

XXV.—On the Nomenclature of the Foraminifera.
By W. K. PARKER, M. Micr. Soc., and T. R. JONES, F.G.S.

[Continued from p. 168.]

Part VII. *Operculina* and *Nummulina*.

Operculina.

The *Lenticulites complanata* of DeFrance (Dict. Sc. Nat. 1822, vol. xxv. p. 453) is the *Operculina complanata* of D'Orbigny's Tabl. Méth. (1826) p. 281, no. 1; and Modèles, no. 80. Basterot refers to this shell in his 'Mém. Géol. sur les environs de Bordeaux,' prem. partie, 1825, p. 18. According to DeFrance and Basterot, it is fossil at Dax, Leognan, Anvers, Pontoise, Boutonnet near Montpellier, in Italy, and common at Saucats in the green sands at the Mill of Bernachon. It occurs also in the Crag of Suffolk; and numerous varieties are known (under specific names) from the Eocene and other Tertiary beds of England, Europe, and Asia. Two or more also are known in the Cretaceous beds of France. It lives in the present seas in about 10 or 20 fathoms water, abounding on some parts of the Australian coast, in New Zealand, in the Philippines, and in the Indian Sea, at all which places it attains a relatively large size. In our northern and Arctic seas it is also of common occurrence, but of very small dimensions.

In 1781, Gronovius* figured and described a middle-sized specimen, one of many obtained from the sea-sand in the inside of a *Trochus Telescopium* from Bengal, naming it *Nautilus ammonoides*. In 1783, Schroeter † met with several small specimens among the roots of sponges from the Baltic, and, giving a figure and description, he named the shell *Nautilus Balthicus*. Hence there were already two names for this species previously to DeFrance's time; and that of Gronovius (*Operculina ammonoides*) has necessarily the right of priority.

Nevertheless, since *Operculina* passes into *Nummulina* and loses its supposed specific distinctions (as Carter and Carpenter have demonstrated ‡), it cannot retain its separate binomial appellation on *zoological grounds*, however convenient it may be to the collector and the geologist to have in this case, as in others, distinct names for the several varieties that come to hand.

* Zoophylacium Gronovianum, exhibens Animalia &c. quæ in Museo suo adservavit &c. L. T. Gronovius. fol. Lugd. Batav. 1781, p. 282. no. 1220, and p. v (Tabularum Explicatio).

† Einleitung in die Conchylien-Kenntniss nach Linné, von J. S. Schroeter. 8vo, Halle, 1783, vol. i. p. 20, pl. 1. fig. 2. Also referred to in the 'Naturforscher,' 1782, vol. xvii. p. 120.

‡ See also Annals Nat. Hist. ser. 3. vol. v. p. 109.

In the 'Annals Nat. Hist.' 2nd ser. vol. xix. p. 285, we described a small variety from the Norway coast, and made some general observations* on the *Operculinae*. Since then, Dr. Carpenter's Monograph on the genus has appeared in the 'Phil. Trans.' for 1859; and to this the student must refer for full information as to the structure and relationship of the *Operculina*.

We may remark that Prof. Williamson, in his 'Monograph on the Recent Foraminifera of Great Britain,' 1858, p. 35, renames the little northern *Operculina* "Nonionina elegans," objecting to its collocation with *O. complanata*, and grouping *Operculina*, as well as *Assilina*, with *Nonionina*. That the common *Nonioninae* pass into the *Polystomellæ* we have shown when critically examining Fichtel and Moll's *Nautilus Faba* and *N. striatopunctatus* (Ann. Nat. Hist. 3rd ser. vol. v. pp. 102, 103); and they thus diverge from the true Nummuline type, although their plan of structure much resembles that of their more complex and larger ally; and although in some varieties (such as *Nonionina Limba*, D'Orb.) this usually simple shell puts forth an extra amount of exogenous growth and thickens its septa and edges until it much resembles the small limbate *Operculina complanata* in question, yet this condition does not prove the identity of the two, any more than the like structure in *Planulina Ariminensis* removes it from the group typified by *Rotalia farcta* and places it with either *Nonionina* or *Operculina*.

Nummulina.

We are greatly indebted to MM. D'Archiac and J. Haime for their conscientiously careful work on Nummulites †; their industrious and clear collocation of synonyms is admirable, and their hitherto unsurpassed illustrations of the Nummulites and their structure supply (taken with those illustrating Dr. Carpenter's paper in the Quart. Geol. Journ. vol. vi.) nearly all that can be required in that direction. Without this work the Nummulites would have remained in confusion; with its help we may hope to advance to the attainment of a more complete classification than even the authors of that noble monograph have given us. We have already expressed our views on this point to some extent ‡, stating that we recognize three chief groups (regarded provisionally as *specific*) of *Nummulinae*, namely

* In this paper we erroneously treated *Planulina Ariminensis* as a synonym of the species under notice, misled by its great similarity of shape.

† Description des Animaux fossiles du groupe Nummulitique de l'Inde, précédée d'un Résumé Géologique et d'un Monographie des Nummulites. Par le Vicomte D'Archiac et Jules Haime. 4to, Paris, 1853.

‡ Ann. Nat. Hist. ser. 3. vol. v. p. 102, &c.

the *radiate*, the *sinuate*, and the *reticulate*, typified respectively by *Nummulina planulata*, Lam., *N. complanata*, Lam., and *N. laevigata*, Lam. The "granulate" and the "explanate" groups, also used by MM. D'Archiac and Haime, we do not recognize as essential,—the former being founded on a character common to each of the three above-mentioned groups (and misunderstood by our authors), and the latter also depending on a modification of structure occurring in two at least of the other groups.

What we have now to consider is—which of the *Nummulinæ* are, for the purposes of zoology, to be accepted as specific forms. As before stated, we regard as types those Foraminifers that present a fair average of the characters proper to the species, and are neither the simplest of the group, nor necessarily the largest and most richly provided with the peculiarities of structure found in the group.

We must once more remind the reader that we do not object to binomial appellations as distinctive terms for well-marked varieties of *Nummulinæ* or other Rhizopods. In this case, however, the subject of which we are treating is real specific relationship.

When we tabulate the fifty-five *Nummulinæ* described as species by MM. D'Archiac and Haime in their Monograph, we find six that are simply radiate: these are all of small size (6 millimetres and less in diameter); two of them are granulate (*N. Miscella* and *N. Lucasana*), and four are smooth (*N. Ramondi*, *N. Guettardi*, *N. variolaria*, and *N. Heberti*: the last two have the radii slightly curved).

There are two, *N. Rouaulti* (granulate) and *N. curvispira* (each less than 12 millimetres in diameter), that are simply radiate, but the septal lines are not quite straight. *N. mamillata* is an Assiline subvariety of *N. Rouaulti*.

N. striata, a small form, is simply radiate in some varieties, sinuo-radiate and sinuate in others.

There are four that are radiate with a slight sinuosity of the septal lines (*N. contorta*, *N. obesa*, *N. Vicaryi*, and *N. discorbina*: the first and the last are less than 12 millim. in diameter; the second attains a diameter of 12 millim., and the third of 18 millim.). These are all smooth.

There are five having sinuo-radiate septal lines: viz.

<i>N. Vasca</i> , not attaining	} a diameter of 12 millimetres.
<i>N. planulata</i> , attaining	
<i>N. Viquesneli</i> , attaining	
<i>N. Beaumonti</i> , not attaining	
<i>N. Biaritzensis</i> , attaining	

The last-mentioned, however, exhibits both the radiate and sinuo-radiate style of growth in different individuals.

The following four are "sinuate" in the growth of the alar prolongations of their chambers: *N. Sismondi* (granulate), *N. Verneuili* (granulate), *N. obtusa*, and *N. perforata* (granulate). The last-mentioned shows a "radiate" arrangement of the septa in its young state—a condition obtaining probably in the other three, as well as in *N. Brongniarti* (granulate), *N. Defrancei* (granulate), *N. Meneghinii* (granulate), *N. Deshayesi* (granulate), and *N. Bellardii* (granulate), which appear to belong to the same group of stout, well-grown, medium-sized *Nummulinæ*. *N. Meneghinii* is the only one that does not measure 12 millimetres in diameter.

The "explanate" forms, *N. exponens*, *N. granulosa*, *N. Placentula*, *N. Spira*, and the little *N. Leymeriei*, are sinuo-radiate Assilines, certainly of no more than subvarietal value.

Of the flat or complanate "sinuatae" there are ten named species in the Monograph: *N. complanata**, *N. Dufrenoyi*, *N. Puschi*, *N. latispira* (a dwarf), *N. Carpenteri*, *N. distans*, *N. Gyzehensis*, *N. Caillaudi*, *N. Lyelli*, and *N. Carteri*. The last-mentioned is (according to Dr. Carter's figure and description) a slightly granulated *N. complanata*, such as we have from Dax.

The little *N. Tchihatcheffi* is perhaps a dwarf of the "sinuate" group, in which D'Archiac and Haime have placed it.

N. Pratti, *N. irregularis*, and *N. Murchisoni* are, in all probability, extremely depressed forms of the same group.

Lastly, we have seven forms belonging to the "reticulate" group: namely, *N. lævigata*, *N. scabra* (granulate), *N. sublævigata*, *N. intermedia* (less than 12 millimetres in diameter), and the still smaller forms, *N. Garanensis*, *N. Molli*, and *N. Lamarcki*.

The little granulate *N. Fichteli* may belong to the "reticulate" group, as intimated in the Monograph.

Of the characters that appear to distinguish the several *Nummulinæ*, none have more value than the style of growth of the alar portions or lateral processes of the segments. We are, however, at the outset met with the difficulty, that even the existence of an alar prolongation of the segment is not a specific character. The "radiate" *Nummulines* afford instances of the variable growth of these alæ, and even of their becoming obsolete in individuals that have some segments well developed into alæ. Indeed the gradation from *Nummulina* to *Assilina* and to *Operculina* is, as Dr. Carter has already intimated (Journal Bombay Branch Roy. Asiat. Soc. vol. v. 1857, p. 124, &c.), well-marked, and indicative of specific unity. The *Operculina canalifera* of Varna, and the recent *Operculina* of Australia and other localities, take on the alar growth, converting themselves into *Nummulinæ*; or, *vice versâ*, we see "radiate" *Nummulinæ* lose their

* We have granulate specimens from Dax.

alar flaps and become *Operculinæ*. In the one case we have *Nummulinæ* with thin edges; in the other, *Nummulinæ* with thin centres. The difference in the width of the whorl, itself also a variable condition, is the chief feature distinguishing *Operculina* from *Assilina*.

Taking, however, the pattern of the alar growth of the segments as a feature of some value, we are further puzzled by finding the simple "radiate" plan combined in some *Nummulinæ* with a sinuous outline of the alæ, or passing so gradually into the "sinuate" plan that the distinction does not imply a difference. The same may be said of the relation of the "sinuates" to the "reticulates," although the gradation is not so common. The *N. complanata* of Dax, however, shows occasionally inosculation of the alar septa sufficient to support this statement.

We cannot accept the granulated condition of the surface as a specific character. It arises primarily from an increase of shell-matter either along the septa or on the points where the alar septa cross each other, and is concomitant with a good condition and stout growth of the shell. It is not limited, however, to the septa, but occurs in the interspaces of thin shell.

Still less can we take as an essential character the relatively large size of the primordial chamber. There is reason to suspect that certain Foraminifers commencing with a large chamber and growing more or less freely, but not attaining a large size, are varieties, or, rather, free-growing individuals soon arriving at their limit of growth. This holds good among *Nummulinæ*. With few exceptions, all the specimens under 12 millimetres in diameter that are figured in section in D'Archiac and Haime's Monograph have a large primordial chamber; for instance, *N. Garanensis*, *N. Molli*, *N. Lamarcki*, *N. latispira*, *N. Tchihatcheffi*, *N. Meneghinii*, *N. striata*, *N. Vasca*, *N. Rouaulti*, *N. curvispira*, *N. contorta*, *N. variolaria*, *N. Lucasana*, and *N. Guettardi*. The other small forms are *N. intermedia*, *N. Fichteli*, *N. Leymeriei*, *N. mamillata*, *N. Beaumonti*, *N. discorbina*, *N. Heberti*, *N. macella*, and *N. Ramondi*, in which the evidence of a large central chamber is wanting. None of these can we regard as worthy of specific rank, either for the reason above stated, or because they can easily fall into the suite of one or other of the thirty-two remaining; for we cannot accept as specific distinctions the differences in the proportions of chambers and whorls, diameters and thickness, which have been so strongly urged by other observers.

Of the simply radiate Nummulines, the simplest and perhaps the oldest-known is the *N. radiata*, Fichtel and Moll; but these forms are lost in the next grade, the sinuo-radiate.

Among the radiate and sinuo-radiate there are three that well represent the group—*N. planulata*, *N. Viquesneli*, and *N. Bia-*

ritzensis. These do not attain a large size: the third is in some respects the best of these three; it may be said to be a largish, flat, smooth *N. Rouaulti* passing into *N. planulata*. *N. planulata* is the feeblest in growth, but is little behind its fellows, and has been long known, owing to its plentiful occurrence in the Nummulitic rocks of Western Europe. *N. Biaritzensis* is its stronger representative in Eastern Europe and in Asia.

The next group are still more sinuate in their alar growth, though more or less simply radiate in the young state, and evidently must supply the type of a large proportion of, if not all, the *Nummulinæ*; for the simple forms above referred to are merged in them, and the great complanate forms are but the result of discoidally extended growth. To several varieties of these well-built sinuo-radiate forms D'Archiac and Haime gave binomial appellations in 1853; one was previously named (*N. obtusa*, Sow.); and to one they applied the name "*N. perforata*"—a highly objectionable term that De Montfort had given to a figure of a young individual in 1808. Copying Fichtel and Moll's engraving of a granulated *Nummulina*, De Montfort was puzzled whether to term the circular spots with which he disfigured his sketch *projections* or *tubes*; he applied both names, adopting the latter. In later years, MM. D'Archiac and Haime, examining sections of similar Nummulines under the microscope, adopted views (as others did also) that coincided with the notion of there being, or of there having been, perforations in the shell; and the term "*perforata*" was not objected to on the ground of illogicality, as it ought to have been.

Thus we have a *N. perforata* named on the "*lucus à non lucendo*" principle—not having the perforations which were thought to characterize it; and this *N. perforata* is a good type and the oldest-named of the group—and not only of the group, but probably of *Nummulinæ* in general.

That *N. complanata* is the best representative of the "*sinuatae*" is not to be questioned: it reaches from Western Europe* to India; and several of the forms figured in the Monograph may be readily made to own its close relationship. *N. Gizensis*, its chief Egyptian variety, has had a name for a much longer time, but bears its varietal or subvarietal features strongly marked when compared with its more noble congener. How far it was right to ignore Bruguière's name "*N. nummularia*" for Lamarck's *N. complanata* we will not decide; expediency perhaps now justifies the current nomenclature in this case†.

There can be little doubt that *N. laevigata* and its granulate

* We erroneously stated, in Ann. Nat. Hist. ser. 3. vol. v. p. 296, that it was characteristically oriental in its distribution.

† See D'Archiac and Haime's Monogr. pp. 87 & 126.

variety *N. scabra* well represent the “reticulatæ” throughout the Nummulitic rocks. Between *N. laevigata*, *N. Dufrenoyi*, and *N. complanata* we believe there are steady gradations which render the multiplication of specific names unnecessary.

It results, then, that, in our opinion, although it is expedient to have binomial terms at hand wherewith to name the more important varieties of *Nummulinæ*, recent and fossil, yet for the purposes of philosophical zoology *Nummulina* may be recognized as a genus with but a single species, which, for our part, we should consider to be typified by that unhappily named creature *N. perforata*, one of the stoutest and solidest of the whole group.

To render more apparent the successful results of MM. D’Archiac and Haime’s labours in elucidating the bibliographical history of the Nummulites and in reducing their confused nomenclature to order, we append the lists of Nummulites named and figured by several of the old authors, in chronological order, with remarks on the probable identifications of subspecies or varieties. In this we have largely availed ourselves of the information given by D’Archiac and Haime. We believe also that these correlations will be found to be of considerable value to students, even if only in saving them time in hunting up the references to antiquated works.

FORSKÅL. 1775.

Forskål. *Descriptiones Animalium &c. in itinere orientali, &c.* 4to, Copenhagen, 1775. This is a posthumous work; it is appended to Forskål’s ‘*Flora Ægyptiaco-Arabica*,’ and followed by ‘*Icones rerum*’ &c.

- p. 125. no. 65. *Nautilus pertusus**. This appears, from the description, to be a *Peneroplis*; and therefore the species should be termed *P. pertusa*, and not *P. planata*, according to right of priority.
- p. 125. no. 66. *N. Orbiculus*. This is either *Orbitolites complanata*, Lam., or *Orbiculina adunca*, F. & M.; probably the former.
- p. 140. *Nautilus? Gizensis*. This is the *Nummulina Gizensis* or *Gizehensis*.
- p. 140. *N. major*. This probably is the *N. complanata*, Lam.

In the Berlin Acad. Transactions for 1838 (1839), p. 93, Ehrenberg refers to the presence of four species of *Nummulites* in the limestone near Cairo and Gyzeh; one of them he names *N. Gyzensis* (after Forskål), and another *N. Placentula*, which is Forskål’s *N. major*, described by him as “*placentæforma*” and as “*Nautilite placentule*.”

* This and the following synonym were overlooked by us when noticing the nomenclature of *Peneroplis* and *Orbitolites* in the *Ann. Nat. Hist.* ser. 3. vol. v. p. 179 & p. 291.

BRUGUIÈRE. 1792.

Encyclopédie Méthodique. Hist. Nat. des Vers, par M. Bruguière, vol. i., 1792.

- p. 399. *Camerina lævigata*. Afterwards named *Nummulites lævigata* by Lamarck.
 p. 399. *C. striata*. D'Archiac and Haime (Monogr. p. 107 & p. 135) state that this includes the *N. scabra* of Lamarck.
 p. 400. *C. tuberculata*. According to D'Archiac and Haime (Monogr. p. 107), this is probably the same as the *N. scabra* of Lamarck.
 p. 400. *C. nummularia*. The *N. complanata* of Lamarck.

LAMARCK. 1801.

(Ann. Nat. Hist. ser. 3. vol. v. p. 290.)

Nummulites lævigata = *Nummulina lævigata*.

FORTIS. 1802.

Mémoires pour servir à l'Hist. Nat. et principalement à l'Oryctographie de l'Italie. 2 vols. 1802. Vol. ii. Mém. sur les Discolithes, pp. 1–137. The Abbé Fortis, in this Memoir on Discolithes, treated of all the little fossils then known under the names of “pierres lenticulaires, numismales, frumentaires, hélicites, et dernièrement camérines.” He refers to the notice taken of them by Strabo and Pliny, and by Mercati and Lancisi; and he quotes the opinions held of them by Bourguet, Scheuchzer, Bruckmann, Bromell, Stobæus, Linnæus, Gesner, Walch, Guettard, Targioni-Tozzetti, Strange, Fichtel, De Saussure, Bruguière, Cuvier, Lamarck, and G. A. Deluc. He then describes all the forms that he knew, but does not give them binomial appellations. The irregularities of form in nearly all are next noticed; conjectures as to the animal to which they belonged are offered; and their different modes of fossilization and the chief places where they have been found form the subject of the last chapter.

- Pl. 1. fig. *a, b*. Discolithus I. *a*. [*Nummulina Lamarcki* (?), D'Arch. & H., p. 98, and possibly *Amphistegina Lenticula*, DeFr.]
c, d. Disc. I. *β*. [*N. planulata* (?), Lam.], p. 98.
e, f, g. Disc. I. *γ*. [*N. planulata*, Lam.], p. 98.
h, i. Disc. I. *δ*. [*N. Biaritzensis*, D'Arch.], p. 99.
j. Disc. I. *ε*. [?], p. 99.
k. [?], p. 100.
l, m. Disc. I. *ζ*. [*N. Lucasana* (?), DeFr.], p. 100.
n, o. Disc. I. *η*. [*Orbitoides media* (?), D'Arch.], p. 101.
p. } Disc. I. *θ* & { [*Nummulina Brongniarti*, D'Arch. & H.], } pp. 101,
q, r, s. } Disc. I. *ι*. { [*N. lævigata*, Brug.], } 102,
t. } { [*N. Brongniarti*, D'Arch. & H.], } 103.
u, v, x, y, z. Disc. I. *κ* & Disc. I. *λ*. [*N. lævigata*, Brug.], p. 102.
 * Disc. X. [?], p. 112.
 ** [*Nummulina*.]

- Pl. 2. fig. A. } Discolithus II. { [*Nummulina complanata*, Lam.], } p. 102.
 B, C. } [*Orbitoides dispansa* (?), Sow.], }
 D, E. Disc. III. [*Nummulina Gizensis*, Forsk.], p. 103.
 F, G, H. Disc. IV. [*Orbitoides dispansa* (?), Sow.], p. 104.
 J. Disc. IV. a. [*O. papyracea* (?), Boub.], pp. 105, 126.
 K, L, M. Disc. IV. b. [*Nummulina lævigata*, Brug.], p. 105.
 N, O. Disc. V. [*Orbitoides media* (?), D'Arch.], p. 106.
 P. Disc. VI. [*Nummulina Spira*, Roissy], p. 106.
 Q. Disc. VII. [*N. granulosa*, D'Arch.], p. 106.
 R. Disc. VII. a. [*N. Lucasana*, Defr., var. a, D'Arch. & H.], p. 107.
 S, T, U, X. Disc. VIII. a, b, c, e. [*Calcarina radiata*, Roissy],
 pp. 107, 108.
 V. Disc. VIII. d. [*Orbitoides*?], p. 108.
 Y. Disc. VIII. f. [*Nummulina Biaritzensis* (?), D'Arch.], p. 108.
 Z. Disc. IX. [*Fabularia ovata*, Roissy], p. 109.

- Pl. 3. fig. 1. [*Nummulina Gizensis*, Forsk.], p. 103.
 2. [*Lunulites*.]
 3. [*Coral*.]
 4, 5. Disc. X. [*Orbitolites complanata*, Lam.], pp. 111, 112.
 6, 7. Disc. XI. [*Alveolina Melo*, F. & M.], p. 112.
 8, 9. Disc. XI. a. [*A. ovoidea*, D'Orb.], p. 113.
 10, 11. Disc. XI. b. [*A. sabulosa*, Montf.], p. 114.
 12, 13, 14. Disc. XII. a, b, c. [*Orbitolina concava*, Lam.], p. 115.
 15-18. [*Nummulina lævigata* (?), Brug.], p. 119.

- Pl. 4. fig. 1. [*N. Ramondi*, Defr.], p. 130.
 2. [*N. Biaritzensis*, D'Arch.], p. 130.
 3. [*N. Brongniarti*, D'Arch. & H.], p. 132.
 4. [*Alveolina Melo*, F. & M.], pp. 60, 113.
 5. [*Nummulina lævigata* (?), Brug.], p. 68.
 6, 7. [*Orbitolina concava*, Lam.], pp. 72, 112, 136.
 8. [*Nummulina Biaritzensis*, D'Arch.], pp. 132, 133.

On account of several of the figures of *Foraminifera* by Fortis being the first published in illustration of the species, we have included in the above list those of *Orbitoides*, *Alveolina*, *Fabularia*, *Orbitolina*, and *Calcarina*, completing (with some indeterminate objects) the list of Fortis's *Discolithi*. To his figures of *Alveolina* and *Fabularia* we have made frequent allusion in the Ann. Nat. Hist. ser. 3. vol. viii. p. 162.

FICHTEL and MOLL. 1803.

(Ann. Nat. Hist. ser. 3. vol. v. pp. 105-111.)

Nautilus Mamilla	<i>Nummulina Ramondi</i> , var. d, D'Arch. & Haime, Monogr. p. 129.
— lenticularis, a	<i>N. Tchihatcheffi</i> , D'Arch. & H. Monogr. p. 98.
— — β	<i>N. Lucasana</i> , var. a <i>ib.</i> p. 125.
— — γ	<i>N. Molli</i> <i>ib.</i> p. 102.
— — δ	<i>N. Biaritzensis</i> <i>ib.</i> p. 131.
— — ε	<i>N. perforata</i> <i>ib.</i> p. 115.
— radiatus }	{ <i>N. radiata</i> , var. of <i>N. planulata</i> , Ann. Nat. Hist. ser. 3. vol. v. p. 106.
— venosus }	

LAMARCK. 1804.

(Ann. Nat. Hist. ser. 3. vol. v. pp. 295, 296.)

Nummulites planulata	<i>Nummulina planulata</i> .
— variolaria	— —, var.
— globularia.....	<i>N. lævigata</i> , var.
— scabra	— —, var.
— complanata	<i>N. complanata</i> .

DE ROISSY. 1804.

Le Clerc (G. L.) Count de Buffon, Hist. Nat. générale et particul. &c. Nouv. édit. Sonnini. Paris, 1798–1802. Hist. Nat. gén. et partic. des Mollusques. Ouvrage faisant suite &c., continué par Félix de Roissy. Vol. v. (An 13) 1804.

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55. Nummulites lævigata, Brug. pl. 51. fig. 9.
 56. *N. plana*, De R., Fortis, Mém. ii. pl. 2. figs. A, B, C. Fig. A is the *N. nummularia*, Brug., afterwards termed *N. complanata* by Lamarck; figs. B & C are most probably *Orbitoides*.
 56. *N. depressa*, De R., Fortis, *ib.* figs. D, E. This is the *N. Gizensis* of Forskål.
 57. *N. Mamilla*, De R., Fortis, *ib.* figs. H, J, K, L, M. Figs. H & J are *Orbitoides*; K, L, & M are *N. lævigata*.
 57. *N. convexoplana*, De R., Fortis, *ib.* figs. N, O. An *Orbitoides*.
 57. *N. Spira*, De R., Fortis, *ib.* fig. P.
 58. *N. verrucosa*, De R., Fortis, *ib.* figs. Q, R. Fig. Q is the granulose condition of *N. Spira* (the same as *N. exponens*, Sow., and *N. granulosa*, D'Arch.); fig. R is *N. Lucasana*, Defr.
 58. *N. radiata*, De R., Fortis, *ib.* figs. S, T, U, V. S, T, & U are stellate *Calcarinæ*; V is perhaps an *Orbitoides*.
 58. —, var. *a*, De R., Fortis, *ib.* fig. X. A radiate *Calcarina*.
 58. —, var. *b*, De R., Fortis, *ib.* fig. Y. Possibly *Nummulina Biaritzensis*, D'Arch.
 59. *N. ovata*, De R., Fortis, *ib.* fig. Z. This is a *Fabularia*.

De Roissy adds nothing to our knowledge of the *Foraminifera* in any way; yet, of the names proposed by him for the fossil specimens figured in Fortis's Pl. 2, there are some that must be retained (*N. Spira*, *C. radiata*, *F. ovata*) on account of their priority to names given by other authors. Besides these, the *Orbitoides* may probably require "Mamilla" and "convexoplana" to be retained.

DE MONTFORT. 1808.

(Ann. Nat. Hist. ser. 3. vol. vi. p. 342.)

Nummulites denarius.....	<i>Nummulina lævigata</i> , Lam.
Lycophris lenticularis	{ <i>N. lenticularis</i> , β, F. & M. <i>N. Lucasana</i> , var. <i>a</i> , D'Arch. & H.
Rotalites radiatus	{ <i>N. lenticularis</i> , δ, F. & M. <i>N. Biaritzensis</i> , D'Arch. & H.
Egeon perforatus	{ <i>N. lenticularis</i> , ε, F. & M. <i>N. perforata</i> , D'Arch. & H.

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