

Simpson

NEW AND UNFIGURED UNIONIDÆ.¹

BY CHARLES T. SIMPSON.

In preparing a synopsis of the *Naiades*, quite a number of new species of *Unionidæ* have come to light. These I have held until the work should be practically finished, and they are here published for the first time.

Messrs. S. H. and B. H. Wright having generously donated the types of most of their species to the National Museum, it was thought best to give figures of those which were described in *The Nautilus*, and which are unfigured.

Only brief descriptions are here given of the new genera and of a few used in a new sense. These will be fully described in the *Synopsis*.

Genus **LAMPSILIS** Rafinesque.²**Lampsilis fallaciosus** (Smith) Simpson. Pl. II, fig. 5.*Lampsilis fallaciosus* Smith, Bull. U. S. Fish Com., 1899, p. 291, Pl. 79. Figured and name given, but not described nor authority given.

Shell elongate elliptical, subsolid, inflated, rounded in front, and ending in a rather sharp point behind, at two-thirds of the height of the shell, with a moderate, rounded posterior ridge; beaks not prominent, their sculpture consisting of a few delicate parallel ridges, somewhat doubly looped, the hinder loops generally open behind; epidermis very smooth and shining, ashy straw color, often brownish on the back of the shell, generally feebly rayed with green; female shell decidedly swollen in the postbasal region, so that the base line is often incurved in front of the swelling; teeth rather delicate; there being one compressed pseudo-cardinal and one lateral in the right valve, and two pseudo-cardinals and two laterals in the left; beak cavities not deep; nacre brilliant, silvery.

Length 90, height 40, diam. 32 mm.

¹Published by permission of the Secretary of the Smithsonian Institution.²See Simpson in Baker, *Mollusks of the Chicago Area*, 1898, p. 93.

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sharp point behind, at two-thirds of the height
moderate, rounded posterior ridge; beaks not
sculpture consisting of a few delicate parallel
loosely looped, the hinder loops generally open be-
smooth and shining, ashy straw color, often
of the shell, generally feebly rayed with green;
slightly swollen in the postbasal region, so that the
curved in front of the swelling; teeth rather
single compressed pseudo-cardinal and one
valve, and two pseudo-cardinals and two lat-
er cavities not deep; nacre brilliant, silvery.
40, diam. 32 mm.

Report of the Secretary of the Smithsonian Institution.
Transactions, *Mollusks of the Chicago Area*, 1898, p. 93.

Upper Mississippi drainage; south to the Cumberland and Arkan-
sas rivers; Red river of the North.

This species has generally been confounded with its near ally,
Lampsilis anodontooides Lea. It is a smaller, more inflated, and in
every way a more delicate form than the latter, it is not so high,
the epidermis is brighter and more glossy, and generally rayed.
The postbasal inflation of the female is usually more pronounced,
and the posterior point is higher than in *anodontooides*. The latter
is usually more yellow or tawny than *fallaciosus*, and is, on the
whole, a heavier shell.

In *L. fallaciosus* there is a horny, brown, raised streak on the
inside of the mantle behind, that I do not find in *anodontooides*,
and the palpi of the former are shorter.

Lampsilis australis Simpson. Pl. II, fig. 2.

Shell long elliptical, subsolid, moderately inflated, bluntly pointed
behind above the middle; beak sculpture not seen on account of
erosion, posterior ridge low, rounded; epidermis smooth, shining,
greenish yellow, rayed with green, with a large burnt brown patch
on the central and upper part of the shell; female shell slightly
inflated in the postbasal part; hinge teeth delicate, somewhat
compressed; beak cavities moderate; nacre bright bluish white,
iridescent behind, dark lurid in the cavity of the shell.

Length 52, height 28, diam. 15 mm.

Little Patsaliga creek, southeastern Alabama.

Both the type, a young shell, and an older, larger specimen are
badly eroded at the beaks, so that the hinges are slightly injured.
I am not positive as to the relations of this species, but it seems
to belong in the *anodontooides* group, next to *L. rectus* Lam.

Lampsilis mearnsi Simpson. Pl. I, fig. 4.

Shell small, rather solid and inflated, elliptical, pointed at the
middle of the posterior end, with a rather pronounced, rounded
post ridge; beaks moderate, the sculpture consisting of several
ridges looped in a single loop, which are strongly curved upward
behind; epidermis tawny with a greenish tint, rather smooth and
shining, though sometimes a little silky, often with a large, dark
green blotch at the posterior base, which sometimes covers the entire
posterior half of the shell, or it may break into rays at its front
edge; female shell decidedly swollen at the postbase; hinge teeth

rather delicate; laterals curved; pseudo-cardinals smooth below and slightly reflexed upward; muscle scars distinct; beak cavities shallow; nacre brilliant, soft silvery, yellowish or salmon.

Length 53, height 30, diam. 22 mm.

Near Fort Clark, southwest Texas.

A large number of valves and several perfect specimens were contributed to the Museum by Dr. Edgar A. Mearns, of the U. S. Army. It is closely allied to *L. teausensis* Lea, but it has a higher posterior ridge, is much smoother, and the remarkable color pattern is totally different.

Lampsilis brittsi Simpson. Pl. V, figs. 1, 2.

Shell elliptical, subsolid, moderately inflated; beak sculpture not seen; epidermis smooth, shining, greenish yellow to tawny, with delicate wavy, often broken green rays; hinge line curved; pseudo-cardinals small, rather high but stumpy; laterals somewhat remote; muscle scars distinct; nacre whitish to salmon colored.

Animal: Marsupium occupying the hinder part of the outer gills, with 13-15 large ovisacs having dark bases; inner gills united to abdominal sac throughout; mantle with a thick border, incurved in the female behind the postbase, and having several strong, lengthened, fingerlike papillæ; palpi small; branchial and anal openings but slightly fringed.

Length 72, height 43, diam. 23 mm.

The female shell is decidedly emarginate behind the postbasal swelling.

Differs from *L. breviculus* in several respects. The female shell is more emarginate behind; the painting is in more regular, wide rays. The male shell of *breviculus* is obovate, rounded or slightly biangulate behind; that of *L. brittsi* is more elliptical and pointed posteriorly.

Lampsilis kirklandianus S. H. Wright. Pl. I, fig. 7.

Unio kirklandianus S. H. Wright, Naut., X, 1897, p. 136.

A wonderfully beautiful shell, of which I have only seen the type, apparently a male. It is very different from the ordinary manifestation of *Lampsilis*, but seems to be nearly related to the *Unio subangulatus* of Lea, which is nearer the typical form of the genus, and in which the difference between the male and female shells is clearly shown. The marsupium is of the *Lampsilis* type.

laterals curved; pseudo-cardinals smooth below and upward; muscle scars distinct; beak cavities brilliant, soft silvery, yellowish or salmon. Length 30, diam. 22 mm.

Found in southwest Texas. Several perfect specimens were deposited in the National Museum by Dr. Edgar A. Mearns, of the University of Texas, which is closely allied to *L. texasensis* Lea, but it has a more brilliant color, is much smoother, and the remarkable coloration is different.

Length 43, diam. 23 mm. The female shell is subsolid, moderately inflated; beak sculpture smooth, shining, greenish yellow to tawny, often broken green rays; hinge line curved; laterals rather high but stumpy; laterals somewhat distinct; nacre whitish to salmon colored. The marsupium occupying the hinder part of the outer gills, the gill rakers having dark bases; inner gills united throughout; mantle with a thick border, incurved behind the postbase, and having several strong, papillae; palpi small; branchial and anal gills fringed.

Length 43, diam. 23 mm. The female shell is decidedly emarginate behind the postbasal

margin in several respects. The female shell is more regular, wide behind; the painting is in more regular, wide bands. That of *breviculus* is obovate, rounded or slightly pointed, that of *L. brittsi* is more elliptical and pointed

S. H. Wright. Pl. I, fig. 7.

S. H. Wright, Naut., X, 1897, p. 136.

A beautiful shell, of which I have only seen the female. It is very different from the ordinary *L. psilis*, but seems to be nearly related to the

female of *L. psilis*, which is nearer the typical form of the female than the difference between the male and female of *L. psilis*. The marsupium is of the *Lampsilis* type.

Lampsilis villosus B. H. Wright. Pl. I, fig. 1.

Unio villosus B. H. Wright, Naut., XII, 1898, p. 32.

A species close to the *Unio amygdalum* of Lea, but which also seems to be related to his *U. exiguus*.

Genus **MEDIONIDUS** Simpson.

Shell elongated, elliptic rhomboid, subsolid, with a more or less definite posterior ridge; beak sculpture fine, subparallel, broken, doubly looped ridges; epidermis smooth, rather bright, variegated with broken green rays or clouds; pseudo-cardinals small, stumpy; laterals curved; female shell generally slightly swollen at and behind the central base; marsupium occupying the centre and postcentre of the outer gills, in a few large, irregular, distinct gill sacs. Type *Unio conradicus* Lea.

Medionidus walkeri B. H. Wright. Pl. I, fig. 5.

Unio walkeri B. H. Wright, Naut., XI, 1898, p. 91.

A singular shell, but most probably related to *Unio rubellinus* of Conrad, which is a member of this genus.

Genus **NEPHRONAIAS** Crosse and Fischer.

Shell rather solid, elliptical, more or less biangulate behind, that of the male often becoming arcuate when old, that of the female generally swollen on the postbase; surface sulcate; beaks sculptured with faint, broken ridges; two pseudo-cardinals in each valve; laterals perfect; beak cavities rather deep.

Type *Unio plicatulus* Charpentier.

Nephronaias reticulatus Simpson. Pl. II, fig. 3.

Shell evenly elliptical, subinflated, rather solid, slightly biangulate behind; surface decidedly sulcate and sculptured throughout with radiating ridges or slight furrows, which cut the sulcations into loops, and give the shell a reticulated appearance; epidermis tawny; pseudo-cardinals stumpy; laterals rather heavy and granular; muscle scars distinct; nacre lurid, thicker in front.

Length 50, height 33, diam. 20 mm.

Patook river, Honduras.

A single shell, which is probably not fully adult, is in the National Museum collection. The sculpture reminds one of that of *Glabaris reticulatus* Sowb., of South America, or *Plagiola encarpa* Lea, of Lake Nicaragua.

Genus **OBOVARIA** Rafinesque.

Shell solid, inflated, short, rounded before and often behind, that of the female swollen at postbase; beaks high, their sculpture delicate and faint, slightly doubly looped; epidermis silky, but feebly rayed; pseudo-cardinals and laterals strong; animal having the marsupium in the hinder part of the outer gills with well-marked ovisacs.

Type *Unio retusa* Lamarck.

Obovaria rotulata B. H. Wright. Pl. IV, fig. 2.

Unio rotulatus B. H. Wright, Naut., XIII, 1899, p. 22.

A very solid shell, nearly circular in outline, and having a black epidermis. It seems to be closely related to the *Unio circulus* of Lea, but I have only seen a single specimen, the type.

Obovaria tinkeri B. H. Wright. Pl. IV, fig. 3.

Unio tinkeri B. H. Wright, Naut., XIII, 1899, p. 7.

A species near to the *Unio unicolor* of Lea, but probably distinct.

Genus **TRITOGONIA** Agassiz.

Shell elongate rhomboid, solid, that of the male somewhat swollen and truncate behind, that of the female longer, more compressed, and having a rounded posterior wing or flap; posterior ridge high and well defined; beak sculpture consisting of strong, irregular corrugations; surface covered with tubercles; epidermis dark and rough; hinge strong, curved; a decided lunule showing in front of the beaks, which extends underneath and behind them, and is filled with epidermal matter; pseudo-cardinals strong, ragged, radial; laterals somewhat remote, two in each valve; muscle scars distinct, those of the anterior deep and rough; beak cavities deep, compressed; dorsal scars on the under side of the hinge shelf.

Animal: Inner gills much the larger, mostly free from the abdominal sac; palpi enormous, elongated; mantle of male truncate behind, that of the female produced into a wide, rounded, thickened flap filling the wing of the shell behind; marsupium not observed.

Type *Unio tuberculatus* Barnes.

Genus **OBOVARIA** Rafinesque.

rounded, short, rounded before and often behind, swollen at postbase; beaks high, their sculpture slightly doubly looped; epidermis silky, but pseudo-cardinals and laterals strong; animal prominent in the hinder part of the outer gills with Lamareck.

Wright. Pl. IV, fig. 2.

H. Wright, Naut., XIII, 1899, p. 22.

Shell nearly circular in outline, and having a black spot to be closely related to the *Unio circulus* of which I have seen a single specimen, the type.

Wright. Pl. IV, fig. 3.

H. Wright, Naut., XIII, 1899, p. 7.

Shell like the *Unio unicolor* of Lea, but probably dis-

Genus **TRITOGONIA** Agassiz.

Shell obovoid, solid, that of the male somewhat shorter than that of the female longer, more compressed behind; a rounded posterior wing or flap; posterior beak defined; beak sculpture consisting of strong, rounded ridges; surface covered with tubercles; epidermis thick and strong, curved; a decided lunule showing in the middle which extends underneath and behind them, composed of epidermal matter; pseudo-cardinals strong, rounded, somewhat remote, two in each valve; muscle scars of the anterior deep and rough; beak sculpture defined; dorsal scars on the under side of the

shell much the larger, mostly free from the abnormality, elongated; mantle of male truncate behind; male produced into a wide, rounded, thick wing of the shell behind; marsupium not

defined. Barnes.

! *Tritogonia conjugans* B. H. Wright. Pl. IV, fig. 1.

Unio conjugans B. H. Wright, Naut., XIII, 1899, p. 89.

A most remarkable shell, of which only the type, probably a male, is known. I am not certain as to the relationship of this species. It does not have the biangulation at the postbase generally found in male shells of *T. tuberculata* Barnes, but has an almost straight truncation from the postbase to the dorsal region. However, *T. tuberculata* often shows such a truncation when young, and we have shells of this an inch and a half in length which are much like *T. conjugans* would be at the same size.

Genus **PTYCHOBANCHUS** Simpson.

Shell somewhat subtriangular or elliptical, solid, that of the male and female alike; epidermis having hairlike or broken rays; beak sculpture faint, broken, and somewhat doubly looped ridges; hinge strong; pseudo-cardinals stumpy; laterals club-shaped, remote; the muscle scars deep; shell cavity with one or more oblique furrows. Marsupium occupying the entire outer branchia in a series of beautiful, wide folds, the ovisacs well marked and rounded below.

Type *Unio phaseolus* Hildreth.

Ptychobanchus clintonensis Simpson. Pl. V, fig. 3.

Shell elongate, elliptical, sometimes slightly obovate, feebly biangulate behind, quite solid; beak sculpture not seen; epidermis somewhat clothlike, dirty olive, the hinder two-thirds of the shell ornamented with delicate, wavy, capillary rays; pseudo-cardinals low, laterals very heavy, remote; muscle scars large and well defined; nacre lurid, with greenish brown blotches.

Length 73, height 40, diam. 22 mm.

Archie's Fork of Little Red river, near Clinton, Ark. Probably extends into Kansas.

This form I at first mistook for a variety of *Unio gibbosus* Bar., but an examination of the animal in a gravid state later on showed me that it is a *Ptychobanchus*. The soft parts of the specimens examined were a dark leaden color, almost blue.

Genus **UNIO** Retzius.

Unio iheringi B. H. Wright. Pl. IV, fig. 5.

Unio iheringi B. H. Wright, Naut., XII, 1898, p. 93.

This shell is rather close to *Unio mitchelli* Simpson, but differs

from it in the character of the beak sculpture, in the rays, the texture of the epidermis, and in the form.

Unio dispalans B. H. Wright. Pl. I, fig. 9.

Unio dispalans B. H. Wright, Naut., XIII, 1899, p. 50.

A member of the *complanatus* group, probably, though it has relations with that of *buckleyi* and *fisherianus*. It is one of those puzzling forms which is a good deal like several things, but not near enough to anything to be referred to it.

Unio lehmani S. H. Wright. Pl. IV, fig. 9.

Unio lehmani S. H. Wright, Naut., X, 1897, p. 138.

A member of the *buckleyi* group.

Unio burtchianus S. H. Wright. Pl. IV, fig. 8.

Unio burtchianus B. H. Wright, Naut., X, 1897, p. 137.

Another member of the *buckleyi* group.

Unio pinei B. H. Wright. Pl. III, fig. 1.

Unio pinei B. H. Wright, Naut., XI, 1897, p. 40.

Near to forms of *U. buckleyi*, but probably distinct.

Unio buxtoni B. H. Wright. Pl. I, fig. 6.

Unio buxtoni B. H. Wright, Naut., XI, 1897, p. 55.

A peculiarly formed member of the *buckleyi* group.

Unio brimleyi S. H. Wright. Pl. IV, fig. 6.

Unio brimleyi S. H. Wright, Naut., X, 1897, p. 138.

A species related to *U. subplanus* Conrad.

Genus **PLEUROBEMA** (Rafinesque) Agassiz.

Shell solid, oval, triangular or rhomboid, usually inflated, inequilateral, with high beaks, their sculpture coarse and broken; epidermis generally tawny, but sometimes brownish or black, often having broken rays and square spots; rest lines strong; hinge heavy, with pseudo-cardinals and laterals; beak cavities shallow, nacre white. Embryos contained in the outer gills alone.

Type *Unio clava* Lamarck.

Pleurobema brevis subelliptica Simpson.

Shell elliptic rhomboid, solid, inflated, slightly biangulate behind; beaks rather high, but compressed, sculptured with strong, irregular corrugations that curve up behind; epidermis tawny, with a few faint posterior rays; rest marks moderate; nacre silvery,

character of the beak sculpture, in the rays, the
 mis, and in the form.

figt. Pl. I, fig. 9.

H. Wright, Naut., XIII, 1899, p. 50.

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. Wright, Naut., X, 1897, p. 138.

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S. H. Wright, Naut., X, 1897, p. 137.

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Pl. III, fig. 1.

Wright, Naut., XI, 1897, p. 40.

U. buckleyi, but probably distinct.

nt. Pl. I, fig. 6.

Wright, Naut., XI, 1897, p. 55.

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. Wright, Naut., X, 1897, p. 138.

> *U. subplanus* Conrad.

PLEUROBEMA (Rafinesque) Agassiz.

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Uptica Simpson.

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 rays; rest marks moderate; naere silvery,

iridescent behind; muscle scars well marked; beak cavities mod-
 erate; teeth strong, two laterals in each valve.

Length 55, height 40, diam. 28 mm.

Hardy, Arkansas. Tennessee drainage, probably.

Something like *P. brevis* Lea, but much more inflated, and
 slightly rayed instead of square blotched, and less rhomboid.
 Probably a distinct species.

Pleurobema avellana Simpson. Pl. II, figs. 6, 7.

Shell small, solid, inflated, rhomboid elliptical, with a well-
 developed, rounded posterior ridge; beaks full, badly eroded in
 the only specimens seen; surface lightly concentrically striate,
 greenish brown, scarcely rayed, but slightly clouded; two diverg-
 ing pseudo-cardinals in the left valve and one in the right; two
 laterals in each valve; muscle scars deep; naere bluish, iridescent
 behind.

Length 30, height 20, diam. 15 mm.

Catawba river, Alabama. Collections of Bryant Walker and
 Lorraine Frierson.

Seems to be near *P. rubellus* Con.

Pleurobema strodeana B. H. Wright. Pl. I, fig. 3.

Unio strodeanus B. H. Wright, Naut., XII, 1898, p. 5.

This species is nearly related to *P. patsaligensis* and *P. simulans*.

Pleurobema harperi B. H. Wright. Pl. I, fig. 10.

Unio harperi B. H. Wright, Naut., XIII, 1899, p. 6.

I am somewhat doubtful whether this is more than a variety of
Unio bulbosus Lea.

Pleurobema pinkstoni S. H. Wright. Pl. I, fig. 8.

Unio pinkstoni S. H. Wright, Naut., X, 1897, p. 136.

Related to *P. hanleyana* Lea and *P.*

Pleurobema swordiana S. H. Wright. Pl. IV, fig. 4.

Unio swordianus S. H. Wright, Naut., XI, 1897, p. 4.

A puzzling form which may be related to *Unio appressus* of
 Lea and *U. abacus* of Haldeman. Its shallow beak cavities dis-
 tinguish it at once from *Unio bursa-pastoris* of B. H. Wright,
 which it resembles, but which has deep cavities.

Pleurobema patsaligensis Simpson. Pl. II, fig. 1.

Shell rather small, nearly elliptical, subsolid and somewhat inflated, with a well-developed, posterior ridge, sometimes slightly biangulate behind; posterior slope with two or three faint ridges; epidermis a little silky, but shining when rubbed, greenish yellow, with scarcely perceptible rays, and often clouded with bluish green; beaks eroded and the sculpture not seen; hinge curved; pseudo-cardinals radiate, rather stumpy; two laterals in the left valve and one and a vestige of a second in the right; beak cavities moderate, but compressed; nacre whitish, often blotched with brown, iridescent behind.

Length 43, height 28, diam. 18 mm.

Little Patsaliga creek, southeast Alabama.

This groups with *P. strodeana* B. H. Wright and *P. simulans* Lea, but is perfectly distinct.

Pleurobema reclusa B. H. Wright. Pl. I, fig. 2.

Unio reclusus B. H. Wright, Naut., XI, 1898, p. 111.

Closely related to *P. harperi* and *bulbosa*.

Pleurobema argentea pannosa Simpson.

Shell rather solid, irregularly and rudely concentrically striate; epidermis where fresh somewhat clothlike, tawny or brownish.

White river and Hot Springs, Ark.

Possibly a variety of *P. argentea*, but it may prove to be a distinct species.

Genus **QUADRULA** (Rafinesque) Agassiz.

Quadrula rudis Simpson. Pl. III, fig. 2.

Shell large, long quadrate, inflated, solid, with high beaks, curved inward and forward, having apparently delicate corrugated sculpture, a decided, sharp, curved posterior ridge ending in a blunt point at the posterior base, in front of which the basal line is incurved, anterior end rounded, posterior end an even curve from the ligament to the postbase; epidermis brownish, rough, rayless; surface sulcate and, excepting the later growth, covered with sharply elevated small pustules which are sometimes united; hinge curved; a single very large pseudo-cardinal in the right valve which fits in a cavity of the left, around which there is a high ridge which develops into a high tooth behind the cavity; under the beaks is a sort of lunule which is extended inward across the hinge

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28, diam. 18 mm.
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P. strodeana B. H. Wright and *P. simulans*
distinct.

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H. Wright, Naut., XI, 1898, p. 111.
P. harperi and *bulbosa*.
innosa Simpson.

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8 **QUADRULA** (Rafinesque) Agassiz.
Pl. III, fig. 2.

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rward, having apparently delicate corrugated
, sharp, curved posterior ridge ending in a
terior base, in front of which the basal line
nd rounded, posterior end an even curve from
postbase; epidermis brownish, rough, rayless;
excepting the later growth, covered with
ll pustules which are sometimes united; hinge
large pseudo-cardinal in the right valve which
he left, around which there is a high ridge
a high tooth behind the cavity; under the
ule which is extended inward across the hinge

plate, which is partly filled with epidermis; laterals curved, rather
delicate; anterior scars deep, those of the adductor very rough in
the centre; posterior scars shallow, beak cavities very deep, slightly
compressed; front part of the shell greatly thickened; nacre soft,
creamy white.

Length 103, height 65, diam. 45 mm.
Rio Taxtunilha, Guatemala.

A single shell, the type, is in the Lea collection, presented to
Dr. Lea by C. M. Wheatley, and labelled by the latter *Unio*
psoricus Morelet. It is evidently not that species, and is, I
think, new. The type is nearly decorticated.

Quadrula guatemalensis Simpson. Pl. II, fig. 4.

Shell rather small, subrhomboid, solid, scarcely inflated, with a
low posterior ridge, above which it is faintly biaugulate; beaks
moderate, their sculpture not seen; surface sulcate, covered through-
out, with rather obsolete pustules and corrugations; epidermis dark
brown, rough, rayless; there are two partially united pseudo-
cardinals in the left valve, with a pit between them, into which the
large tooth of the right valve fits; under and behind the beaks on
the hinge plate is a deposit of epidermal matter; beak cavities
moderately deep; nacre coppery purple.

Length 45, height 27, diam. 14 mm.
Rio Usumasintze, Guatemala.

The only shell seen, the type, is probably young. It does not
agree with anything I can find described, though it seems to come
nearest to *Q. ostreata*.

Quadrula triumphans B. H. Wright. Pl. III, fig. 3.
Unio triumphans B. H. Wright, Naut., XI, 1898, p. 101.

A fine shell which has characters like those of *Q. boykiniana*
and *multiplicata*, but which, I think, is neither.

Quadrula flexuosa Simpson. Pl. II, fig. 8.

Shell subtriangular, solid, inflated, with a faintly double poste-
rior ridge, rounded in front and slightly incurved at the posterior
base; beaks high, eroded in the only specimen seen; a low, wide,
radiating depression leads from them down to the base; epidermis
roughly concentrically striate, tawny to brownish, showing the rest
marks; hinge plate wide and flat; pseudo-cardinals low, diverging,
ragged; laterals straight, short, two in each valve; anterior adduc-

; posterior scars distinct; nacre lurid whitish.

55, diam. 33 mm.

nessee. Collection of L. S. Frierson.

to *Q. plena*, but not so high or inflated.

Genus **NODULARIA** Conrad.

elongated, inflated; beaks not prominent, sculpture of zigzag, radiating sculpture, which often all of the shell; epidermis generally greenish, provided with pseudo-cardinals and laterals somewhat compressed; beak cavities shallow; upium occupying the inner gills only.

Simpson.

Prenek (non Lea), Reis. und Forsch. im Amur- 694, Pl. XXVII, figs. 1-3.

inflated, rather solid and slightly arcuate, rounded in front, with a low, rounded posterior postbase, where the shell ends in a somewhat above which it is obliquely subtruncated; surface apparently without sculpture save ridges; epidermis thick, brown, and in the and peeling off; dorsal line wavy at the hinder of the shell turns a little to the right; pseudo-roken up into several slightly curved denticles; loop and large.

45, diameter 38 mm.

this to be Lea's *Unio grayanus*, which is a s more or less nodulous and corrugated, and for ridge and different pseudo-cardinals. He a London dealer said to come from China. is very badly eroded on the dorsal region, aged at the postbase, while the heavy epider- number of places. I do not think it should

Genus **PSEUDODON** Gould.
m. Pl. IV, fig. 7.

optical and slightly obovate, somewhat in- taks not high, the sculpture not seen; poste-

for ridge low, rounded; posterior slope having a few corrugations running in a nearly horizontal direction, the rest of the shell nearly smooth; epidermis black, rayless; there is a single rather elevated tooth in each valve, there being a vestige of a second in the right valve; laterals represented by a low, rounded ridge; beak cavities shallow; muscle scars well marked; nacre pale bluish, becoming a lurid salmon in the cavities.

Length 73, height 37, diam. 23 mm.

Asaka, Japan. Loomis.

This seems to be a rather peculiar *Pseudodon*.

EXPLANATION OF PLATES

PLATE I.

- Fig. 1. *Unio villosus* B. H. Wright, p. 77.
- Fig. 2. *Unio reclusus* B. H. Wright, p. 82.
- Fig. 3. *Unio strodeanus* B. H. Wright, p. 81.
- Fig. 4. *Lampsilis mearnsi* Simpson, p. 75.
- Fig. 5. *Unio walkeri* B. H. Wright, p. 77.
- Fig. 6. *Unio buxtoni* B. H. Wright, p. 80.
- Fig. 7. *Unio kirklandianus* S. H. Wright, p. 76.
- Fig. 8. *Unio pinkstoni* S. H. Wright, p. 81.
- Fig. 9. *Unio dispalans* B. H. Wright, p. 80.
- Fig. 10. *Unio harperi* B. H. Wright, p. 81.

PLATE II.]

- Fig. 1. *Pleurobema patsaligensis* Simpson, p. 82.
- Fig. 2. *Lampsilis australis* Simpson, p. 75.
- Fig. 3. *Nephronaias reticulatus* Simpson, p. 77.
- Fig. 4. *Quadrula guatemalensis* Simpson, p. 83.
- Fig. 5. *Lampsilis fallaciosus* (Smith) Simpson, p. 74.
- Fig. 6. *Pleurobema avellana* Simpson, p. 81.
- Fig. 7. *Pleurobema avellana* Simpson, p. 81.
- Fig. 8. *Quadrula flexuosa* Simpson, p. 83.

PLATE III.

- Fig. 1. *Unio pinei* B. H. Wright, p. 80.
- Fig. 2. *Quadrula rudis* Simpson, p. 82.
- Fig. 3. *Unio triumphans* B. H. Wright, p. 83.

PLATE IV.

- Fig. 1. *Unio conjugans* B. H. Wright, p. 79.
Fig. 2. *Unio rotulatus* B. H. Wright, p. 78.
Fig. 3. *Unio tinkeri* B. H. Wright, p. 78.
Fig. 4. *Unio swordianus* S. H. Wright, p. 81.
Fig. 5. *Unio iheringi* B. H. Wright, p. 79.
Fig. 6. *Unio brimleyi* S. H. Wright, p. 80.
Fig. 7. *Pseudodon loomisi* Simpson, p. 84.
Fig. 8. *Unio burtchianus* B. H. Wright, p. 80.
Fig. 9. *Unio lehmani* S. H. Wright, p. 80.

PLATE V.

- Fig. 1. *Lampsilis brittsi* Simpson, female, p. 76.
Fig. 2. *Lampsilis brittsi* Simpson, male, p. 76.
Fig. 3. *Ptychobranchus clintonensis* Simpson, p. 79.