Ancylus oblongus, iv. 188. Guernsey (*Dr. Lukis*).

Conovulus denticulatus, var. reflexa (*Turton*), iv. 194. *Carychium personatum*, Michaud, Suppl. to Drap. p. 73. Guernsey (*Dr. Lukis*). In crevices of rocks above high-water mark, Goldingham Bay, near Paignton. The colour of the animal is yellowish white, and that of the tentacula light grey. Each whorl in young individuals is encircled with a coronet of spines or bristles, as in the typical form. A representation of this well-marked variety is given at Pl. V. fig. 10 *a*, *b*.

Cyclostoma elegans, iv. 201. Dr. Lukis informs me that this species is found in Alderney, but not in Guernsey.

1, Montagu Square, London,
July 1858.

EXPLANATION OF PLATE V.

Fig. 1. *Cardium papillosum*, var.: *a*, natural size; *b*, magnified.
Fig. 2. *Clausina Croulinensis*: *a*, natural size; *b*, magnified; *c*, hinge, magnified.
Fig. 3. *Argiope decollata*, var.: *a*, natural size; *b*, front view, magnified; *c*, back view, magnified; *d*, interior of lower valve; *e*, interior of upper valve.
Fig. 4. *A. cistellula*, var.?: *a*, natural size; *b*, magnified.
Fig. 5. *Rissoa Alderi*: *a*, natural size; *b*, front view, magnified; *c*, back view, magnified.
Fig. 6. *Cerithium Metaxa*: *a*, natural size; *b*, magnified.
Fig. 7. *Eulima stenostoma*: *a*, natural size; *b*, magnified.
Fig. 8. *Cerithiopsis pulchella*: *a*, natural size; *b*, front view, magnified; *c*, back view, magnified.
Fig. 9. *Mangelia scabra*: *a*, natural size; *b*, front view, magnified; *c*, back view, magnified.
Fig. 10. *Conovulus denticulatus*, var. *reflexa*: *a*, natural size; *b*, magnified.

XV.—*Observations on Conchological Nomenclature.*

By M. O. A. L. Morch.

In the 'Annals of Natural History' for January 1857, there appeared a review of the 'Genera of Recent Mollusca,' by Messrs. H. and A. Adams, which has only very recently come under my notice, and which appears to me to call for a few observations, both on the general principles adopted by the reviewer, and on the individual errors indicated in the review.

The state of conchology has in many respects been for a long time far behind that of most other departments of Biology. The genera of the Testacea of Linnæus scarcely correspond in value to the Orders in his classification of the higher animals; and the genera established by Lamarck, now commonly in use, hardly possess the rank that should be given to families. The want of a better systematic arrangement in this branch of natural history has for a considerable period been felt by many naturalists;

and numerous attempts at a better classification (chiefly monographic) have been made by writers of different countries, which, however, have been neglected by the great majority of conchologists, who prefer following in the path of an antiquated celebrity to availing themselves of modern research and independent investigation. Gray, Agassiz, and Herrmannsen were the first who directed attention to the subject generally; and to Swainson and Gray we are indebted for the earliest attempts at forming more reasonable divisions of the genera.

The 'Genera' of Messrs. Adams must be regarded as a great advance in the same direction by all who have specially devoted themselves to the study of Mollusca, although their work may not prove the most useful to be consulted by pupils and students of Conchology. By the united critical labours of different conchologists it will perhaps be possible, at no very distant period, to produce a work that shall be more complete. Before, however, a standard nomenclature can be obtained, the fundamental principles of nomenclature must be settled. The errors of Linnæus we must believe would have been corrected by the immortal founder of the existing school of naturalists himself, had he been acquainted with the present development and state of Biology. It appears strange in the present day to find it deliberately maintained, as in the review in question, that genera have no foundation in nature, but are purely artificial, and only "useful in a few great collections," or "convenient in special or elaborate monographs," and that "for ordinary purposes a much smaller number of divisions is sufficient." It seems not less strange to find the reviewer expressing wonder at the number of genera contained in the work, which must be regarded as small in comparison with those in entomology or ornithology, or even possibly with what may be found to exist when the Mollusca now known are more closely examined. Such considerations as the number of genera, and the ability to retain their names in the memory, are foreign to real science, and can only find a place in treatises of a popular character.

Some names, it is objected, "are taken from works published before the time of Linnæus." The claim to be the first to establish genera was never made by Linnæus, neither did he request his successors to ignore the works of his predecessors, which would have been contrary to the practice he himself pursued. "Nomina generica, quamdiu synonyma digna in promptu sunt, nova non effingenda*." "Nomen genericum antiquum antiquo generi convenit†."

Let us inquire what is meant by ante-Linnæan? The Com-

* Phil. Botan. 247. p. 190, and Fund. Botan. 1736.

† Linn. Fund. Botan.

mittee of the British Association has advanced the doctrine that no name older than the twelfth edition of the 'Systema Naturæ' can be recognized; but it is evident that Linnæus fully established his binomial nomenclature in the tenth edition,—a work which would have been sufficient for the introduction of that system even if the twelfth edition had never appeared. In 1756, species were for the first time distinguished by a word instead of a phrase. The specific names of Linnæus could not, however, have existed without genera to which they could be referred, "uti campana sine pistillo;" and generic divisions and names had in fact been in use long before. In 1735 appeared the first edition of the 'Systema Naturæ,' in which all organic nature was divided into Classes, Orders, and genera, in accordance with the laws published by the author in the following year, 1736, in his 'Fundamenta Botanica,' the soundness of which has since been generally acknowledged. The Linnæan æra commences therefore with that year, and not with the date of his last work, because it is the spirit of his system that we adopt, and not his nomenclature, which is now entirely changed. His method was immediately followed by several naturalists (Hill, Patrick Browne, Adanson, &c.) long before the twelfth edition of the 'Systema Naturæ' appeared. Ray and Willughby were the first who introduced good genera, as Linnæus himself acknowledges. In the works of these authors names were introduced, such as Felis, Leo, Tigris; but these names are not truly generic, but vernacular; and for that reason also the names of Aristotle, Pliny, Gesner, Buonanni, &c., cannot be adopted.

Again, it is objected that some genera "were never characterized." If a generic character is required as a *sine quâ non*, it is necessary that such a character should be a true one; but this character will always be changing according to the different views of authors at different periods. The generic character is a good guide, but not a necessity, for the professional zoologist, who must be able to judge among the specific characters which are of generic and which of specific value. The first process in establishing a genus is to select those species which possess characteristics not found in other genera; and from these, again, to choose the most characteristic as the type. No definition at all is better than one that is inaccurate. The genera *Ranella* and *Triton* are established upon the position of the varices of their shells; and although many species have since been discovered without any varices, the genera must nevertheless be considered as established. The genus *Cylindrella* now contains many species differing from the original definition.

What is the type of a genus?—The Committee of the British Association maintains that the species first mentioned must be

regarded as the type; and this view appears generally to be the most natural. Linnæus directs that, if a genus must be divided, the most common species shall preserve the old name. This course can scarcely, in the present day, be considered as very scientific. The author who establishes a genus alone has the right to decide which species he wishes to be regarded as the type, and to interpret the meaning of his generic name. In such authors as Klein and Hill, who illustrated their genera by figures, it is most natural to regard the species selected for illustration as the type. In Adanson, the species which bears the same name as the genus must be regarded as the type. It is thus erroneous for an author to consider *Fossar* to be the type of the genus *Natica*, because it is the first in order and the only one of which the animal is described. On the contrary, the second species, *la Natice*, must be regarded as the type. Thus of *Haliotis*, *l'Ormier* is the type; of *Yetus*, *Yet*; of *Porcellana*, *Porcellaine*; of *Cerithium*, *Cerite*; of *Vermetus*, *Vermet*. If no species is named in the genus, it is because none is found in Senegal.

What is required for a generic name?—Linnæus gives many rules for the correct application of names, but the only condition he imposes is that the name shall be a single word of Latinized form, and not composed of two distinct terms, as *Radix Bryoniæ*, *Solen anguinus*. Barbaric words are admitted as generic names, as *Coffea*, *Thea*, *Chara*, *Pothos*, *Jambolifera*; and why not also retain hybrid names, of which the Latin language itself affords many examples? It is then unnecessary to change *Cirroteuthis* to *Bostrychoteuthis* or *Sciadephorus*. Nearly all the genera adopted by Linnæus are in opposition to his own rules, as *Conus*, *Mactra*, *Venus*, *Trochus*, *Turbo*, *Arca*, *Buccinum*, *Patella*, &c., because Linnæus considered the historical right of a name to be of greater importance than the correctness of its formation,—not, however, in justice to the author, but to history, for Linnæus never added the author's name.

On the Genera of Klein.—Lang was the first (1722) who produced a systematic Manual of Conchology, divided into genera which approach nearly to those of Linnæus at present in use; but, unfortunately, most of his names were composed of two words, and cannot therefore be recognized by naturalists of the Linnæan school. Fischer of Königsberg, in 1732, published a revised system with an improved nomenclature; and a list of the names appeared in Klein's 'Echinodermata,' in 1733. The descriptions were first published by Klein in 1752, who must, however, be regarded only as the editor and commentator, as appears by the introduction. If we take into consideration that Klein's 'Tentamen Methodi Ostracologicæ' was published at the time when Linnæus divided all univalve shells into five

genera only, and all bivalves into one Class (Concha), we must regard Klein's as a classical work. Many of his genera were not inferior to those now in use; and those in which there exists the greatest intermixture of species are certainly not worse than the Linnæan, which are now generally adopted: for instance, *Bulla* of Linnæus includes *Ovula* and *Physa*; *Turbo* includes *Clausilia*; *Littorina, Turb. marmoreus*; and *Nautilus, Planorbis* and *Foraminifera.* In the republic of science all are equal, and have the same claims upon the justice of posterity. As conchologists, Klein and Fischer were perhaps superior to Linnæus, although in their nomenclature they were inferior to him; and with regard to Klein, we possess this advantage,—that in most cases there can be no doubt as to the type, of which a figure is always given. Shuttleworth, for instance, will not adopt the genus *Pseudotrochus* (a name as good as *Pseudachatina*, Albers) because, in addition to the figured type (*Bulla virginea*, Linn.), it includes *Cerithium telescopium*, although these forms do not differ more than the species in the genus *Helix*, Linn., adopted by the same author. The genus *Chersina*, Humphrey, is preferred to *Liguus*, Montfort, although the former is composed of the heterogeneous species, *Bulla virginea, Bulla achatina*, Linn., and a *Tornatella.* It must be a matter of indifference how much the species referred to a genus differ from the type, if they are not congeneric with it.

I will now offer a few observations on the assumed errors indicated by the reviewer.

Nerita, Klein, cannot be used, because Lister's name adopted by Linnæus, but more accurately defined than by the original author, has priority.

Garagoi, a name as good as *Muscari*, Tournef., or *Gari*, Schumacher, is a generic name borrowed from Buonanni, who used it as a vernacular name for Spaniard. It is very likely a misspelling of Caracol. I am not able to identify the figure; perhaps it is *Littorina ziczac.*

Cophinosalpinx (compounded from *κόφινος, corbis*, and *σάλπιγξ, tuba*) does not contain any *Pleurotoma*, but a *Mangelia*, several *Nassæ*, and *Phos senticosus*; but the type belongs to *Ricinula*!

Buccinum, Klein, is the name of a Class, and not of a genus. *Buccinum*, Browne, is *Triton*, Montfort.

Saccus, Klein, is *Turbo* of Cuvier, which contains many different species. The type selected for illustration is *Turbo marmoreus.*

Ficus, Klein (1752), Bolten, Humphrey, Rousseau, is preoccupied by Linnæus for a plant. Gray has introduced Browne's name *Sycotypus*, but, I believe now, erroneously, because Browne mentions a hairy epidermis, which is not found in any species of that genus. Perhaps it may be a young *Triton.* It is also

strange that Browne has not quoted any figure of Lister, who gives several of this genus, of which only one species was known, from the West Indies. Lamarck's name *Pyrula* (1799 and 1801) must be retained for *Ficus* and *Ficula*, Swainson.

Argobuccinum is a name as good as *Pholadomya*, *Volutomitra*, &c. The type is *Ranella Argus*.

Auris, Klein, 1753, was already used by Linnæus in the first edition of the 'Systema Naturæ,' 1735.

Haliotis was first described by Lister, and named by him *Auris marina*.

Auris Midæ, Klein, is composed of two words, and therefore cannot be used.

Cavolina was established by Gioeni, 1783, in his 'Descriz. di una nuova famiglia, &c.,' and Abildgaard re-described the genus in 1791, one year before Bruguière published the name *Cavolina*, without description, in the plates of the 'Enc. Méth.'

Clio, Browne (1756), was adopted by Linnæus, although he had never actually seen it. "Clionis genus mihi non visum e Cl. Brownio mutuatus sum." Linnæus has only added specific names to Browne's descriptions. Linnæus here affords an example of founding species upon figures and descriptions,—a practice for which Gmelin has been often censured. Browne mentions in his specific description "vagina triquetra," which proves clearly that he meant a *Cleodora*, of which a species is figured. The name given by Peron and Lesueur was therefore unnecessary, and cannot be acknowledged.

Cassidea, Brug. (1792), is a synonym of *Cassis*, and cannot be used for *Oniscia*, which is the sixteenth species in the list of twenty-one enumerated as belonging to that genus.

Cassidula, Humphrey (not *Cassidulus*), is distinct from *Cassidula*, Lam. (=*Echinanthus*, Breyn).

Bursa of Petiver and Buonanni is a vernacular name, and cannot be used generically.

Thais of Bolten is not a synonym of *Monoceros*, as the only species of the latter genus is the last in order among the eight species mentioned.

Cylindrus is only mentioned by Breyn as an example of monothalamous shells.

Operculatum, Linn. The binomial nomenclature was first employed by Linnæus in the 'Mus. Tessinianum,' 1753, where the shells are described in the same manner as in the tenth and twelfth editions of the 'Systema Naturæ':—

lingulata.....	1. Pinna linguiformis subfalcata.
lacera	2. Arca striis membranaceis laceris.
læve	3. Operculatum, tab. vi. f. 5. Testa fere lapidea, orbiculata a latere, superne magis gibba, ab inferiore plana, punctis elevatis. *Ignoti generis.*

It seems clear to me that Linnæus regarded it as a new genus like *Arca* and *Pinna*. None of the shells here described are mentioned in any of his later works.

Tectura, Aud. and M.-Edw., is named and described in the 'Compt. Rend.' for 1824. In the 'Hist. Nat. du littoral de la France,' it is characterized by the gills as a new genus, but not named.

I will conclude with a few bibliographical observations.

The name of the person who writes a work is a matter of perfect indifference to science, and is only necessary for the purpose of distinguishing the work. To the public, each work or edition is as it were a different person.

The 'Museum Boltenianum' was originally written by the possessor of the collection, a pupil of Linnæus, with additions and corrections by P. F. Röding and Dr. Schultze, as appears from the preface furnished by Ant. Aug. Hy. Lichtenstein. I. C. Fabricius mentions, in the 'Mem. of the Nat. Soc. of Copenhagen,' 1793, vol. iii. p. 153, that the most important work of Schultze was the arrangement of Bolten's collection, but which he would probably never be able to complete. Bolten's work was subsequently much used by Link, Lichtenstein in the Duplicate Catalogue, and Schumacher. The work, of which there are two editions, is far from rare.

Link's 'Verzeichniss' was burnt either by accident, as Herrmannsen (on the authority of Beck) states, or by the author; but a copy was preserved at the University of Rostock, which copy has been recently brought to light by the researches of conchologists. The author would not, according to Troschel, acknowledge his work; but no author has a right to repudiate that which has been once published.

Copenhagen, June 3, 1858.

BIBLIOGRAPHICAL NOTICE.

The Aquarian Naturalist : a Manual for the Sea-side. By Thomas Rymer Jones, F.R.S. &c. London, Van Voorst, 1858, 12mo, pp. 524.

Considering the number of guides who have within the last few years endeavoured to lead our sea-side pleasure-seekers to find a purer and more intellectual enjoyment than that presented by the ordinary course of existence at watering-places, in the investigation of the wonders which Nature has lavished with a prodigal hand on every shore, it must be confessed that the apparent effect produced is very