

V. *Observations on Naticina and Dentalium, two Genera of Molluscou Animals.*

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THE zoologists of the old school, regarding only the shells, have always considered the *Naticæ* as closely allied to the true *Neritæ* of Linnæus, and have obstinately retained them under the same generic title, rejecting all the subgenera so properly instituted by modern writers. A very slight acquaintance with the animals will convince us that the *Naticidæ* form a distinct family from the *Neritidæ*, the two groups differing in many most important characters. The former are apparently blind; the operculum has no appendages; their useless tentacula are weak and turned back on the shell, while in the act of creeping the head and its organs are perfectly veiled by a broad expanded hood (*cucullus*), the sensitive contractile apex of which serves to guide its motions. At first sight they rather resemble the *Bullidæ* than the *Neritidæ*: for these have prominent eyes, an exposed head and long projecting sensitive tentacula, and the operculum has testaceous appendages for firmer insertion into the foot. I have transmitted a drawing and description of the typical species of *Naticina* to my friend Mr. Swainson, who has promised to insert many of my drawings of West Indian shells in his beautiful work, entitled "Zoological Illustrations."

MOLLUSCA.

Fam. NATICIDÆ, *Guild.* Neritidæ, *Gray.*

Genus 1. NATICA, *Guild.* Naticæ pars, *Sowerby.*

*Character genericus.*

*Testa* subglobosa v. obovalis, rarò depressiuscula.

*Spira* brevis: *apertura* integra, semiorbicularis, latere columellari obliquo, edentulo, calloso.



*Umbilicus* profundus, sæpè latus, inter columellarium contractum benè separatum atque columellæ basin spiralem et sæpè incrassatam positus: *fossulâ* ante callositatem, ferè distinctâ.

*Peritrema* acutum, internè lævigatum.

*Operculum* testaceum, superficie totâ affixum, nunc cœlato-costatum, nunc planatum, spirâque ejus antico-internâ.

Typus. *Natica caurena*, Sow. Gen. f. 1.

Genus 2. NATICINA, *Guild.* (*Naticæ* diminutivum.) *Natica*, Sow., *Lam.*

*Character genericus.*

*Animal* cæcum\*, cucullatum.

*Caput* absconditum, parvulum, papilliforme.

*Os* subtûs, cartilagineum, proboscidiforme, intra caput retractile.

*Mandibulæ* binæ, æquales, corneæ, marginibus denticulatis.

*Tentacula* spuria, longa, debilia, subdepressa, retractilia, apicibus recurvis; basi tecta, et membranâ supra caput connexa.

*Cucullus* latus, corpus testamque anticè tegens, margineque antico pedi connexus: dum pascit animal detrahendus.

*Pallium* tenue, continuum, latera testæ protegens.

*Operculum* corneum, simplex, spirâ antico-internâ, cicatrice parvulâ. *Musculus opercularis*† lateralis, contractus. *Musculus adhæSIONIS* ventralis, latus, cartilagineus, candidus.

*Pes* valdè contractilis et mutabilis, latus, magnus, subdiaphanus, anticè cucullum recipiens.

*Solea* simplex, marginibus tenuibus.

*Anus* pallio absconditus, sinister?

*Branchiæ* subdorsales.

\* In general aspect the *Naticinæ* approach the *Bulla Hydatis* described by Montagu in the Linnean Transactions, vol. ix. t. 6. f. 1. p. 106.—This animal, however, like its congeners, has distinct eyes seated in the subdiaphanous disk of the hood.

† The operculum is here only partially affixed to allow of freer motion. In *Strombus* the elongate lid is attached only by one end, the other being used as a crutch: when reversed, it easily recovers its position by this singular use of the organ; hence the point is generally worn and uneven.



*Testa* lævis, (*epidermide* tenui caducâ,) *Naticæ* similis, longitudinalitèr plicatula, anfractu basilari subitò valdè incrassato, reliquis minutis.

*Umbilicus* quasi semiclausus: in adultis callositate effusâ nonnunquàm omninò clausus.

*Columellæ callosæ* basis, vix à columellario depressione transversâ parvulâ distinguenda: fossula ejus antica sæpiùs lata.

\* *umbilico clauso*. *N. Mammilla*, *Lam.*

\*\* *umbilico aperto*. *N. lactea*, *Guild.*

Typus. *Naticina lactea*.

*N.* tota flavescente-lactea, capite rufescente, abdomine nigrescente-flavido, operculo castaneo margine diaphano.

*Testa* ovalis, ventricosa, lactea, nitida, spirâ prominulâ, anfractibus septem *epidermide* fuscescente-ferrugineâ tectis, apicalibus nudis minutis.

*Nerita Mammilla*, var. C. *Dillwyn Cat. vol. ii. p. 985.* *Lister Conch. tab. 571. f. 22?*

*Habitat* in profundis Oceani Caribæi frequens, nec cum *Neritis* littora petens.

Axis  $1\frac{2}{16}$  unc.—Diam.  $\frac{1}{16}$  unc.

It is commonly found in all collections of West Indian shells, though the epidermis and operculum are rarely preserved. Lamarck's description of the animal of *Natica* seems to me imperfect. The eyes it is said to possess are either wanting in *Naticina*, or escape observation from their paleness. Mr. Gray, the zealous author of the *Spicilegia Zoologica*, has with great judgement pointed out the affinity of *Sigaretus* to *Natica*. Its proper place in the family I shall explain hereafter.

The shell before us is very different from the Asiatic *N. Mammilla* of Lamarck, and the *N. mammillaris*, Lam., the var. B. of Dillwyn, which occurs in these seas.

#### DENTALIUM.

The nature and proper station of *Dentalium* were involved in much confusion till the observations of M. Deshayes were made known to us. A translation of his interesting memoir is given in the *Zoological Journal*, and is of great value to the student. The specimens which this naturalist examined



having been contracted from immersion in spirit, did not enable him to complete his history of the animal, and it is probable much will remain to be noticed till we can obtain the inhabitants of some of the larger shells. Having lately dredged up a small specimen about  $\frac{9}{16}$ ths of an inch long, I hastened to make a highly magnified figure of it before its death, and my trifling addition to the memoir of M. Deshayes is now offered to the Linnean Society, not without the hope that my description may soon be rendered more perfect by the aid of larger specimens. The minuteness of the example I obtained did not allow me by dissection to ascertain many particulars recorded in the memoir alluded to. The head, jaws, mouth, and lips, the muscular ring of adhesion, the anal funnel-shaped expansion, and the horse-shoe cicatrix on the shell, escaped my notice. What M. Deshayes has described as the *liver*, I should rather suppose to be the branchiæ, notwithstanding their unusual livid colour. These organs are regularly and deeply pectinated, and resemble a long-handled comb. The numerous elongate subcapitate anterior organs I would call tentacula: their extremities appear to be suctorious. Whether the convex side is properly called the back I did not determine; my specimen certainly drew itself along on its side, but this may have been owing to the shallow layer of sand in which it endeavoured to bury itself in the soup-plate which contained it, where it might not have been able to assume its proper attitude. From residing under the loose sand, their shells are of course free from extraneous matter, though not shielded by the pallium. The creature moves tolerably quick by sudden interrupted steps. When disturbed, it retreats quickly into its shell, which has no operculum as the *Serpulidæ*. After a time the cloak is protruded, the tentacula set in motion, and the vermiform active foot partially thrust out to explore its path, as at TAB. III. fig. 1.: when it wishes to proceed apace, the foot, with its petal-shaped alæ closed round the stem, is protruded to its full length, as at fig. 3.: the alæ are then suddenly expanded, as at fig. 4.; and the base of the foot being forcibly contracted, the shell is brought forward, while these expansions laid open in the sand prevent the apex of the foot from losing its advanced position. In drawing up descriptions, we must be careful how we speak of the absence of the anal fissure or rima. In recent specimens the apex is often produced to a very fine thin point, which with the whole fissure is very easily worn off, and seldom likely to occur in fossil examples, or shells



which are picked up dead. The small species for safety should be glued on blackened card. I do not observe that the fissure is always dorsal; in my specimens it is either lateral or ventral.

Of the place of *Dentalium* in the natural system I will not venture to speak at this moment, though perhaps we shall not do wrong, in the present state of our knowledge of the *Mollusca*, in placing it near the great family, or, I should rather say, great tribe of Linnæan *Patellæ*. In its anal opening it resembles the genus *Fissurella*, while the apical fissure represents the posterior marginal rima of *Emarginula*.

The substances figured by Mr. Sowerby in his accurate illustrations of the Genera of Shells, fig. 9, are in no way connected with *Dentalia*, though I do not pretend to determine their real nature. Their closed mouth and the connecting corneous ligaments are very curious. I have lately dredged up, among sea-weeds, numerous specimens of an animal (*Oikodomicus*, Guild.) much more analogous in outward look to the true *Dentalia*. The habitaculum is diaphanous, tubiform, vitreous, slightly bent, symmetrical, having the termination softer but not attenuated. It does not possess the hard calcareous body of the shells before us; but if Cuvier himself had received the empty habitacula, he might have thought them good *Dentalia*. The animal, however, is not affixed, but is closely related to *Nereis*. It is a most singular, active and entertaining animal in its captivity, and shall be fully noticed hereafter.

## MOLLUSCA.

Statio generis in systemate adhuc dubia sistit, at forsitan prope *Emarginulas*.

### GENUS. DENTALIUM. *Auctorum*.

*Animal* arenicolum, valdè elongatum, testæ figuram exhibens, dorso arcuato.

*Corpus* anticè truncatum, posticè mollius, subdiaphanum, musculis lateralibus elongatis.

*Caput* anticum, absconditum.

*Tentacula* cervicalia, numerosa, elongata, subcapitata, apicibus suctoriis?

*Pallium* tumidum, plicatum, pedis basin cingens.

*Branchiæ* duo, pectiniformes, abdominales?

*Pes* terminalis, magnus, extensus, subcylindricus, subattenuatus, vermiformis,



contractilis, subcanaliculatus: lobis petaliformibus, medio caulem amplectentibus, et (dum serpit animal inter arenulas,) inter utrumque passum subitò et fortitèr deflexis.

Anus terminalis, nonnunquàm appendiculis ut (primò observante D. Sowerby,) in *D. fissurâ* instructus.

Testa symmetrica, testacea, tubo-spiniformis, levitèr arcuata, versus apicem sensim attenuata, rarò tumida, anticè truncata: concavitate ventrali utrinque apertâ: foramine antico magno, circulari, sæpiùs simplici: foramine postico minori, sæpissimè in recentibus fissurato. *Rima contracta*. *Operculum nullum*.

Genus sic dividendum: forsitan hæ divisiones mox in subgenera plurima erigendæ, at (incolis invis) monente Ovidio,

“ Eximia est virtus præstare silentia rebus.”

#### I. Testâ apice simplici.

- a. Testâ longitudinalitèr striatâ vel costatâ. *Dent. elephantinum*, Linn., Desh.
- b. Testâ lævigatâ. *Dent. entalis*, Linn., Desh.
- c. Testâ apice tubiferâ. *Dent. Sowerbyi*, Guild.

#### II. Testâ apice fissuratâ.

- a. Testâ longitudinalitèr striatâ vel costatâ. *Dent. striatum*, Born, Desh. *Dent. semistriolatum*, Guild.
- b. Testâ lævigatâ. *Dent. eburneum*, Linn., Desh.
- c. Testâ transversè plicatulâ. *Dent. circinatum*, Sow. Gen. f. 5.

#### III. Aperturâ contractâ, apice bifissuratâ. *Dent. coarctatum*, Lam., Desh.

#### IV. Testâ margine incrassatâ, apice simplici. *Dent. strangulatum*, Desh.

##### 1. DENTALIUM SEMISTRIOLATUM, Guild.

D. lacteum, abdomine diaphano pallido, branchiis? lividis.

Testâ niveo-vitreâ, apice acutâ fuscâ, anticè lævigatâ, posticè longitudinalitèr creberrimèque striolatâ.

Long. testæ  $1\frac{3}{4}$  unc.—Diam.  $\frac{1}{4}$ .

Var.  $\beta$ . fig. 6. testâ candido pulchrè undulato-cinctâ.

Habitat in arenosis Oceani Caribæi.







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