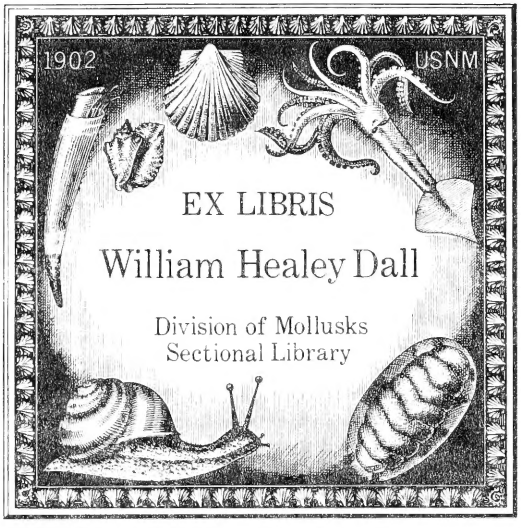
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A

SYNOPSIS

OF THE

FAMILY OF NAIADES.

BY

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THIRD EDITION, GREATLY ENLARGED AND IMPROVED.

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TO

GEORGE ORD, Esq.,

PRESIDENT OF THE ACADEMY OF NATURAL SCIENCES, ETC.

My dear Friend:—

Although you have never studied that branch of Zoology to which I have given so much attention, you have always taken a deep interest in my investigations and my memoirs on the Naïades. I feel, too, that many of us are under obligations to you for the encouragement you have given to our labors and the example presented by you in your devotion to Natural Science, as well as to polite literature, during a long life. In offering to you this volume, early associations are recalled—associations which commenced upwards of thirty-five years since, and in the infancy of the Academy at this time so flourishing, and over which you now preside.

Most sincerely,

And truly yours,

ISAAC LEA.

PREFACE.

Few branches of Natural History have advanced with more rapidity than that which embraces the part of Malacology which, in this volume, is presented in the form of a Synopsis. This edition is therefore very much enlarged, having quite double the quantity of matter of the former one. The arrangement of the genera will be found to have been somewhat changed. I have added an extensive alphabetic index of species and synonyms, which will be found extremely useful for reference; and the number of additional species will be found to be rather more than that which composed the whole in the previous edition.

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CORRIGENDA ET ADDENDA.

PAGE	LINE	FOR	READ
21	6	plectiforus	plectoforus.
24	8	depressa	depressa?
26	15	strictus	striatus.
26	7	scalenia	scalenia. Raf.
29	13	amænus	amœnus.
30	14	pescinalis	piscinalis.
39	12	Mast.	Mass.
39	26	Drouatii	Drouetii.
40	30	Phili.	Phill.
67	21	Geono.	Grono.
34	8	*dele* Retz.	
39	12	" Ardusianus. Reyn.	
40	36	" perplicatus. Con.	
53	14	" Middendorfii. Lea.	
53	19	An. fragilis out of alphabetic order.	

22	before	irroratus	insert	*pernodosus. Lea.
29	"	lamellatus	"	*utriculus. Lea.
31	"	Haleianus	"	*pygmæus. Lea.
33	"	neglectus	"	*merus. Lea.
39	"	Biggorensis	"	Beskeanus. Dunk.
50	"	fluviatilis	"	*Dunlapiana. Lea.

SYNOPSIS

OF

THE FAMILY OF NAIADES.

The following table of arrangement and synonymy was undertaken purely with the view, and in the hope of clearing away the difficulties which had incumbered one of the most interesting families of the Mollusca. In this attempt I met, while pursuing the task, with obstructions and difficulties which I little anticipated at its commencement. The want of some of the books of reference, and the confusion which reigned throughout many of them, sometimes presented obstacles which seemed almost insurmountable. The extensive and admirable library of the Academy of Natural Sciences of Philadelphia has greatly aided me in this edition. In attempting to establish the synonymy, I have endeavored to render the strictest justice, and if, in any case, it be found that I have failed to do this, it will be a matter of sincere regret. All corrections will be greatfully acknowledged.

In the following tables there will be found in the family, 539 recent species as admitted, 127 unknown to me or doubtful, and 106 fossil; in all 767.

Of the subgenus *Triquetra* (*Klein*),[1] there are 3 species.

Of the subgenus *Prisodon* (*Schumacher*),[2] 2 species.

Of the subgenus *Unio* (*Retzius*), there are 401 species in a recent state, and 84 which I have not been able to admit as certain; of fossil species 97.

Of the subgenus *Margaritana* (*Schumacher*), there are 18 admitted species, and 3 which are unknown to me.

Of the subgenus *Monocondylœa* (*D'Orbigny*), there are 8 species.

Of the subgenus *Dipsas* (*Leach*), I know of but 2 species, both of which are recent.

Of the subgenus *Anodonta* (*Cuvier*), there are 90 admitted species, and 39 which are unknown to me. Of fossil species there are 9.

---

[1] *Tentamen Methodi*, 1753.

[2] *Nouveau Système*, 1817.

Of the subgenus *Iridina* (*Lamarck*), there are 3 species, and 1 unknown to me.[1]
Of the subgenus *Spatha* (*Lea*), there are 4 species, all recent.
Of the subgenus *Mycetopus* (*D'Orbigny*), there are 3 species.

Most of the distinguished authors who have written on the subject of the division of this Family, have acknowledged the extreme difficulty they have encountered in separating it into subdivisions. This difficulty is not peculiar to the *Naïades*. In most of the families where a great number of species have been observed, we find these species so merging, and, in some of their characters, so fading away into each other, that we scarcely know how—indeed, in some instances it is impossible—to make the separation with precision. "Natura non facit saltum." In the vegetable kingdom, the same obstructions to a system are encountered. The observations of Lindley[2] are so just and philosophic, that I cannot refrain from quoting them here:—

"Species are created by Nature herself, and remain always the same, in whatever manner they may be combined: they form the basis of all classification, and are the only part of it which can be considered absolute. For although, in a natural system, all other combinations—whether genera, tribes, orders, or by whatever name they may be known—comprehend species agreeing much more with each other than with anything else, and having a positive general resemblance in the majority of their features, yet no fixed limits can be assigned to any of them; on the contrary, they pass, by means of various intermediate species, into the other genera, tribes, orders, &c., to which they are most nearly allied. For this reason, viz., that no fixed limits can be assigned to orders, genera, &c., we find the ideas about them fluctuating with the degree of our knowledge; which is the true cause of those changes in the limits of genera, &c., which persons unacquainted with the subject are apt to consider arbitrary, but which, in skilful hands, are dependent upon a progressive advance in the knowledge of science."

MM. Ray and Drouet (*Revue et Mag. de Zoologie*, 1849) give their views of what forms a species in the following terms: "Generalement on entend, par se mot (espèce), un type d'organization de forme et d'activité, rigoureusement déterminé, qui se perpétue successivement par génération directe et d'une manière indéfinie avec la meme constance de caractères."

Milne Edwards's definition of species, I think, is less clear. He says: "On donne le nom d'espèce a la reunion des individus, que se reproduisent entre eux avec les memes propriétes essentielles."

---

[1] Mr. Gray, in his *Genera*, gives priority to Scopoli, 1777, under the name of *Mutela*. I have not access to Scapoli's works, and, therefore, for the present, retain Lamarck's well-known name of *Iridina*.

[2] See *Introd. to Botany*, p. 307.

Cuvier considered that the fact of the succession and of the constant succession, constituted alone the validity of the species.

Dr. Morton comprised his view of species as "a primordial organic form."

Neither of these definitions fulfil my own idea of what forms a species. It seems to me that a species must be considered to be a *primary established law*, stamped with a persistent form, pertaining solely to itself, with the power of successively reproducing the *same form* and none other.

Blainville, in his *Manuel de Malacologie*, divides the *Naïades* (his *Sub-Mytilacea*) into *Anodonta* and *Unio*, but thinks that species will be found which will make these to be united.[1]

Sowerby says: "The difficulty of ascertaining to which genus of Lamarckian *Naïades* certain species belong, arises from the very general similarity of form," &c.; "in fact, an examination of a sufficient number of species will prove that no dependence can be placed upon the characters by which authors usually attempt to discriminate between these genera, and that the transition from one to another is so gradual in some instances, and so strongly marked in others, that it is not surprising that authors, who, having only met with certain species, and not being aware of such intermediate links, should have considered them as the types of new genera."[2] And further: "We think we have already said enough to prove that, unless it be thought wise to elevate each of the peculiar sorts we have mentioned, and many more, into distinct genera, it will be positively necessary to unite them altogether under one generic appellation."

Deshayes, in his edition of Lamarck's *Animaux sans Vertèbres*, says it is impossible to separate the genera of the *Naïades*. "Nous pourrions prendre pour example celui des genres qui est consideré comme l'un des mieux caractérisés. Le genre *Symphynote* est fondé sur ce caractere remarkable que les deux valves sont soudées entre elles le long du bord superieur," etc. "Nous concluons que tout ce grand ensemble ne peut et ne doit former qu'un seul genre constituent a lui seul la famille des *Nayades*."[3]

---

[1] See page 540.

[2] *Zool. Journ.*, vol. i.

[3] Vol. vi. p. 526.—I shall be excused in taking this opportunity to correct an erroneous impression on the mind of M. Deshayes. He says that I was not able to examine the collection of the Museum of Paris. "Malgré cette imperfection qu'il ne pouvait empêcher, le travail de M. Lea se recommende à l'attention des naturalistes par ces observations judicieuses, des descriptions exactes," etc. It would be strange, indeed, if, after spending so many years in the study of this family, that I should neglect, while in Paris, to see the collections from which Lamarck made so many descriptions. I was frequently at the Museum, and on one particular occasion, by appointment of MM. Blainville and Ferussac, arranged, in the presence of these and other gentlemen, all the species of the *Naiades* that were in the Museum, and named them; and also presented to the Museum about fifteen species which were new to that great national institution. I also did the same thing for Baron Ferussac, having designated every specimen in his cabinet belonging to this family.

It might be expected that some attempt of the application of M'Leay's circular system should be made in regard to this family. Swainson says that "the progression of every natural series is in a circle."[1] In my attempts to verify this, I have not been successful. That the same idea exists in the construction of species is evident through a great number, but that this idea is returned to the point at which it commenced I am not prepared to admit.

To form a systematic, and, so far as possible, a natural arrangement of this family, has long occupied my serious attention.

I was, from my first knowledge of the family, struck with the very different aspect of the winged species, and, taking the hint of Lamarck,[2] I thought that an important division could be made by separating the connate from the free shells, and proposed the name of *Symphynota* for such as were connate. I was not satisfied at that time in separating a genus of this family by a character differing from that of the teeth, but presumed that the family would be taken up by some one, if not by myself, and that the first division of it would be symphynote and non-symphynote *Naïades*. The numerous new species which have been made known since, have satisfied me that this character cannot be so extensively and usefully applied as I then thought it could, and that it is not, in fact, free from the same objection which pervades so many generic characters as adopted by the most intelligent naturalists, viz., that perfect fading and mingling of character which interferes with all the systems yet formed

Sowerby, after examining into the propriety of dividing the family into genera, came to the conclusion of keeping but one genus, viz., *Unio:* this he divided into A without teeth. B with teeth. These he subdivided into winged and not winged. Another subdivision followed these, on the presence, form, and absence of teeth. There is evidently much merit in this division, but it is not perfect; nor ought we to expect perfection, I believe, in any system.

Ferussac informed me, when in Paris, that he proposed to consider the Family *Naïades* to consist of one genus, *Margaritifera*, which genus he divides into the following subgenera: 1. *Anodonta;* 2. *Iridina;* 3. *Dipsas;* 4. *Triquetra;*[3] 5. *Alasmodonta;* 6. *Unio.*

Swainson, in his *Malacology*, divides the *Naïades* of Lamarck into several sub-families and a great number of genera, which do not seem to me to possess characteristics sufficiently different to be adopted. They are as follows:—

---

[1] Swainson, in Lard. *Cycl. Nat. Hist.*, p. 247.

[2] Vol. vi. p. 76.

[3] Klein. This, it would appear, Baron F. intended should embrace my genus *Symphynota*, as he included all he knew of them except *S. bialata.*

Unio. Lam.,	represented by	*Unio sulcatus.* Lea.
Cunicula. Swain.,	" "	*Unio rubiginosus.* Lea.
Ligumia. Swain.,	" "	*Unio rectus.* Lam.
Theliderma. Swain.,	" "	*Unio lacrymosus.* Lea.
Megadomus. Swain.,	" "	*M. gigas.* Swain.
Æglia. Swain.,	" "	*Unio ovatus.* Say.
Naida. Swain.,	" "	*Unio ater.* Lea.
Canthyria. Swain.,	" "	*Unio spinosus.* Lea.
Mysca. Turton,	" "	*Unio pictorum.* Lam.
Potomida. Swain.,	" "	*Unio sinuatus.* Lam.
Lymnadea. Swain.,	" "	*Unio alatus.* Say.
Iridea. Swain.,	" "	*Unio granosus.* Lam.
Castalia. Lam.,	" "	*Castalia ambigua.* Lam.
Naïa. Swain.,	" "	*Unio corrugatus.* Lam.
Hyria. Lam.,	" "	*Hyria syrmatophora.* Lam.
Hyridella. Swain.,	" "	*Unio australis.* Lam.
Iridina. Lam.,	" "	*Iridina exotica.* Lam.
Calliscapha. Swain.,	" "	*Iridina Nilotica.* Sow.
Mycetopus. D'Orb.,	" "	*Mycet. soleniformis.* D'Orb.
Lamproscapha. Swain.,	" "	*Anodonta siliquosa.* Spix.
Symphynota. Lea,	" "	*Unio lævissimus.* Lea.
Anodon. Lam.,	" "	*An. cygnea.* Lam.
Hemiodon. Swain.,	" "	*An. areolatus.* Swain.
Patularia. Swain.,	" "	*An. rotundus.* Spix.
Calceola. Swain.,	" "	*Unio calceolus.* Lea.
Alasmodon. Say,	" "	*Alas. undulata.* Say.
Uniopsis. Swain.,	" "	*U. mytiloides.* Raf.?
Margaritana. Schum.,	" "	*M. margaritifera.* Lin.
Complanaria. Swain.,	" "	*Alas. rugosa.* Barnes.

Retzius, *Nova Testaceorum Genera*,[1] 1788, established the genus *Unio*, of which he makes two divisions, viz.:—

* Without lamellar teeth—

1. *Unio margaritiferus.*	represented by	Mya margaritifera. Lin.

** With lamellar teeth—

2. *Unio crassus.*	" "	Unio crassissimus. Fer.
3. *Unio tumidus.*	" "	Unio ovalis, of British Zoologists.
4. *Unio pictorum.*	" "	Unio pictorum. Lin.
5. *Unio ovalis.*	" "	Unio tumidus. Retz.
6. *Unio corrugatus.*	" "	Unio corrugatus. Lam.

[1] I have never been able to examine this rare work until recently, it being now in the Library of the Academy of Natural Sciences. The establishment of the genus *Unio* has been usually given, by French authors, to Bruguière, but the English and German writers give it to Retzius so universally, that I have followed them. But now, on a careful examination of the work itself, it seems to me that the genus belongs to L. M. Philipsson, the author of the Dissertation, Retzius himself being the presiding officer of the institution where this thesis was presented.

Mr. Gray, in his excellent *List of Genera* (*Zool. Soc. Proceedings*, 1847), divides the *Naïades* into three families, viz.:—

Family 9th. UNIONIDÆ. 10th. MUTELADÆ. 11th. MYCETOPODIDÆ.

The *Unionidæ* consists of eight genera, viz.: *Anodonta*, Cuv.; *Margaritana*, Schum.; *Monocondylœa*, D'Orb.; *Unio*, Retzius; *Barbala*, Humph.; *Lamproscapha*, Swain.; *Anodonta*, Lam.; *Byssodonta*, D'Orb.

Family 10th. MUTELADÆ consists of five genera, viz.: *Mutela*, Scopoli; *Leila*, Gray; *Pleiodon*,[1] Con.; *Paxyodon*, Schum.; *Prysodon*, Schum.

Family 11th. MYCETOPODIDÆ consists of one genus, viz.: *Mycetopus*, D'Orb.

M. D'Orbigny, in his *Voyage Am. Merid.*, vol. v. p. 594, (1835 to 1843,) divides the family into genera according to the form of the mantle, the form of the foot, and according to the character of the shell.

"Qui se divisent zoologiquement en plusieurs genres d'après la forme du manteau, la forme du pied, et d'après les caractères seuls de la coquille. On pourraits les diviser ansi qu'il suit."

1. Manteau fermé jusqu'au tiers inferieur de la coquille, pourvue des deux tubes distincts, &c. = *Iridina*, Lam.
2. Manteau fermé seulment sur la région anale, où il y a deux tubes distincts, &c. = *Castalia*, Lam.
3. Manteau ouvert sur toute sa longeur, une ouverture anale seule distincte, &c. = *Mycetopus*, D'Orb.
4. Manteau ouvert sur toute sa longeur une ouverture anale seule distincte.
   - A. Coquille pourvue des dents variables à la charnière = *Unio*, Retz.
   - B. Coquille pourvue d'une seule dent = *Monocondylœa*, D'Orb.
   - C. Coquille sans dents à la charnière = *Anodonta*, Lam.

M. Troschel, in *Wiegmann's Archives*, vol. xiii. 1847, divides the family, by their anatomical structure, into nine genera, viz.:—

UNIO (Retzius). The mouth lips are wider than long, united as far as the middle on the posterior margin. The margin of the mantle entirely open; the outer branchia united to the mantle to its very extremity; the inner branchia not united to the foot; the foot is tongue-shaped, thick, somewhat produced anteriorly. (*Unio tumidus*, Retz, and *Unio Hopetonensis*, Lea.)

MARGARITANA (Schumacher). (*Alasmodonta*, Say.) The mouth lips are wider than long, united along two-thirds of the posterior margin. The mantle entirely open; the outer branchia is free posteriorly, and lies in a fold of the mantle; the interior branchia is united to the foot anteriorly, but along the greater part of the foot it is free; the foot is tongue-shaped, somewhat produced anteriorly. (*Mya margaritifera*, Lin.,) Tab. 6, Fig. 1.

HYRIA (Lam.). The mouth lips as wide as long, not united. The mantle margin inferiorly is open, posteriorly closed, so as to make a branchial and anal aperture. The outer branchia united to the

[1] I do not see any reason for throwing out *Iridina* and taking in its place the name of *Pleiodon*, which was unnecessarily given to a shell well known and figured long before, and described both generically and specifically, viz., the *Iridina ovata*, Swain.

mantle to its extremity; the interior branchia is united to the foot; the foot tongue-shaped, thick, somewhat produced anteriorly. (*H. symatophora*, Lam.,) Tab. 6, Fig. 3.

Castalia (Lam.). The mouth lips a little wider than long. The margin of the mantle inferiorly is open, posteriorly so united that the branchial and anal apertures are closed; the branchial aperture is surrounded with cirri; the anal aperture smooth; the outer branchia united to the mantle all the way to its extremity; the inner branchia———(?); the foot tongue-shaped, thick, somewhat produced anteriorly. D'Orbigny, *Voy.*, &c. (*Castalia ambigua*, Lam.)

Dipsas (Leach). Animal unknown. Shell closed entirely (*Dipsas plicatus*, Leach).

Anodonta (Lam.). The mouth lips are broader than long, united to the middle of the posterior margin; the mantle margin is entirely open; the outer branchia united to the mantle to its extremity; the inner branchia not united to the foot; the foot is thick, tongue-shaped, somewhat produced anteriorly. (*An. cygnea*, Lam.)

Iridina (Lam.). Mouth lips longer than wide, not united; mantle margin united as far as the foot, so that the branchial and anal apertures are closed; the outer branchia united to the mantle as far as its extremity; the inner branchia entirely united to the foot; foot thick, tongue-shaped, somewhat produced anteriorly. (*I. cælestis*, Lea.)

Spatha (Lea). The mouth lips are longer than wide, and not united. The mantle margin is closed behind, so that the bronchial and anal apertures are closed; on the under margin the mantle is entirely open; the outer branchia is united to the mantle all the way to its extremity; the inner is not united to the foot; the foot is thick, tongue-shaped, somewhat produced anteriorly. (*S. rubens*, Lea,) Tab. 6, Fig. 2.

Mycetopus (D'Orbigny). The mouth lips longer than wide; the mantle margin is open to the anal aperture, which is closed; the outer branchia is entirely united, or grown together; the inner ———(?); the foot is very much produced and widened into a knob. (*M. soleniformis*, D'Orb.)

In *The Shells of New England*, by W. Stimpson, Boston, he states that, in the MSS. of Prof. Agassiz, the following divisions into genera are made (of the New England species) on anatomical differences, viz.:—

Unio, Retzius, emend. Gills free from the abdominal sac, their posterior extremity attached to the mantle; eggs, in the female, filling the whole extent of the outer gill; mantle fringed at both siphonal openings. (Agassiz, MSS.) (*Unio complanatus*, Lea.)

Eurynea, Rafinesque, emend. Gills attached to the abdominal sac, leaving no communication between the pedal and the upper gill cavities; eggs received in the sacs of the posterior part of the outer gill; mantle fringed at the posterior half of its ventral edge, and at the branchial and anal siphons. (*Unio prælongus*, Bar.)

Lampsilis, Raf., emend. Gills attached; eggs in the posterior part of the outer gill; mantle fringed at both siphonal openings, and having fleshy thickenings and processes at its posterior ventral edge. (*Unio radiatus*, Lam.)

METAPTERA, Raf., emend. Gills attached; eggs in posterior part of gill; a broad expansion of mantle upwards; superanal opening long; both siphonal openings fringed. (*Unio alatus*, Say.)

COMPLANARIA, Swain, emend. Gills free, united to the mantle to its margin; outer gill filling entirely with eggs; superanal opening long; both siphonal openings fringed; palpi united along their posterior edge for two-thirds of their length. (*Alasmodonta rugosa*, Bar.)

MARGARITANA, Schum. Gills free from abdominal sac, their posterior extremity not united to the mantle; anal opening or region of mantle not fringed; branchial fringed. (*Alasmodonta arcuata*, Bar.)

ALASMODONTA, Say, emend. Gills attached to abdominal sac, attached also to the mantle to their extremity; branchial siphon fringed; anal large, not fringed; eggs ——— (?). (*Alasmodonta marginata*, Say.)

STROPHITUS, Raf., emend. Gills attached; eggs received in the whole extent of the outer gill; anal opening not fringed. (*Anodonta undulata*, Say.)

ANODONTA, Brug. Gills free; eggs throughout the gill; anal opening not fringed. (*Anodonta Benedictensis*, Lea.)

In these generic divisions, by D'Orbigny, Troschel, and Agassiz—all founded on anatomical structure—it will be observed that they do not differ essentially in their modes of division; and I do not hesitate to express the opinion that our knowledge of the structural differences of the soft parts of these animals, is not yet sufficiently advanced to found a perfect or permanent system. That such a one would be instituted I have not doubted, and I so expressed myself in 1838, in a note on *Anodonta Blainvilliana* (nobis), in my *Synopsis*, 2d ed. p. 31, and I trust that the able physiologists whom I have cited above, will continue to give their labors to an investigation which cannot but produce rich results; but I am disposed to think that, until malacologists have examined carefully the soft parts of most of the existing numerous species—the exo-skeletons[1] (so to call them) of which have only come under our notice—the facilities which a good system ought to afford cannot be reaped by a partial anatomical knowledge, which does not now embrace, probably, one-eighth of the ascertained species of the family. Besides this, I am not at all disposed to think that we can entirely dispense with the aid we find in the various characters of the exo-skeletons, in making our sub-groups. They often, in fact, afford striking and obvious differences, which the eye schooled with but little experience can with facility and certainty detect, and which, if happily grouped by an experienced eye, may greatly aid the student. These considerations have induced me still to retain nearly the same divisions in this edition which I used in the former one.

[1] Forming the calcareous coverings and fulcra for muscular fibres, as well as protection from exterior forces.

In vol. iii. of the *Trans. Am. Phil. Soc.*, p. 398, Mr. Nicklin expresses the opinion "that the seven genera, now referred to the family of *Naïades*, are founded in artificial distinctions, and not in nature; and that, in fact, the family contains but one genus."

In consequence of the enormous extent to which the Family *Naïades* is expanded, it is absolutely necessary to establish many groups and sub-groups, so as to make a systematic arrangement accessible to the student of this branch of zoology. I therefore divide the family into two genera, *Margaron*[1] and *Platiris*. The first is divided into seven subgenera, and the latter into three subgenera. These subgenera are again divided into symphynote and non-symphynote, which are again divided into plicate, nodulous, spinous, and smooth shells. These are subdivided into nine groups dependent on the outline of the plane of the valve, viz., into quadrate, triangular, oblique, oval, oblong, subrotund, wide, obovate, and arcuate, as in the following table:—

[1] In the previous edition, I proposed the name of *Margarita*, but, this name being pre-occupied by Dr. Leach for a genus separated from *Turbo*, I now substitute that of *Margaron* (μαργαρον, Unio).

FAMILY NAIADES.

I. GENUS MARGARON.

1. Subgenus Triquetra,[1]
   Having a cardinal and lateral tooth, and furnished with two siphons.
   - Symphynote—Hyria corrugata. *Lam.*

2. Subgenus Prisodon,[2]
   Having a cardinal and lateral tooth transversely striate, and furnished with two siphons.
   - Non-Symphynote—Castalia ambigua. *Lam.*

3. Subgenus Unio,
   Having a cardinal and lateral tooth.
   - Symphynote—Unio alatus. *Say.*
   - Non-Symphynote—U. pictorum. *Lam.*

4. Subgenus Margaritana,
   Having one tooth (cardinal).
   - Symphynote—Alas. complanata. *Barnes.*
   - Non-Symphynote—Alas. undulata. *Say.*

5. Subgenus Monocondylœa,
   Having a simple callus.
   - Non-Symphynote—Mono. Paraguayana. *D'Orb.*

6. Subgenus Dipsas,
   Having a linear tooth under the dorsal margin.
   - Symphynote—Dipsas plicatus. *Leach.*

7. Subgenus Anodonta,[3]
   Having no teeth.
   - Symphynote—Sym. magnifica. *Lea.*
   - Non-Symphynote—An. fluviatilis. *Lea.*

II. GENUS PLATURIS.

1. Subgenus Iridina,
   Having a granulate dorsal margin, and furnished with two siphons.
   - Non-Symphynote—I. exotica. *Lam.*

2. Subgenus Spatha,
   Having a dorsal margin non-crenulate, and furnished with two siphons.
   - Non-Symphynote—I. rubens. *Desh.*

3. Subgenus Mycetopus,
   Having a straight, smooth, dorsal margin, and furnished with a long extensile foot.
   - Non-symphynote—Myc. soleniformis. *D'Orb.*

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[1] Since the publication of the last edition of this *Synopsis*, the soft parts of *Triquetra* (Hyria, *Lam.*) have been obtained, and Mr. Gray, in the *An. and Mag. Nat. Hist.*, vol. vi., gives us the anatomy. "The mantle lobes of the species of this genus brought from British Guiana by Mr. Schomburgh are united together behind, and furnished with two short, separate, contractile siphons, like the animals of *Iridina* and *Leila*, though the submarginal impression of the shell does not show indications of any inflections behind."

[2] M. D. Orbigny, in his *Voy. Am. Mer.*, vol. v. p. 597, gives a description of the soft parts of *Prisodon* (*Castalia*, Lam.). Mantle open the whole length, except at the anal region, where it is closed, and presents two short distinct tubes, of which one—branchial—is largest and furnished with ciliæ round its edge. Buccal appendages rounded, very large. Foot much compressed, thicker and bent behind.

[3] A very remarkable fresh-water bivalve, named *Byssanodonta Paranensis* by D'Orbigny, was observed by him

After the divisions of Symphynote and Non-Symphynote shells, we have the four conditions in which the outward surface of the shell is found, viz.:—

1. Plicate.[1]
2. Nodulous.[2]
3. Spinous.[3]
4. Smooth.[4]

Each of these subdivisions group according to the form of their outline, thus:—

1. Quadrate.[5]
2. Triangular.[6]
3. Oblique.[7]
4. Oval.[8]
5. Oblong.[9]
6. Subrotund.[10]
7. Wide.[11]
8. Obovate.[12]
9. Arcuate.[13]

In regarding these outlines, the shell is supposed to be lying on its side with the ligament furthest removed from the observer, and the beak to the right of it. The base will, of course, be nearest to him, and the anterior margin will be to his right, while the posterior margin will be to his left. This is my mode of arranging my whole cabinet, which contains over 4500 specimens of this family, each differing in sex, age, some characteristic, or geographical distribution.

In attempting to make a complete synopsis of the *Naïades*, much labor has necessarily been expended. I do not present this as a perfect work, but it has been made as much so as the opportunities in my possession permitted. Errors may have arisen from two sources: first, default of judgment; second, from accident, owing to the mass of research

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in the Rio Parana above Corrientes. It resembles an *Anodonta*, but remains always attached by a *byssus*. This very remarkable shell has not been as well observed in regard to its habits and anatomy as it deserves to be, and it is mentioned here to draw attention to it, without placing it systematically, as yet, among the *Naïades*, in which family it probably will be found properly to belong by its anatomical structure. The genera *Etheria*, *Mulleria*, *Acostæa ?* *Galatea*, *Cyclas*, and *Dreissena*, all inhabit, also, fresh water, and have their affinities.

[1] Unio plicatus. *Lesueur.*

[2] Unio pustulosus. *Lea.*

[3] Unio spinosus. *Lea.*

[4] Unio complanatus. *Lea.*

No regard, of course, is paid in this division to the folds or undulations of the beaks, as all the species are more or less disposed to this character, which is very valuable in discriminating the species.

[5] U. asperrimus. *Lea.*

[6] U. triangularis. *Barnes.*

[7] U. clavus. *Lam.*

[8] U. ligamentinus. *Lam.*

[9] U. complanatus. *Lea.*

[10] U. circulus. *Lea.*

[11] U. rectus. *Lam.*

[12] U. modioliformis. *Lea.*

[13] M. margaritifera. *Lea.*

necessary to accomplish the object, considering the crude state the subject was in. I shall be most agreeably disappointed if there be not parts pointed out as erroneous which are substantially correct. It will be observed that the works of M. Rafinesque are but little quoted. This has arisen from the utter impossibility of satisfying myself as to his species, causing me at an early period to abandon the task of making out his very imperfect descriptions. His own discrepancy in the names sent to Ferussac,[1] and those which are attached to specimens here, together with the want of accordance in the tables made out by his friends, have induced me to regard his claims as being too slender to rely upon the decisions, so contradictory, of the several parties, in the absence of the individual specimens noted. In the absence of these specimens, which no naturalist has, I believe, ever seen but the Professor, I feel myself compelled to prefer other authorities, which are now almost universally received by our malacologists. I am the more fortified in this conclusion, when I see that his most ardent advocate acknowledges that he has made six species from a single one;[2] and the absurdity is still stronger when we turn to M. Rafinesque's monograph, and find that this single species has furnished *several genera*, and is placed, in fact, in *two different sub-families!!!*[3]

In regard to the Catalogue published last year by Baron Ferussac, in which he gives precedence to many of M. Rafinesque's names, it must be remembered that this has been done on the authority of others, and not from the inspection of the specimens themselves. Had he known the manner in which these claims had been brought forward, he certainly would have admitted them with doubt.

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[1] "Les erreurs involuntaires qui échappent à M. Rafinesque dans ses envois augmentent aussi la difficulté de reconnaitre ses espèces. Nous avons reçu de lui les mémes coquilles sous différents noms, et d'autres avec les noms évidemment autres que ceux qu'elles portent dans sa Monographie. Il en est résulté une difficulté inextricable pour la détermination de ses espèces, et pour pouvoir établir une synonymie exacte entre lui et les autres qui, depuis, se sont occupés des Mulettes."—*Magasin de Zoologie*, p. 13.

[2] *U. triangularis.* Conrad's *Synoptical Table of New Fresh Water Shells of the United States*, p. 72.

[3] See page 57.

FAMILY NAIADES.—*Lamarck.*

GENUS MARGARON.

I. SUBGENUS TRIQUETRA.[1]

All the species preceded by an * are in my Cabinet. The inner column forms the Synonyms.

SYMPHYNOTE TRIQUETRA.

PLICATE.

TRIANGULAR.

*corrugata. *Lea.*[2]
Hyria corrugata. Lam. Sow.
Hyria rugosa. Cuv.
Hyria rosea. Lefev. Pot.
Mya angulata. Wood.
Unio corrugata. Blain.
Unio rugosus. Wagner.
Paxyodon ponderosus. Schum.
Triplodon rugosum. Spix.

SMOOTH.

*subviridis. *Klein.*
Mya syrmatophora. Gronovius. Gmel. Wood. Dill. Schreib. Schröt.

SYMPHYNOTE TRIQUETRA.

SMOOTH.

TRIANGULAR.

Hyria avicularis. Lam. Child. Crouch. Desh. Guerin.
Hyria syrmatophora. Sow. Cuv. Desh. Schom.
Hyria elongata?[3] *Swain.*
Hyria cordata. Menke.
Unio caudatus. Wagner.
Prisodon obliquus. Schum.
Diplodon furcatum. Spix.

*Browniana. *Lea.*
Hyria humilis? Trosch.[4]

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[1] The shell known to zoologists generally as *Hyria corrugata*, Lam., was long before placed by Klein under the generic name of *Triquetra* (*Tentamen Methodi*, 1753, p. 135, Pl. 9, Fig. 36), and Ferussac adopted it, very properly, in preference to *Hyria*. In my former editions, I placed *Hyria* in the subgenus *Unio*, but the animal has been found to possess two syphons, which certainly separates it from *Unio* (*Gray, Annals of Nat. Hist.*, Dec. 1840). Troschel, in *Wiegmann's Archives*, describes the soft parts and the cicatrices. The cicatrices in the *H. corrugata*, he says, differ. He also says that the *Unio delphinus* belongs to this genus, as well as a new shell, *Hyria humilis*, from Guiana, described by him.

[2] It will be observed, throughout this *Synopsis*, that where any change has been made of generic or specific names, I have placed my name there. This is not done with a view to claim any merit, but in accordance with the usual custom in such cases. The object is to show the author of the change, and nothing further.

[3] Mr. Gray thinks this to be a "perfectly distinct species." I have never seen the shell, and feel too much in doubt to insert it as such.

[4] Referred to in *Wiegmann's Archives*, 1847.

II. SUBGENUS PRISODON.[1]

NON-SYMPHYNOTE PRISODONTES.

PLICATE.

TRIANGULAR.

*truncatus. *Schum.*
Cast. ambigua. Lam. D'Orb. Cuv. Sow. Guerin. Pot. Schom.
Cast. quadrilatera. D'Orb.[1]
Cast. inflata. D'Orb.
Unio ambigua. Blain. Desh. Sow.
Mya ambigua. Wood.
Tetraplodon pectinatum. Spix.

NON-SYMPHYNOTE PRISODONTES.

SMOOTH.

TRIANGULAR.

Duprei. *Recluz.*

[1] Schumacher, in his *Nouveau Système*, 1817, p. 138, formed the genus *Prisodon*, in which he included the two now well known shells *Hyria syrmatophorus* and *Castalia ambigua*. His name for the first cannot be applied, as Klein, in 1753, preoccupied this genus by naming it *Triquetra*. Therefore it must be applied to *Castalia*, which name was given to the same shell by Lamarck in 1819. Mr. Gray, in his "*Genera*," gives Schumacher priority in the name of *Prisodon*, in which he is perfectly correct.

[2] I owe to the kindness of M. D'Orbigny specimens of this and *inflata*. I regret, however, that I am compelled to differ in opinion with this distinguished naturalist, believing, as I do, that there have been as yet observed but two species of *Prisodon* (Lamarck's *Castalia*). The second by Recluz, the *Duprei*.

III. SUBGENUS UNIO.

SYMPHYNOTE UNIONES.

PLICATE.

TRIANGULAR.

*Cumingii. *Lea.*

gigas. *Lea.*
Lymnadia gigas. Swain.

*Nicklinianus. *Lea.*

*Boykinianus. *Lea. Chenu.*

SMOOTH.

*inflatus. *Lea. Küst.*
Symph. inflata. Lea, in Trans. Am. P. S.
Unio Alabamensis. Con.

*delphinus. *Grun. Lea. Küst.*

*alatus. *Say. Lam. Swain. Bar. Hild. Menke. Adams. Küst. Dekay. Potier. Deshayes. Con. Sow.*
Mya alata. Wood.
Symph. alata. Lea, Trans. Am. P. S.
Lymnadia alata. Sow.
Metaptera alata. Stimpson. (Agass. MSS.)

*superbus. *Lea.*

*lævissimus. *Lea.*

SYMPHYNOTE UNIONES.

SMOOTH.

TRIANGULAR.

Symph. lævissima. Lea, in Trans. Am. P. S. *Eaton.*
Unio lævissima. Deshayes.

*gracilis. *Barnes. Hild. Desh. Adams.*
Unio planus. Barnes.
Unio fragilis. Swain. Küst.
Symph. gracilis. Lea, in Trans. Am. P. S. *Eaton.*
Metaptera gracilis. Stimpson. (Agass. MSS.)

OBLONG.

*pressus.[1] *Lea.*
Symph. compressa. Lea, in Trans. Am. P. S.
Complanaria alasmodontina. Stimpson. (Agass. MSS.)
Unio compressus. Con. Adams.[2] *Linsley. Dekay.*

*decoratus. *Lea.*

PLICATE.

QUADRATE.

*atromarginatus. *Lea. Chenu.*

psammoicus. *D'Orb.*

[1] In the *Proceedings of the Am. Phil. Soc.*, vol. ii. p. 237, I changed *compressus* into *pressus*, the former name having been used by Sowerby for a fossil species.

[2] "*Fresh water and land shells of Vermont.*" His variety *plebeius* does not seem to me to differ. My brother, T. G. Lea, stated to me that he thought the *U. pressus* properly belonged to the genus *Margaritana*, that the charged oviducts were like those of *M. complanata*. In all the fifteen which he found during several years, the oviducts were charged.

NON-SYMPHYNOTE UNIONES.

PLICATE.

QUADRATE.

*multiplicatus.[1] *Lea. Kirt. Potier. Chenu.*
Unio heros. Say, in Disseminator.
Unio undulatus. Say, Am. Conch. No. 2. *Deshayes.*
Unio heros. Say, Am. Conch. No. 6. *Con.*

*undulatus. *Bar. Valen. Hild. Desh.*
Unio costata? Raf.
Unio costatus. Con.

*perplicatus. *Con.*

*atrocostatus. *Lea.*

*plicatus. *Lesueur. Say. Bar. Eat. Hild?*[2] *Swain.*
Unio Peruviana. Lam.
Unio rariplicata. Lam. Desh.
Unio Dombeyanus. Valen.
Unio undulata. Desh.
Unio multiplicata. Desh.
Unio crassus. Barnes.
Unio undulatus. Con.

*infucatus. *Con.*
Unio securiformis. Con.

*Kleinianus. *Lea.*

Napeanensis. *Con.*

NON-SYMPHYNOTE UNIONES.

PLICATE.

TRIANGULAR.

*foliatus.[3] *Hild.*
Unio flexuosa? Raf.
Unio flexuosus. Con., in text, Monograph, p. 8.
Unio foliatus. Con., in Pl. 4, Monograph.

*cælatus. *Con.*

*Stewardsonii. *Lea.*

OVAL.

*corrugatus. *Retzius. Lam.*
Mya corrugata. Müller. Chem. Schröt. Gmel. Wood. Dill. Schreib. Menke.
Mya rugosa. Gmel. Wood. Dill. Schreib.
Mya nodosa? Gmel. Wood. Dill.
Mya spuria. Gmel. Wood. Schreib.
Mya Gardiana. Lin. Schreib.
Unio spuria. Lam.
Unio triradiata. In Museum at Paris.
Unio fulmineus. Phili.
Unio Tavoyensis. Gould.
Unio favidens. Benson.
Potamida corruyata. Swain.

*pliciferus. *Lea.*
Unio carbonarius.[4] *Lea. Chenu.*
Unio plexus. Con.

*semigranosus. *V. d. Busch. Phili.*

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[1] When I described the *multiplicatus* in 1830, I had had several specimens for two or three years, and was not aware that Mr. Say had published a shell under the name of *heros*, which he subsequently abandoned as the *undulatus* of Barnes; but in 1834 reclaimed as *heros*.

[2] It is extremely difficult to make out the species described by Dr. Hildreth in the *American Journal of Science*. It appears, from a note by the editor, that he did not insert all the figures sent by Dr. H., but left out those which Mr. Barnes had already, as he thought, figured in the *Journal*. Unfortunately, in this omission Mr. Barnes's figures are not referred to, and we are, therefore, in doubt whether Dr. H. recognized, justly or not, Mr. Barnes's species.

[3] The male of *foliatus* is certainly a triangular shell; the female differs in form very much, having a deep inflection on the posterior basal margin. It may be doubted if this should be considered a plicate shell. I think that the folds of the growth, particularly in the male shells, require it to be placed here.

[4] *U. carbonarius* is the old and eroded of *pliciferus*.

NON-SYMPHYNOTE UNIONES.

PLICATE.

OVAL.

*laticostasus. *Lea.*

*hippopæus. *Lea.*

OBLONG.

*Sloatianus. *Lea. Chenu.*
Unio plectiforus. Con.

dorsuosus. *Gould.*

hylæus. *D'Orb. Schom.*
Unio Guarianus. D'Orb.

*trapezoides, *Lea. Chenu.*
Unio crassidens. Lam. Var. a.
Unio interruptus.[1] *Say. Desh.*

WIDE.

*ellipticus. *Lea.*
Diplodon ellipticum.[2] *Spix.*
Unio multistriatus. Lea. D'Orb.
Unio psammaticus. Bronn.

cucumoides. *Lea. Chenu.*

*subtentus. *Say. Con. Desh.*

NON-SYMPHYNOTE UNIONES.

PLICATE.

WIDE.

*Hembeli. *Con.*

Osbeckii. *Phili.*

*Conradicus. *Lea.*

*acutissimus. *Lea. Con. Chenu.*

*Murchisonianus. *Lea.*
Unio Douglasiæ.[3] *Gray.*

*Grayanus. *Lea.*
Unio Grayii. In Griffith's Cuvier.

ARCUATE.

ponderosus. *Lea.*
Mya ponderosa. Solan. Dill.
Mya crassa. Wood.

NODULOUS.

QUADRATE.

*lacrymosus.[4] *Lea. Chenu.*

*asperrimus.[5] *Lea.*
Unio quadrulus. Say. Con.

*Rumphianus. *Lea.*

[1] Mr. Say, in his "Synonymy," claims precedence in this species, although my Memoir bears date May, 1830, while his is December, 1831. (See *Transylvania Journal*, vol. v.) The reader will not, after this, be surprised to be told that Mr. Say does not allow me, in his very incorrect "Synonymy," to be the discoverer of *a single new species* of Unio from our western waters!! I may be allowed also to state, that I do not understand why he gives the same name to two of his different numbers: thus, he calls No. 17, *U. interruptus*, Rafin.; and No. 47, *U. interruptus*, Say. The species are evidently distinct.

[2] I have no doubt of *D. ellipticum* being the same with my *Unio multistriatus*, but it is a true *Unio*. Mr. Barnes gave the same specific name to an American *Unio*, but it had been previously described by Lamarck as *ligamentinus*.

[3] In Jardines's *Mag. Zool. and Botany*, vol. i. p. 285, Mr. Gray claims precedence for his name *Douglasiæ*. He published it in Griffith's Cuvier, bearing the date of 1834. My description, published in the *Trans. Am. Phil. Soc.*, dates 1832.

[4] It is a matter of some doubt if this be more than a beautiful variety of *asperrimus* (nobis). Future observation must determine. Ferussac and some other zoologists believe it to be distinct. Dr. Ward says they "are certainly distinct."

[5] Mr. Say supposed this to be the *rugosus*, Barnes. Two specimens referred to by Mr. B. as *rugosus* were under my inspection, and proved to be—the one a flat *metanevra*, Rafin., the other a *plicatus*, Lesueur. Mr. B., in his reclamation, recognizes his *rugosus* as *U. Peruviana*, Lam., which shell is undoubtedly the *plicatus*, Lesueur and Say.

NON-SYMPHYNOTE UNIONES. — NODULOUS.

QUADRATE.

*fragosus.[1] *Con.*

*Phillipsii. *Con. Küst.*

*Cincinnatiensis. *Lea. Chenu.*

*pustulatus. *Lea. Chenu.*
Unio undulatus. Con.

*Schoolcraftensis.[2] *Lea.*
Unio prasinus. Con.
Unio nodiferus. Con.

TRIANGULAR.

*apiculatus. *Say. Con.*

*asper. *Lea. Chenu.*

*Dorfeuillianus. *Lea. Chenu.*

*stapes. *Lea. Con. Chenu.*

*tuberosus. *Lea. Chenu.*

*sparsus. *Lea. Chenu.*

*metanevrus. *Raf. Con. Küst.*
Unio nodosus. Bar. Hild.
Unio rugosus (Flat). *Bar. Hild.*
Telederma metanevra. Swain.

*intermedius. *Con.*

*cornutus. *Bar.*

NON-SYMPHYNOTE UNIONES. — NODULOUS.

TRIANGULAR.

Unio reflexa? Raf.
Unio reflexus. Con.

SUBROTUND.

*pustulosus. *Lea. Chenu.*
Unio verrucosus. Bar. Var. *b.*
Unio verrucosa. Valen.
Unio verrucosus albus. Say; but not of *Hildreth.*[3]
Unio bullatus. Con.

*Keinerianus. *Lea.*

*turgidus. *Lea. Chenu.*
Unio Mortoni. Con.

*Cooperianus. *Lea. Kirtl.*

*verrucosus. *Bar. Eat.*
Unio tuberculata? Raf.
Unio tuberculosa. Valen.
Unio verrucosus purpureus. Hild.
Unio tuberculatus. Con.

*graniferus. *Lea. Chenu.*

nodulosus. *Lea.*
Mya nodulosa.[4] *Wood. Dill.*

*irroratus. *Lea. Eaton. Desh. Chenu.*
Unio verrucosus albus. Hild.
Unio stegarius. Con.

*caperatus. *Lea.*
Unio abacoides. Hald.

[1] This shell has been considered the female of *asperrimus* (nobis), but I have no doubt of its being distinct. Some of our best western naturalists think it to be the true *rugosus* of Barnes.

[2] Prof. Kirtland thinks this may prove only a variety of *pustulosus* (nobis), but I am not of that opinion.

[3] A specimen sent to me by Dr. Hildreth as *Unio verrucosus albus*, proved to be a true *irroratus* (nobis).

[4] This shell, as figured by Wood in his "*General Conchology*," seems to me to be distinct from the *pustulosus* (nobis), with which it has been confounded. The figure of Wood is longer than any *pustulosus* I have seen, and the epidermis is much darker ("bottle-green"). The nodules are more numerous about the beaks, and the lateral tooth is longer and thicker. It approaches still closer to *graniferous*, but is a longer shell. I doubt if *nodulosus* be an American species.

NON-SYMPHYNOTE UNIONES.

NODULOUS.

SUBROTUND.

*dromas. *Lea.*

*Lamarckianus. *Lea.*

OBLIQUE.

*Æsopus. *Green.*
Unio cicatricosus. Con.
Unio varicosus. Con.; not of *Lea.*
Unio cyphius. Con.

*varicosus. *Lea. Chenu.*
Unio cicatricosus? Say.[1]
Unio cicatricosus. Con.

*perplexus. *Lea. Kirtl. Chenu.*
Unio gibbosus? Raf.
Unio gibbosus. Con. Küst. (Fig. 3.)[2]

WIDE.

*Leaii. *Gray. Benson.*[3]

granosus. *Brug. Lam.*

*tuberculatus. *Bar. Eat. Hild.*
Unio pustulata. Swain.

NON-SYMPHYNOTE UNIONES.

NODULOUS.

WIDE.

Novæ Hollandiæ. *Gray.*

*cylindricus. *Say. Eat. Hild. Swain.*
Unio naviformis. Lam. Blain. Valen. Desh.[4]

SPINOUS.

TRIANGULAR.

*spinosus. *Lea. Chenu.*

*collinus. *Con.*

SMOOTH.

QUADRATE.

*arcæformis. *Lea. Desh. Chenu.*
Unio nexus.[5] *Say.*

TRIANGULAR.

*triangularis. *Bar. Eat. Hild. Say.*
Unio formosus.[6] *Lea.* (Male.) *Chenu.*
Unio cuneatus. Swain.

*Foremanianus. *Lea. Chenu.*

*elegans.[7] *Lea. Chenu.*
Unio truncatus. Say.

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[1] Never having seen the specimen described by Mr. Say as *cicatricosus*, I am unable to decide if it be the same with *varicosus* (nobis). Two things mentioned by Mr. Say induce me to doubt it. He calls his "a common species," and says it is "distinguishable by the single series of transverse elevations on the middle." These remarks do not apply to *varicosus*, but they do to *Æsopus*, Green, and I have always deemed it a rare shell.

[2] Küster figures (3) a male *perplexus* (nobis) as *gibbosus*, Raf. His figure 4, also called *gibbosus*, is a female *Rangianus* (nobis).

[3] Dr. Cantor, in the *Annals of Nat. Hist.*, vol. 9, p. 489, gives the habitat of this species in Chusan and in Canton River. He also describes a *Unio*, under the name of *divergens*, being "tuberculato-plicata;" also, an *Anodonta* (gibbum), both from Chusan.

[4] Deshayes, in *Encly. Meth. Vers.*, tom. ii. p. 580, No. 5.

[5] Say and Conrad both commit the error of giving precedence to *nexus*. My description of *arcæformis* is in my memoir, read before the American Philosophical Society, May 20, 1831, while Mr. Say's was first described in the *Transylvania Journal*, of December, 1831. Subsequently, he republished it in his *American Conchology*, No. 6, where he places erroneously the date of 1832 to my memoir.

[6] Mr. Barnes's description of *triangularis* was made from a female shell, and mine of *formosus* from the male. There being an obvious distinction of the sexes in every specimen, my error was a very natural one, as we were not at the time acquainted with the sexual differences in the *Naïades*.

[7] Mr. Say thinks that Mr. Barnes's *undulatus*, Var. *a*, is the same with *elegans*. I think differently; and would fortify my opinion in the fact that Mr. B. does not mention the zigzag rays which are strikingly singular in the *elegans*, and could not have failed to elicit his remarks had it been under his eyes.

NON-SYMPHYNOTE UNIONES.

SMOOTH.

TRIANGULAR.

*donaciformis.[1] *Lea. Desh. Chenu.*

*zigzag. *Lea. Eat. Desh. Chenu.*
*heterodon. *Lea. Con. Desh. Lins.*

*penitus.[2] *Con.*

*Estabrookianus. *Lea.*

*securis. *Lea. Eat. Desh. Chenu.*
Unio depressa.[3] Raf.; but not of *Lam.*
Unio lineolatus. Say.

*abacus. *Hald.*

*camelus.[4] *Lea.*

*compressissimus. *Lea.*

*ovatus. *Say. Lam. Bar. Valen. Eat. Hild. Con. Küst.*
Unio ventricosus. Desh.
Unio subovatus. Desh.
Unio occidens. Desh.
Æglia ovata. Swain.

*satur. *Lea.*

*subovatus.[5] *Lea. Chenu.*

NON-SYMPHYNOTE UNIONES.

SMOOTH.

TRIANGULAR.

*crassidens.[6] *Lam.*
Unio cuneatus. Bar. Eat. Hild.
Unio niger? Raf.
Unio niger. Con. Küst.

*incrassatus. *Lea.*

*Forbesianus. *Lea.*

*gibber. *Lea. Chenu.*

*pumilis. *Lea. Chenu.*

Orbignyi. *Deville and Huppé.*

*rubiginosus. *Lea. Desh. Chenu.*
Unio flavus. Con. Küst.
Unio cerinus. Con. Küst.

*succissus. *Lea.*

*Bigbyensis. *Lea. Chenu.*

*maculatus.[7] *Con.*

*Barnesianus. *Lea. Chenu.*

*cuneolus. *Lea. Chenu.*

*pileus. *Lea. Chenu.*

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[1] I have expressed my doubts, *Transactions of the American Philosophical Society*, vol. iv. p. 84 (p. 94 in "Observations on the Genus Unio," &c.), if this be more than a fine variety of *zigzag* (nobis). Mr. Say gives it as a synonyme to *nervosus*, Raf., and Mr. Conrad as *truncata*, Raf. Prof. Kirtland thinks this may be the female of *zigzag*.

[2] I received from Judge Tait, of Alabama, in 1830, several specimens of this species, but they were not sufficiently perfect to induce me to publish them. Mr. Conrad does not mention the rays, a very peculiar character of which is their being dotted somewhat like those of *securis* (nobis), but in a lighter manner.

[3] Mr. Conrad makes *depressa*, Raf., *ellipsaria*, Raf., and *securis* (nobis), synonymous with *lineolata*, Raf. Mr. Say does the same, with the exception of *ellipsaria*, which he considers distinct; while Mr. Rafinesque himself places *lineolata* and *ellipsaria* in different subgenera!!

[4] I am much disposed to think this a variety of *phaseolus*, Hild. Dr. Kirtland considers it such in his Ohio Reports.

[5] Mr. Say makes "*ventricosus*, Bar., *occidens* (nobis), *subovatus* (nobis), (var.), and *capax*, Green (var.)," synonymous with *cardium*, Raf. In my opinion, they form at least three, perhaps four, distinct species.

[6] *Crassidens*, Var. *a*, Lam., is *trapezoides* (nobis).

[7] Perfect specimens of *Unio Ravenelianus* (nobis) look so much like *maculatus*, that I am disposed to think, when many specimens of both are examined, they will prove to be the same species. *Ravenelianus* has precedence.

NON-SYMPHYNOTE UNIONES. SMOOTH.

TRIANGULAR.

*Sowerbianus. *Lea. Con. Küst.*

*trigonus. *Lea. Chenu.*

*Rajahensis. *Lea. Chenu.*

cyrenoides. *Phili.*

*Holstonensis. *Lea. Chenu.*

*tumescens. *Lea.*

*fulgidus. *Lea.*

*solidus. *Lea. Chenu.*

*obliquus. *Lam. Menke.*
Unio undatus. Bar. Hild. Küst.
Unio trigonus.[1] *Say. Con.;* not of *Lea.*
Unio mytiloides. Eat.
Unio undulatus. Desh.
Unio cordatus? Raf.
Unio cordatus. Con. Küst.
Unio caridiacea. Guerin.

NON-SYMPHYNOTE UNIONES. SMOOTH.

TRIANGULAR.

*plenus. *Lea.*

*pyramidatus. *Lea. Küst. Chenu.*
Unio rubra? Raf.
Unio mytiloides. Con.
Unio cardiacea. Desh.

*Bournianus. *Lea. Chenu.*

*Edgarianus. *Lea. Chenu.*

*mytiloides.[2] *Raf. Swain;* not of *Desh.*
Mya obliqua. Wood.
Uniopsis mytiloïdes. Swain.

OBLIQUE.

*Troostensis. *Lea.*
Unio trabalis. Con.

*trossulus. *Lea.*

*Tigris. *Fer.*

*Taitianus. *Lea.*

[1] Say and Conrad both give *trigonus* (nobis) as a synonyme to *undatus*, Barnes. It is difficult for me to understand why they should not at once, on comparison, be recognized as different species. The *trigonus* is always more angular on the umbonial slope, and the undulations at the tips of the beaks differ. This may be observed particularly in the young and perfect specimens. If a doubt could be admitted as to the difference of the form of the shell, the color of the animal in *trigonus* would at once settle the question. It is peculiar, and differs from all the species I know in being of so deep a color as to be almost red.

Some years since, when I described this species, I deposited a specimen in the Academy of Natural Sciences of this city, with its proper name appended. Subsequently, I found the Academy had prefixed the name of *undatus*, Barnes, to the label, and I presume this error is still continued there.

[2] It is a matter of great doubt if this name ought to be admitted at all in this table. It was applied, many years since, by the naturalists of this city, without reference to any particular specimen, but, as it now appears nearly certain, incorrectly. Dr. Ward says the description and outline would "equally well apply to six or eight different species." The difficulty of recognizing Mr. Rafinesque's species is well illustrated in this one. Mr. Conrad considers *triangularis*, Raf., as the type, and gives the following names of the same author as synonymes, viz., *lateralis*, *sintoxia*, *pachostea*, *mytiloides*, and *rubra;* thus charging him with making six species of one. But, what is still more extraordinary, this single species (agreeably to Mr. Conrad's synonymes) is not only divided by Mr. R. into *different subgenera*, but into *different genera*, and even into TWO DIFFERENT SUB-FAMILIES!! See *New Fresh Water Shells of the United States*, p. 72, and Mr. Rafinesque's *Monographie.* In Mr. Say's *Synonymy*, *triangularis*, Raf., is considered to be the same as *ellipsis* (nobis)! Deshayes described a different shell under the name of *mytiloides.* (*Ency. Meth.* p. 249, Fig. 4.) I doubt from this figure if it be not a *complanatus.* We certainly have in our rivers, occasionally, specimens of this protean species very closely resembling this figure. It also has some resemblance to an imperfect *Batavus.* The habitat is not known.

NON-SYMPHYNOTE UNIONES.

SMOOTH.

OBLIQUE.

cor. *Con.*

truncatus. *Swain.*

*Hanleyianus. *Lea.*

*decisus. *Lea. Con. Küst. Chenu.*

*clavus. *Lam. Con. Menke. Küst.*
Unio scalenia.
Unio modioliformis. Say; not of *Lea.*

*patulus. *Lea. Con. Desh. Chenu.*

*oviformis. *Con.*

*argenteus. *Lea. Chenu.*

*Ravenelianus. *Lea.*
Unio rudis. Con.

*Troschelianus. *Lea.*

*strictus. *Lea.*

*Rangianus.[1] *Lea. Chenu.*
Unio gibbosus. Küst. (Pl. 4, Fig. 4.)

*sulcatus. *Lea. Eat. Say. Desh. Chenu.*

NON-SYMPHYNOTE UNIONES.

SMOOTH.

OBLIQUE.

Unio ridibundus. Say. Eat. (Female.)[2]

*Haysianus.[3] *Lea.*

*ellipsis.[4] *Lea. Say. Eat. Potier. Chenu.*
Unio brevialis? Sow.

*castaneus. *Lea. Chenu.*

*pulvinulus. *Lea.*

OVAL.

*Tampicoensis. *Lea. Chenu.*

*Lecontianus. *Lea. Chenu.*
Unio contrarius. Con.

*hebes. *Lea.*

*perdix. *Lea.*
Unio pectorosus. Con. Küst.

*ventricosus. *Bar. Adams. Dekay.*
Unio radiatus. Hild.
Lampsilis ventricosa. Stimp. (Agass. MSS.)

*occidens.[5] *Lea.*

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[1] This species has been supposed by some naturalists to be the same with *perplexus* (nobis). Mr. Clark, of Cincinnati, informs me that the animal differs in color, being lighter. It is known there vulgarly as the "White Mouth." I think they are certainly distinct species.

[2] For some years, I was satisfied that Mr. Say's *ridibundus* was only a variety of *sulcatus* (nobis). There can now, however, scarcely be a doubt that it is the female of that species; but it must be remarked that this serrated shell is usually found smaller than the other; a circumstance common with the females of some other species. Mr. S. describes and figures *ridibundus* in No. 1 of *American Conchology*, but does not insert it in his *Synonymy*, in No. 6.

[3] I am very much disposed to think that *Haysianus* will prove to be the female of *Sowerbianus* (nobis). They differ much in size, but in other characters are much alike. The latter is the larger, and has never, so far as I know, been found with charged oviducts. The former usually has charged oviducts.

[4] Mr. Say, in his *American Conchology*, refigures this, and recognizes my name. Subsequently, in his *Synonymy*, he makes it a synonyme of *triangularis*, Raf. Mr. Conrad says it is *olivarius*, Raf.

[5] This and the preceding shell are so nearly allied, that it is a matter of doubt with me if it would not be preferable to unite them. Dr. Ward thinks they are male and female. Subsequent examination may throw sufficient light upon them to decide with certainty. Among Mr. Barnes's varieties of *ventricosus*, it is evident there are several distinct species. Prof. Kirtland, in *Ohio Reports*, says it is impossible, with our present knowledge, to draw lines of specific distinction between the group consisting of *ovatus, ventricosus, occidens, subovatus*, &c.

NON-SYMPHYNOTE UNIONES. — SMOOTH.

OVAL.

Unio ventricosus. Say.
Unio lenis (junior). *Con.*
Unio cardium. Con.

*lineatus. *Lea. Chenu.*

*dolabræformis. *Lea. Chenu.*

*capax.[1] *Green. Con. Küst.*
Sym. globosa. Lea, Trans. Am. P. S.

*splendidus. *Lea.*

*ochraceus. *Say. Con. Gould. Linsley. Dekay. Migh. Potier.*
Sym. ochracea. Lea. Trans. Am. P. S.
Unio rosaceus. Con.
Lampsilis ochracea. Stimpson. (Agass. MSS.)

stagnalis. *Con.*
Unio Ogecheensis. Con.

*Clarkianus. *Lea.*

*crocatus. *Lea. Chenu.*

*affinis. *Lea.*

*cariosus. *Say. Bar. Gould. Linsley. Dekay. Potier.*
Unio cariosa.[2] Lam.
Unio ovata. Valen.
Unio luteola. Con.; not of *Lam.*
Unio oratus. Con.
Lampsilis cariosa. Stimpson. (Agass. MSS.)

*Georgianus. *Lea. Chenu.*

perovatus. *Con.*

NON-SYMPHYNOTE UNIONES. — SMOOTH.

OVAL.

*altilis. *Con.*

*multiradiatus. *Lea. Desh. Chenu.*
Unio fasciola? Raf.
Unio fasciolus. Con. Küst.
Unio ligamentina. Desh.

*Novi-Eboraci. *Lea. Dekay. Chenu.*

saxeus. *Con.*

*perovalis. *Con.*

*capsæformis. *Lea. Con.*

Greenii. *Con.*

*pictus. *Lea.*

*pallescens. *Lea.*

*Tennesseensis. *Lea. Chenu.*

*simplex. *Lea.*

*flavescens. *Lea.*

*interruptus. *Lea. Chenu.*
Unio tæniatus? Con.
Unio latiradiatus. Con.

*Menkianus. *Lea. Chenu.*

*Stonensis. *Lea.*

*venustus. *Lea. Chenu.*

*exiguus. *Lea. Chenu.*

Tecomatensis. *Lea. Chenu.*

[1] Mr. Say considers *capax* as a variety of *cardium*, Raf., of *ventricosus*, Bar., of *occidens*, Lea, and *subovatus*, Lea, while Mr. Conrad considers it as *occidens*, Lea. *Capax* is a perfectly distinct species, and I had considered it so for some years before either Dr. Green or I described it. He preceded me a short time, of which I was not aware, as it was published in an unusual periodical for such matter.

[2] *U. cariosa*, Lam. (Var. 2), is the *Alas. marginata*, Say.

NON-SYMPHYNOTE UNIONES.

SMOOTH.

OVAL.

spatulatus. *Lea.*

*ligamentinus. *Lam.*[1] *Küst.*
Unio crassus. Say. Bar.[2] *Hild. Kirtl.*
Unio ellipticus. Bar. Hild.
Unio carinatus. Bar.
Mya gravis. Wood.
Unio fasciatus. Con.[3] *Küst.*

*orbiculatus. *Hild. Kirtl.*
Unio abruptus.[4] *Say. Desh.*
Unio crassus. Con.

australis. *Lam. Phil.*[5]
Unio ambiguus. Par.

*Hydianus. *Lea. Chenu.*

*approximus. *Lea.*

*Claibornensis. *Lea. Chenu.*

NON-SYMPHYNOTE UNIONES.

SMOOTH.

OVAL.

*Powellii. *Lea.*

*Reeveianus. *Lea.*

*luteolus. *Lam. Dekay.*
Unio siliquoideus.[6] *Bar. Con. Adams. Küst.*
Unio inflatus. Bar.
Unio melinus. Con.
Unio rosaceus. Dekay.
Lampsilis siliquoidea.[7] *Stimp.* (Agass. MSS.)

*stramineus. *Con.*

*aratus. *Lea.*

Childreni.[8] *Gray.*

pulcher. *Lea. Chenu.*

*tener. *Lea. Chenu.*

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[1] Having recently had access to Retzius's work (1788), I find that he described a European *Unio* under the name of *crassus*, which species had been admitted into our systems under the name of *crassissimus*, Fer., I now restore it to its proper place under the name of *crassus*.

Deshayes thinks that *U. ligamentinus* is analogous to *U. multiradiatus*, and probably a young individual of it! This is not likely to be the case, however. The species are very different.

[2] Mr. Barnes made eleven varieties of *crassus;* most of which were, no doubt, distinct species; some were plicate.

[3] Mr. Conrad thinks the *crassus* of Say is *fasciata* of Rafinesque. An examination of his description ought to satisfy any one that the *crassus* of Say could not have been under the eye of the author when he made his description of *fasciata*.

[4] The specimen figured by Mr. Say, in *Amer. Conch.* No. 2, is a female shell. The male shell is not abrupt at the posterior margin.

[5] Dr. Philippi figures a *Unio* under the name of *Australis*, Lam. (Tab. 5, Fig. 5), from New Holland, and says that *U. ambiguus*, Parreyss, is the young. I did not see Lamarck's *Australis*, when in Paris; it was not in the Museum. I very much suspect that *Australis* and *depressus*, Lam., are the same. If Philippi's figure represents *Australis*, as he believes, then I should have no further doubt.

[6] Mr. Say makes *siliquoideus* the same with *viridis*, Raf. Ferussac, in his cabinet, makes it the same with *fasciata*, Raf. Mr. Conrad makes it the same with *vittata*, Raf. Ferussac, in his "Observations," states the inextricable difficulty resulting from the confusion caused by Mr. Rafinesque. See "Observations," p. 13, in *Magazin de Zoologie.*

[7] Prof. Agassiz says, in MSS. cited by Mr. Stimpson, that this is not identical with the Ohio River species usually called *U. siliquoideus;* but I think they are the same.

[8] I have never seen this species, but presume, from the figure in Griffith's Cuvier, very poor as it evidently is, that it is a distinct species. In the index, Mr. Gray inserts, in brackets (*Unio Chinensis*), and says it has small compressed teeth. The figure looks something like a *Monocondylæa*, D'Orbigny.

NON-SYMPHYNOTE UNIONES. SMOOTH.

OVAL.

*Prevostianus. *Lea.*

*radiatus. *Lam. Bar. Desh.* (Ency. Ver. T. 2.) *Menke. Gould. Linsley. Migh. Dekay. Küst.*
Unio Virginiana. Lam. Menke.
Mya radiata. Gmel. Wood. Dill. Schreib.
Mya oblongata. Wood.
Mya pictorum tenuis. Chem.
Lampsilis radiata. Stimpson. (Agass. MSS.)

*regularis. *Lea. Chenu.*

*amænus. *Lea. Chenu.*

*Sapotalensis. *Lea. Chenu.*

*Oregonensis. *Lea.*

*profugus. *Gould.*

*Medellinus.[1] *Lea. Chenu.*

*notatus. *Lea. Chenu.*

*subangulatus. *Lea. Chenu.*

*Vanuxemensis. *Lea. Chenu.*

*Nashvillianus. *Lea.*

*Mississippiensis. *Con.*

*Zeiglerianus. *Lea. Chenu.*

lienosus. *Con. Küst.*

NON-SYMPHYNOTE UNIONES. SMOOTH.

OVAL.

*constrictus. *Con.*

*placitus. *Lea.*

*buxeus. *Lea.*

*concavus. *Lea.*

*obscurus. *Lea.*

*proximus. *Lea.*

*nitens. *Lea. Chenu.*

*Gouldii. *Lea.*

*delodontus. *Lam. D'Orb. Chenu.*
Unio lacteolus. Lea.
Unio rhuacoica. D'Orb.

*Moussonianus. *Lea.*

*charruanus.[2] *D'Orb.*

*Monroensis. *Lea.*

*caliginosus. *Lea.*

*Binneyi. *Lea.*

*lamellatus. *Lea. Chenu.*

productus. *Mouss.*[3]

mutatus. *Mouss.*

exilis. *Dunk.*

[1] Mr. Say's *purpuriatus* and this may be the same. I have never seen his specimens, and there is no figure. The description is in the *Disseminator*, Jan. 1, 1831.

[2] The two specimens sent to me by M. D'Orbigny are so like *delodontus*, that I am strongly induced to believe they will prove to be the young of that species.

[3] Mr. Conrad having preoccupied this name, it necessarily must be changed, and, as I have already called a shell after M. Mousson, I cannot conform to the usual mode of giving it his name. I propose for it *productior*. His shell is described in his *Fresh Water and Land Shells of Java*, p. 17, Fig. 3.

NON-SYMPHYNOTE UNIONES. SMOOTH.

OVAL.

Keraudreni. *Eyd.*

*Javanus. *Lea. Chenu.*

Bengalensis. *Lea. Chenu.*
An. purpurea. Valen.
An. Chinensis. Küst.[1]
Unio verecundus. Gould.

*cœruleus. *Lea. Ben. Chenu.*
Unio Gerbidoni. Eyd.

*olivarius. *Lea. Ben. Chenu.*

*Batavus. *Lam. Nils. Pfeif. Rossm. Flem. Stein. Bouch. Puton. Potier. Dup. Brown. Desh. Menke. Mor. Goupil.*
Mya pictorum. Chem. Schröeter. Monta.
Mya ovalis.[2] *Soland.*
Mya Batava. Wood. Maton. Dill.
Mysca Batava. Turton.
Unio riparia. Pfeif. Menke.
Unio pictorum. Drap., Pl. 11, Fig. 3.
Unio fusculus. Zeigler. Mühl.
Unio gibba. Mühl. Pfeif.
Unio Labacencis. Pfeif. Mühl. Schmidt.
Unio reniformis. Schmidt. Rossm. Potier.
Unio fuscus. Zeig.
Unio consentaneus. Zeig. Rossm. Schmidt.
Unio amnicus. Zeig. Rossm. Potier. Schmidt.
Unio carynthiacus. Zeig. Rossm. Potier. Schmidt.
Unio decurvatus. Rossm. Potier. Schmidt.
Unio sinuatus. Stud.

NON-SYMPHYNOTE UNIONES. SMOOTH.

OVAL.

Unio planus. Stud.
Unio dilatatus. Stud.
Unio Moquinianus. Dup. Merm. Rossm.
Unio atrovirens. Schmidt.
Unio merdiger. Walsh.
Unio argens. Küst.
Unio badius. Kokeil. Schmidt.
Unio Kurrii. Küster.
Unio Retzii. Küster.
Unio Nessorynchus. Held.
Unio tristis. Morelet.
Unio pescinalis. Zeig. Rossm.
Unio rubens. Menke. Rossm.
Unio rugatus. Menke. Rossm.
Unio Bandinii. Küst. Rossm.
Unio Hispanicus. Moquin. Rossm. Graells.
Unio Sandrii. Villa. Rossm.
Unio destructilis. Villa.
Unio pruinosus. Schmidt.

*Bucklyi. *Lea.*

*fuscatus. *Lea.*

*occultus. *Lea.*

*luridus. *Lea.*

*nigellus. *Lea.*

*Cumberlandianus. *Lea.*
Unio Cumberlandicus. Chenu.

Smithii.[3] *Gray.*

vibex. *Con.*

*Mühlfeldianus. *Lea. Chenu.*

[1] The figure by Küster has teeth, and cannot be an *Anodonta*. I think it must be the same as *Bengalensis*.

[2] Fide Dillwyn.

[3] Never having seen this shell, I place it here on the authority of Mr. Gray.—See his figure in Griffith's Cuvier, vol. xii.

NON-SYMPHYNOTE UNIONES. SMOOTH.

OVAL.

*creperus. *Lea.* *Chenu.*

*glaber. *Lea.* *Chenu.*

*fabalis.[1] *Lea.* *Chenu.*
Unio capillus. *Say*, Transylvania Journal, vol. v.
Unio lapillus. *Say*, Am. Conch. No. 5. *Con.*

*paulus. *Lea.* *Chenu.*

*pusillus. *Lea.* *Chenu.*

*parvus. *Bar.* *Eat.* *Con.* *Phili.* *Küst.*

*Haleianus. *Lea.* *Chenu.*

*nigerrimus. *Lea.*

*minor. *Lea.*

*glans.[2] *Lea.* *Küst.* *Chenu.*

*nux. *Lea.*

Brumbyanus. *Lea.*

NON-SYMPHYNOTE UNIONES. SMOOTH.

OVAL.

*mæstus. *Lea.* *Chenu.*

*pullus. *Con.*

*divaricatus. *Lea.*

*Petterianus? *Küst.*[3]
Unio carneus. *Küst.*

*faba. *D'Orb.*

*ineptus. *Lea.*

*Burroughianus. *Lea.* *D'Orb.*

*discus.[4] *Lea.* *Chenu.*
Unio Panacoensis. *V. d. Busch.*
Phili.

*simus. *Lea.* *Chenu.*

multidentatus. *Phili.*

*Niloticus. *Caill.* *Fer.* *Desh.* *Menke.* *Potier.*
Mya pictorum. *Forkaël.*[5]
Unio pumilis. *Zeig.*
Unio Pareyssi. *V. d. Busch.*

[1] Say and Conrad both, in their catalogues, give precedence to *lapillus*. *Fabalis* is in my Memoir read before the Am. Philos. Soc., May 7, 1830, and inserted in the Transactions; *capillus* was first inserted in the December number (1831) of the *Transylvania Journal*, and subsequently in the *Amer. Conch.*, No. 5 (August, 1832), under the name of *lapillus*. Mr. Say does not mention why he changed the name on redescription. I should prefer the first, as a more descriptive name, were I to choose between the two.

[2] Mr. Say doubts if the *glans* be not the same with *parvus*. I do not see how there can be any difficulty in distinguishing them. The *glans* is a much heavier shell, and the nacre of all the specimens I have seen is more or less purple, while that of *parvus* is always, I believe, white. Among many hundred specimens which have come under my notice, I have never seen one of any other color. The texture of the nacre is also totally different, the latter being more pearly than any other of our *Uniones*. In the epidermis and beaks they also differ essentially.

[3] *U. Petterianus* and *U. carneus* were sent to me by Dr. Vandenbusch, of Bremen, as distinct species. I believe the latter to be the old of the former, thrown out of its normal form by much erosion at the beaks. They are from Montenegro, and may prove to be only a variety of *Unio Batavus*. See Küster's edition of Martini, Pl. 26, Fig. 4.

[4] *Unio discus* is found in Moctizuma River, Central America, and occurs white, and beautifully salmon color, as well as purple.

[5] Fide Ferussac.

NON-SYMPHYNOTE UNIONES.

SMOOTH.

OVAL.

*Egyptiacus. *Caill. Fer. Desh. Potier.*

Caffer. *Krauss.* (South Africa.)

Guadechaudii. *Eyd.* (Bengal.)

Bonneaudii. *Eyd.* (India.)

OBLONG.

*brevidens. *Lea. Chenu.*
Unio interruptus. Con.

tetralasmus.[1] *Say. Desh. Con.*

*camptodon.[2] *Say.*
Unio declivis.[3] *Con.*
Unio Sayii. Tappan. Con.
Unio rhomboidius. Dr. Ward's MSS.

*obesus. *Lea.*

*Hopetonensis. *Lea. Chenu.*

*fraternus. *Lea.*

*Cuverianus. *Lea.*

*Roanokensis. *Lea. Chenu.*

exolescens. *Gould.*

NON-SYMPHYNOTE UNIONES.

SMOOTH.

OBLONG.

*jejunus. *Lea. Chenu.*

*complanatus. *Lea. Gould. Adams. Linsley. Dekay. Stimpson. Migh.*
Mya complanata. Soland. Dill.
Mya rigida. Wood.
Unio violaceus.[4] *Spangler.*
Unio purpureus.[5] *Say. Bar. Con.*
Unio rarisulcata. Lam. Menke.
Unio coarctata. Lam. Menke.
Unio purpurascens. Lam. Desh.[6] *Menke. Potier.*
Unio rhombula. Lam.
Unio carinifera. Lam.
Unio Georgina. Lam.
Unio glabrata. Lam.
Unio sulcidens. Lam. Chenu.
Unio fluviatilis. Green.
Unio subinflata. Con.
Unio planilaterus. Con.

cultelliformis. *Con.*[7]

*symmetricus. *Lea.*

lutulentus. *Gould.*

limatulus. *Con.*

*Buddianus. *Lea.*

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[1] *Tetralasmus* will, I think, prove to be a large and perfect *declivis*, Say.

[2] This fine shell, as well as the preceding one, both of which are Mr. Say's, seem to have been overlooked in the formation of his catalogue. They are described in his *Amer. Conchology.* I have never seen the shell he calls *tetralasmus*—they may possibly prove to be the same.

[3] The shell in the Academy of Nat. Sci., described and figured by Mr. Conrad, in his *Monography*, p. 45, as *declivis*, Say, I consider to be a middle-aged *camptodon*, Say. This, however, is not the opinion of all our conchologists. Professor Kirtland, in his *Ohio Report*, says that a shell answering Say's description of *declivis* is found in some of the tributaries of the Scioto River. This is the shell since described by Judge Tappan as *U. Sayii.*

[4] Fide Ferussac.

[5] Mr. Conrad is wrong, in his "Synoptical Table," in giving Mr. Say's name precedence, making *complanatus* a synonym.

[6] Deshayes, in *Ency. Meth. Vers.* t. 2, p. 381, No. 9.

[7] *Unio cultelliformis* is described as coming from Australia. It is so much like one of our varieties of *complanatus*, that I am induced to believe that some error of locality must have occurred.

NON-SYMPHYNOTE UNIONES.

SMOOTH.

OBLONG.

*Griffithianus. *Lea.*

*auratus. *Lea.*
Niäa aurata. Swain.
Unio obtusa.[1] *Fer.*[2]
Unio depressus. Less.
Unio Chiloensis. Phili.[3]
Unio Gassiesii. ——

*atratus. *Lea. Sow.*
Niäa atrata. Swain.
Niäa fragilis. Swain.
Unio auratus. Phili.
Unio Araucanus. Phili.
Unio Molinæ. Phili.

*confertus. *Lea.*

*Geddingsianus. *Lea. Chenu.*

*Whiteianus. *Lea.*

*fuliginosus. *Lea.*

*paliatus. *Ravenel's Letter.*

*Tuomeyi. *Lea.*

callosus. *Lea.*

*tortivus. *Lea. Chenu.*

occidentalis. *Con.*

NON-SYMPHYNOTE UNIONES.

SMOOTH.

OBLONG.

Watereensis. *Lea.*
Unio Raveneli.[4] *Con.*

*fulvus. *Lea.*
Unio icterinus. Con.

*rufusculus. *Lea.*

*Gibbesianus. *Lea.*

*sordidus. *Lea.*

*Dariensis. *Lea. Chenu.*

*Congaræus. *Lea. Chenu.*

*neglectus. *Lea.*

*subplanus. *Con.*

*declivis. *Say. Desh. Küst.*
Unio geometricus.[5] *Lea.*
Unio excultus. Con.

*paludicolus. *Gould.*[6]

*Blandingianus. *Lea. Küst.*

*depressus. *Lam. D'Orb. Chenu.*
Unio Balonensis. Con.

angustus. *Lam.*

*modestus. *Fer.*

[1] Fide D'Orbigny.

[2] D'Orbigny says this is the *depressa* of Lesson, and figured and described by Lesson in the *Voyage de la Coquille*. Now the description of Lamarck answers to the figure of Lesson, and I am disposed to think that the two are the same. I do not know where Ferussac described *obtusa*.

[3] A specimen of *U. auratus* from Chiloe, South America, sent by Dr. Vandenbusch from Bremen, was labelled *U. Chiloensis*, Philippi.

[4] Prof. Ravenel's name being previously used for a *Unio* (*Amer. Phil. Soc. Trans.*, vol. v.), it becomes necessary to change Mr. Conrad's name, which I do, to that of the river in which it was found.

[5] I do not find this or *declivis* in Mr. Say's *Synonymy*. He has, however, priority.

[6] This may prove to be *U. declivis*, Say. The specimens sent to Dr. Gould have not the beaks sufficiently perfect to see the undulations of the tips.

NON-SYMPHYNOTE UNIONES. — SMOOTH.

OBLONG.

famelicus. *Gould.*

*litoralis. *Drap. Lam. Pfeif. Des Moul. Grat. Brard. Desh. Cuv. Maton and Racket. Bouil. Gras. Bronn. More. Mermet. Gassies. Goupil. Dupuy. Puton. Potier. Graells.*

Unio crassus. Retz. Nil. Phili. Menke. Rossm.

Unio brevialis. Lam.

Unio semirugata. Lam. Menke. Chenu.

Unio nana. Lam. Dup.

Unio subtetragona. Mich. Dup. Merm. Graells.

Unio incurvus. Lea. Chenu.

Unio Pianensis. Farines. Dup. Graells.

Unio granosus. Schum.

Unio brunneus. Bonhomme.

Unio Woolwichii. Morelet.

Mysca ovata?[1] *Turt.*

Mya rhomboidea. Schr.

NON-SYMPHYNOTE UNIONES. — SMOOTH.

SUBROTUND.

*circulus. *Lea. Eat. Desh. Chenu. Mya rotunda? Wood.*

*lens.[2] *Lea. Chenu.*

*unicolor. *Lea.*

rubellus. *Con.*

Masoni. *Con. Küst.*

*rotundatus. *Lam.*
Unio suborbiculata. Lam. Blain.
Unio glebulus.[3] *Say.*
Unio subglobosus. Lea.

*Paranensis. *Lea. D'Orb.*
Unio Solisiana (junior). *D'Orb.*

membranaceus.[4] *Lea.*
Myt. membranacea. Mat.
Unio Matoniana. D'Orb.
Unio subtrapezius (junior). *Phili.*
Unio membranaceus. Phili.

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[1] Turton's figure seems to me to be an elongate variety of *littoralis*, analogous to that which I described, in error, under the name of *incurvus*. But Forbes and Hanley say that *littoralis* does not now exist in the waters of Great Britain, and is only found there in the *Pliocene* formation, in a fossil state. If this be so, then Turton's figure must be erroneously given.

[2] I have some doubts whether this should be considered more than a variety of *circulus*. I am not, however, sure that it is not distinct.

[3] Although Mr. Say had published this shell in the *Transylvania Journal*, and in his *Am. Conchology*, he omitted it altogether in his *Synonymy*. He inserted other species from the vicinity of New Orleans.

[4] I formerly placed this with the *Anodontæ*, but D'Orbigny, who has seen the shell in its native waters, having placed it among the *Uniones*, I follow him, never myself having seen the shell. The figure of Dr. Maton (*Linn. Trans.*, vol. x.) is without teeth, and the text says expressly "cardo edentulus." Notwithstanding this, I am inclined to believe that D'Orbigny is right, for the form of the shell is such as I have not seen in the *Anodontæ*. Not knowing what induced M. D'Orbigny to change Dr. Maton's name, I have restored it.

(Since this note was published, M. D'Orbigny, in his *Voy. Am. Mer.*, has come to a different conclusion as regards *Mytilus membranacea*, Mat. He now thinks that my *Anodonta lato-marginata* is the same with *membranacea*, but I do not think that Maton's figure can be referred to *lato-marginata*, even supposing the figure of *membranacea* made by Maton to be from a young specimen. The outline is not the same, *membranacea* being much more rotund, and the very great difference of solidity must have its influence in our decision; *lato-marginata* being one of the *thickest* of the *Anodontæ*. M. D'Orbigny, in *Mag. de Zool.*, 1835, gives *Mya membranacea* as a synonym to *Unio Matoniana*, and says the teeth are thin; but he ought to have cited it as *Mytilus*, as Maton does not give *Mya membranacea*, but *Mytilus membranacea*. M. D'Orbigny places it now among the *Anodontæ*, and restores Maton's specific name of *membranacea*, and considers my *lato-marginata* as a synonym. It does not appear to me, from the description and figure, that they can be the same.)

NON-SYMPHYNOTE UNIONES. SMOOTH.

SUBROTUND.

*variabilis. *Lea. D'Orb.*
Mya variabilis.[1] *Mat. Wood. Dill.*
Diplodon rotundus. Spix.
Unio rotundus. Wag.

*personatus.[2] *Say. Küst.*
Unio capillaris. Lea.

*retusus.[3] *Lam. Con. Menke. Küst.*
Unio torsa. Raf. Eat. Potier.
Unio obtusa.[4] *Cuvier.*
Unio cordatus (female). *Küst.*

*ebenus. *Lea. Chenu.*
Unio mytiloides. Con.; not *Raf.*
Unio obliquus. Con. Küst.
Unio Gouldianus. Ward.

*Lesueurianus. *Lea. Chenu.*

*nucleopsis. *Con.*

*Kirtlandianus.[5] *Lea.*

*pilaris. *Lea. Chenu.*

*dollabelloides. *Lea. Chenu.*

NON-SYMPHYNOTE UNIONES. SMOOTH.

SUBROTUND.

*subrotundus. *Lea. Chenu.*
Unio politus? *Say. Küst.*
Unio brevialis? *Crouch.*
Unio politus. Con.

*coccineus. *Lea. Chenu.*
Unio coccineus. Dr. Hildreth's Letter.
Unio coccineus. Con.
Unio catillus.[6] *Con. Küst.*
Unio cuneus? *Con.*

WIDE.

*Shepardianus. *Lea. Con. Küst.*

Duttonianus. *Lea. Chenu.*

*folliculatus. *Lea. Chenu.*

*rectus. *Lam. Eat. Swain. Adams. Dekay. Potier. Küst.*
Unio prælongus. Barn. Hild.
Unio recta. Valen.
Unio Sageri.[7] *Con.*
Mya prælonga. Wood.
Eurynea prælonga. Stimpson. (Agass. MSS.)

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[1] The figure of this shell in the *Lin. Soc. Trans.*, vol. x., although so much smaller a shell than *Paranensis* (nobis), is so much like it that I should not be surprised if they should prove to be the same. Lamarck considered this the same with his *Hyria corrugata.*

(Since the publication of this note, I have received, from M. Moricand, a suite of specimens of *Paranensis*, which indicate, unquestionably, a distinct species. The beaks of *rotundus*, Wag., have not the strong folds on the beaks, while the *Paranensis* has many elevated radiations from the beaks. The outline too of the former is more orbicular.)

[2] Prof. Kirtland thinks this is the female of *pileus* (nobis), but I am not of this opinion.

[3] M. Deshayes thinks this is *incurvis*, Say. I do not know where Mr. Say published a shell under that name.

[4] In the recent edition of Cuvier *Reg. An.*, by his pupils, there is a beautiful figure of *U. retusus*, Lam., under the name of *U. obtusa*, Say. I am not aware that Mr. Say described a *Unio* under that name. The *retusus*, Lam., is a common, well-known, and perfectly distinct species.

[5] Prof. Kirtland, in his *Ohio Report*, expresses his opinion of this being only a very flat variety of *subrotundus* (nobis).

[6] The late Dr. R. E. Griffith had in his collection a shell marked *catillus*, he thought by Mr. Conrad himself, but which I think was only a variety of *obliquus*, Lam.; certainly it is not the species figured by Mr. Conrad.

[7] Mr. Conrad's figure so nearly resembles the male specimens of *U. rectus*, from Green Bay, in my cabinet, that I am persuaded the *Sageri* will not prove to be a distinct species. Drs. Kirtland and Ward, and Judge Tappan, consider it a variety of *gibbosus* of Barnes.

NON-SYMPHYNOTE UNIONES. — SMOOTH.

WIDE.

*strigosus. *Lea. Chenu.*

*perstriatus. *Lea.*

*angustatus. *Lea. Con. Chenu.*

*dactylus. *Lea. Chenu.*

*lanceolatus.[1] *Lea. Chenu.*

*anodontoides. *Lea. Kirtl. Chenu.*
Unio teres? Raf.
Unio teres. Con.

*parallelopipedon. *Lea. D'Orb.*

*platyrhynchus.[2] *Rossm. Schmidt. Potier. Por. Villa.*

*Cailliaudii. *Fer.*
Unio lithophagus. Zeig.
Unio teretiusculus. Phili.

*Ingallsianus. *Lea.*

*tumidus.[3] *Retz. Nils. Pfeif. Villa. Rossm. Brown. Menke. Stein. Put. Potier. Dup. Forbes.*

NON-SYMPHYNOTE UNIONES. — SMOOTH.

WIDE.

Unio ovalis. Retz. Flem. Sow. Villa. Brown.
Mytilus angustior.[4] List.
Mya ovalis. Monta.
Mya ovata. Don. Mat. Wood. Dill.
Mya depressa. Don.
Mysca solida. Turt.
Mysca ovata. Swain.
Unio nodulosa. Lam. Menke.
Unio Michaudiana? Des Moul. Dup.
Unio ovata. Studer. Bouil. Menke.
Unio rostrata. Stud.
Unio Limagnæ. Bouil.
Unio solida. Villa.

*pictorum.[5] *Retz. Lam. Cuv. Pfeif. Drap. Bosc. Don. Blain. Crouch. Flem. Des Moul. Grat. Bouil. Menke. Nils. Stein. Brard. Brown. Puton. Desh. Potier. Por. Dup. Klees. Merm. Küst. Alder. Graells. Villa. Forbes. Schmidt. Rossm. Guerin. Morelet. Gras. Goupil. Bouch.*

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[1] M. Deshayes (2d edit. Lamarck) doubts if *lanceolatus* be not the young of *anodontoides*, "of Say." (*Anodontoides* was not described by Mr. Say, but by myself.) The first has been found only in the waters east of the Alleghany mountains, the last only in the western waters. There cannot be a doubt of their being distinct species. In size they differ altogether.

[2] This is a curious and very interesting new species which I recently received from Vienna. Its habitat is Carynthia.

[3] The *tumidus*, Retzius, is, I think, without doubt, the same as *ovalis*, Retzius, and other European authors. But, Retzius having described *tumidus* before *ovalis*, the former must take priority.

[4] Fide Fleming.

[5] The well-known *Unio pictorum* of European authors, so widely distributed throughout that quarter of the globe, has been the fruitful source of trouble and perplexity to naturalists who have studied this branch of Malacology. I have seen no reason to change my opinion, since the publication of the last edition of this Synopsis, as to the synonymy, which, unfortunately, is still going on to increase, to the great embarrassment and injury of this branch of the science. I am well aware that some able writers in Europe have endeavored to stem this tendency to multiply so dreadful a synonymy as *U. pictorum* and *An. cygnea* present; and I find in the admirable work of Forbes and Hanley (now nearly finished), on the *Malacology of Great Britain*, ideas which are so entirely parallel with my own, that I cannot refrain from making the following extract. They say they "do not observe in Rossmaessler figures of continental forms of this polymorphal shell, any of which our islands do not exhibit a nearly analogous representation. If a certain platitude of language be demanded in a description of the preceding species, far more requisite is it that our diagnosis of the present one should be sufficiently exclusive," p. 144. (See note on *An. cygnea*.)

NON-SYMPHYNOTE UNIONES. — SMOOTH.

WIDE.

Mya pictorum. Lin. Mül. Born. Poli. Schröt. Pennant. Dill. Wood. Mat. Schreib. Da Cost.
Mya ovalis. Don.
Mya corrugata Maroccana.[1] *Chem.*
—— *margarita. Klein.*
—— *angusta. Klein.*
Long thick horse mussel. Petiv.
Mya nodosa. Martini. Schreib. Wood. Dill.
Mysca pictorum. Turt.
Potamida sicula. Swain.
Unio rostrata. Lam. Pfeif. Mich. Desh. Bouil. Gras. Puton. Potier. Brown. Villa.
Unio manca. Lam. Millet. Dup.
Unio castaneus. Mül.
Unio elongatulus. Mühl. Rossm. Potier. Por. Dup. Villa.
Unio Turtonii. Payraud. Desh. Phili. Dup.
Unio lobatata. De Cr. and J.[2]
Unio Capigliolo. Payraud. Desh. More. Dup. Rossm.
Unio Requienii. Mich. Rossm. Gassies. Potier. Dup.
Unio Deshayesii. Mich. Desh. Rossm. Brown.
Unio limosus. Nil. Rossm.
Unio longirostris. Zeigl. Potier. Por. Rossm. Villa. Schmidt.
Unio Limovianscæ. Fer. Menke.
Unio retusus. Held.
Unio ventrosus. Küster.
Unio levigatus. Küster.
Unio latirostris. Küster.
Unio concinnus. Küster.

NON-SYMPHYNOTE UNIONES. — SMOOTH.

WIDE.

Unio corrosus. Villa. Por.
Unio pallens. Parreyss. Küst.
Unio dactylus. Morelet.
Unio mucidus. Morelet.
Unio arcuatus. Bouch. Dup.
Unio Ardusianus. Reyniés.
Unio Muelleri.[3] *Rossm.*
Unio ponderosus. Spitzi. Rossm.
Unio graniger. Zeig.
Unio Nathusii. Küst.
Unio vindiflavus. Küst.
Unio Petrovichii. Küst.

*elongatus. *Pfeif.*
Unio Aradæ. Phili.
Unio Gargottæ. Phili. More. Rossm.

productus. *Con. Küst.*

*sagittiformis. *Lea.*

*nasutus. *Say. Barn. Swain. Gould. Linsl. Dekay.*
Unio rostratus. Valen.
Mya nasuta. Wood.
Unio subrostratus? Say.
Eurynea nasuta. Stimpson. (Agass. MSS.)

*Barrattii. *Lea.*

*Fisherianus. *Lea. Chenu.*

*aheneus. *Lea.*

*Jayensis. *Lea. Chenu.*

[1] Chemnitz figures this shell, vol. vi. table 3, Figs. 23 and 24. From the description and outline, I have little doubt of its being a young *pictorum*, more than usually undulated in the region of the beaks. Its being rugose over the whole surface, as mentioned by him, is not evidence against its being such. As the first growth subsequently forms the beak of the shell, it ought of course to be rugose, if that be the character of the shell. The inside view is without teeth, but this is doubtless the fault of the draftsman or engraver, as the author speaks of the hinge being like the common mussel.

[2] Fide Philippi. Michaux's figure has more the appearance of *U. Batavus.*

[3] I think this will be found to be a deformed *pictorum.*

NON-SYMPHYNOTE UNIONES.

SMOOTH.

WIDE.

*lugubris. *Lea. Chenu.*

*marginalis. *Lam.*
Unio anodontina. Lam.

*iris.[1] *Lea. Desh. Chenu.*
Unio nebulosus. Con.

*fatuus. *Lea. Chenu.*

*tenuissimus. *Lea.*
Symp. tenuissima. Lea, in Trans. Am. P. S.
An. purpurascens. Swain.
Unio velum. Say.
Unio leptodon. Con.
Unio planus. Con.

*bilineatus. *Lea. Ben.*
Symp. bilineata. Lea, in Trans. Am. P. S.

*Corrianus. *Lea.*

*orientalis. *Lea. Chenu.*

*phaseolus. *Hild. Eat.*
Unio planulatus. Lea. Desh. Chenu.
Unio cuneatus.[2] Barn. (White var.)

arcus. *Con.*

arctatus. *Con.*

NON-SYMPHYNOTE UNIONES.

SMOOTH.

WIDE.

*gibbosus. *Bar. Eat. Hild.*
Unio mucronatus. Bar.
Unio nasuta. Lam. Cuv.
Unio dilatata? Raf.
Unio dilatatus. Con. Küst.

*arctior. *Lea. Chenu.*

*Patagonicus. *D'Orb.*

*Vaughanianus. *Lea. Chenu.*
Unio Carolinensis. Prof. Ravenel's Letter.

OBOVATE.

*purpuratus. *Lam. Potier.*
Mya ventricosa.[3] Solan. Humphreys?
Unio ater. Lea. Desh. Chenu.
Unio lugubris. Say.
Unio Poulsoni. Con.

*biangulatus. *Lea. Chenu.*

rhombeus. *Wag.*
Diplodon rhombeum. Spix.

*cuprinus. *Lea. Chenu.*
Unio metallicus.[4] Say.

*papyraceus. *Gould.*

*Boydianus. *Lea. Dekay. Chenu.*

[1] Mr. Say, in his *Synonymy*, gives *iris* as a synonym to his *subrostratus*. If they were the same, I would be entitled to precedence, as my description bears date March, 1829, while his is January, 1831. His description, however, of *subrostratus* does not apply to my *iris*, and certainly this shell could not have been under his eye when his description was made. He says that the *subrostratus* "may be said to be the analogue of the *Unio nasutus* (nobis) of the western waters." As the *U. nasutus* inhabits the western waters, a variety of that species may have been described by him for *subrostratus*.

[2] In note to Dr. Hildreth's Memoir on the shells in the vicinity of Marietta, Ohio, published in *Silliman's Journal*.

[3] Fide Ferussac.

[4] Mr. Say, in his *Synonymy*, claims precedence. My Memoir bears the date of May 7, 1830; his that of January 1, 1831.

NON-SYMPHYNOTE UNIONES. — SMOOTH.

OBOVATE.

*modioliformis. *Lea.*
Unio delumbis. Con.

*Floridensis. *Lea.*

*tenerus. *Rav.*
Unio tenebrosus. Con.

pellucidus. *Lea.*

*amygdalum. *Lea.*

*lenior. *Lea. Chenu.*

*hyalinus. *Lea.*

*nigrinus. *Lea.*

*Tappanianus.[1] *Lea.*
Unio viridis. Con.

*foliaceus.[2] *Gould.*

*contradens. *Lea. Chenu.*

*obtusus. *Lea. Chenu.*

ARCUATE.

*crassus.[3] *Retz.*
Unio crassissimus. Fer. Des Moul. Grat. Merm.
Unio auricularis.[4] Speng.
Unio margaritacea. Drap.
Unio sinuata. Lam. Children.[5] Blain. Dup. Desh. Menke. Rossm. Graells. Puton. Reyniés.
Unio rugosa.[5] Poir.

NON-SYMPHYNOTE UNIONES. — SMOOTH.

ARCUATE.

*monodontus. *Say. Eat. Desh.*
Unio soleniformis. Lea. Chenu.

*Lazarus. *Lea.*

*emarginatus. *Lea.*

Being unacquainted with the following species, I have deemed it best simply to insert a list of them, with the hope of their being determined at a future period:—

Unio Aberti. *Con.*
Unio æruginosus. *Morelet.*
Unio Aleroni. *Mast.*
Unio Ardusianus. *Reyniés. Dup.*
Unio asterianus. *Dup.*
Unio Aztecorum. *Phili.*
Unio Bigorrensis. *Millet.*
Unio Boscianus. *Dunker.*
Unio calimatorum. *Morelet.*
Unio Carniolicus. *Zeigler. Potier.*
Unio Casablancæ. *Phili.*
Unio coriaceus. *Dunker.*
Unio crocolilorum. *Morelet.*
Unio Damnoica. *D'Orb.*
Unio delphinulus. *Morelet.*
Unio digitatus. *Morelet.*
Unio divergens.[6] *Benson.*
Unio Drouatii. *Dup.*
Unio Durieui. *Desh.*
Unio evanescens. *Mouss.*
Unio errosus. *Jay's Cat.*

[1] A fine suite of this species has been kindly sent to me recently by Prof. Haldeman, of Columbia, Penn., taken from the Susquehanna River at that place. In most of them, I find the cardinal teeth of the left valve to be trifid, and the lateral teeth of the same valve somewhat divided. In the right valve, the cardinal tooth is nearly as long as the lateral tooth; in this taking somewhat of the character of *Triquetra*, Klein., (*Hyria* of Lamarck.)

[2] I am disposed to think that this may prove to be the same with *Javanus* (nobis).

[3] See note to *Margaritana margantifera.*

[4] Fide Ferussac.

[5] I think Mr. Children meant this species, but his figure (69) is evidently *Unio alatus*, Say, although he cites it as European.

[6] See note on *U. Leaii.*

Unio explicatus. *Morelet.*
Unio explicatus. (———?)
Unio Fellmanni. *Desh.*
Unio Fontainiana. *D'Orb.*
Unio furvus. *Con.*
Unio gangrenosus. *Schmidt.*
Unio generosus.[1] *Gould.*
Unio gibbus. *Speng.*
Unio glaucinus. *Zeig. Por.*
Unio Grœnlandicus. *Schrö. Fer.*
Unio granulifera. *Dunker.*
Unio Jacqueminii. *Dup.*
Unio Juliani. *Rang.*
Unio Largillierti. *Phili.*
Unio Liebmanni. *Phili.*
Unio ligula. *Mouss.*
Unio macropterus. *Dunker.*
Unio metastriatus. *Con.*
Unio Mexicanus. *Phili.*
Unio Moravicus. *Jay's Cat.*
Unio Moreleti. *Desh.*
Unio Morini. *Morelet.*
Unio musivus. *Speng.*
Unio Mytiloides. *Desh.*
Unio nigricans. *Menke.*
Unio nitidens. *Fer.*
Unio nuculinus. *Phili.*
Unio nuperus. *Zeig.*
Unio nuxpersica. *Dunker.*
Unio obtusa. *Potier and Michaud.*
Unio obtusus. *Fer.*
Unio orientalis. *Fer.*
Unio ostreatus. *Morelet.*
Unio paludosus. *Morelet.*
Unio parallelus. *Con.*
Unio perplicatus. *Con.*
Unio Pequottinus. *Linsley.*
Unio Pfeifferi. *Dunker.*
Unio Philippii. *Dup.*
Unio planivalvis. *Morelet.*
Unio platyrinchoideus. *Dup.*
Unio plombarius. *Villa.*
Unio polita. *Mousson.*
Unio preciosus. *Fer.*
Unio pruneosus. *Zeig.*
Unio psoricus. *Morelet.*
Unio pulchellus. *Fer.*
Unio puniceus. *Hald.*
Unio purpuriatus. *Say.*
Unio raristillus. *Morelet.*
Unio Roisii. *Mich.*
Unio Rousii. *Dup.*
Unio scamnatus. *Morelet.*
Unio scutulatus. *Morelet.*
Unio semiplicatus. *Troschel.*
Unio spheniopsis. *Morelet.*
Unio Spinelli. *Villa.*
Unio Steveniana. *Krynicki.*
Unio testidineus. *Morelet.*
Unio truncatosus. *Potier.*
Unio truncatus. *Speng.*
Unio Zeyheri. *Menke.*
Unio Zimermani. *Stentz. Potier.*[2]

The following species are supposed to exist in a fossil state. As the casts only are usually observed, it must be a matter of great doubt as to the propriety of making species where that is the case:—

Unio abbreviatus. *Goldfuss.*
Unio abductus. *Phili.*
Unio acutus. *Sow. Flem.*
Unio aduncus. *Sow.*
Unio atratus. *Goldfuss.*
Unio ambiguus. *Sow.*
Unio Ansticei. *Sow.*
Unio antiquior. *Strickland.*
Unio antiquus. *Sow.*

[1] Dr. Gould (Boston Nat. Hist. Soc., April, 1847) says it resembles *Anodonta Vondenbuschiana*, Lea, most likely he means *Margaritana Vondenbuschiana*, now transferred to *Monocondylœa*.

[2] Deshayes, in Jacquemont's *Voy. to India*, t. xviii. Fig. 3, gives an *Iridina* (new), and the *Unio corrugatus, marginalis*, and *cœruleus?* without names or descriptions!

In a catalogue of fresh water and land shells, Ferussac says that a *Unio* (species uncertain) was found in Berg River near the Cape of Good Hope.

Unio aquilina. *Sow.*
Unio carbonarius. *Bronn.*
Unio centralis. *Sow.*
Unio compressus. *Sow.*
Unio concinnus. *Sow. Flem.*
Unio cordiformis. *Sow.*
Unio crassissimus.[1] *Sow. Flem.*
Unio crassiusculus. *Sow. Flem.*
Unio depressus. *Sow.*
Unio diluvii. *D'Orb.*
Unio distortis. *Bean.*
Unio dolobratus. *Sow.*
Unio Gualterii. *Fitton.*
Unio hybridus. *Sow. Flem.*
Unio liasinus. *Sow.*
Unio Listeri. *Sow. Flem.*
Unio Mantellii. *Fitton.*
Unio Martinii. *Fitton.*
Unio Menkei. *Koch.*
Unio modiolaris. *Sow.*
Unio Nilssoni. *Koch.*
Unio nuciformis. *Hibb.*
Unio orthonotus. *Con.*
Unio ovalis. *Turton.*
Unio parallelus. *Sow.*
Unio petrosus. *Mort.*
Unio peregrinus. *Phil.*
Unio phaseolus. *Sow.*
Unio pictorum. *Lam.*
Unio porrectus. *Sow.*
Unio primigenius. *Con.*
Unio robustus. *Sow.*
Unio saxulum. *Mort.*
Unio Solandri. *Sow. Flem.*
Unio Staffenensis. *Forbes.*
Unio subconstrictus. *Sow. Flem.*
Unio subsinuatus. *Koch.*
Unio subtruncatus. *Fitton.*
Unio tellinarius. *Goldfuss.*
Unio terrenus. *Mort.*
Unio trigonus. *Römer.*
Unio truncatosa. *Mich.*
Unio tumidus. *Retz.*
Unio tumulatis. *Mort.*
Unio uniformis. *Sow. Flem.*
Unio Urii. *Flem.*
Unio Valdensis. *Mantell.*
Unio Voltzii. *Koch.*
Unio ———. *Sow.*[2]

[1] This name was preoccupied by Ferussac, but his *U. crassissimus* is *U. crassus*, Retz., and, therefore, Sowerby's name must stand.

[2] Referred to by figure in *Mag. Nat. Hist.*, vol. ii. p. 647. It has the form of *littoralis*, and is found at "Gray's."

IV. SUBGENUS MARGARITANA.[1]

SYMPH. MARG. — PLICATE.

TRIANGULAR.

*complanata. *Lea.*
Alas. complanata. Bar. Hild. Sow.
Symph. complanata. Lea, Trans. Am. P. S.
Unio complanata. Desh.
Unio Katherina. Lea.

NON-SYMPHYNOTE MARGARITANÆ. — PLICATE.

QUADRATE.

*confragosa. *Lea.*
Alas. confragosa. Say.
Unio confragosa. Desh.

TRIANGULAR.

*arcula. *Lea.*

OBLONG.

*marginata. *Lea.*
Alas. marginata. Say. Bar. Gould. Migh. Lins. Dekay. Stimp.
Alas. truncata.[2] *Say.*
Unio cariosa. (Var. 2.) *Lam.*
Unio varicosa. Lam.
Unio calceolus. Say, not of *Lea.*
Mya regulosa. Wood.
Alas. corrugata. Dekay.

NON-SYMPHYNOTE MARGARITANÆ. — PLICATE.

OBLONG.

*rugosa.[3] *Lea. Kirtl.*
Alas. rugosa. Bar. Eat. Hild. Adams. Dekay.
Alas. abducta. Say.
Complanaria rugosa. Stimpson. (Agass. MSS.)

NON-SYMPHYNOTE MARGARITANÆ. — SMOOTH.

TRIANGULAR.

*deltoidea. *Lea.*

*minor. *Lea.*

*Curreyana. *Lea.*

*undulata. *Lea.*
Alas. undulata. Say. Bar. Swain. Gould. Küst. Adams. Linsl. Dekay. Migh.
Alas. sculptilis (junior). *Say.*
Strophitus sculptilis. Stimpson. (Agass. MSS.)
Mya undulata. Wood.
Unio hians. Valen.
Unio glabratus. Sow.

OVAL.

*Raveneliana.[4] *Lea.*

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[1] The genus *Margaritana* was proposed by Schumacher, in his *Essai d'un Nouveau Système des Habitations des Vers Testacés*, published in 1817, for the *Mya margaritifera*, Lin. (*Unio elongata*, Lam. and *Alasmodonta arcuata*, Bar.). Mr. Say, in 1818, proposed to establish this same division under the generic name of *Alasmodonta*. The Danish zoologist, having priority of date, must have his name preferred. Mr. Gray, in his *Genera*, adopts *Margaritana*, but he cites *Baphia*, Gevers, in 1787. I have no access to Gevers's writings, and I do not understand why Schumacher should have priority given by Mr. Gray, if the date be correct.

[2] Several specimens of fine *marginata* have been sent to me from the west, marked *Alas. truncata*, Say, being one of his unpublished names, but given by him to various conchologists under that name. I have never considered it distinct from the *marginata* of the eastern rivers, although it is generally larger and of finer color in the exterior.

[3] I found the oviducts of *M. rugosa* fully charged on the 20th May.

[4] It has been supposed that this might be the *marginata*, Say, but in a specimen received from Prof. Troost, and returned to him, I found the beaks to differ essentially, the undulations being small and numerous at the tip.

NON-SYMPHYNOTE MARGARITANÆ. SMOOTH.

OVAL.

radiata.[1] *Lea.*
Alas. radiata. Con.
Uniopsis radiata? Swain.

*calceola.[2] *Lea. Kirtl.*
Unio calceolus. Lea, Trans. Am. P. S. *Desh. Chenu.*
Alas. marginata.[3] *Say.*
Alas. truncata. Con., not of *Say.*

WIDE.

*Hildrethiana.[4] *Lea.*
Unio Hildrethianus. Lea., Trans. Am. P. S.
Al. ambigua? Say.

*dehiscens.[5] *Lea.*
Unio dehiscens. Say. Desh.
Unio oriens. Lea, Trans. Am. P. S.

NON-SYMPHYNOTE MARGARITANÆ. SMOOTH.

OBOVATE.

*Bonellii. *Lea. Villa.*
Alas. Bonellii. Fer.
Alas. depressa? Villa.
Alas. compressa. Villa.
Unio depressa. Pfeif. Mühl.
Unio compressa. Menke.
Unio Bonellii. Menke.

ARCUATE.

*margaritifera.[6] *Lea.*
Mya margaritifera. Lin. Mül. Born. Schröt. Pennant. Don. Chem. Knorr. Da Costa. Dill. Desh. Wood. Mat. Monta. Mühl. Nil. Schreib. Cuv. Rossm. Dup.
—— *crassissima. Klein.*
Margaritana fluviatilis. Schum.
Margaritana arcuata. Stimpson.

[1] This shell, in the teeth, except in the size of them, very closely resembles the *An. areolatus*, Swain, which Mr. Say described as *Alas. edentula.* Although in both these shells there is a small cardinal tooth, in all their other characters they so closely resemble the *Anodontæ*, that it is a matter of doubt with me as to the propriety of separating them from that genus. An examination of the animals, when satisfactorily dissected, may show the necessity of placing them both, notwithstanding their possessing small teeth, with the *Anodontæ.* Swainson, in his *Malacology*, refers to *radiata* as his *Uniopsis radiata;* but this must be an error.

[2] In my Memoir in the *Trans. Am. Phil. Soc.*, vol. iii. p. 420 (p. 34 of "Observations on the Genus Unio"), I mention this shell as being closely allied to the genus *Alasmodonta* of Say. In this Synopsis, I have deemed it better to transfer it to the subgenus *Margaritana*, as the lateral tooth is observable in very few individuals. Deshayes says it is between *Unio* and *Alasmodonta.*

[3] Mr. Say, in his *Synonymy*, makes *calceolus* and *Alas. marginata* the same. I am surprised at this, as their characters, in many respects, are very different, and I have never heard it even suggested before that they could be confounded.

[4] In the previous edition, this was placed among the *Uniones* with much hesitation. I now think it groups better with the *Margaritanæ.* Its cardinal tooth is very much like *M. Bonellii*, and the callus of the dorsal margin is sometimes, in both, so much thickened as to present an imperfect appearance of a lateral tooth. Mr. Say's description of *ambigua* answers well to *Hildrethianus*, but I am not sure it is the same, as he has given no figure of it. He seems to have abandoned it, as he does not insert it in his *Synonymy.* Mr. Conrad also avoids the insertion of it in his Synoptical Table.

[5] Mr. Say, in his *Synonymy*, gives Mr. Rafinesque's name of *lata* precedence. Mr. Eaton says that *An. lata*, Raf., is *Symphynota tenuissima*, Lea.

[6] Klein describes this species under the name of *crassissima*, but with no generic term. This name has been, by Ferussac and other zoologists, erroneously applied to the large *Unio*, common to the south of Europe, which Retzius described as *Unio crassus*, and I have given it to Retzius. Klein's *crassissima* is the true *Margaritana margaritifera* (*Mya margaritifera*, Lin.), and his figure of it, Pl. x. Fig. 47, is a copy of Lister's, Tab. 149, Fig. 4.

NON-SYMPHYNOTE MARGARITANE. — SMOOTH.

ARCUATE.

Unio elongata. Lam. Mich. Bouil. Nils. Puton. Potier. Dup. Merm.
Unio ater. Nils. Rossm.
Unio sinuata. Pfeif.
Unio Roissyi. Mich. Desh.
Unio margaritiferus. Retz. Pfeif. Cuv. Drap. Bosc. Turt. Gaertner.[1] *Menke. Rossm. Dup. Bouil. Alder.*
Unio margaritifer. Graells.
Unio rivalis. Zeig.
Unio Carolinianus.[2] *Bosc.*
Alas. margaritiferum. Flem. Brown. Macgil.

NON-SYMPH. MARGARITANE. — SMOOTH.

ARCUATE.

Alas. margaritiferus. Thompson. Forbes.
Alas. elongatus. Thompson.
Alas. arcuata. Bar. Gould. Adams. Migh. Linsl. Dekay.
Alas. falcata. Gould.

*Holstonia. *Lea.*

*fabula. *Lea.*

The following species are unknown to me:—

Alasmodonta Tripolitana. *Fer.*
Alasmodonta incurva. *Fer.*
Margaritana Etowaensis. *Con.*

[1] Fide Menke.

[2] I have been, and am still, perplexed about this species of Bosc. M. Ferussac considers it the same with *Unio obesus* (nobis), and I so stated it in my last edition. Recently, I have had access to Bosc's description and figure (*Hist. Nat. des Coquilles*), which agree better with *Margaritana margaritifera* than any other species; and he *refers to the figure of it* in *Ency. Meth.*

V. SUBGENUS MONOCONDYLŒA.[1]

NON-SYMPHYNOTE MONOCONDYLŒÆ. — SMOOTH.

SUBROTUND.

*Franciscana. *Moricand.*

OBOVATE.

*Paraguayana. *D'Orb.*

*Parchappii. *D'Orb. Schom.*

*Corrientesensis. *D'Orb.*

*Guarayana. *D'Orb.*

NON-SYMPHYNOTE MONOCONDYLŒÆ. — SMOOTH.

OBOVATE.

*fossiculifera. *D'Orb.*

*Vondenbuschiana. *Lea.*
Margari. Zollingeri. Mousson.[2]
Margari. crispata. Mousson.
Margari. fragilis. Mousson.

Minuana. *D'Orb.*

[1] D'Orbigny, the distinguished traveller in South America, forms the genus *Monocondylœa* for a group of shells which he has first observed, and which possess a single cardinal tooth and no lamellar tooth. This tooth certainly differs from that of the *Margaritana fluviatilis*, Schum., *Alasmodonta*, Say. I am indebted to the great kindness of M. D'Orbigny for the first five—the sixth one I place here with some hesitation, as to its proper situation, never having seen it. The shell figured by Spix, Pl. 25, Figs. 1 and 2, under the name of *Aplodon inerme*, but not described in the text, evidently belongs to D'Orbigny's genus *Monocondylœa*. It is certainly a most interesting group, and it is to be regretted that we have no description of the animal.

[2] Menke and Pfeif, in *Zeits. fur Malak.*, say that these three shells are the same as *Margaritana Vondenbuschiana*, Lea.

VI. SUBGENUS DIPSAS.

SYMPHYNOTE DIPSADES. — PLICATE. — TRIANGULAR.

*plicatus.[1] *Leach.*
Barbata plicata.[2] *Humph.*
Myt. plicatus. Soland.
Myt. dubius. Gmel. Dill.
Cristaria tuberculata. Schum.
An. dipsas. Blain. Fer.
An. tuberculatus. Fer.
An. alatus. Sow.
Symph. bi-alata.[3] *Lea*, Trans. Am. P. S.

SYMPHYNOTE DIPSADES. — PLICATE. — TRIANGULAR.

Unio bi-alata. Desh.
Dianisolis Chinensis. Raf.

SYMPHYNOTE DIPSADES. — SMOOTH. — OVAL.

*discoideus.[4] *Lea.*
Symp. discoidea. Lea, Trans. Am. P. S.
Unio tenuis. Gray.[5]
An. tenuis. Gray.[5]
An. Chinensis. Phili.

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[1] Perfect specimens show the whole linear tooth, and the folds on the posterior slope and on the posterior wing, but old and imperfect specimens sometimes exhibit neither. The imperfect figure and description by Leach (who made the genus in 1815) of this fine shell, led me to believe that it could not be the same with that which I described under the name of *Sym. bi-alata.*

[2] Fide Gray.

[3] Mr. Rafinesque, in the continuation of his Monograph (p. 7), affirms decidedly that the *Symphynota bi-alata*, Lea, is a peculiar genus, but he changes it to *Dianisolis Chinensis!!*

[4] The posterior termination of the tooth shows some disposition to duplication, and evidently inclines to pass into the subgenus *Unio.*

[5] In Griffith's Cuvier.

VII. SUBGENUS ANODONTA.

SYMPHYNOTE ANODONTÆ. — SMOOTH.

TRIANGULAR.

*Wahlamatensis. *Lea.*

OVAL.

*magnifica.[1] *Lea.*
Symp. magnifica. Lea, Trans. Am. P. S.
An. rotundatus. Swain.
An. aurata. Küst.

*Woodiana. *Lea.*
Symp. Woodiana. Lea, Trans. Am. P. S.

*Benedictensis. *Lea. Adams. Dekay. Stimpson.*
Symp. Benedictensis. Lea, Trans. Am. P. S.
An. cultratus. Gould.

*Nuttalliana. *Lea.*

*Californiensis. *Lea.*

NON-SYMPHYNOTE ANODONTÆ. — PLICATE.

OBOVATE.

*crispata.[2] *Lam.*
An. glauca. Gould.

*tortilis. *Lea.*

NON-SYMPHYNOTE ANODONTÆ. — SMOOTH.

OVAL.

*cygnea.[3] *Drap. Lam. Crouch. Blain. Pfeif. Turt. Des Moul. Flem. Grat. Bouil. Brard. Bosc. Children. Puton. Potier. Gassies. Por. Klees. Morelet. Merm. Forb. and Hanl. Villa. Guerin. Graells. Thompson. Cuv. Gray. Küst. Brown. Bouch. Rossm. Desh. Studer. Menke. Gras. Goupil. Dup.*
Myt. cygneus. Lin. Chem. Schrö. Dill. Mühl. Monta. Mat.[4] Shep. Tur. Müll. Schreib. Pennant. Don. Da Costa.

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[1] Mr. Gray, in Griffith's Cuvier, Pl. 24, Fig. 2, gives a figure, without description, of a shell, under the name of *Unio tenuis*, which he thinks is my *An. magnifica;* but it appears to me to be my *Dipsas discoidea.* It is figured with the linear tooth of *Dipsas.*

[2] With some hesitation, I have placed these two species under the division plicate, as the folds or crimples are so small as almost to require a lens. But to place them in the division of "smooth" shells would be, I think, more objectionable.

[3] I have, after a good deal of consideration and examination of my specimens, and the figures in the numerous works describing the *Naïades*, satisfied myself that *An. cygnea* and *An. anatina* are not specifically distinct. If the observation of M. Poiret, that the first is viviparous and the last oviparous, be correct, then they should be certainly separated. I feel perfectly persuaded, however, that he must be in error. Turton, in his recent work on the *Land and Fresh Water Shells of Great Britain*, says he is "inclined to think that all our supposed species of this genus may be justly resolved into one." M. Gras (*Description des Moll. Fluv. et Ter. de la France*) says that *anatinus* is only the young of *cygneus;* and Mr. Gray, of London, says, in his *Manual of Fresh Water and Land Shells*, that it is a most variable species, and that "we must not only dissent to the division of this polymorphous bivalve into these numerous species, into which it has been separated by the continental writers, but even demur to the possibility of arranging the diversities of shape and coloring into strictly different varieties"—p. 156. "Like *Unio*, this species is chiefly American, only one distinctly-marked species inhabiting Europe." Such has been my opinion for more than 20 years. (See note on *Unio pictorum.*)

[4] β of Maton and Racket (*Lin. Soc. Trans.*, vol. iv.) is evidently, judging from the figure, *Unio litoralis.*

NON-SYMPHYNOTE ANODONTÆ.

SMOOTH.

OVAL.

Myt. anatinus. Lin. Chem. Schrö. Schum. Wood. Monta. Don. Da Costa. Penn. Shep. Tur. Dill. Mat. Schreib.

Myt. stagnalis. Gmel. Dill. Sow. Schreib.

Myt. fluviatilis.[1] *Gmel. Schreib.*

Myt. fucatus. Dill.

Myt. Zellensis. Gmel. Schrö. Schreib.

Myt. Avonensis. Monta. Wood. Ed. Encyclopædia.

Myt. radiatus.[2] *Mül. Schrö. Schreib.*

Myt. incrassatus. Shep.

Myt. macula. Shep.

—— *fragilis. Klein.*

Musculus fluviatilis. Klein.

Musculus latus. Klein.

Musculus angustior. Klein.

Grand Moule des étang. Geoff.

An. anatina. Lam. Cuv. Dill. Bosc. Drap. Sow. Pfeif. Flem. Grat. Des Moul. Stud. Bouil. Macgil. Phili. Menke. Desh. More. Goup. Nils. Put. Küst. Dup. Ald. Graells. Villa. Klees. Por. Gass. Bouch. Pot.

An. sulcata. Lam. Nils. Vill.

An. dentiens. Menke.

An. intermedia. Lam. Pfeif. Bouil. Menke. Desh. Bouch. Dup. Pot.

An. variabilis. (Var. b.) *Drap. Vill.*

NON-SYMPHYNOTE ANODONTÆ.

SMOOTH.

OVAL.

An. cellensis. Pfeif. Menke. Rossm. More. Küst. Bosc. Dup. Vill.

An. ventricosa. Pfeif. Menke. Bouch. Vill. Pot. Dup. Küst.

An. ponderosa.[3] *Pfeif. Menke. Pot. Por. Dup. Rossm. Küst. Held. Graells.*

An. paludosus. Tur.

An. stagnalis. Bosc.[4]

An. fluviatilis. Bosc.

An. grossa. Zeig.

An. compressa. Menke.

An. obvoluta. Zeig.

An. complanata. Zeig. Rossm. Menke. Küst.

An. rhomboidea. Schlut. Rossm.

An. spuria. Count Yoldi's Letter.

An. proboscidalis. Zeig.

An. piscinalis. Nil. Gass. Pot. Dup. Küst. Rossm. Vill.

An. rostrata. Kokeil. Rossm. Dup. Held. Küst. Vill.

An. attenuata. Held.[5]

An. limpida. Zeigler.

An. exulcerata. Vill. Por.

An. Klettii. Parr.

An. convexa. Dup.

An. Rossmaesleriana. Dup.

An. regularis. More.

An. maculenta. More.

An. Lusitania. More.

An. ranarum. More.

An. elongata. Stentz.

An. coarctata. Pot.

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[1] Gmelin states this shell to be from the fresh waters of Europe, and allied to *Anatina*. If this be true, there cannot be a doubt of its being the same with *cygnea*. The *fluviatilis* of Solander and Dillwyn is said to be from North America, and Say's *cataracta* is the same, no doubt.

[2] Fide Dillwyn.

[3] This and the *grossa* are certainly very different in aspect from the *cygnea*, Lam., being more ponderous and less produced behind. This difference may, however, be effected by locality. Should it prove constant, *ponderosa* ought to be considered a distinct species, and such may prove to be the fact.

[4] I presume that Bosc meant the same variety as *Myt. fluviatilis*, Gmel. But he refers to Lister's Pl. 157, which is probably *Unio cariosus*, Say. Bosc refers to Europe for the habitat of his species, and certainly there is no species in Europe like Lister's figure.

[5] He since considers it a variety of *cellensis*, Pfeif.

NON-SYMPHYNOTE ANODONTÆ. SMOOTH. OVAL.

An. minima. Pot.
An. Grateloupiana. Gass.
An. ovalis. Requien. Pot.
An. Dupuyi. Ray and Drout. Dup.
An. arelatensis. Jacq. Dup.
An. Millettii. Ray and Drout. Dup.
An. Normandi. Dup.
An. oblonga. Mill. Dup.
An. Rayii? Dup.
An. subponderosa. Dup.
An. scaldiana. Dup.
An. Moulinsiana. Dup.
An. subrhomboidea. Brown.
An. contorta. Brown.
An. luxata. Held. Küst.
An. callosa. Küst.
An. inornata. Küst.
An. cariosa. Küst.
An. arealis. Küst.
An. subluxata. Küst.
An. Sondermanii. Küst.
An. anserirostris. Küst.
An. tenella. Küst.
An. tumida? Menke. Küst.
An. confervigera. Schluter.
An. rhomboïdea. Schluter.
Anodontites cygnea.[1] *Poir.*
Anodontites anatina. Poir.

NON-SYMPHYNOTE ANODONTÆ. SMOOTH. OVAL.

*Oregonensis. *Lea.*
An. cognata. Gould.

*Pepiniana. *Lea.*

*fragilis. *Lam.*

*Footiana. *Lea.*

uniopsis. *Lam.*
Unio uniopsis. Desh.
Alas. compressa. Por.

*Chaiziana.[2] *Rang.*
Epigenia decorata. Parr.

*undulata. *Say. Hild.*[3] *Gould.*
Adams. Linsl.
Anodon rugosus. Swain.
Anodonta Pennsylvanica. Lam.
Unio undulata. Desh.
Alas. marginata. Küst.
Strophitus undulatus. Stimp.

*Wardiana. *Lea.*
A. virgata. Con.

*edentula. *Lea. Dekay.*

[1] Fide Des Moulins.

[2] M. Rang informed me that this species has the singular power of maintaining its vitality in the desiccated marshes of Africa, through six months of the burning sun of that region; and that he had a specimen sent to him in Paris, which was killed nearly thirteen months after it had been taken from its native bed, having occasionally been dipped in water for an hour or two only. He also mentions that the *Iridina rubens* is found with the *Chaiziana* in the Senegal, and possesses the same peculiarities of remaining in a state of torpidity during the season of great heat. A specimen, under the name of *Chaiziana*, sent to Dr. Jay from Europe, and given to me by him, is, I think, a young *Iridina rubens*. Dr. Vandenbusch, of Bremen, sent me, more recently, a thicker and more inflated specimen under the name *Epigenia decorata*, of Parreyss and other Vienna naturalists. This appears to me to be the female of the same species. I think it possible that *An. Chaiziana*, *An. Tawaii*, and *E. decorata* may all prove to be identical, varying by geographical position, sexual difference, or age. I have had very strong doubts whether this be not a young *Iridina rubens*, but the two specimens I have seem to be mature, and Rang describes and figures his *Chaiziana* without siphons. The lesser of the two anterior cicatrices is smaller in my two specimens, and more elongate, than in *rubens*.

[3] I doubt very much if Dr. Hildreth had Mr. Say's *undulata* under his eye when he made his description. The *undulata* of Say does not exist west of the Alleghany Mountains, and Dr. Hildreth probably had some other species, which, not being figured and the description being imperfect, I cannot make out. This species is said to be found in Oneida Lake and Lake Champlain.

NON-SYMPHYNOTE ANODONTÆ.

SMOOTH.

OVAL.

Alas. edentula. Say.
An. areolatus. Swain. Coop. Linsl.
An. unadilla. Dekay.

*Cumingii. *Lea.*

*pavonia. *Lea. Dekay.*

*limnoica. *D'Orb.*

trigona.[1] *Spix. D'Orb. Küst.*

purpurea. *Valen.*

*Ferussaciana. *Lea. Dekay.*
Alas. Ferussaciana. Küst.

*denigrata. *Lea.*

*oblita. *Lea.*

*argentea. *Lea.*

*ferruginea. *Lea.*

*salmonia. *Lea.*

*imbecillis. *Say.*
An. incerta. Lea. Küst.

*implicata. *Say. Gould. Linsl. Migh. Dekay. Stimp.*
An. Newtonensis. Lea.
An. excurvata. Dekay.

*fluviatilis. *Lea. Gould. Adams. Linsl. Dekay.*

NON-SYMPHYNOTE ANODONTÆ.

SMOOTH.

OVAL.

Myt. fluviatilis.[2] *Dill.*, not *Gmel. Wood.*
Myt. illitus. Soland?
An. cataracta. Say. Sow. Küst. Migh.
An. marginata. Say. Adams? Linsl. Migh. Stimp.
An. teres. Con.
Unio cataracta. Desh.

*opaca. *Lea.*

*crepera. *Lea.*

*Arkansensis. *Lea.*

*Mortoniana.[3] *Lea.*
An. Chiquitana. D'Orb.
Craspedodonta smaragdina? Anton. Küst.

*glauca.[4] *Valen.*
An. glauca. Lam.
An. ovatus. Swain.

*ovata. *Lea.*

*plana. *Lea. Dekay.*
An. declivis. Con.

*decora. *Lea.*

*Harpethensis. *Lea.*

*gigantea.[5] *Lea.*

*subvexa. *Con.*

[1] Ferussac considered *trigona* the same as *crassa* of Swainson. The two figures, however, appear to me to be too different to be considered the same.

[2] See note on *An. cygnea.*

[3] D'Orbigny gives *An. trigonum*, Spix., as a synonym.

[4] The figure of this shell resembles some individuals of *Myt. fluviatilis*, Soland. (Say's *An. cataracta*), but is straighter on the superior margin. In this character it resembles the *trapezialis*. The observations of Barnes, being made when little was known of this genus, cannot now be admitted.

[5] *An. giganteus*, Spix., having been before described by Lamarck under the name of *trapezialis* and *exotica*, my species must retain this name.

NON-SYMPHYNOTE ANODONTÆ. — SMOOTH.

OVAL.

*Stewartiana. *Lea.*

*virens. *Lea.*

*gibbosa. *Say.*
An. inflata. Major Le Conte's Cabinet.

*Couperiana. *Lea.*

puelchana. *D'Orb.*

*grandis. *Say. Lesueur.*
An. corpulenta. Coop.

OBLONG.

*tetragona. *Lea.*

*Troutwiniana. *Lea.*

*Shaefferiana. *Lea.*

*subcrassa. *Lea.*

SUBROTUND.

*suborbiculata. *Say.*

*globosa. *Lea.*

*Linnæana. *Lea.*

WIDE.

*Maryattana. *Lea.*

elongata. *Swain.*

NON-SYMPHYNOTE ANODONTÆ. — SMOOTH.

WIDE.

*ensiformis. *Spix. D'Orb. Schom. Küst.*

*siliquosa. *Spix.*

*cylindracea. *Lea.*

*subcylindracea. *Lea. Linsl. Dekay. Stimp.*

lucida. *D'Orb.*

*Buchanensis. *Lea.*

*gracilis. *Lea.*

*Wheatleyi. *Lea.*

*exilis.[1] *Lea.*

*Schröteriana. *Lea.*

OBOVATE.

*obtusa. *Spix. Küst.*
An. lituratum. Spix.

Montezuma. *Lea.*

*sirionos. *D'Orb.*
An. Ferrarisi. D'Orb.

*Patagonica. *Lam. Küst.*

*lato-marginata.[2] *Lea. D'Orb.*
An. trapezeus?[3] *Spix.*
An. rotundus? Spix. Küst.
An. membranacea.[4] *D'Orb.*

[1] Prof. Kirtland informed me that he received this shell from Wallingford, Conn., taken from some of the branches of the Quinipiak River, but I think this must be an error. When I described it, I mentioned having purchased it of Mr. Warren, a dealer in Boston, who could give me no idea whence it came. I never supposed it to be an American species, and my conclusion is justified, I think, by having received the same species from Dr. Vondenbusch, of Bremen, he having procured it from Java.

[2] The *Patagonica* and *lato-marginata*, when they are better observed, may prove to be the same.

[3] Spix's figure so closely resembles the *lato-marginata*, that I scarcely feel a doubt as to their being the same. He does not, however, notice the broad margin which is so characteristic of this species.

[4] See note 4, p. 34.

NON-SYMPHYNOTE ANODONTÆ. — SMOOTH.

OBOVATE.

*Spixii. *D'Orb.*

porcifer.[1] *Gray.*

*trapezialis. *Lam. Blain. Pot. Küst.*
An. exotica.[2] *Lam. Cuv.*[3] *D'Orb. Desh.*
An. giganteus. Spix. Menke. Küst.
An. pencillatus? *Gray.*
An. Susannæ. *Gray.*
An. radiatus. *Spix.*
An. trapezia. *Küst.*

*anserina. *Spix.*

NON-SYMPHYNOTE ANODONTÆ. — SMOOTH.

OBOVATE.

Georginæ.[4] *Gray.*

Parishii.[5] *Gray.*
Leila Parishii. *Gray.*

*Blainvilliana.[6] *Lea.*
An. trapezialis. *Crouch.*
Irid. trapezialis.[7] *D'Orb.*

*esula.[8] *Jan.*
Irid. esula.[9] *D'Orb.*
Leila esula.[10] *Gray.*

crassa. *Swain.*

*angulata.[11] *Lea.*

---

[1] Never having seen this species, I place it here on Mr. Gray's authority.

[2] So far as I have been enabled to examine specimens of this and *trapezialis*, I am disposed to think they are not distinct species.

[3] The figure, Pl. 90, given in the edition of Cuvier by his pupils, is said to be reduced to one-half. It seems to me to be a good representation of *An. lato-marginata* (nobis), and not like Lamarck's *exotica*.

[4] I have not seen this shell. It seems to be nearly allied to *Blainvilliana* (nobis), judging from the figure in Griffith's Cuvier, Pl. 19, Fig. 3. It is from Paraguay.

[5] Fide Mr. Gray.

[6] In my description of *Blainvilliana* (*Observations on the Genus Unio*, vol. i. p. 189), I observed that I was induced to believe that the animal of this shell would be found to differ from that of the genus *Anodonta*. M. D'Orbigny, in his *Synopsis of the Fresh Water Shells of South America*, has in fact so found it. The animal has two tubes. Nevertheless, although I then proposed, if such should be the case, that it should be placed in a new genus, under the name of *Columba*, I have continued it in the subgenus *Anodonta*, as, with the present artificial system, which is founded on the hinge, it could not with propriety be elsewhere classed. When the family shall be arranged in a system founded on the animal structure only, it evidently must be changed, and I doubt then if it should be placed in the genus *Iridina*, for, although it is likely that all the species of that genus have two tubes, they do not seem to possess the deflected palleal cicatrix, which I noted in the description of *Blainvilliana*.

[7] M. D'Orbigny, at p. 43, *Synopsis Ter. and Fluv. Mollusque*, makes *An. trapezialis*, Lam., a synonym to his *Iridina trapezialis;* but I think that Lamarck's *An. trapezialis* is a different shell. I cannot but think that D'Orbigny's *I. trapezialis* is my *An. Blainvilliana*.

[8] M. D'Orbigny thinks that this is my *Blainvilliana*, but, having his specimens and mine of both these species, I am induced still to believe that I am correct. The two specimens resemble each other, but are certainly distinct. The deflected palleal cicatrix exists in both, but the *esula* is more rotund, and the dorsal margin is more sinuous, the nacre being bluish white, while the five or six specimens of *Blainvilliana* which I have seen are all salmon color. The *esula* would come under my proposed genus *Columba* (note 6 above), if the animal differs, as I suppose it does, from *Anodonta*.

[9] *Mag. de Zool.*, 1835.

[10] Gray's *Genera*.

[11] This very curious and interesting species was described from a single imperfect valve, brought by Mr. Nuttall from Oregon. Some years afterwards, Lady Catherine Douglas recognized it among the shells sent by Sir

NON-SYMPHYNOTE ANODONTÆ.

SMOOTH.

OBOVATE.

An. feminalis.

polita. *Mouss.*[1]

ARCUATE.

*tenebricosa. *Lea. D'Orb.*

*tenuis. *Lea.*

solidula. *Deville and Huppé.*

*arcuata. *Fer.*

sinuosa. *Lam. Dupuy?*

*soleniformis. *D'Orb.*

The following species are unknown to me:—

An. arcuta. *Caill.*
An. atrovirens. *Phili.*
An. Bambousearum. *Morelet.*
An. Benacensis. *Vill.*
An. Burroughiana. *Chenu.*[2]
An. Charpentierii. *Küst.*
An. Chinensis. *Fer.*
An. ciconia. *Gould.*
An. cimbula. *Vill.*
An. cornea. *Phili.*
An. crassa. *Menke.*
An. curvatus. *Fer.*
An. folium. *Fer.*
An. gibbum. *Benson.*
An. gigantea.[3] *Middendorff.*
An. glabra. *Zeig. Vill.*
An. Guilliani. *Recluz.*
An. Heldii. *Küst.*
An. Housatonica. *Linsley.*
An. impura. *Say.*
An. inoscularis. *Gould.*
An. Jobæ. *Dupuy.*
An. leprosa. *Parr. Vill.*
An. lugubris. *Say.*
An. lurulentus. *Morelet.*
An. Middendorffii. *Lea.*
An. Nicaragua. *Phili.*
An. Nilssoni. *Küst.*
An. Onowensis. *Lea.*
An. opilina. *Küst.*
An. fragilis. *Menke.*
An. pictus. *Swain.*
An. placitus. *Hald.*
An. Saliveniana. *Gould.*
An. Sedakowii. *Siemasko.*
An. siliqua. *Küst.*
An. sinuosis. *Swain.*
An. soleniformis. *Benson.*
An. Tawaii. Rang.

Fossil Species.

An. Abyssina. *Morton.*
An. antiqua. *D'Orb.*
An. Cordieri. *D'Orb.*

George Simpson, from Vancouver, and to her I owe the possession of a fine and perfect specimen. In the collection of the Exploring Expedition, I recognized many fine specimens which Captain Wilkes brought from Columbia River. Some of them my friend Dr. Gould has since characterized as a distinct species, but in this I should not agree with him.

[1] *Fresh Water and Land Shells of Java*, Pl. 19, Fig. 20.

[2] Livr. 81, Pl. 3, Fig. 3. This name and figure are placed to two different species in this plate.

[3] A specimen of this shell from the River Onow, Northern Siberia, was presented to the Boston Soc. Nat. Hist. by Dr. Gould. It is stated to be "11 inches long and 6½ high." (Proceedings, March, 1849.) I presume this is a distinct species, but, without a description or view, I am unable to determine. The name, however, is preoccupied, and I propose to substitute *Onowensis*, as the author's name is also preoccupied.

GENUS PLATIRIS.[1]

I. SUBGENUS IRIDINA.[2]

NON-SYMPH. IRIDINÆ. — SMOOTH.

OBOVATE.

ovata. *Swain.*
Irid. exotica. Children.
Pleiodon Macmurtriei. Con.

*Leaii.[3] *Sow.*

ARCUATE.

exotica. *Lam. Desh.*[4] *Pot.*

NON-SYMPH. IRIDINÆ. — SMOOTH.

ARCUATE.

Irid. striata. Swain.
Irid. elongata. Sow.
An. exotica. Blain.

Species Unknown.

Iridina valeus. *Parr. from Africa, in Jay's Cat.*

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[1] Genus Platiris (nobis), πλατυς, latus; ιρις, iris. *Testâ æquivalvis, latè transversâ; impressiones musculares grandes; cardo longus, linearis; ligamentum externum.*

[2] When Lamarck established his genus *Iridina*, he had seen but a single species, and of that only one individual, which is figured in the *Encyclop. Méthodique*, Pl. 204. Other species have been since referred to his genus, which do not seem to me to fulfil the conditions of his generic diagnosis. The phrase "cardo per longitudinem tuberculosus, subcrenatus," is by no means descriptive of the hinge belonging to the species just alluded to, which have their hinge smooth, or very slightly tuberculated. The figure in the *Encyclopædia*, and that of Blainville (Pl. 66, Fig. 3), represent the same individual, and exhibit a character of hinge resembling in some measure that of an *Arca*. A second species, apparently agreeing with Lamarck's generic description, has been observed and described by Swainson, under the name of *Iridina ovata* (*Phil. Mag.*, vol. lxi.); and it has also been described by Mr. Children under the name of *I. exotica* (*Brande's Journ.*, vol. xv.). The specimen described in *Brand's Journal* is now in the British Museum, and that accurate naturalist, Mr. John Edward Gray, who is one of the officers of that noble institution, informs me that he thinks it is identical with the shell upon which Mr. Conrad has lately proposed to form a new genus, *Pleiodon*. Under these circumstances, it seems to me necessary to separate those shells having a *crenulated* hinge (which are true *Iridinæ*), from those having the hinge *smooth*, or very *slightly tuberculated*. I therefore arrange the *Iridina rubens, Nilotica*, &c., in a new subgenus, for which I propose the name of *Spatha*.

Ferussac says that Humphrey, in his Catalogue (MSS. ?), made a genus (*Scapha*) for an *Iridina*, and that the "*mutel*, D'Adanson," is certainly the same (*Mém. de l'Hist. Nat. de Paris*, v. i. p. 362).

[3] Mr. Sowerby very kindly presented me with a specimen under this name. It looks to me like a young *I. ovata*, but may be different.

[4] M. Deshayes gives the *Nilotica* as a synonym to this species, but I think it is distinct.

II. SUBGENUS SPATHA.

NON-SYMPHYNOTE SPATHÆ. — SMOOTH.

OVAL.

*rubens.[1] *Lea.*
Irid. rubens. Desh. Cuv. Rang.
Irid. arenata? Caill. Pot.
An. obtusa? Potier and Mich.
An. rubens. Lam. Blain. Menke. Küst.
An. Clappertoni. Kœnig, in *Denham and Clapperton's Journey.*

Wahlbergi.[2] *Krauss.*

WIDE.

*dubia. *Lea.*
Myt. dubius. Gmel. Dill.

NON-SYMPHYNOTE SPATHÆ. — SMOOTH.

WIDE.

Irid. Nilotica. Sow. Fer. Cuv. Crouch. Caill. Pot.
An. dubia? Bosc.
Irid. Oudnicei. Kœnig.
Irid. gracilis. Caill.
Spatha Nilotica. Anton. Küst.
Calliscapha Nilotica. Swain.
Myt. Niloticus. Wood.
Le mutel. Adan.
Irid. mutel? Rang.

*cælestis.[3] *Lea.*
Irid. rostrata? Rang. Pot.
Spatha rostrata. Küst.

[1] Mr. Gray informs me that Cailliaud figures a species near to this from Egypt, which is in his possession, but I have not seen the shell or description. A specimen in Mr. Tanner's collection labelled *Iridina arcuata*, Caill., and sent by M. Cailliaud to Mr. Hyde, is an *Anodonta*.

[2] The figure is very like *rubens*, but Mr. Krauss says it differs. It comes from Natal, South Africa.

[3] A specimen of *cælestis* received of Dr. Pitcairn, from Edinburgh, was marked *Unio Longinus*, Gray.

III SUBGENUS MYCETOPUS.[1]

NON-SYMPH. MYCETOPODES. SMOOTH.

WIDE.

soleniformis. *D'Orb.*
Spatha soleniformis. Ant. Küst.

*siliquosus. *D'Orb.*
An. siliquosus. Spix. Küst.

NON-SYMPH. MYCETOPODES. SMOOTH.

WIDE.

An. pygmœum (junior). *Spix.*
An. longinus. Spix.
Irid. longina. Fer.

ventricosus.[2] *D'Orb.*

[1] This genus, established by M. D'Orbigny, has the dorsal margin smooth like *Anodonta;* but that and the basal margin are nearly parallel, and the posterior margin is truncate. The soft parts of the animal figured by D'Orbigny represent it to be very different in the form and size of the foot, which it extends enormously. He mentions that the two anterior cicatrices are widely separated. A more important character appears to be in the fact that the smaller cicatrix is placed before the larger one. In the *Unio* and *Anodonta,* it is placed below it, and in the *Hyria,* Lam., it is placed above, that is, in a line with the beak. Its habits are different from the *Unionidæ* generally, as it buries itself over a foot in the sand, "perforat, sicut pholadæ." In this characteristic it is analogous to *Margaritana dehiscens* (p. 43), *Unio dehiscens,* Say, which my brother, T. G. Lea, informed me he found only at a depth of 12 inches below the surface of the sand on the bars of the River Ohio, their position being ascertained by a small hole at the surface kept open by the animal. I have never seen the soft parts myself, but I presume the animal does not possess a very extensile foot, and yet it may have power to extend some portion of its body into this hole.

[2] *Voyage dans l'Amérique Méridionale,* tom. v. partie iii. Pl. 72, Fig. 1—3. The figure of *ventricosus* approaches so much that of *siliquosus,* that I would not be surprised if it should prove to be simply a variety.

In Mr. Rafinesque's Monograph, and in his subsequent Papers, are inserted descriptions under the following names. Not being able to identify them, I have deemed it better simply to give a catalogue of them. Those which I suppose I have identified will be found in the foregoing table. In this list, I have not divided the *Uniones* into his numerous genera. The want of adequate figures, and an absence of sufficiently accurate description, together with Mr. Rafinesque's well-known proclivity to make species out of imaginary forms and specimens, induced me, after repeated and vain attempts to recognize his species, to follow the example of Mr. Say, Mr. Barnes, and all the other American malacologists up to the time of commencing my memoirs on this subject, to avoid any further attempt to elucidate a mass of confusion which was considered beyond the pale of science. The views of the late Dr. Binney, in his *Terrestrial Molluscs of the United States*, in relation to the claims of this writer, are so conclusive that it is only necessary for any unprejudiced mind to examine the facts and be perfectly satisfied that Mr. R. has, so far from advancing science by his writings in this branch, been the cause of inextricable confusion, from the embarrassment of which we can only be relieved by altogether avoiding any further attempt to make out his imaginary species. M. Ferussac, who made vain attempts to understand his division and species, says that the shells he sends away augment the difficulties in knowing his own species, and that he had received the same shells under different names, and others with the names evidently different from those given in his monography; that the difficulty, therefore, is inextricable in the determination of his species, &c.

Alasmodonta atropurpureum?
badium?
costata?
hians?
ponderosum?
papyraceum?
rugosum?
sulcatum?
scriptum?
viridis?

Anodonta atra?
aperta?
cuneata?
digonota?
inflata?
lata?
Ohiensis?
solenoides?

Unio antrosa?
atroviolacea?
argyratus?

Unio attenuata?
aurata?
bicolar?
bullata?
biloba?
cardium?
Cliffordiana?
calendis?
chloris?
castaneus?
costata?
crassa?
cinerescens?
cordata?
cuneata?
cyclips?
cuprea?
cyphia?
decorticata?
depressa?
diploderma?
diaphanus?
dilatata?

Unio ellipsaria?
elliptica?
fasciata?
fulvus?
fontinalis?
fulgens?
fasciola?
fasciolaris?
flava?
flexuosa?
flexus?
fragilis?
gibbosa?
granulatus?
interrupta?
lateralis?
latissima?
leptodon?
lævigata?
lamobrachys?
lineolata?
lividus?
megaptera?

Unio montanus ?
melaplata ?
nervosa ?
nigra ?
nodulata ?
obliquata ?
obovalis ?
olivaria ?
ovata ?
Paphos ?
pachostea ?
ponderosus ?
pallida ?
plateolus ?
pusella ?
pallens ?
perplexus ?

Unio quadrula ?
reflexa ?
retusa ?
rimosus ?
rosea ?
rivularis ?
stegaria ?
sintoxia ?
sinuata ?
solenoides ?
striata ?
subrotunda ?
torulosa ?
teneltus ?
teres ?
triangularis ?
triqueter ?

Unio truncata ?
tuberculata ?
verrucosa ?
viridis ?
vittatus ?
Venus ?
zonalis ?

Odatelia radiata ?

Lasmonos fragilis ?

Diplasma marginatæ ?
similis ?
vitrea ?
striata ?

GEOGRAPHICAL DISTRIBUTION

OF THE

SPECIES OF THE FAMILY NAIADES.

To render the preceding Synoptical Arrangement more complete, it was deemed advisable to make such a table as would throw together the species from each great division of the world; and, to make this more useful, it has been thrown into alphabetic arrangement.

GENUS MARGARON.

I. SUBGENUS TRIQUETRA.

SOUTH AMERICA.

Brownianus. *Lea.*
corrugata. *Lea.*
subviridis. *Klein.*

II. SUBGENUS PRISODON.

SOUTH AMERICA.

ambigua. *Lam.*
Dupreyi. *Recluz.*

III. SUBGENUS UNIO.

EUROPE.

Batavus. *Lam.*
crassus. *Retz.*
elongatus. *Pfeif.*
litoralis. *Lam.*
Petterianus? *Küst.*
pictorum. *Lam.*
platyrhynchus. *Rossmaesler.*
tumidus. *Retz.*

ASIA.

Bengalensis. *Lea.*
bilineatus. *Lea.*
Bonneaudii. *Eyd.*
cæruleus. *Lea.*
corrugatus. *Lam.*
Corrianus. *Lea.*
cucumoides. *Lea.*
Cumingii. *Lea.*
cultelliformis. *Con.*
delphinus. *Gruner.*
dorsuosus. *Gould.*
exilis. *Dunk.*
exolescens. *Gould.*
foliaceus. *Lea.*
Grayanus. *Lea.*
Guadechaudii. *Eyd.*
Ingallsianus. *Lea.*
Javanus. *Lea.*
Keraudreni. *Eyd.*
lamellatus. *Lea.*
Leaii. *Gray.*
lutulentus. *Gould.*
marginalis. *Lam.*
multidentatus. *Phili.*
mutatus. *Mouss.*

Murchisonianus. *Lea.*
Napeanensis. *Con.*
olivarius. *Lea.*
orientalis. *Lea.*
ponderosus. *Lea.*
productus. *Mouss.*
profugus. *Gould.*
Rajahensis. *Lea.*
tigris. *Fer.*

AFRICA.

Caffer. *Krauss.*
Cailliaudii. *Fer.*
divaricatus. *Lea.*
Egyptiacus. *Cailliaud.*
Niloticus. *Fer.*

NORTH AMERICA.

abacus. *Hald.*
acutissimus. *Lea.*
aheneus. *Lea.*
Æsopus. *Green.*
affinis. *Lea.*
alatus. *Say.*
amœnus. *Lea.*
amygdalum. *Lea.*
altilis. *Con.*
Anodontoides. *Lea.*
angustatus. *Lea.*
apiculatus. *Say.*
approximus. *Lea.*
aratus. *Lea.*
arcæformis. *Lea.*
arctior. *Lea.*
arctatus. *Con.*
arcus. *Con.*
argenteus. *Lea.*
asperrimus. *Lea.*
asper. *Lea.*
atromarginatus. *Lea.*
atrocostatus. *Lea.*
Barrattii. *Lea.*
Barnesianus. *Lea.*
biangulatus. *Lea.*
Binneyi. *Lea.*
Blandingianus. *Lea.*
Boydianus. *Lea.*
Bournianus. *Lea.*
brevidens. *Lea.*
Boykinianus. *Lea.*
buxeus. *Lea.*
Buckleyi. *Lea.*
Brumbyanus. *Lea.*
Buddianus. *Lea.*
cælatus. *Con.*
caliginosus. *Lea.*
callosus. *Lea.*
camelus. *Lea.*
camptodon. *Say.*
caperatus. *Lea.*
capsæformis. *Lea.*
carbonarius. *Lea.*
cariosus. *Say.*
castaneus. *Lea.*
Claibornensis. *Lea.*
Clarkianus. *Lea.*
clavus. *Lam.*
Cincinnatiensis. *Lea.*
circulus. *Lea.*
coccineus. *Lea.*
collinus. *Con.*
compressus. *Lea.*
compressissimus. *Lea.*
complanatus. *Lea.*
concavus. *Lea.*
confertus. *Lea.*
Congaræus. *Lea.*
Conradicus. *Lea.*
constrictus. *Con.*
contradens. *Lea.*
Cooperianus. *Lea.*
cor. *Con.*
cornutus. *Bar.*
crassidens. *Lam.*
creperus. *Lea.*
crocatus. *Lea.*
Cumberlandianus. *Lea.*
cuneolus. *Lea.*
cuprinus. *Lea.*
Cuvierianus. *Lea.*
cylindricus. *Say.*
cyrenoides. *Phili.*

dactylus. *Lea.*
Dariensis. *Lea.*
decisus. *Lea.*
declivis. *Say.*
decoratus. *Lea.*
discus. *Lea.*
dolabriformis. *Lea.*
dollabelloides. *Lea.*
donaciformis. *Lea.*
Dorfeuillianus. *Lea.*
dromas. *Lea.*
Duttonianus. *Lea.*
ebenus. *Lea.*
Edgarianus. *Lea.*
elegans. *Lea.*
ellipsis. *Lea.*
Estabrookianus. *Lea.*
exiguus. *Lea.*
fabalis. *Lea.*
famelicus. *Gould.*
fatuus. *Lea.*
Fisherianus. *Lea.*
flavescens. *Lea.*
Floridensis. *Lea.*
foliatus. *Hild.*
folliculatus. *Lea.*
Forbeseanus. *Lea.*
Formanianus. *Lea.*
fragosus. *Con.*
fraternus. *Lea.*
fulgidus. *Lea.*
fuliginosus. *Lea.*
fulvus. *Lea.*
fuscatus. *Lea.*
Geddingsianus. *Lea.*
Georgianus.
gibbosus. *Bar.*
gibber. *Lea.*
Gibbesianus. *Lea.*
glaber. *Lea.*
glans. *Lea.*
globosus. *Lea.*
Gouldii. *Lea.*
gracilis. *Barnes.*
graniferus. *Lea.*
Greenii. *Con.*
Griffithianus. *Lea.*

Haleianus. *Lea.*
Haysianus. *Lea.*
hebes. *Lea.*
Hanleyanus. *Lea.*
heterodon. *Lea.*
hippopæus. *Lea.*
Hopetonensis. *Lea.*
Holstonensis. *Lea.*
hyalinus. *Lea.*
Hydianus. *Lea.*
incrassatus. *Lea.*
ineptus. *Lea.*
inflatus. *Lea.*
infucatus. *Con.*
intermedius. *Con.*
interruptus. *Lea.*
iris. *Lea.*
irroratus. *Lea.*
Jayensis. *Lea.*
jejunus. *Lea.*
Keinerianus. *Lea.*
Kirtlandianus. *Lea.*
Kleinianus. *Lea.*
lævissimus. *Lea.*
lacrymosus. *Lea.*
Lamarckianus. *Lea.*
lanceolatus. *Lea.*
latecostatus. *Lea.*
Lazarus. *Lea.*
Lecontianus. *Lea.*
lenior. *Lea.*
lens. *Lea.*
Lesueurianus. *Lea.*
lineatus. *Lea.*
lienosus. *Con.*
ligamentinus. *Lam.*
limatulus. *Con.*
lugubris. *Lea.*
luridus. *Lea.*
luteolus. *Lam.*
maculatus. *Con.*
mœstus. *Lea.*
Masoni. *Con.*
Medellinus. *Lea.*
Menkianus. *Lea.*
metanever. *Lea.*
minor. *Lea.*

Mississippiensis. *Con.*
Mühlfeldianus. *Lea.*
multiplicatus. *Lea.*
multiradiatus. *Lea.*
mytiloides. *Raf.*
modioliformis. *Lea.*
Monroensis. *Lea.*
monodontus. *Say.*
Moussonianus. *Lea.*
Nashvillianus. *Lea.*
nasutus. *Say.*
neglectus. *Lea.*
Nicklinianus. *Lea.*
nigellus. *Lea.*
nigerrimus. *Lea.*
nigrinus. *Lea.*
nitens. *Lea.*
notatus. *Lea.*
Novi-Eboraci. *Lea.*
nucleopsis. *Con.*
nux. *Lea.*
obesus. *Lea.*
obliquus. *Lam.*
obscurus. *Lea.*
obtusus. *Lea.*
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occultus. *Lea.*
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orbiculatus. *Hild.*
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papyraceus. *Gould.*
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perplexus. *Lea.*
perplicatus. *Con.*
personatus. *Say.*
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pyramidatus. *Lea.*
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Sapotalensis. *Lea.*
satur. *Lea.*
saxeus. *Con.*
Schoolcraftensis. *Lea.*
semigranosus. *V. d. Busch.*
securis. *Lea.*
Shepardianus. *Lea.*
simplex. *Lea.*

simus. *Lea.*
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solidus. *Lea.*
sordidus. *Lea.*
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sparsus. *Lea.*
spatulatus. *Lea.*
spinosus. *Lea.*
splendidus. *Lea.*
stagnalis. *Con.*
stapes. *Lea.*
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Stonensis. *Lea.*
stramineus. *Con.*
striatus. *Lea.*
strigosus. *Lea.*
subangulatus. *Lea.*
subovatus. *Lea.*
subplanus. *Lea.*
subrotundus. *Lea.*
subtentus. *Say.*
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symmetricus. *Lea.*
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tæniatus. *Con.*
Tecomatensis. *Lea.*
Tennesseensis. *Lea.*
tenuissimus. *Lea.*
tener. *Lea.*
tenerus. *Rav.*
tetralasmus. *Say.*
tortivus. *Lea.*
trapezoides. *Lea.*
triangularis. *Bar.*
trigonus. *Lea.*
Troostensis. *Lea.*
Troschelianus. *Lea.*
trossulus. *Lea.*
tuberculatus. *Bar.*
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tumescens. *Lea.*
Tuomeyi. *Lea.*
turgidus. *Lea.*
unicolor. *Lea.*
undulatus. *Bar.*
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varicosus. *Lea.*
Vaughanianus. *Lea.*
ventricosus. *Bar.*
venustus. *Lea.*
verrucosus. *Bar.*
vibex. *Con.*
Watereensis. *Lea.*
Whiteianus. *Lea.*
Zeiglerianus. *Lea.*
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SOUTH AMERICA.

ambiguus. *Lea.*
augulatus. *Lea.*
atratus. *Lea.*
auratus. *Lea.*
Brownianus. *Lea.*
Burroughianus. *Lea.*
charruanus. *D'Orb.*
Childreni. *Gray.*
depressus. *Lam.*
delodontus. *Lam.*
ellipticus. *Lea.*
faba. *D'Orb.*
gigas. *Lea.*
granosus. *Brug.*
hylæus. *D'Orb.*
membranaceus. *Lea.*
modestus. *Fer.*
multistriatus. *Lea.*
Orbignyi. *Deville.*
Paranensis. *Lea.*
parallelopipedon. *Lea.*
Patagonicus. *D'Orb.*
psammoicus. *D'Orb.*
rhombeus. *Wag.*
rhuacoica. *D'Orb.*
syrmatophorus. *Lea.*
variabilis. *Lea.*

NEW HOLLAND.

Australis. *Lam.*
Novæ Hollandiæ. *Gray.*

HABITAT UNKNOWN.

angustus. *Lam.*
emarginatus. *Lea.*
nodulosus. *Lea.*
Smithii. *Gray.*
truncatus. *Swain.*

IV. SUBGENUS MARGARITANA.

EUROPE.

Bonellii. *Lea.*
margaritifera. *Lea.*

NORTH AMERICA.

arcula. *Lea.*
calceola. *Lea.*
complanata. *Lea.*
confragosa. *Lea.*
Curreyana. *Lea.*
dehiscens. *Lea.*
deltoidea. *Lea.*
fabula. *Lea.*
Hildrethiana. *Lea.*
Holstonia. *Lea.*
marginata. *Lea.*
minor. *Lea.*
radiata. *Lea.*
Raveneliana. *Lea.*
rugosa. *Lea.*
undulata. *Lea.*

I am unable to place the following in the table:

AFRICA.

Alasmodonta Tripolitina. *Fer.*

SOUTH AMERICA.

Alasmodonta incurva. *Fer.*

V. SUBGENUS MONOCONDYLŒA.

SOUTH AMERICA.

Corrientesensis. *D'Orb.*
fossiculifera. *D'Orb.*
Franciscana. *Moric.*
Guarayana. *D'Orb.*
Minuana. *D'Orb.*
Paraguayana. *D'Orb.*
Parchappii. *D'Orb.*
Vondenbuschiana. *Lea.*

VI. SUBGENUS DIPSAS.

ASIA.

discoideus. *Lea.*
plicatus. *Leach.*

VII. SUBGENUS ANODONTA.

EUROPE.

cygnea. *Drap.*

ASIA.

Cumingii. *Lea.*
crepera. *Lea.*
gracilis. *Lea.*
magnifica. *Lea.*
polita. *Mouss.*
subcrassa. *Lea.*
tenuis. *Lea.*
Woodiana. *Lea.*

AFRICA.

arcuata. *Fer.*
Chaiziana. *Rang.*

NORTH AMERICA.

angulata. *Lea.*
argentea. *Lea.*
Arkansensis. *Lea.*
Benedictensis. *Lea.*
Buchanensis. *Lea.*
Couperiana. *Lea.*
cylindracea. *Lea.*
decora. *Lea.*
denigrata. *Lea.*
edentula. *Lea.*
fragilis. *Lam.*

ferruginea. *Lea.*
Ferussaciana. *Lea.*
fluviatilis. *Lea.*
Footiana. *Lea.*
gibbosa. *Say.*
gigantea. *Lea.*
glauca. *Valen.*
grandis. *Say.*
Harpethensis. *Lea.*
imbecillis. *Say.*
implicata. *Say.*
incerta. *Lea.*
Linnæana. *Lea.*
Newtonensis. *Lea.*
Nuttalliana. *Lea.*
oblita. *Lea.*
opaca. *Lea.*
Oregonensis. *Lea.*
ovata. *Lea.*
pavonia. *Lea.*
Pepiniana. *Lea.*
plana. *Lea.*
Shaefferiana. *Lea.*
salmonia. *Lea.*
Stewartiana. *Lea.*
suborbiculata. *Say.*
subcylindracea. *Lea.*
subvexa. *Con.*
tetragona. *Lea.*
virens. *Lea.*
Wahlamatensis. *Lea.*
Wardiana. *Lea.*

SOUTH AMERICA.

anserina. *Spix.*
Blainvilliana. *Lea.*
crassa. *Swain.*
crispata. *Lam.*
elongata. *Swain.*
ensiformis. *Spix.*
esula. *Jan.*
Georginæ. *Gray.*
globosa. *Lea.*
lato-marginata. *Lea.*
limnoica. *D'Orb.*
lucida. *D'Orb.*
Maryattana. *Lea.*
Montezuma. *Lea.*
Mortoniana. *Lea.*
obtusa. *Spix.*
Parishii. *Gray.*
Patagonica. *Lam.*
porcifer. *Gray.*
puelchana. *D'Orb.*
Schröteriana. *Lea.*
Spixii. *D'Orb.*
siliquosa. *Spix.*
sinuosa. *Lam.*
sirionos. *D'Orb.*
soleniformis. *D'Orb.*
solidula. *Deville.*
tenebricosa. *Lea.*
tortilis. *Lea.*
trapezialis. *Lam.*
trigona. *Spix.*
Troutwiniana. *Lea.*
Wheatleyi. *Lea.*

NEW HOLLAND.

purpurea. *Valen.*

HABITAT UNKNOWN.

uniopsis. *Lam.*

The following species are unknown to me:—

EUROPE.

Anodonta curvatus. *Fer.*

ASIA.

Anodonta folium. *Fer.*
Anodonta Chinensis. *Fer.*

AFRICA.

Anodonta arcuta. *Caill.*
Tawaii. *Rang.*

NORTH AMERICA.

Anodonta lugubris. *Say.*
Anodonta impura. *Say.*

FOSSIL SPECIES.

NORTH AMERICA.

Anodonta? Abyssina. *Mort.*

GENUS PLATIRIS.

I. SUBGENUS IRIDINA.

AFRICA.

Leaii. *Sow.*
ovata. *Swainson.*
exotica. *Lam.*

HABITAT UNKNOWN.

valeus. *Parr.*

II. SUBGENUS SPATHA.

AFRICA.

cælestis. *Lea.*
dubia. *Lea.*
rubens. *Lam.*
Walbergi. *Krauss.*

III. SUBGENUS MYCETOPUS.

SOUTH AMERICA.

siliquosus. *D'Orb.*
soleniformis. *D'Orb.*
ventricosus. *D'Orb.*

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Unio minutus. *Pusch.*
Unio paradoxus. *Fisch.*
Unio Phillipsii. *Williams.*
Unio planus. *Römer.*
Unio problematicus. *Klip.*
Unio Römeri. *Dunk.*
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Anodonta cygneus. *Morris's Cat.*
Anodonta obliquus. *D'Orb.*
Anodonta tener. *Eichw.*
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