or _Nonionina?_  
o. _Textilaria, sp.?_ Small stout _Text. gibbosa_.  
p. _Grammostomum aculeatum._ _Vulculina aculeata_ (Ehr.).  
With Spicules, Polycystines, Diatoms, and sand.

* In the 'Monatsberichte' for 1858 (1859, pp. 10–30) Dr. Ehrenberg has given short descriptions of eight "new genera" and seventy-one "new species" of Foraminifera from the _Ægean Sea and the deep water of the Mediterranean. Unfortunately this interesting catalogue is not illustrated.
Magnified 300 diameters:—
Figs. 3 & 4. Phanerostomum atlanticum. From 6480 feet. Glob. cretacea, smooth.
Figs. 5 & 6. Globigerina ternata. From 840 feet. Glob. bulloides, ordinary heaped var.
Fig. 7. Spiropleurites nebulosus. From 10800 feet. Pulvinulina repanda, outspread form.
Fig. 26 represents a small Globigerina on a living Conferva (Hydrocoris Erebi) from 12000 feet (about 2½ miles) depth.

§9. Volcanic May-dust, of May 1812; Barbadoes, West Indies. (Monatsb. 1850, p. 359.)
Pl. xxxviii. xxi. fig. 22. Rotalia globulosa. This appears to be a Globigerina.

§10. Halibiolithic Volcanic Mud, Moya, Scheduba, Eastern Archipelago. (Monatsb. 1846, pp. 171, 207.)
Pl. xxxviii. xxiii. fig. 1. Rotalia globulosa. Planorbulina.
fig. 2. Textilaria leptotheca. Virgilina Schreibersii, Cz.
fig. 3. T. globulosa. Text. globulosa, Ehr.
fig. 4. Textilaria. T. gibbsa, D'Orb.
fig. 5. T. aculeata. T. subangulata, D'Orb.

§11. Storm-dust.
Pl. xxxix. fig. 140. Textilaria globulosa. Small T. gibbsa or T. globulosa.

§12. Sirocco-dust in Malta, 1830.
Pl. xxxix. iii. e. Rotalia globulosa (senaria?). This is probably a Globigerina; but perhaps it is Planorb. globulosa.

§13. Coloured Rain in Ireland, April 14, 1849. (Monatsb. 1849, p. 200.)
Pl. xxxix. xiv. g. Textilaria globulosa? This seems to be either a small rough-shelled T. gibbsa, or a Globigerina of irregular shape.

XX. Miscellaneous Fossil Foraminifera.
§1. Polycystina-deposits of Barbadoes and Nicobar Islands*.
(Monatsb. 1846, p. 382, with illustrations; 1847, pp. 40–60; 1850, p. 476, &c. Schomburgk, 'History of Barbadoes,' 1848, p. 556, pls. 1, 2, p. 560.)

Pl. xxxvi. fig. 67. Planulina mica. Young Planorbilina.
fig. 68. Rotalia? Planorbilina ammonoides.


4. Rotalia rudis. Obscure; probably a prickly Globigerina coated with calcareous granules.

§ 3. Pläner (Lower chalk) Limestone, Teplitz, Bohemia. (Monatsb. 1844, p. 414.) Magnified 300 diam.

3 & 4. Rotalia globulosa tenuior. } Globigerina.
5. —— pertusa?
6. Textilaria globulosa. } Text. globulosa.
7. —— —— ampliata. }

§ 4. Hornstone (Cretaceous) pebble, Delitzsch, Saxony. (Abhandlungen, 1836, p. 110 &c. pl. i.)

Pl. xxxvii. vii. 12. Textilaria globulosa. (A cast; magn. 100 diam.) Indeterminable.
Together with Xanthidia, Peridinia, &c.


Together with Xanthidia &c.

§ 6. Yellow Jurassic Melonia-limestone from the Kaiserstuhl, Baden. (Monatsb. 1843, p. 105.)
Pl. xxxvii. IX. A. A small piece, of the natural size, consisting of minute, globular, uniform bodies, lying in contact without calcareous cement. Fig. 1, *Borelis* (Melonia) *spheroidea* (1842); figs. 2 & 3, sections. Magnified 20 diam. These have externally the appearance of Alveolina; prolately spheroidal in shape; the internal structure, however, though obscure, is not that of Alveolina (*Borelis of Montfort and Ehrenberg), but is like that seen in Fusulina, Endothyra, and Involutina. Regarding Ehrenberg's specimens as Endothyra, and taking the rock for Jurassic, these are the youngest known of that genus*.

§7. Yellow Jurassic Melonia-limestone, York, England. (Monatsb. l. c.)

This is said to have the same appearance as IX. A., but to differ by containing some few extraneous objects, such as b. 1, *Nodosaria*, sp.?; 2, *Textilaria*, sp.?; 3, *Cypris? These are figured of the natural size. Figs. 1 & 2 are clearly as stated. Fig. 3 is a simple, convex, oval object, possibly *Cytherella (?). To as to the presumed Alveoline character of this Oolite we have no further evidence than the statement quoted above.

§8. Pl. xxxvii. IX. C. A brown "Melonia-limestone" from the Oolites of Bath is also alluded to, and a minute Trochus or Pleurotomaria? is figured from it (c. 1). There is, however, no figured evidence of the presumed Alveoline character of this rock.


Pl. xxxvii. X. A. A piece figured nat. size. Figs. 1-4, *Textilaria pallcotrochus*, nat. size and 4 diam. This is a Valvulina (compare XI. 12 & 13). Together with small Polyzoan (?) stems (figs. 5 & 6).

X. B is a similar rock, with minute helicoid shells (b. 1, *Euomphalus? nanus? and b. 2, *Eu.? inversus?), which are much like Spirorbis.

§10. Melonia- and Alveolina-hornstone of the Mountain-limestone of the Pinega (Devina), Archangel. (Monatsb. 1842, p. 273; 1843, p. 106.)

Pl. xxxvii. X. C. A piece, nat. size. c. figs. 1-4, *Borelis prin-
Messrs. Parker and Jones on

ceps, nat. size and magn. 4 diam. Ovoid in shape. Figs. 5, a, b, *Alveolina montipara*, nat. size and magn. 4 diam. Fusiform. [In the plate, fig. 5, outline or longitudinal section, nat. size; fig. 6, longitudinal section, opened by weathering; magn.] There can be no doubt of these shells being (fig. 5) *Fusulina cylindrica*, Fischer, and (fig. 4) its short sphaeroidal variety.

§11. Melonia-hornstone of the Mountain-limestone of Witegra.

Pl. XXXVII. x. d. A piece, nat. size. d. Figs. 1–4, *Borelis spheroidea*? (1842), nat. size, and views and section magn. Very small, oblately spheroidal, deeply and evenly furrowed longitudinally; chambers small (or nearly filled), decidedly Fuseline in character. Figs. 5, 6, *B. constricta*, nat. size and magn. Such a *Fusulina* as this has been found fossil in the Arctic Regions*. Figs. 7–9, *Alveolina prisca* (1842); nat. size and magn. This is a *Fusulina* like c. 5. Figs. 10, 1 a–f, represent *Borelis* (*Melonia*) *melo*, from the Karst, near Trieste, for comparison. This is a true simple *Alveolina*, with a section very different from that of any of the above.

§12. Hornstone of the Mountain-limestone, with Spirifer mosquensis, from Tula, Russia. (Monatsb. 1843, pp. 79, 106.)

Pl. XXXVII. xi. a–d. The material variously shown. Figs. 1, 2. *Alveolina prisca*? These are internal casts of *Fusulina cylindrica*; but the shape of the chambers is not so definitely quadrangular as in figs. 5 & 8. This may be due either to mineralization or to some obliquity in the section.

Fig. 3. *Borelis labyrinthiformis* (1843). A vertical section of the internal cast of a *Fusulina*, of an oblate-spheroidal shape.

Figs. 4, 5. *B. palaeophus*. Casts of a *Fusulina*, with short alar prolongations of the chambers, and therefore to some extent Nummuline in shape, being discoidal with keeled edge.

Fig. 6. *B. palaeophaeus*. A cast of a similar but thicker *Fusulina*.

Figs. 7, 8. *B. palaeosphera*. Casts of a somewhat similar *Fusulina*, but barrel-shaped, having considerably produced alae. In shape it corresponds with x. d. 1–4.

Fig. 9. *Grammostomum bursigerum.* Embedded cast of a *Textilaria* (to all appearance), with oval segments.

Fig. 10. *Nodosaria index.* Chamber-casts of a doubtful Foraminifer, in a row, with indications of a narrow straight shell, but showing no stolons.


Fig. 12. *Tetrataxis conica* (1843); fig. 13. *T. conica*?, side view (“compare *Textilaria paleotrochus*”). As before intimated, this is a *Valvulina*, or at least a Valvuline modification of *Trochammina*.

Fig. 14. *Textilaria falcata.* Probably the edge view of fig. 17.

Fig. 15. *T. lagenosa.* The same as fig. 9.

Figs. 16 & 16*. *T. lunata* (1843). Apparently a broad pyramidal *Textilaria*.

Fig. 17. *T. recurvata.* Side view of *T. falcata*, fig. 14.

Forms similar to figs. 11, 12, 13, 14, and 17, besides others, have been found in the Mountain-limestone of England and Scotland by Messrs. Tennant, Darker, Phillips, Sorby, Harkness, Holl, Young, Moore, and Brady. The last-named has made a preliminary notice of them in the Brit. Assoc. Report for 1869, Trans. Sect. p. 381, and has elaborated one form in particular (*Secchammina Carteri*) in the Ann. Nat. Hist. ser. 4, vol. vii. p. 177 &c., pl. xii. See also “Monogr. Polymorph.,” Linn. Soc. Trans. vol. xxvii. p. 199.

*Fusulina.*—With regard to the Fusuline specimens, Prof. Ehrenberg has evidently taken *Alveolina melo, var. β* (F. & M.), the *Melonia spheroidea* of De Blainville (1824), as the type for those having a prolately spheroidal shape. This is also the *Borelis melonioides* of De Montfort (1808); hence the use also of the latter generic term†. But the Carboniferous specimens are not of this genus, and had been rightly discriminated by Fischer de Waldheim‡.


‡ ‘Oryctograph. Moscou,’ 1830, p. 17, pl. xiii. Figs. 1–5 illustrate his *Fusulina cylindrica*; and figs. 6–11 are devoted to his *F. depressa*, which is the same as *F. cylindrica*, but showing a different aspect of interior, being opened at a different portion of the surface by weathering. See also D’Orbigny in *Geol. Russia*, &c. vol. ii. p. 15; and D’Eichwald’s ‘Le- theaa Rossica,’ 5e livr. 1859, pp. 349 &c.
In treating of *Fusulina* in the Ann. Nat. Hist. ser. 3, vol. viii. p. 166 (1861), we regarded it as an *Alveolina*; but Dr. Carpenter’s researches have settled its higher rank as a hyaline and tubuliferous shell near *Nonionina* and *Nummulina*†, as intimated by D’Orbigny. Prof. Ehrenberg seems to have adopted the terms “*Alveolina*” and “*Borelis*” for the long and short *Fusulina* respectively‡. If arranged in order, according to the amount of compression or the diminishing length of axis, the *Fusulina* figured in the plate before us would stand thus:—

1. Alveolina prisca. x. d. 7–9. } Fusiform. The same as  
2. — montipara. x. c. 5, a, b. } Fischer’s *Fusulina cylindrica* and *F. depressa*.  
5. — princeps. x. c. 1–4. Ovoid.  
6. — spheroidea. x. d. 1–4. } Oblately spheroidal;  
7. — palæosphera. xi. 7, 8. } barrel-shaped.  
8. — labyrinthiformis. xi. 3. Deeply oblate; thick disk with rounded edges.  

Thus, with every possible gradation of shape between them, the longitudinal section of the first is of the same outline as the vertical cross section of the last; whilst all present the same spiral arrangement of chambers (subquadrangular in section) when exposed by a median section across the long specimens, and parallel to the two faces in the discoidal and lenticular forms.

*Fusulina cylindrica* has been found in the Carboniferous rocks on the Ohio‡ and of Upper Missouri (Marcou, ‘*Geol. Map U. S. and Canada,*’ text p. 36, 8vo, Boston, 1853; and Meek and Hayden, ‘*Palæontol. Upper Missouri,*’ 1865, pl. i. figs.

† We are obliged to come to this conclusion, although our respected author had a decidedly different opinion in 1842. In the *Monatsb. 1842, p. 274*, he states that “1. *Melonia* (Borelis) *spheroidea*, 2. *B. constrieta*, 3. *B. princeps* (2 lines long), and 4. *Alveolina prisca* (1 line long, fusiform), occurring mixed up together in the white Carboniferous Millioliolite-limestone of the Oneida Lake, are very different as to species from the evidently allied *Fusulina* of Russia.”  
6a–6i). Also in California (Meek and Gabb, 'Geol. Surv. California, Paleont.' vol. i. 1864, p. 4, pl. ii. fig. 2), together with *F. gracilis* (fig. 1, p. 4) and *F. robusta* (fig. 3, p. 3). Abich found his *Fusulina sphaerica* in the Caucasus: "Vergleich. Grundzüge Kaukas."


Prof. Suess regards it as the same as *F. sphaerica*, Abich, and notes its occurrence, with *F. cylindrica*, in Russia*

There can be little doubt, with the evidence of gradational forms given in the 'Mikrogeologie,' pl. xxxvii., that all these and even other *Fusulina* may belong to one and the same zoological species. It is highly probable also that, on strict comparison, one and the same variety would be found to have claim to two or more of the names quoted above and in the foregoing list, made from the 'Mikrogeologie.'

In a specimen of white *Fusulina*-limestone, brought from Russia by the late Sir R. I. Murchison, we have found well-characterized fragments of *Dentalina communis* and a conical *Valvulina*. Such a form, recent, passes into *Trochammina squamata*; and *Tr. inflata* passes into *Lituola*; and *Lituola*, through *Trochammina*, becomes *Involutina* and *Endothyra*†. This low Rotaliiform shell (*Endothyra*) occurs in specimens collected by Dr. Holl from some clay-seams of the English Carboniferous Limestone, in sections of Carboniferous Limestone made by Prof. Phillips, of oolitic Mountain-limestone made by Mr. H. C. Sorby, and in several other collections. As *Valvulina* passes gradually into *Trochammina* by traceable links (Brady), and as the last and *Involutina* are closely related, we are not surprised to find a variety of modifications, even Textilariiform, of this low group in the Palæozoic strata, and, on the other hand, Endothyran modifications higher up in the series, as Ehrenberg's Jurassic "*Borelis sphaeroidea*" (ix. a. 1–3) above noticed (p. 257).

*Miscellaneous Fossil Foraminifera figured by Ehrenberg in the 'Mikrogeologie.'*

1. *Barbadoes* (late Tertiary).

Planorbulina (young), and Pl. ammonoides (Rss.).


2. Nummulitic Limestone, Traunstein, Bavaria.
   1. Haplophragmium.
   2. Verneuilina pygmaea (Egger).
   3. Globigerina?
   4. Operculina ammonis (Ehr.).

   1. Lagena (Entosolenia) globosa (Montag.).
   2. Polymorphina?
   3. Textilaria globulosa, Ehr.

4. Hornstone (Cretaceous), Saxony.
   1. Textilaria globulosa, Ehr.

5. Coral-rag, Cracow.
   Nodosaria and Cristellaria.

6. Jurassic Limestone, Kaiserstuhl, Baden.
   1. Endothyra spheroidea (Ehr.).

   Nodosaria and Textilaria.


9. Carboniferous Limestone, Witegra, Russia.
   1. Valvulina (Tetrataxis) palaeotrochus (Ehr.).

10. Carboniferous Hornstone of the Pinega, Archangel.
    1. Fusulina cylindrica, Fischer.
    2. — princeps (Ehr.). This is probably the same as F. sphærica, Abich, and F. robusta, Meek.

11. Carboniferous Hornstone, Witegra, Russia.
    1. Fusulina cylindrica, Fisch.
    2. — consticta (Ehr.).
    3. — sphæroidea (Ehr.).

12. Carboniferous Hornstone, Tula, Russia.
    1. Nodosaria? index, Ehr.
    2. Fusulina cylindrica, Fisch.
    3. — palæosphæra (Ehr.).
    4. — labyrinthiformis (Ehr.).
    5. — palæophacus (Ehr.).
    6. — palæophus (Ehr.).
    7. Textilaria bursigera, Ehr.
    8. — falcata (vel recurvata), Ehr.
    9. — lunata, Ehr.
10. Valvulina (Tetrataxis) palæotrechus (Ehr.).
11. Endothyra antiqua (Ehr.). Possibly the same as E. Bowmanii, Phil.

We have now finished the critical examination of the illustrated Foraminifera so liberally and magnificently set forth in the 'Mikrogeologie.' There remain, however, some equally beautiful drawings and coloured engravings of Foraminifera and their internal casts in the 'Abhandlungen' of the Berlin Academy, illustrative of the great microscopist's researches in green sand resulting from the infillings of these minute shells and other little cavernous organisms and the subsequent decay of the enclosing tissues, and of his successful work in the artificial production of analogous casts. In the 'Monatsberichte' for 1858 are still later researches on such siliceous casts, with some illustrations. We proceed, therefore, with the examination of these plates, as part of the Miscellaneous Fossil Foraminifera figured by Dr. Ehrenberg.


In this memoir are described foraminiferous shells and internal casts from:—


Plate I. figs. 1.–III. represent chlorite &c.

Fig. iv. A group of green siliceous casts and portions of casts from the Nummulitic Limestone of the Traunstein. They are numbered (1–11) in the text, p. 159, and lettered (a–l) in the plate and its explanation, p. 160: fig. a (“Rotalia”) probably belongs to an *Operculina*; fig. g (“Rotalia”) may be part of the cast of a simple *Alveolina*. The others are very uncertain.

Fig. v. (p. 160), *Nodosaria, Zeuglodon*-limestone, Alabama. Fig. vi., *Nodosaria montile* (Glauconitic Limestone, Montfort), =*N. pyrula*, D’Orb. VII. & VIII., *Nodosaria javanica* (Gua Linggo-manik, Java), has parallel grooves in each segment, and is a *Bigenerina* that had a set of internal ribs on the chamber-wall (incipient labyrinthic structure): see also a grooved cast in *Textilaria trilobata*, pl. IV. figs. xv., xvi. Fig. ix. *Vaginulina, Zeuglodon*-limestone. Fig. x. *Vaginulina subulata*, Glauc. Limestone, Montfort.

Pl. II. fig. 1. (p. 161), *Textilaria globulosa*, Num. Limest. Traunstein. Fig. ii., *Grammmostomum attenuatum*, and fig. iii., *Gr. angulatum* (Num. Limest. Montfort), are *Textilaria sagittula*. Fig. iv., Text. *euryconus*? (*Zeugl.-l*.), is Text. agglutinans. Fig. v., *Grammmostomum* (*Zeugl.-l*.), is Text. sagittula. Fig. vi., *Oncohotrys buccinum* (*Zeugl.-l*.), is the cast of probably a Poly-morphina, possibly of a *Buliminia*. Fig. vii., *Rotalia umbilicata* (Glauc. L. Montfort), is a young nautiloid form possibly Rotaline, probably Operculine. Fig. viii. (p. 162), *Mesopora chloris* (Traunstein), is an *Operculina*, and not the same as is figured in the ‘Mikrogeologie,’ which is a *Haplophragmium* (*Lituola*). Fig. ix., *Planulina micromphala* (*Zeugl.-l*.), is *Rotalia Beccari*. Fig. x., *Planerostomum*, and fig. xi., *Planulina polysolenia* (*Zeugl.-l*.), are *Planorbulina vulgaris*. Fig. xii., *Cristellaria eurythalamia* (*Zeugl.-l*.), is a *Lituola* (*Haplophragmium*). Fig. xiii. (p. 163), *Globigerina crassa* (*Zeugl.-l*),
is Glob. bulloidies. Fig. xiv. Geoponus zeuglodontis (Zeugl.-l., is Planorbulina vulgaris*.

Pl. III. (p. 164), fig. i.–iv., Nonionina? bavarica (Traunstein), is a young Amphistegina. This is the earliest recorded appearance of the genus in the geological series. Fig. v., Rotalia (Zeugl.-l.), is a young Operculina or Nummulina? Fig. vi., peculiar triangular dentate cast (Zeugl.-l.), is like the septal plane of a Polystomella. Figs. vii.–ix. (p. 165), Amphistegina javanica, and fig. x., Heterostegina clathrata, both from the Orbitoidal Limestone of Gua Linggo-manik, Java, are both the same Amph. javanica.

Pl. IV. (p. 165), fig. i. (p. 167), not named, is an Amphistegina with parasitic borings. Figs. ii.–vii. (p. 168), Orbitoides Prattii. Figs. viii.–x., Orbitoides javanicus, and fig. xi., Orbitoides microthalama, both from Java, are the same Orbitoides. Fig. xii., Cyclosiphon?, from Java, is part of an Orbitoides (referred elsewhere by Ehrenberg to Orb. Mantelli). Fig. xiii. (p. 169), Spiroplecta? (Zeugl.-l.), is a Spiroplecta. Figs. xiv.–xvi., Textilaria trilobata (Java, Orb. L.), is an interesting sublabyrinthic Text., already referred to (p. 264). Fig. xvii., Spiroloculina? (Traunstein), seems to be a Quinqueloculina. Fig. xviii., Quinqueloculina, and fig. xix., Quinqueloculina (Traunstein), are undeveloped young Miliols. Fig. xx., Quinq. saxorum (Calcaire grossier, Pontoise), is a Quinqueloculina, but not of that species which has a thick shell grooved within. Fig. xxii., Triloculina (Orb. L., Java), has been parasitically bored. Fig. xxii., Spiroloculina (Orb. L., Java), is very interesting in having lateral stolons from segment to segment, showing a prolepsis of the more complicated and closely related Orbitoidites, the outside of the quasi-annular segments being multistoloniferous. These supernumerary stolons begin by few and become many in later segments. Fig. xxiii. Cerithium? (Zeugl.-l.). Fig. xxiv. Spirillina?, or young Mollusk?, or Spirorbis? (Alabama); decidedly a young Mollusk.

Pl. V. figs. i.–viii. Nummulites striata (Couizac, Dép. de l’Aude); fig. vii. is Nummulina planulata (Lam.). Figs. i., x. (p. 171), N. Marchisoni (Traunstein). Fig. xi. N. Dufrenoyi (Traunstein). Fig. xii., Polystomatium? (Traunstein), is a Polystomella. Figs. xiii.–xv., Polystomatum lepactis (Orb. L., Java), is Polystomella craticulata (compare pl. xvi. fig. 9, of ‘Introd. Study Foram.’ 1862). Fig. xvi. (p. 172), Physomalphon porosus (Orb. L., Java), is Operculina. Fig. xvii. Alveolina (Java).

* Two casts of this species from North-American Tertiary beds were figured by Prof. Bailey in Amer. Journ. Sc. 1845, vol. xlviii. no. 2, pl. iv. figs. 30, 31.
I. *Foraminifera from the Nummulitic Limestone, Traunstein, Bavaria.* See also above, page 256.
1. Textilaria globulosa, *Ehr.*
2. Polystomella.
3. Operculina.
4. Amphistegina.
5. Nummulina Murchisoni.
6. —— Dufrenoyi.
7. Alveolina.
8. Quinqueloculina?

II. *Nummulitic Limestone, Montfort, France.*
1. Nodosaria pyrula, *D'Orb.*
2. Vaginulina subulata, *Ehr.*
3. Textilaria sagittula, *Defr.*
4. Operculina?

III. *Nummulitic Limestone, Couizac, France.*
1. Nummulina striata, *D'Orb.*
2. —— planulata (*Lam.*).

IV. *Zeuglodon-beds, Alabama.*
1. Nodosaria.
2. Vaginulina.
3. Polymorphina.
4. Textilaria agglutinans, *D'Orb.*
5. —— sagittula, *Defr.*
9. Rotalia Beccarii (*Lin.*).
10. Polystomella?
11. Operculina?

V. *Orbitoides Limestone, Java.*
1. Textilaria trilobata, *Ehr.*
2. Bigenerina javanica (*Ehr.*).
3. Polystomella craticulata (*F. & M.*).
4. Orbitoides javanicus, *Ehr.*
5. —— Mantelli? (*Morton*).
6. Operculina.
7. Amphistegina javanica, *Ehr.*
8. Alveolina.
10. Triloculina.
Pl. VI. Lower Silurian green sand of Petersburg. Fig. 1. a (p. 173), Textilaria globulosa?, in a piece of brownish siliceocalcareous green sandrock (treated with acid), from under the Orthoceratite Limestone, Narwa, and fig. b, Guttulina, are both small Textilaria. Fig. c, Rotalia, from the same; a Rotaline or Endothyran form. Fig. II. (p. 174), a thin slice of the same rock (green), showing minute shaped bodies; 19, Solenolithis simplex; 20, Dermatolithis subtilis; 21, D. granulatus: said to be brownish calcareous and microscopic, belonging to the structure of Obolus, and abundantly scattered throughout the green sandstone of Narwa.

Pl. VII. Yellow, red, and brown sand casts of the yellowish Chalk of Alabama, equivalent to that of the Mississippi. Figs. 1, 2 (p. 175), Textilaria americana. Fig. 3, T. striata. Figs. 4, 5, Guttulina turrita a, b, are Verneulinia pygmea. Fig. 6, Spiroplecta americana? Fig. 7, Textilaria americana? Fig. 8, T. euryconus?, is T. agglutinans. Fig. 9, T. globulosa? Fig. 10 (p. 176), Dimorphina (Text.?) saxipara, is Text. globulosa. Fig. 11, Phanerostomum hispidulum, and fig. 12, Ph.?, are Globigerina cretacea. Fig. 13, Rotalia?, is a young limbate Planorbulina. Fig. 14, Phanerostomum senarium?, fig. 15, Ph. porulosum?, and figs. 16, 17, Ph. dilatatum, are Globigerina cretacea. Figs. 11 & 12 have more chambers than figs. 14–17, but belong to the same species.

Foraminifera from the Chalk, Alabama.

1. Textilaria agglutinans, D’Orb.
   2. —— globulosa, Ehr.
   3. —— striata, Ehr.
   4. —— americana, Ehr.
   5. Spiroplecta americana (?), Ehr.
   6. Verneulinia pygmea (Egger).
   7. Globigerina cretacea, D’Orb.
   8. Planorbulina, young.


§ 15. I. “On the progress of knowledge of important microscopic organic forms in the lowest Silurian clay-beds near St. Petersburg” (Monatsber. 1858, pp. 295–311). See also ‘Neues Jahrb. für Min.’ &c., 1858, 5. Heft; Murchison’s ‘Siluria,'
Messrs. Parker and Jones on


II. "On further important microscopic organic forms from the oldest Silurian clay near St. Petersburg." With a plate. (Monatsber. 1858, pp. 328 &c., pl. i.)

A (p. 306). White marl-casts or marl-morpholites. 1. Miliolina?, and 2. Textilarina?

B. Green siliceous internal casts.
4 (p. 307). Nodosaria?, fig. II.
5. Textilaria? imitatrix, fig. III.
6. Polymorphina abavia, fig. IV.
7. P. avia, fig. V.
8 (p. 308). Guttulina silurica, fig. VI.
9. Rotalia palœotrias. Figs. VII. & VIII. No. 9 is omitted
10. R. palœotetras. in the later list.
11 (p. 309). R.? palœoceros. ("Like R. Hemprichi\text{"}, "Mi-
krog.\text{"}, pl. xxxiv. f. 62.) Fig. IX.
12. Dexiospira triarchæa, fig. X.
13. D. hexarchæa, fig. XI., a, b.
14 (p. 310). Aristerospira octarchæa, fig. XII.
15. Nonionina? archetypus, fig. XIII.
16. Spirocerium priscum. ("New genus near Spirobotrys, but has not the two openings in the later chambers.\text{"}) Fig. XIV.

These figured glauconitic grains are magnified 56 diam. Their relationship to Foraminifera is very uncertain. They are not nearly so clear and definite as the usual inner moulds of foraminiferal shells; but, like the green grains in our Upper and Lower Greensand, some may be such casts, and many are probably of concretionary or derivative origin. As Dr. Ehrenberg at first stated, little can be said of them except that they have Rotaline and Textilarian appearances. Some may have belonged to Eozoon (as fig. I.). Figs. IV., V., VI. look Bulimine; VII., VIII., X. look Globigerine; IX. somewhat Nonio-
nine; XI., XII., more or less Rotaline. They are all doubtful.

C (p. 311). "Calcareous shale casts from the Devonian strata near St. Petersburg."

17. Miliola (Holococcus) Panderi. ("Trochiliscus, Pander: orbicular or oval; hollow; compressed in the middle or on the side; with a single opening; furrowed longitudinally with 18–20 sulci, which in some cases are spiral.\text{"}) = Lagena?
Appendix.

Generic names of Foraminifera used by Ehrenberg, and their probable equivalents.

Allotheca, 1854. Globigerina?
Alveolina, D'Orb. Alveolina; Fusulina.
Amphisorus, 1838. Orbitolites (old).
Aristeropora, 1859. Planorbulina?
Aristerospira, 1859. Planorbulina?
Aspidospira, 1844. Planulina.
Asterotheca, 1838. =?
Bigenerina, D'Orb. Polymorphina.
Biloculina, D'Orb. Adesoline Quinqueloculina. Biloculina?
Borelis, Mtj. Alveolina; Fusulina; Endothyra.
Calcarina, D'Orb. Planorbulina?
Cenchridium, 1843? Entosolenian Lagena.
Ceratospirulina, 1859. Dimorphous Miliola?; Vertebralina?
Cimelidium, 1859. Valvulina?
Cladostomum. Textilarian [Reuss].
Colpopleura, 1844. Planorbulina.
Coscinospira, 1838. Peneroplis and Lituola.
Cristellarina, Lamk. Cristellaria; Planulina; Haplophragmium.
Cyclosiphon, 1856. Orbitoides.
Dentalina, D'Orb. Dentalina.
Dexiospira, 1859. Indeterminable.
Dimorphina, D'Orb. Dimorphine Virgulina.
Encorycium, 1859. Nodosaria.
Frondicularia, Defr. Nodosaria; Glandulina.
Geoponus, 1838. Polystomella; Planorbulina.
Globigerina, D'Orb. Globigerina.
Grammobotrys, 1854. Virgulina; Sphaeroidina.
Grammostomum, 1839. Textilaria; Vulvulina; Bolivina; Virgulina; Polymorphina.
Guttulina, D'Orb. Verneuilina; Textilaria.
Heterohelix (1843) changed to Spiroplecta (1844).
Heterostegina, D'Orb. Amphistegina.
Heterostomum, 1854. Textilaria; Virgulina.
Holocoeus, 1859. Lagena?
Lenticulina, Lamk. Planorbulina; Pulvinulina.
Loxostomum, 1854. Heterostomella; Vulvulina; Polymorphina.
Megathyra, 1854. Mentioned in 'Mikrogeol.' p. 13, without figure or description.
Melonia, Blainv. Fusulina; Alveolina.
Mesopora, 1854. Lituola (Haplophragmium); Operculina.
Miliola, Lamk. Lagena; Orbula.
Monetulites, 1856. Nummulina.
Nodosaria, Lamk. Nodosaria; Bigenerina.
Nonionina, D’Orb. Nonionina; Rotalia?; Planorbula?; Cristellaria?; Amphistegina.
Omphalophacus, 1838. Pulvinulina.
Oncobotrys, 1856. Polymorpha?
Ovulina. Lagena.
Planerostomum, 1854. Globigerina.
Physomphalus, 1856. Operculina.
Planularia, Debr. Planularia.
Planulina, D’Orb. Planorbula, including Planulina and Truncatulina; Globigerina; Rotalia; Pulvinulina; Nonionina?; Operculina; Cristellaria.
Platyœcusc, 1854. Pulvinulina?
Pleurites, 1854. Sphæroidina?; Virgulina; Polymorpha?
Pleurostomum. Textilarian [Reuss].
Pleurotrema, 1838. Calcarina?
Polymorpha, D’Orb. Polymorpha; Bolivina; Virgulina; Textilaria.
Polystomatium, 1856. Polystomella.
Proroporus, 1844. Polymorpha; Bolivina; Textilaria.
Prorospira, 1844. Planorbula.
Ptygostomum, 1854. Planorbula; Globigerina.
Pylodexia, 1859. Globigerina.
Pyrolina, D’Orb. Pyrolina (Polymorpha).
Quinqueloculina, D’Orb. Quinqueloculina.
Rynchoplecta. Textilarian [Reuss].
Rynchopleura, 1856. Textilarian?
Rynchospira. Globigerina [Reuss].
Robulina, D’Orb. Cristellaria.
Rosalina, D’Orb. Planorbula; Globigerina.
Rotalia, Lamk. Globigerina; Planorbula and Planulina; Pulvinulina?; Cristellaria; Operculina?
Rotalina, D’Orb. Pulvinulina.
Sagrina, D’Orb. Heterostomella.
Selenostomum, 1859. Rotaline?
Siderospira. Calcarina [Reuss].
Soldania, D’Orb. Cristellaria.
Sorites, 1838. Orbitolites.
Sphæroidina, D’Orb. Sphæroidina; Virgulina.
Spirillina, 1841. Spirillina; Cornuspira?
Spirobotrys, 1844. Planorbula?
Spirocerium, 1859. Indeterminable.
Spiriocolulina, D’Orb. Spiroloculina; adelosine Quinqueloculina.
On the Habits of some Madeiran Spiders.

Spiroplecta, 1844 (olim Heterohelix). Spiroplecta.
Spiropleurites, 1854. Pulvnulina.
Strophoconus, 1844. Bolvcina; Virgulina.
Synspira, 1854. Synspira (?).
Tetrataxis, 1854. Tetrataxis (Valvulina).
Textilaria, Defr. Textilaria; Bolivina.
Triloculina, D'Orb. Miliola?
Uvigerina, D'Orb. Planorbulina?
Vaginulina, D'Orb. Vaginulina.

XL.—On the Habits of some Madeiran Spiders.
By Frederick Pollock, Esq.

To the Editors of the Annals and Magazine of Natural History.

Gentlemen,

In the number of your Magazine for June 1865 there is an article by me on the Epeira Aurelia spider.

I had some doubts, at the time I wrote it, upon one fact therein stated; and having had the opportunity of making further observations, in the season just passed, in Madeira, I find that I was mistaken in what I originally supposed to occur.

As it is an important point in arachnology, and as it differs from all Mr. Blackwall's observations, I should like to be able to contradict my former statement in the same publication in which it was made, and to add a few remarks on the economy of two other sorts of Madeiran spiders, which, if you will allow me, I will now proceed to do.

Epeira Aurelia, now called Nephila Aurelia.

In the article above alluded to I said that the spider changes its skin for the last time about a week after making its fifth cocoon; but from more recent observations I have come to the conclusion, that there is no change of skin at all, after the spider becomes adult. This reduces the number of changes of integument to nine, in the female, viz. one in the cocoon and eight after leaving it. The male, on the other hand, has only four changes of integument after leaving the cocoon.

Unlike most spiders of the Nephila (Epeira) kind, N. Aurelia does not make for itself any chamber to retire to when wishing to escape observation, but remains constantly in the centre of its web, and is therefore very easily watched. I have mentioned (in the previous article on this subject) that in the construction of this web there is always a space left between the adhesive spiral line, which extends from the circumference