

594.015
 NFA
 V. 11
 No. 2-
 4:11 Dec 1886

The Cat. Sample-Copy.

The Conchologists' Exchange.

VOL. I. CHESTNUT HILL, PHILADELPHIA, PA., AUGUST, 1886. No. 2.

A PUBLICATION DESIGNED FOR CONCHOLOGISTS AND THEIR INTERESTS.

COPYRIGHT APPLIED FOR.

WM. D. AVERELL,
 EDITOR AND PUBLISHER.

Printed by JOHN C. CLARK & SONS, Stationers and Printers, 228 and 230 Dock Street, Philadelphia, Pa.

Correspondence upon Conchology, as well as reliable items of interest concerning the Mollusca, their habits, localities, etc., kindly solicited from all.

Matter for publication must be received by the 10th of each month.

TERMS:

Subscription per Year, - - - - 25 Cents.
 To Foreign Countries, - - - - 35 "
 Single Copies, 3 Cents Each.

LIBRARY OF
Illinois State
LABORATORY OF NATURAL HISTORY,
URBANA, ILLINOIS.

- \$.60
 - .90
 - 1.65
 - 3 00

By Order, Postal Note make Bank Press all subscrip-

WILLIAM D. AVERELL, Chestnut Hill, Philadelphia, Pa., U. S. A.

Advertising Rates given on application.

SALUTATORY.

It is customary to salute patrons in the first issue of a periodical, but as our space was limited to one side of a postal card we were necessarily cramped for room, and could not say all we desired. The encouragement we prayed for has been received, friends have wished us success, and better still, they have sent their subscriptions. We shall endeavour to be concise and plain in language, confining our attention to the science of Conchology and giving information of vital interest to the stu-

dent of Mollusca. As an earnest of our good intentions in this respect we refer you to the columns reserved for Exchanges, by the use of which we trust your cabinet and libraries may be rendered more attractive and valuable. As improvements become advisable we shall adopt them thinking ourselves well repaid if by the kindly intercourse thereby engendered we spread the seed of knowledge which will be enjoyed afterward in the ripened state, at the mutual harvest home.

CHANGE OF ISSUE.

We intended at the inception of our enterprise to issue our paper semi-monthly, but upon sober second thought, backed by the advice of friends, we have made a monthly issue of it. Among other reasons urged for the alteration is that exchangers, especially foreigners, (and it is our ardent desire to bring Conchologists of all nations into the most happy relations), will not have time to correspond before the exchanges are altered or disposed of nearer home. This reason was conclusive; hence we must ask our patrons to excuse us for the change. The price, which is merely nominal will remain the same.

EDITORIAL.

What a fascinating study is Conchology. Take a perfect shell. Its globule ready-fused by the hand of the Maker is before you; its face-marks are plain and distinguishable. Days need not be spent in determining its family. A novice finding several species of Murex upon the sea shore may readily see the family resemblance by the varices, more or less depressed upon the whorls; and by the straight anterior canal. And so with other families "*ad infinitum*," each having a distinctive character. The determination of

species is however more difficult and presents to the student undaunted in his love for the study a field of heroic labor, hallowed by his sacrifices of time and patience. The reward comes in the shape of a mind stocked with useful information; and in a collection every member of which is a friend, as it were; a gift from a departed comrade, or a memento of rambles in other climes; perchance a Helix from the wall of a ruined castle, or a Cyprea from the Indies.

Prof. George W. Tryon, Jr. has reached the genus, Trochus in his re-arrangement of the noble collection of the Academy of Natural Sciences. It is this gentleman's intention to place before the eye a representation of every known species of Mollusk, either by the shell itself, or by an illustration of the same should the object not be in the Academy's possession. This project is the outcome of pure common sense and cannot fail to be of lasting benefit to Conchologists in general, as well as to the public who daily visit the Academy.

It is a delight to look at a private collection every specimen of which has been wisely selected, nicely cleaned and polished, and afterwards named and properly classified. One gets the impression there that it is worth one's while to live and collect and study without stint. Such a collection is in the possession of our friend, Mr. John Ford, Vice-Director, Conchological Section of the Academy Natural Sciences.

One cannot recall without regret (regret that we were not present), the sale of the Pollock collection at Birch's this city, ten years since, when drawer after drawer of the finest shells were sold for a mere song; the entire cabinet and library bringing less than \$1,000. We understand that numbers of these specimens were secured for the Wagner Free Institute of Science of Philadelphia.

The Philippines, that prolific group of islands belonging to the Indo-Pacific province, contributed to Mr. Cummg 2,500 species of marine shells, while he estimated the total number of species to be 3,500.

Fifty years since, Cyprea umbilicata sold for £30 in London. Time which levels everything, has enabled us to add a fine pair to our private cabinet for one-fiftieth of that sum.

EXCHANGES IN MOLLUSCA.

This column is intended as a medium for the interchange of Mollusca exclusively. Customers desiring to offer other articles "for" Mollusca will find the succeeding column answer their purposes. Exchanges which are merely indirect offers of articles for money will not be accepted.

We will not hold ourselves responsible for any mistakes or disappointments occurring because of bad faith on the part of any of our exchangers.

Terms which must be cash with order, are as follows:—Exchanges of 20 words including address, 10 cents; for each additional 10 words the charge will be 5 cents. No exchange will be inserted for less than 10 cents.

GONIOBASIS costulata. Pleurocera filum, neglectum.
Helix volvox. Unio cornutus, pressus.
Cerithidea scalariformis. Cerithium muscarum.
Nassa vibex. Modiola sulcata. Littorina irrorata.
A. A. HINKLEY, Du Bois, Ills.

NASSA obsoleta, Gld. Solen ensis, L. Tapes staminea, Sby. Mytilus edulis, Gld.; cubitus, Say.
Pupa contracta, Say; ovata, Say. Tellina Baltica, Lam. Unio luteolus, L; pressus, Lea radiatus, Lam.; occidens, Lea; Physa gyrina, Say. Zua lubrica, Mill.

WM. W. BUXTON, Milo Centre, N. Y.

SCURRIA mitra. Acmaea pelta, Esch.; Myt. Californianus, Con.; Rowellia radiata, Cptr.; Bittium filosum, Gld.; Nacella inessa, Hds.; Adula stylina, Cpt.; Fissurella volcano, Rve.; Cerithidea sacrata, Gld. G. W. PUTERBAUGH,
Greenfield, Ind.

MARINE MOLLUSCA from Atlantic and Gulf coast, United States, to exchange for American land and fresh-water shells. EDW. W. ROPER,
Revere, Mass.

PLEUROCERA subulare, Lea, Conradii, Try.; Lymnaea zebra, Try.; Unio spatulatus, Lea, phaeocolus, Hild., gracilis, Bar. metanever, Raf.; pustulosus, rubiginosus, Lea. Send for list of desiderata.
W. A. MARSH, Aledo, Ills.

HYALINA arborea, lineata, Say; *intertexta*, Binn. *Macrocyclus concava*, Say; *Helix albolabris*, alterna, clausa, elevata, hirsuta, inflecta, Say; *exoleta*, Binn.; *monodon*, Rack.; var. *fraterna*, Say; var. *Leali*, Ward; *palliat*a, *perspectiva*, *solitaria*, *thyroides*, *tridentata*, Say; *pulchella*, Mull. Pupa *armifera*, *corticaria*, *contracta*, *fallax*, *rupicola*; *Physa gyrina*, *heterostropha*, Say. *Planorbis bicarinatus*, *trivolis*, Say. *Melantho integra*, Say. *Goniobasis Grosvenora*, Lea, *semicarinata*, Say. *Sphærium striatenum*, Say. *Anodonta pavonia*, Lea. *Unio pressus*, *occidens*, *luteolus*, Lea; *parvus*, Barnes; from *Connersville*, Ind. *Helix gobanzi*, Triv., *umbilicaris*, Brum.; *cingulata*, Studer., var. *colubrina*, Jan., *variabilis* Dr., *fructicum*, Müll., *arbustorum*, *memoralis*, L.; from *Austria*. *Pyramidata*, Drap., *vermiculata*, Müll., from *Italy*. *Bulimus detritus*, Müll.; Pupa *frumentum*, Cantr., *avenacea*, Brug., from *Austria*. All specimens true to name and in good condition. EDW. A. ENOS,
Box 504, Connersville, Ind.

FISTULANA, *Aspergillum*, and other fine Singapore shells to exchange for equally fine desiderata. Send for list. E. F. ARCHER, 14 Cook Street, Liverpool, Eng.

Many duplicates of Land, Fresh-water and Marine Mollusca to exchange. Send for List.
Dr. J. J. BROWN, Sheboygan, Wis.

WANTED—*Helix acutedentata*, *ariadnæ*, *auriformis*, *avara*, *Californiensis*, *Carpenteri*, *Christyi*, *Clarkii*, *Downieana*, *fastigans*, *Hindsii*, *intercisa*, *Jacksonii*, *opplata*, and other rare species from south and west. Offer species from Africa and Southern Europe.

Prof. E. T. NELSON, Box 42, Delaware, Ohio.

EXCHANGES FOR MOLLUSCA.

Tertiary and other fossils from Southern States and Europe to exchange for South American, Asiatic and African Mollusca. Will trade very liberally. Send for list. W. D. AVERELL, Chestnut Hill, Philadelphia, Pa.

Fossils to exchange for others, and for recent Mollusca. Send for list. WM. W. BUXTON,
Milo Centre, N. Y.

BOOK EXCHANGE.

WANTED:—First 3 vols. Lea's *Observations on Genus Unio*. Say's *American Conchology*. Gould's *Invertebrata of Massachusetts*. Send for list of books to exchange for same. W. D. AVERELL,
Chestnut Hill, Philadelphia.

CHANGES OF P. O. ADDRESS.

Conchologists will confer a favor by notifying us of any changes which may occur from time to time in their P. O. addresses. Such

notices will be inserted in this column gratis, for the good of the fraternity.

Chas. T. Simpson from Braidentown, Fla., to Ogalalla, Neb.

Chas. R. Keyes from Iowa City to 926 Ninth street, Des Moines, Ia.

Rev. A. B. Kendig from 35 Dale street, Boston to No. 5 Hanover street, Lynn, Mass.

A. A. Hinkley from Rockford Ills. to Du Bois, Ills.

ANSWERS TO CORRESPONDENTS.

This column is open to all subscribers, amateurs preferred, and is intended as an aid to the latter in collecting and naming their specimens.

CONUS, Bedford, Pa.—Dead Shells of *Petricola pholadiformis*, Lam., may be found by the hundred blown up by the wind on the sand dunes at Cape May, N. J. Live specimens of the same may be found in the marly peat at low tide, at the same place.

NEW LOCALITIES.

No information will be placed under this head unless absolutely guaranteed by the sender, whose name and address will be printed therewith.

PERIODICALS, REPORTS OF MUSEUMS AND CATALOGUES RECEIVED.

"Seventh Annual Report of the Museum of the Ohio Wesleyan University," Delaware, O., from Prof. Edw. T. Nelson, Curator in charge.

"Land and Fresh-Water Shells of Onondaga County," from Rev. W. W. Beauchamp, Baldwinsville, N. Y.

"The Mollusca of Muscatine County and Vicinity," from F. M. Witter, Muscatine, Ia.

"Catalogue of Uniones in the Cabinet of W. A. Marsh," Aledo, Ills.

Catalogues of Mollusca from Dr. L. G. Yates, Santa Barbara, Cal.

Catalogue of Mollusca from Dr. J. J. Brown, Sheboygan, Wis.

NECROLOGY.

Our friends will confer a favor by sending us reliable information of the demise of Conchologists; short notices of whose decease we will insert here, free of charge.

Sheldon, Daniel Sylvester, A. M., L. L. D., Prof. Griswold College, Davenport, Iowa. Born December, 1808. Died, 5th June, 1886.

AGENCY

FOR THE SALE OF

TRYON'S

"Structural and Systematic

Conchology,"

AND

"Tryon's Manuel of Conchology"

Edited and Published by

Prof. GEO. W. TRYON, Jr.

Circulars giving full particulars of these standard works may be had by sending a 2 cent postage stamp to

WM. D. AVERELL,

Chestnut Hill,

Philadelphia, Pa

Send for

PRICE-LIST

OF

MOLLUSCA

For Sale by

WM. D. AVERELL,

CHESTNUT HILL,

PHILADELPHIA, PENNA.

Our stock has been carefully selected, named and located.

We are also prepared to furnish labels and cards for mounting shells in styles to suit, at very reasonable prices.

The Conchologist

COPYRIGHT SECURED.

CHESTNUT HILL, PHILADELPHIA, PA., AUGUST

Publication Designed for Conchologists and
Scientists generally.

ISSUED MONTHLY

BY

WM. D. AVERELL,

EDITOR AND PUBLISHER

Correspondence upon Conchology, as well as reliable items of interest concerning the Mollusca, their habits, localities, etc., kindly solicited from all.

received by the

LIBRARY OF

Illinois State

LABORATORY OF NATURAL HISTORY,

URBANA, ILLINOIS.

Philadelphia, Pa., U. S. A.

ADVERTISING RATES.

One inch, displayed, 1 month.....	\$ 50
One inch, displayed, 3 months.....	1 00
One-half column, displayed, 1 month...	2 00
One-half column, displayed, 3 months...	4 00
One column, displayed, 1 month.....	4 00
One column, displayed, 3 months.....	8 00

Entered at the Post-office at Philadelphia, Pa., as second-class matter.

SUBSCRIPTIONS TO VOLUME II ARE NOW DUE. FOR EXPIRATION OF SUBSCRIPTION SEE DATE ON WRAPPER.

IN a recent letter from our friend, Professor Josiah Keep, of California, he expressed the hope that some competent person would write a history of "East Coast Shells" as a companion volume to "West Coast Shells," just issued by him. It is to be hoped that, should such a work be designed, it will be edited for the express purpose of instructing beginners in the study of the Conchology of

the Atlantic Coast of the United States therein, coupled with the evident design of the author to make himself clearly understood, lies the charm in Professor Keep's useful little work. To complete the trio, why may we not have Gulf Coast Shells? Who would have honor thrust upon him? To earn the lasting gratitude of the rising generation is meat and drink indeed.

A VERY novel way of pleasing poor children, the bed-ridden sick, and others needing amusement combined with instruction, and not having the means to secure it, has been tried with success in London. This is the distribution of several thousand packages of shells by a Society formed for the purpose. Go and do likewise.

WE will print in next number, "On the Distribution of Land and Fresh Water Shells in the Tropics," a paper of high merit, by Mr. Charles T. Simpson, whose successful researches in Southern waters have been chronicled in former numbers of our journal.

Now that school-days are upon you, don't forget that a little extra time at recess, or of evenings, in securing subscribers to THE CONCHOLOGISTS' EXCHANGE will greatly benefit you. Look at "Our Premium List" and be convinced.

WRITE about Conchology for the young folks, and you will please first, the children's parents; secondly, the "bairns" themselves; and thirdly, the children's friend, THE CONCHOLOGISTS' EXCHANGE.

WE have received several complaints about the non-receipt of back numbers. In every case these have been promptly sent, and if there is any fault to be found, it is with the mails.

WELCOME to the Constitutional Centennial, September 15th, 16th and 17th.

SCA OF

ND.

F. CARPENTER.

Chapter XXXVIII.

Class Pelecypoda or Acephala.

Synonyms: Conchifera, Lamarck; Lamelli-branchiata, Blainville; Bivalves, common name.

Acephala means headless, and the animals of this class have no head, and are the lowest in the scale of being. There is no sexual union between the animals of this class, fertilization being accomplished by the surrounding water, containing the male element. They breathe by means of gills only, and are therefore inhabitants of water, and are therefore inhabitants of water, mostly marine, though there are a few genera which live in fresh water. The organs of the animal are enclosed in a membranous sac, called the mantle, one fold of which covers each side, and is in turn protected by a shelly valve. In many species the mantle is prolonged into a tube called the siphon. It may seem strange to be told that our clam has no head, but that which is popularly called the head, is in fact, the siphons of the animal united in one tube, which projects two inches or more beyond the shell. At the extreme end are two orifices, one of which serves to convey the currents of water (caused by the agitation of the fringed cilia at this point), to the gills, where it is filtered, and the particles contained in it carried to the stomach; the other siphon serving to expel the purified water. It is said that if clams are placed in a basin of sea water containing indigo, they will, in a short time, render it perfectly clear, by collecting the minute particles of the impurity and condensing them into a solid form; and not only indigo, but whatever particles may be contained in the water, organic or inorganic, animal, vegetable or mineral, are thus removed, and the water purified. The thousands who visit our shores every summer to partake of the luscious clam-bake of Rhode Island, may not be aware that they are filling up on the sewage of the city, but

as no one was ever known to be injured by ing any amount of them, concentrated refined sewage, obtained in this way, is healthy. The orders and sub-orders of this class, Pelecypoda are named from the parts of the animal, and the families, genera and species, from the form of the shell, &c.

The shells of this class have two valves, thus distinguishing them from all those heretofore described in these papers. These valves are equal sided as well as equivalent, thus distinguishing them from the Brachiopoda, which are inequivalve although equal sided. The valves in Brachiopoda are termed upper and lower, but in Pelecypoda they are called right and left, the animal living and moving in an upright position, resting on the thin edges of the valves. These edges are called the ventral edges, and the opposite ones the dorsal edges. The two valves are united at their dorsal edges by a ligament, and articulated by a hinge, generally furnished with interlocking teeth. The valves open spontaneously by the action of this elastic ligament, and are closed at the will of the animal, by the powerful adductor muscles which pass through the animal from side to side, and are inserted upon the middle or side of each valve, leaving a scar or impression upon the shell. As I said before, bivalves live and move in an upright position. There are exceptions to every rule, and this statement is not correct as applied to all bivalves. Oysters, scallops and some others, live on one side, and the lower valve in these cases, is deeper and more capacious than the upper.

A specimen of a common Unio, or fresh-water clam, will serve to illustrate the meaning of the terms used in descriptions of bivalve shells. The apex is the point from which the growth of the valves commences, and is called the beak or umbo; these are near the hinge, that part of the shell growing least rapidly. As the animal plows along through the sand or mud, with the shell standing erect, and the sharp edges of the valves down, and the shorter portion of the shell nearest the apex forwards, the valve which corresponds to your right side is the right valve, and the opposite the left. The whole of the upper length of the shell is called the dorsal margin, and the opposite length the ventral margin or base. The beaks are

Am. Conch. Soc.

59405
A/A
V.1.2
No. 9

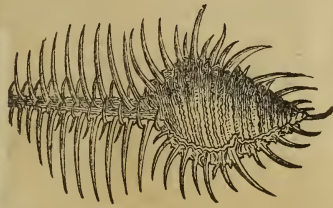
The Conchologists' Exchange.

COPYRIGHT SECURED.

A Monthly Publication designed for Conchologists and Scientists generally. Wm. D. Averell, Editor and Publisher.

Vol. II. MARCH and APRIL, 1888. No. 9.

LIBRARY OF
Illinois State
LABORATORY OF NATURAL HISTORY,
URBANA, ILLINOIS.



CONTENTS.

	PAGE.
The Shell-Bearing Mollusca of Rhode Island, H. F. Carpenter,	109
Brief Notes on the Land and Fresh-Water Shells of Mercer Co., Ill., Wm. A. Marsh,	110
Notes on the Unionidæ of Florida, Dr. S. H. Wright and Berlin H. Wright,	111
Lyogyrus, Gill, and other American shells, H. A. Pilsbry,	113
Margaritana Hildrethiana, Lea, B. Shimek,	114
Notes on American Shells, Rev. Wm. M. Beauchamp,	114
A Noted Scientist Dead (Geo. W. Tryon, Jr.) From Phila. Public Ledger,	115
Bell Taps,	116
Editorial Notes,	117
The Conchologist in Bermuda, J. Matthew Jones,	118
A Collecting Trip to Onset Bay, Mass., F. C. Baker,	119
Exchanges,	119
Standard Works on Conchology	120

CHESTNUT HILL, Philadelphia, Pa.

Single copies, 5 cents; 50 cents a year in the United States and Canada; Foreign Countries, 62 cents; Countries not in Universal Postal Union, 75 cents.

WHAT NEXT?

Why just this. After May 1st, 1888, we will give each subscriber sending us 50 cents, a PREMIUM in choice

LAND, FRESH WATER OR MARINE SHELLS.

Make your choice of either of the three kinds mentioned, send us 50 cents by Postal Note, and we will send you, post-paid,

"THE CONCHOLOGISTS' EXCHANGE"

FOR ONE YEAR,

and a neat box containing 25 cents worth of choice SHELLS as a Premium; or, Berlin H. Wright's New Check List of North American Unionidæ and other Fresh Water Bivalves (just issued); or, D. D. Baldwin's Land Shells of the Hawaiian Islands.

BUT WAIT!

WE WILL GIVE

To each person sending us 100 Fifty Cent Subscriptions with the cash, a Premium of

\$15 in Cash.

To each person sending 50 cash subscriptions,

\$7.50 in Cash.

To each person sending us 25 cash subscriptions,

\$3.75 in Cash.

NOTE.—Subscribers' names, together with the cash, must be sent to us as soon as received, to insure prompt delivery of the paper.

Address,

"The Conchologists' Exchange,"

Chestnut Hill, Phila.



Helix (Aglaja) fidelis, Gray, Oregon.

WEST COAST SHELLS.

By Prof. Josiah Keep, Mills College, California

A familiar description of the Marine, Fresh Water and Land Mollusks, found in the United States, West of the Rocky Mountains. 182 Illustrations, 230 pages. The frontispiece is a hand-painted engraving of the very rare and beautiful

Surcula Carpenteriana, Gabb.

To aid in the study of Shells, the pronunciation of the Latin names is indicated, and a Glossary, Key, Biographical Index of Naturalists, and a Check List are added. Beautifully printed and bound. Price, postpaid, \$1.75.

Samuel Carson & Co., Publishers, 208 Post St., San Francisco, Cal.

Please mention this paper.

THE EDUCATIONAL REVIEW.

A Monthly.

Devoted to advanced methods of education and general culture, with special stress on Natural Science. Wood-cut illustrated lessons on Natural History, etc.

EDITORS:

PRINCIPAL MACKAY, B. A., B. Sc. (London), for Nova Scotia.

PRINCIPAL ANDERSON, Prince of Wales College, for Prince Edward Island.

PROFESSOR HAY, Ph. B., for New Brunswick.

\$1.00 PER ANNUM.

Managing Editor: GEO. U. HAY, Ph. B.,
ST. JOHN, N. B., CANADA.

To whom all communications should be addressed.

turned toward the shorter end of the shell, which is called the anterior end, and the opposite the posterior end. The ligament which holds the valves together is situated on the dorsal margin, on the posterior side of the umbones. The dorsal margin is also called the hinge line. The teeth just beneath the umbones are called the cardinal teeth, and the ones on either side, lateral teeth. Some bivalves have no teeth, and the valves are held together only by the ligament, and by the muscles of the animal. The length of bivalves is measured from the anterior to the posterior ends; the breadth from the dorsal to the ventral margin; and the thickness from the centres of the closed valves.

Class Pelecypoda consists of two orders; Siphonida and Asiphonida; five sub-orders; forty-seven families, and twenty-seven sub-families.

ORDER SIPHONIDA.

Animal with siphons, and mantle margin more or less closed. This order is divided into two sub-orders;—Sinupalliata and Integripalliata.

SUB-ORDER SINUPALLIATA.

Animal with long siphons, partially or wholly retractile; the pallial impression upon the inside of the valves having a sinus. This sub-order has fifteen families.

Family Gastrochaenidæ, (Tubicolidæ of Lamarck), is divided into three sub-families, five genera, ten sub-genera, and about forty species living, and as many more fossil. They are all burrowers in mud or stone, but do not inhabit the Atlantic coast of the United States.

Family Teredidæ has five genera and about forty species. These animals burrow in wood, floating logs, harbor piles, hulls of vessels, &c. They inhabit Norway, England, Pacific Ocean, &c. I have never seen a specimen of any species in Rhode Island, although I have heard of specimens of Teredo being taken in New Bedford, Mass., from whale ships that had been cruising for years.

* Family Pholadidæ is divided into two sub-families; Pholadinæ with nine genera and their sub-genera, and Jouannetinæ, with five genera, &c. The animals of this family are all borers, and their shells are found imbedded in all kinds of material, such as Limestone, Chalk, Shale, Peat and Clay.

SUB-FAMILY PHOLADINÆ.

Valves with an anterior gap, always open in adult shells.

GENUS, PHOLAS, LINNÆUS, 1757.

There are only four species of this genus, three of which belong to the sub-genus *Cyrtopleura*, Tryon, 1862.

141.—*Pholas costata*, L.

Shell large, thin inflated, oblong-ovate, white, covered with radiating toothed ribs. Length, six inches; breadth and height, each two inches. This shell is very common in the West Indies and on the Atlantic Coast of the Southern States. It is sold in the markets of Havana, and is highly esteemed as an article of food. The animal is phosphorescent and when alive shines in the dark. It is said that after eating this dainty, the lips of the eater appear to be on fire. Until 1845 a living specimen of this species had never been found within one thousand miles of New England, but Professor Adams had discovered a bed of dead shells of all sizes, at New Bedford, Mass., with indications that the living Pholads had inhabited these shores at no very distant period. In 1845 Mr. Thomas A. Greene found several living specimens in the mud, brought up by the dredging machine, at the end of Long Wharf, in New Bedford. He thought they must have burrowed two or three feet in the mud. Since that time no other living specimens have been discovered in New England, but as the ocean shore of Rhode Island has not yet been thoroughly examined, the above facts would lead me to believe that there is a possibility of its yet being found here.

142.—*Pholas (Cyrtopleura), truncata*, Say.

Shell, chalky-white, oblong; beaks at the anterior third; anterior portion of the shell, triangular, pointed; posterior broadly truncated.

Length, three inches; height, one-and-a-half, and breadth, one-and-a-quarter inches.

This species like the preceding, is of Southern distribution, was found by Say, in South Carolina, and described in the Journal Academy of Natural Sciences, Philadelphia, in 1822. A few specimens were taken at the same time and place, with *P. costata*, at New Bedford, by Mr. Greene. Perkins says "it is not rare at New Haven, where it is found in peat bogs, and in clay, at high water mark." It was first found in Rhode Island, in mud, brought up by the dredger, in deepening the channel of Providence River. There is a large bed of them in clay, near Field's Point, two miles south of Providence, and they are common at Bristol, and probably in many other places in Narragansett Bay.

To be Continued.

BRIEF NOTES ON THE LAND AND FRESH-WATER SHELLS OF MERCER CO., ILL.

BY WILLIAM A. MARSH.

(Continued.)

48.—*Margaritana confragosa*, Say.

Shell plicate; quadrate in outline. The epidermis of this species varies from dark green to dark brown. This is our most beautiful *Margaritana*, and being everywhere rather rare, it is our most desirable shell for exchange. It is very much plicated and much inflated, with incurved beaks having a deep furrow over their summits, and highly ornamented with a row of sharp tubercles on each side. The dark brown varieties are ornamented with a dark band running around the shell with the growth lines. This species has a white nacre, and is provided with heavy, solid teeth. It is a very constant species with the exception of the color of its epidermis, and cannot be easily confounded with any other. It is found only in our river sloughs having a muddy bottom, where the water is still. Up to seven years ago, I had found but two or three of this species, but, for some unknown reason, in the very localities where formerly I looked for it in

vain, I now find it more frequently. At times it appears to be very active, while at other times it must be sought after, buried in the deep, soft mud.

49.—*Margaritana deltoidea*, Lea.

This small species was formerly abundant in our creeks, but is now nearly extinct. It is a smooth, triangular shell with a yellowish brown epidermis, and has the growth lines prominent and close. It has dull green rays, often interrupted by its numerous lines of growth. Some specimens are much inflated, while others are quite flat. The undulations on its beaks are coarse, but few in number. Cardinal teeth, double in both valves.

50.—*Margaritana marginata*, Say.

This remarkably fine shell is very rare here. I have found but a few specimens in Edwards and Pope Creeks, and but one specimen in the river. This was taken near the mouth of the Iowa River, where it empties into the Mississippi at New Boston, and might have come from the former stream. This shell is plicate posteriorly, oblong in outline, and has very prominent undulations on its beaks, nearly straight and parallel with its hinge line. This species is covered with beautiful green rays over the entire shell, interspersed with dots of green, yellow and sometimes, black. Epidermis, yellowish brown. Nacre, white.

Sub-Genus *Anodonta*, Brugiere.

51.—*Anodonta edentula*, Say.

Shell smooth, oval, with or without rays; rather solid, and extremely variable. This fine species is found rather abundantly in this locality. As it occurs here it is so extremely variable that it is almost impossible to describe it. There are at least three quite distinct varieties found here. One variety, which rarely occurs in Edwards Creek, very many collectors would scarcely regard as even a variety of *edentula*. When adult, it is quadrate in outline, very much rounded at the extremities of the shell; inflated; umbonial slope rounded; growth lines very close, striate or sulcate. Epidermis dark olive, often having green bands running parallel with growth lines. Rudimentary teeth very slight. Nacre salmon color

or white. Beaks not prominent, with very slight undulations; and having the calcareous and ferruginous deposits covering the entire margin of the shell. A second variety also occurs in our creeks, differing quite materially from the variety just described. It is oblong-oval in outline; solid; beaks prominent with much heavier undulations. Epidermis varying from dark olive to light brown. In the left valve of this variety there is a short, but well defined, cardinal tooth with a notch in it fitting into the deep cleft in the primary tooth of the right valve. In fact, many individuals of this variety, owing to the teeth, *might be mistaken for specimens of Margaritana*. This variety varies much in respect to its rays; many being rayless, others covered with beautiful rays, sometimes capillary. It is, when adult, quite angular over the umbones. The third variety is found in the river only, and in some respects resembles *Anodonta ferruginea*, Lea, from Indiana. It is a thick and solid variety, with a dark brown epidermis. The nacre is either rose color or a light salmon, with a dark pink border around the margin of the shell. Beaks prominent, incurved, with undulations large and coarse. Rays dull, often obsolete. Animal often red, sometimes salmon color. This species is usually found where the current is quite strong, on sandy or gravelly bottoms.

52.—*Anodonta imbecilis*, Say.

This fine species has a geographical distribution from New York to Texas, and throughout this wide range varies but little. It is a smooth shell, oval in outline, cylindrical, slightly inflated, and very thin, yet it keeps well in the cabinet. It usually has a brilliant green epidermis, often marked with concentric green bands, sometimes with alternating bands of a darker shade of green or dark olive color. Beaks very minute, scarcely visible and covered with very minute undulations. Nacre shining and bluish white; when young a vast number of very narrow, faint rays are often observable. This shell is found here only in the sloughs of the river, in the small lakes of the *Bay Island, always where there is a soft, muddy bottom,

*This island has been incorrectly styled "Bog Island" in former descriptions.—EDITOR.

and is very abundant. There is one mystery about this shell that I have never been able to solve, and that is that of the many thousands that I have seen and collected I never found one fully grown. What becomes of them I do not know. I have received very fine adult specimens from many of my correspondents from different localities, but all my efforts to obtain an adult specimen from Mercer County, have been in vain. This species is very prolific, producing its young in incredible numbers, of which fully one-half die from some unknown cause when not over one-fourth grown.

53.—*Anodonta grandis*, Say.

Shell smooth, oval and inflated. Beaks rounded, very prominent and slightly incurved. Undulations on beaks quite large, zig-zag in shape and varying from six to eight on each valve. Epidermis varying from dark brown to light olive, and often found with greenish streaks running transversely. The nacre varies from dull salmon through light pink to dull white. Cicatrices large and plainly observable when not covered with mineral deposits. *Grandis* is the type of a number of very interesting although very closely allied species, the most prominent of which are *plana*, *decora*, *ovata*, and *corpulenta*. Typical forms of these species are easily separated when once well known, but intermediate forms are so extremely puzzling that no conchologist can separate them to a certainty. *A. grandis* is found rather common from Ohio to Texas, and varies wonderfully in different localities. It is reported very common in many portions of Illinois, but it is a singular fact that not over half a dozen specimens have been found in Mercer County. Our specimens are far from typical and are close to *corpulenta*. It is found here only in the river sloughs associated with *corpulenta* and *imbecilis*. It differs from *corpulenta* in being smaller, less inflated, and in having the beaks more rounded and heavier. The color of the shell over the summit is always of a lighter shade, and it never has the copper colored nacre of *corpulenta*. Adult forms of *grandis* are much more solid with very much more prominent growth lines than *corpulenta*.

To be Continued.

ON THE GENERIC NAME OF A REMARKABLE BIVALVE SHELL FOUND IN THE CONGO.

BY C. F. ANCEY.

In the "Bulletins de la Societ  Malacologique de France" for 1886, Dr. A. Tr meau de Rochebrune proposed the generic name of *Chelidonura* for the curious species of Iridinid e described by Dr. Ed. von Martens, under the name of *Iridina* (*Mutela*) *hirundo*, from specimens collected by Mr. Mechow in the Quango, a stream tributary to the Congo. Subsequently, a second species was found in the last named river and described by Dr. de Rochebrune, who then proposed for these shells, which are certainly different from any genus of Iridinid e, the said name of *Chelidonura*. Unfortunately *Chelidonura* has already been used by M. Adams for a shell of the family Bullid e, and *Chelidonura*, Rochebrune (non Adams), must therefore be changed to *Chelidonopsis*, Ancey.

The genus *Burtonia*, Bourg. (1883) proposed for different species of Lake Tanganyika, Central Africa, is certainly nearer to *Chelidonopsis* than any other section in Iridinid e, but they want the dorsal carina and the very curious appendage of the posterior edge of the valves. The true *Mutela* are quite different in shape.

The analogy of several species inhabiting the countries and streams of West Africa and Lake Tanganyika, is not to be wondered at, for the latter belongs to the basin of the Atlantic and *not* of the Indian Ocean, and being (during part of the year), connected with some of the headwaters of the Congo.

Berrouaghia, Algeria, June 11, 1887.

DESCRIPTION OF NEW GENERA OR SUB-GENERA OF HELICID E.

BY C. F. ANCEY.

(Continued.)

XXII.—*Brazieria*, Anc.

"Testa fere stature Helicis constrict e, Bouh e, lentiformis depressa, imperforata, striatula, solidiuscula, flavido-corneola; Spira valde

"depressa, vix convexa. Anfractus 5 planulati, sutura lineari divisi; ultimus supra depressus et acute angulatus, infra multo magis convexior, turgidus. Apertura obliqua, angulata, lunata, infra convexa, substricta. Peristoma intus labiato incrassatum, margines lamina elevata juncti."

Type: *Helix velata*, Hombron et Jacy.

Geogr. distrib.: Caroline Islands.

This peculiar type of *Naninid e* possesses ambiguous characters, and the typical species was placed by Pease, in *Trochomorpha*, a genus which it appears to me not to belong to.

XXIII.—*Chalepotaxis*, Anc.

"Testa characteribus anatomicis peculiaris ut a Cl. Gredler in diagnosi *Nanin e* (?) *infantis* enumeratis pr edita. Testa umbilicata, albidohyalina, fascia unica ultimi anfractus cincta. Spira convexo-conica, apice obtusa; anfractus regulariter crescentes; ultimus major, rotundatus, subtus convexus, antice non deflexus; apertura haud labiata; peristoma simplex, acutum, sinuatum."

Type: *Nanina* (?) *infantis*, Gredler.

Geogr. distrib.: Central China: Tonkin.

XXIV.—*Oligospira*, Anc.

"Testa ejusdem insul e *Acavos* commemorans, a quibus ultimo anfractus valde tumido, ambitu oblongo et rotundato et anfractibus c eteris multo minus numerosis, celerius crescentibus et spira depressa, vix elevata nec conica discrepat. Anfr. ultimus antice perdeflexus."

Types: H. *Waltoni*, Reeve; H. *Skinnari*, Reeve.

Geogr. distrib.: Ceylon.

XXV.—*Crystallopsis*, Anc.

"Testa inter *Papuinas* et *Geotrochos*,—et *Corasias* quasi media, tenuis, alabastrina vel hyalina, vel fasciis opacis cincta, umbilicata, globosa, tenuis, glabra, angulata vel filocincta. Spira convexa, vel convexo-conica, obtusa; anfractus minus numerosi; ultimus maximus,

"subtus convexus, turgidus. Apertura sub-obliqua ampla; peristoma late expansum vel reflexum, ad columellam late dilatatum, umbilicum tamen plerumque non obtectans."

Types: H. Hunteri, Cox; H. Allasteri, Cox, etc.

Geog. distrib.: Solomon's Islands (Guadalcanar, Malanta Islands).

XXVI.—*Sphincterochila*, Anc.

"Testa superne speciebus pluribus generis Leucochroce similis, a quo valde differt singularem apertura constricta, sinuata incranataque, intus interdum hepatica et animali characteribus, teste G. W. Binney, animali Helicis similis. Prope Macularias verisimiliter collocanda."

Types: H. filia, Mouss.; H. Boissieri, Charp.

Geog. distribution: As far as known, restricted to the vicinity of the Dead Sea, and to N. Arabia.

To be Continued.

Young Collectors' Corner

The *Succinea Obliqua*, Say, of Fairmount Park, Philadelphia, with some remarks regarding the relationship of *Succinea Totteniana*, Lea.

BY JOHN FORD.

For a number of years I failed to discover in the Park a single specimen of the genus *Succinea*, though many examinations were made by me in localities favorable to their growth. Mentioning this fact to G. Howard Parker, then an active worker in the Philadelphia Academy of Natural Sciences, he informed me that a few might be obtained along a rocky ledge on the north side of the Wissahickon, a short distance east

of Ridge Avenue. Some days afterward we visited the locality together, and secured about a dozen specimens all in fair condition. One year later, in company with Dr. J. Bernard Brinton, I visited the place again and captured several more. This was in the morning of a hot June day in 1886, which we mostly spent along the upper reaches of the stream. On returning, towards evening, we wandered into the dry bed of a former pond located between the carriage way and the stream, and within a "stone's throw" of the lower dam. This depression was, perhaps, fifty feet square; with several large willows standing upon the outer bank, and a strong growth of weeds covering the bottom.

While looking for other species supposed to be there, our attention was attracted to numbers of *Succinea* feeding upon the plants, and also upon the willow branches which extended some twenty feet over the basin. Though somewhat surprised to find them in such singular quarters we went quickly to work and secured a large number before night-fall. Many others were obtained a few days afterward by the Doctor's son, Theodore, and a short time later fully a hundred more fell to my share; making in all, over 200 specimens, a wonderful number to be found in so small an area.

All of the shells were transparent, and so delicate in texture that I at first entertained some doubts in regard to the species; this feeling of uncertainty being strengthened by the fact that Professor Gabb does not mention *S. obliqua* at all in his "Catalogue of the Mollusca in the neighborhood of Philadelphia," published in Vol. 13, Proceedings Philadelphia Academy of Natural Sciences. A subsequent examination, however, satisfied Mr. Tryon as well as myself that they were really *Succinea obliqua*, Say. But, in opposition to Mr. Tryon's views, I was and still am of the opinion that they embrace every character claimed for *Succinea Totteniana*, Lea, save the occasional greenish tint, and that no further evidence than the shells themselves is needed to prove *Succinea obliqua*, Say, and *Succinea Totteniana*, Lea, to be one and the same species; allied so closely indeed, that, the latter cannot in a general sense, be justly separated from the former, even as a variety.

With these conclusions fresh in mind, I requested my friend, Horace F. Carpenter, Esq., of Providence, R. I., a gentleman who is thoroughly versed in the mollusca of New England, to forward me some type specimens of the so-called *S. Totteniana*. This he kindly did, and a comparison of them with the Wissahickon shells served only to confirm my previous deductions, which were also fortified by a like comparison of the animals. Some of the specimens received were of a slightly greenish-yellow tint, but the largest number were without it, which fact is another proof that the variation in color is a mere incident arising from peculiar food or slight climatic differences, and therefore of no practical value. All conchologists know that there are hundreds of species in which a difference in color has no specific or varietal recognition whatever.

Mr. Carpenter and myself subsequently collected quite a number of specimens at Lime Rock, near Providence, R. I., and every shell was brown in color. Mr. Carpenter assured me that these were good samples of New England *S. Totteniana*, whatever their relationship might be to *S. obliqua*. If there is a difference in the form of the two shells, as is claimed by Mr. Binney, Mr. Tryon and others, I am unable to see it. Nor do I believe that the figures of *S. obliqua* and *S. Totteniana*, given in Gould's "Invertebrata of Massachusetts," pages 448 and 449 represent anything more than what might be the same shell taken at two stages of growth. I certainly have counterparts of each among my Wissahickon *S. obliqua*, and can also match from the same lot, the several type specimens in the Philadelphia Academy's collection, marked *S. Totteniana*, Lea. For these reasons I not only assume that the two species are absolutely one and the same, but will continue to consider them so, unless opposing evidences of a more convincing character than those I have offered, shall be forthcoming.

Philadelphia, August, 1887.

NOTE.—In Mr. Ford's article on "The Helices of Fairmount Park," published in the July number, *H. suppressus* was inadvertently printed *H. suffusus*. If there is such a species as *H. suffusus* Mr. Ford has not heard of it.—EDITOR.

Subscribe to The Conchologists' Exchange.

VALVES.

Mr. E. W. Roper, of Revere, Mass., writes : that while at Digby, Nova Scotia, this Summer, he collected a patriarchal specimen of *Littorina littorea*, L., which measured one and three-fifths inches in length, and one and one-eighth inches in width. Its bulk was fully double that of the largest Massachusetts specimens. He noticed also that *Purpura lapillus*, *Fusus decemcostatus*, *Neptunea curta*, *Acmæa testudinalis*, *Margarita helicina* and others, were unusually large and perfect there.

The Philadelphia Academy of Natural Sciences will be one of the seven learned bodies who will lend dignity and weight to the Constitutional Centennial Celebration in Philadelphia, September 15th, 16th and 17th. They take part in the imposing reception and banquet of the 17th.

Rev. F. X. Shulak, Professor of Natural History in St. Ignatius College, Chicago, Ill., kindly informs us that the present Hall used for the display of Natural History objects, is too small for that purpose, and that he is now preparing a larger room for the cabinet.

Dr. Sterki informs us that his friend, Dr. R. Hausler, is in New Zealand, traveling alone and engaged in collecting and studying the Mollusca.

CORRESPONDENCE.

U. S. C. & G. S. STR. "BLAKE,"

Newport, R. I., July 20, 1887

Editor Conchologists' Exchange :

Sir:—When last I saw you a promise was given to write for insertion in your paper—a valuable little one I have found it—some of the results of my attempt at deep sea dredging. With a view to stimulate others about to interest themselves in the study of Malacology, I will give a brief outline of what I have succeeded in doing, and how it came about.

In February, 1884, I was ordered to proceed to Washington, and report for duty upon the

"Despatch," then on special service in the Potomac. Some time after, information reached me that a vacancy would occur upon this ship, a vessel made famous by her deep sea sounding, under several commanders, and natural history researches, under Prof. Alexander Agassiz. No time was lost in making the necessary application, and the following day I was gratified in receiving the transfer orders. She was then at Baltimore, Md., and in the latter part of '84 did hydrographic work off Gay Head, Martha's Vineyard. A change in commanding officers was made in December, and with the new came another field of duty, namely, that of testing the force and direction of ocean currents at any depth. This would be done by an apparatus, a current meter, devised by Lieut. J. E. Pillsbury, U. S. Navy, her present commanding officer, and when in use requires the vessel to be anchored in any depth of water. Many obstacles were encountered and overcome, as was fully proved by the last anchorage, in 1852 fathoms of water, thirty-nine miles off Cape Hatteras; and by demonstrating not only the existence, but the force and direction of a current, at 200 fathoms depth.

As soon as I had grasped the method by which we would anchor, the idea immediately occurred of putting a dredge on the anchoring wire. After some conversation, the commanding officer consented to allow the placing of an ordinary boat dredge upon it. The first trial took place off Fowey Rocks Light, Fla., and much to my disappointment, the net was practically empty. It was suggested that, owing to the meshes of the net being too large, the quantity of "mud" so small, and the rapidity with which the dredge was drawn through the water (about one fathom a second after the anchor was tripped) so great, that the contents were washed out long before it reached the surface. A substitution of an ordinary coffee-sack for the net followed. The next anchorage yielded about one quart of nicely cleaned residue, representing at least a dredge full of "mud." Many trials were made to determine whether it would be better to fasten the rope holding the dredge to the anchoring wire, or merely to allow it to run free by means of "sister-hooks." It was finally decided to fasten it to the wire, about two fathoms from the

anchor stock. This method has been followed during the past two seasons.

Thus by taking advantage of a golden opportunity, I have succeeded in securing forty-one dredgings, the greatest depth being 1060 fathoms, in Yucatan Channel.

The work for the seasons of '85 and '86 was in the Straits of Florida, between Fowey Rocks Light House, Fla., and Gun Cay, Bahamas; it yielded twenty-nine dredgings: during '87, between the Tortugas and Havana, Cuba, and between Cape San Antonio, Cuba, and Yucatan; yielding twelve dredgings.

All the specimens collected were submitted to Dr. Dall, who kindly named them, retaining as remuneration, as many as was desired for the Smithsonian Institution.

The results have exceeded all expectations, and, added to those obtained from the surface nets and along shore, yield a grand total of 513 species, running through many families and genera.

The diagnoses of some few species still remain doubtful, but two new ones have been established, a *Mitra* [first obtained from the dredgings of the 'Albatross'] and a *Mathilda*; and, one rare *Voluta gouldiana*, Dall.

It is hoped during the coming season of '88, to continue the interesting work in the passages between the islands of the West Indies, thus giving a continuous series of dredgings, from Cape Hatteras, to the origin of the gulf stream.

Sincerely yours,

WILLIAM H. RUSH, M. D.,

P. A. Surgeon, U. S. Navy.

PUBLICATIONS RECEIVED.

West Coast Shells. A familiar description of the Marine, Fresh Water and Land Mollusks of the United States, found West of the Rocky Mountains. By Josiah Keep, A. M., Professor of Natural Science, Mills College, Cal. With numerous illustrations, by Laura M. Mellen, Teacher of Art, Mills College. Presented by the author, who has edited in "West Coast Shells," a book which every student should have in his library, simply because of its clear, concise diction, the simplicity of its descriptions

and the need of a handy work on the shells of the wonderland west of the "Rockies."

Catalogue and Circular of the California State Normal School, San José, for school year ending May 26, 1887. From Mrs. A. E. Bush, Curator of the Museum

Exchange List of Mollusks from Key West, Bahamas, etc., collected during the Spring seasons of 1885-86, by Wm. H. Rush, M. D., U. S. N.

We welcome to our table the following:—The Naturalists' Leisure Hour Library, Vol. 1, No. 1; The Western Naturalist, Madison, Wis.; The Geologists' Gazette, Wishita, Kan.; The Young Geologist, Oskaloosa, Ia.; The Curiosity World, Lake Village, N. H.; The Mohawk Standard, Delta, N. Y.; The Hornet, New Castle, Indiana; The Journal of Science and Art, Cleveland, Ohio.

NECROLOGY.

Spencer Fullerton Baird died at Wood's Holl, Mass., at 3.45 P. M. August 19th. Professor Baird was born February 3d, 1835. At the age of 17 he graduated from Dickinson College, after which he began collecting his famous cabinet of Natural History specimens, which became the nucleus of the museum of the Smithsonian Institution. In 1848 he received the degree of M. D. Honoris Causa, from the Philadelphia Medical College. Dickinson College chose him as its Professor of Natural History in 1845, and subsequently elected him to the chair of Natural History, and conferred on him the degree of Doctor of Physical Science. In 1850, he was made Assistant Secretary of the Smithsonian Institution, and upon the death of Professor Henry in 1878, he succeeded him as Secretary. In 1871 he was appointed U. S. Fish Commissioner, by President Grant.

Alvan Clark, Sr., on the 19th of August. He was the head of the well-known firm of telescope makers, A. Clark & Sons.

Thomas McCormick, Mineralogist of Union Township, Hudson Co., N. J. Mr. McCormick was stung by a spider while searching for

minerals, near Union Hill, N. J., for the State Geologist, and expired in terrible agony, from the effects of the bite, August 22d.

Exchange Column.

Terms to NON-SUBSCRIBERS, which must be cash with order, are as follows: Exchanges of 20 words, including address, 10 cents; for each additional 10 words the charge will be 5 cents. No exchange will be inserted for less than 10 cents.

Each subscriber to Volume II, will have the privilege of inserting three (3) free exchanges of twenty-five (25) words each, including address. This rule is made to include those who have already subscribed in good faith at the old rate, 35 cents, or those who have received "New Subscription" blanks and are engaged in soliciting subscriptions at the former price.

Wanted.—Achatinella, Goniobasis and Sphæri-um. Offered.—Land, fresh-water and marine Mollusca. H. P. Smith, utodian Cincinnati Society of Natural History, 108 Broadway, Cincinnati, Ohio.

Wanted.—With localities, identified or not, Io, Angitrema, Lithasia, Strophobasis, Pleurocera, Goniobasis, Schizostoma, Anculosa. Other shells in exchange. Correspondents solicited. A. A. HINKLEY, DuBois, Ill.

Offered.—Botanical and Conchological Specimens, Books, &c. for Books, Papers, Specimens in Conchology, Botany, Microscopy and Entomology. Shells are mostly from California and Europe. Plants from Connecticut. G. R. LUMSDEN, 54 Second St., Norwich, Conn.

Wanted.—In exchange, Indian Arrow-heads and Bird Eggs for Land, Fresh-water and Sea Shells or Bird Eggs. CASPER LOUCKS, York, Pa.

Wanted.—In perfect condition, with localities:—CYPRÆA aurantium, nivosa, exusta, Scotti, thersites, tessellata, physis, eglantina, fusco-dentata and umbilicata. MUREX, Saulix, palma-rose and tenuispina. OLIVA, angulata, maura, Melchersi, porphyria, tenebrosa, tremulina. STROMBUS guttatus, latissimus and melanostomus. VOLUTA, fulgetra, junonia, imperialis, magnifica, reticulata, Rossiniana and rare Asiatic, Australian, African and South American Bulimi, Helicidæ and Unionidæ.

Offered.—50 species of Tertiary and other Fossils from Southern States and Europe, Woodward's Manual of the Mollusca 75 edition: Leidy's Memoir of the Extinct Sloth Tribe, N. A.; Lea's Syn. of Family of Naiades, '52 edition: Hays' Descrip. Inf. Max'y Bones of Mastodons, 10 plates: Agassiz and Gould's

Comp. Physiology, Bohn's edition: Coultas, Prin. Botany, Cryptogamia: Lea's on a Fossil Saurian of the New Red Sandstone Form'tn; Lesquereux's Cretaceous Flora, 50 plates, Smith's Mis. Col. Vol. 4, Neuroptera, Vol. 6 Diptera and Coleoptera, 3 pp out, uncut, or any of the shells on my Price List which I may have in duplicate. Parties not having any of the shells wanted above, need not apply. W. D. AVERELL, Chestnut Hill, Phila.

Offers requested in exchange for many of the smaller mollusks of the waters south of Hatteras. Exchange List ready. W. H. RUSH, M. D., 1308 Green Street, Philadelphia, Pa.

Offered.—Fine specimens marine and land shells for perfect echinoderms. Land and fresh-water shells from the South and Southwest for reptiles in alcohol, D. W. FERGUSON, 138 Wilson St., Brooklyn, N. Y.

Offered.—Unio Leibii, Lea, and 75 other species of N. Amer. land and fresh-water shells. Collectors please send lists and receive mine. JEROME TROMBLY, Petersburg, Mich.

Offered.—Nassa vibex; Oliva literata, reticularis; Columbella mercatoria; Cypraea caput-serpentis, erosa, helova, lynx, moneta; Nerita tessellata, peborata; Fissurella Barbadosensis; Donax variabilis; Dosina discus; Cardium magnum. Wanted.—Shells and works on Conchology, JOHN B. WHEELER, East Templeton, Mass.

Cyclas dentata, Terebra dislocata, Sigaretus perspectivus, Sphaerium securis and striatinum, Zonites suppressa, Helix fallax and many others to exchange for Land and Fresh-water Shells. A. K. FAIRCHILD, Whippany, N. J.

Offered.—15 species Unios, including Aberti, purpuratus, Schooleraftii, and subrostratus, 5 species Anodonta. Fossil Oyster shells. Satisfaction guaranteed. Send list. FRANK J. FORD, Wichita, Kan.

Wanted.—American correspondents interested in the study of the genus Pupa (including Pupilla, Vertigo, etc.) of the U. S. Duplicates and other shells for exchange. V. STERKI, M. D., New Philadelphia, O.

Minerals and curiosities to exchange; also a reliable receipt for polishing stones and agates, for every small mineral or curiosity sent me. FRANK S. FOOTE, 385 Lyon St., Grand Rapids, Mich.

Offered.—Tellina radiata, Paludina integra, Strombus gigas, Modiola plicatula, Mytilus edulis, Crepidula unguiformis, Lævicardium serratum, Columbella mercatoria, Limnaea elodes, for land and fresh water shells. WM. WEEKS, JR., 508 Willoughby Ave., Brooklyn, N. Y.

Offered.—Minnesota and marine shells for other shells and minerals. Send lists. JOHN M. HOLZINGER, State Normal School, Winona, Minn.

For Exchange.—A black-walnut Egg Case, having five drawers, each 24x14x2 inches. The bottoms of the drawers come out, leaving slits for partitions. Will exchange it for sets or singles (Bird's Eggs), instruments, or Books on Ornithology or Oölogy. Write first. VAN LEWIS, Potsdam, N. Y.

Humming birds' nests and eggs to exchange for same. E. Pleas, Dunreith, Ind.

Specimens of minerals for Dana's book on mineralogy. BRET. H. MEACHAM, West View, Goochland Co., Va.

A specimen of fossil shell, a bleeding-tooth shell, and a piece of copper ore, for minerals or foreign coins. FRANK VAN BUREN, 253 York Street, Jersey City, N. J.

A large fresh lot of Uniones, nasutus, complanatus and luteolus; also, a few Melanthis decisa, all in excellent condition, to exchange for other fresh-water shells of the South and West. JOHN WALTON, 77 Arcade, Rochester, N. Y.

150.—1st class side-blown Birds' Eggs to exchange for Coins, Stamps, fine specimens of Indian Arrow Heads and Minerals.—WILLIS P. ARNOLD, Shannock, R. I.

THE WEST AMERICAN SCIENTIST.

This Journal, established in 1884, begins a new volume as a 24-page illustrated monthly magazine of

POPULAR SCIENCE.

A feature consists of articles on topography and natural history of Upper and Lower California. Eminent Scientists are contributors. Price \$1.00 per year, 10 cents a copy. Send 25 cents for a 4 months' trial subscription. Agents wanted.

C. R. ORCUTT, EDITOR.

San Diego, Cal.

WANTED.

Choice specimens of CYPRÆAS, CONES, OLIVAS, VOLUTAS and HARPAS.

Will pay for same, or will exchange other specimens of same genera. If minerals are preferred in exchange, I have fine specimens of Graphite, Amazon stone, Lead, Iron, and Copper ores, Kryolite, etc. JOHN H. CAMPBELL, 740 Sansom St., Philadelphia, Pa. Correspondence solicited from persons collecting CYPRÆAS.

Price-List of Shells

received since the issue of Conchologists' Exchange No. 9 and 10.

Terms cash with order. Express charges to be borne by purchaser in all cases. Discount of 5 per cent. on orders for \$5.00 and over.

ARCA.

Noë, L..... 20,25
fusca, Brug..... 20

BUCCINUM.

*undatum, Lam.....20 to 30

BULIMUS.

spirifer, Gabb..... 15,20
pupa, L..... 5
Bergeri, Roth..... 10
syriacus, Ehr..... 10

CYCLOSTOMA.

dentatum, Say..... 5
lactaria, Gould..... 5
sulcatum, Mull..... 5

CLAUSILIA.

virgata, Jan..... 3
piceata, Zgl..... 3,5
itala, G. v. Mart..... 5
" " " var..... 5

Grohmani, Phil..... 5
Sebourghiae, Paul..... 5
ventricosus, Drap..... 3,5
bolensis, DeBetta..... 3
solida, Drap..... 3
Lampedusa, Calcora..... 5
agrigentina, Bourgt..... 3
lineolata, Hild..... 3,5
affinis, Phil..... 3,5
candidilabris, Zglr..... 5
Stenzii, Zglr..... 3,5
calabrica, Mouss..... 5
fusca, DeBetta..... 5
plicatula, Drap. var..... 5
exoptala, Schm..... 3
Vindobonensis, Zglr..... 5
dubii, Drap, var. obsoleta,
Schm..... 5
Adamii, Clessin..... 5,10
Recubariensis, DeBetta..... 5
Strobeli, Porro..... 5
lenoensis, Villa..... 5
orthostoma, Mke..... 5
Styriaca, A. Schmidt..... 5

CHONDROPOMA.

*Shuttleworthii, Pfr..... 20

CHITON.

granulatus, Gmel..... 20,25

FASCIOLARIA

*tulipa, L..... 30,75

FISSURELLA.

Barbadensis, Gmel..... 10

HELICINA.

*Sagraiana, D'Orb..... 25

HELIX.

guanensis, Poey..... 30,40
planospira, Lam. v.
Illyrica..... 15
cisalpina, Stab. v.
Adami..... 10
Sicana, Fer..... 10
ammonis, A Schmidt.... 5
muralis, Mull, v..... 5
" " v. crispata..... 5
frigidissima, Adami (2600
m. ab. sea)..... 20
colubrina, Lam. v, Medoa-
censis..... 15,20
" " v. nubila..... 15,20
æmula, Rossm..... 5
tarentina, Pfr. v. picta... 3,5
bathyomphala, Charp.... 5
meridionalis, Parr..... 3,5
destituta, Charp..... 5
Hermesiana, Pini..... 10,15
meda, Porro..... 3,5
lenticula, Fer..... 3
Baldensis, Villa..... 5,10
carthusianella Drap. v.
arvensis, Pini..... 3
turrata, Phil..... 2,5
rupestris, Drap, v. Pini,
Adami..... 2
obvia, Hartm... 5,10
apennina, Porro..... 3,10
stefiensis, Bourgt..... 10,15
strigata, Mull..... 5,10
apiculus, Rossm..... 3
conoidea, Drap..... 3
apicini, Lam. var..... 3
variabilis, Drap. var..... 5

cingulata, Sted..... 10,15
" " v. incerta,
Adami..... 10,15
cingulata, Stud. v. adhe.
sina, Paul..... 10,15

HYALINA.

deducta, Peal..... 3,5

MEGALOMASTOMA.

mani, Poey..... 20,25

PURPURA.

*tincta (Key West)..... 10,15
*patula, L..... 35

TROCHATELLA.

*regina, Morelet..... 25,30
*regina, Morelet, var. (1) 30
*regina, Morelet, var. (2) 30

TURBINELLA.

muricatum, Lam..... 30,40
nassa, D'Orb..... 15,25

TELLINA.

radiata, L..... 10,20

TURBO.

*pica, L..... 25,60

South American.

BULIMUS.

Wagneri, Pfr..... 25 to 30
Ziebmani, Pfr..... 25 " 30
zoographicus, D'Orb.. 20 " 40
phlogerus, D'Orb..... 30 " 40
ovatus, Mull..... \$1.00
oblongus, Mull..... 25 to 75
oblongus, Mull, sm. var. 40

HELIX.

polodonta, D'Orb..... 10
lactea, Mull (introduced) 10

HELICINA.

variabilis, Guild..... 5

AMPULLARIA.

*scalaris, D'Orb..... 30 to 50

CERITHIUM.

caudatum, Sby..... 10

LITTORINA.

fusca, Pfr..... 5

*Operculated.

OUR PREMIUM LIST.

A CHANCE FOR WORKERS KEEN AND BRIGHT.

Send \$1.75 and the name of 5 subscribers, and we will forward to the originator of the club, \$1.00's worth of shells at List Prices.

Prof. J. E. Kingsley's "Naturalists' Assistant," 228 pages, will be sent, post-paid, for \$5.25 and the names of 15 subscribers.

Woodward's "Manual of the Mollusca," 1880 edition, will be sent free for \$10.50 and the names of 30 subscribers.

Tryon's "Structural and Systematic Conchology," cheap edition, will be sent free for \$17.50, and the names of 50 subscribers.

Tryon's "Monograph of the Terrestrial Mollusca of the United States," plain edition, will be sent free for \$35 and the names of 100 subscribers.

Sowerby's "Genera of recent and Fossil Shells," 264 plates. 1/2-morocco, 2 volumes, 8vo. sent free for \$52.50 and the names of 150 subscribers.

AND LOOK

For \$87.50 and the names of 250 subscribers, we will send, express prepaid, one of

Queen's Educational Microscopes,

mounted upon a brass tripod stand, with adjustable eyepieces, object glasses and diaphragm complete. A fine chance for an active worker.

PREMIUMS IN SHELLS.

To every person sending us before December 1, 1887, the names and cash subscriptions (at the Club-Rate of 35 cents per annum), of 100 persons (new subscribers), a choice collection of shells consisting of 150 species and 500 specimens.

To every person sending 50 names with the accompanying cash a collection of 75 species and 250 specimens.

To every person sending 25 names and the cash, will be sent a collection of 40 species and 125 specimens.

These offers consist of choice shells in fine condition with correct name and locality in each instance; and will furnish numerous duplicates for exchange. A few of the genera from which the above will be selected are as follows: *Nautilus*, *Murex*, *Neptunea*, *Pyrula*, *Cassidulus*, *Pleurotoma*, *Triton*, *Ranella*, *Nassa*, *Purpura*, *Cuma*, *Harpa*, *Oliva*, *Fasciolaria*, *Littorina*, *Goniobasis*, *Paludina*, *Ampullaria*, *Crepidula*, *Nerita*, *Neritina*, *Turbo*, *Trochus*, *Haliotis*, *Chiton*, *Helix*, *Bulinus*, *Achatina*, *Achatinella*, *Clausilia*, *Planorbis*, *Lymnaea*, *Cyclostoma*, *Physa*, *Pholas*, *Mactra*, *Tellina*, *Donax*, *Venus*, *Cytherea*, *Tapes*, *Cardium*, *Unio*, *Anodonta*, *Modiola*, *Arca*, *Pecten* and others.

These offers are made simply to increase the popular interest in that beautiful and highly interesting study—Conchology, as well as to extend the subscription list of THE CONCHOLOGISTS' EXCHANGE, a monthly publication to which every shell collector should subscribe.

Special Notice.

We have made 35 cents the price for Clubs of 5 or more subscribers, and in no case will individual subscriptions be received at less than the new rate of 50 cents. By request the above Lists will be held open until December 1, 1887, so that those who intend to subscribe will find it to their advantage to forms Clubs of five or more and thus secure the benefit of the reduction. In addition to these splendid Premiums every subscriber to Volume II has a premium in the shape of three (3) free exchanges annually.

Parties desiring to secure the benefits of the above truly liberal offers, must not keep the names of subscribers together with the subscriptions, until they have completed their list, but should send them as soon as received and we will keep an exact account of them.

A COMMISSION of 30 per cent. in CASH will be paid in lieu of the above premiums for all club subscriptions at the full rate of 50 cents per annum.

WANTED—ODD NUMBERS AND COMPLETE VOLUMES OF "Random Notes on Natural History," containing Mr. H. F. Carpenter's article on "The Shell-bearing Mollusca of Rhode Island," for which good prices will be paid. The Concho. Ex., Chest. Hill, Phila.

Fine Books for Sale.

SOLD ONLY FOR CASH.

Tryon, Geo. W. Jr. Structural and Systematic Conchology, and, also, Manual of Conchology. The latest works for Conchologists. Subscriptions taken and filled. Circulars sent on application.

SPECIAL NOTICE:—A few second-hand copies of Tryon's Structural and Systematic Conchology for sale at \$5.00—Cash. Postage prepaid.

Sowerby, J. Genera of Recent and Fossil Shells for the use of Students in Conchology and Geology. Illustrated with 264 original plates. 2 volumes, 8 vo; half morocco. London (N. D.). Price \$15.00.

Woodward. Manual of the Mollusca, with Appendix, by Ralph Tate. 642 pp: 23 plates, 441 figures, 270 illustrations. London, 1880 edition. Price \$2.50, postpaid. Formerly, \$2.60.

The same, 1875 edition, \$2.00 postpaid.

Random Notes on Natural History.

This journal, now out of print, is rapidly becoming scarce. We offer the back numbers containing the previous chapters of Mr. H. F. Carpenter's very instructive article upon "The Shell Bearing Mollusca of Rhode Island," Mr. John Ritchie, Jr.'s "Check Lists of Shells," besides numerous articles of interest to the conchologist, at the following prices:

Vol. I, complete,	\$1 50
Vol. I, minus Nos. 1 and 2, . .	1 00
Vol. II, complete,	1 00
Vol. III, complete,	75

Postage extra in each case at the rate of six (6) cents per volume. A fine chance to secure the best descriptive history of Rhode Island shells ever written. The subsequent chapters of Mr. Carpenter's article are now being published in "The Conchologists' Exchange," beginning with No. 12, of Volume I.

The American Naturalist. Odd copies for sale as follows: Vol. X, January to September; Vol. XV, January; Vol. XVI, July to September; Vol. XVII, January, May to December; Vol. XVIII, January and February; Index to Vol. XII. Prices 20 and 25 cents each.

Westwood, J. O. Arcana Entomologica; or, Illustrations of New, Rare, and Interesting Insects. 2 vols, half morocco. London, 1845. Price \$27.50.

ADDRESS

The Conchologists' Exchange

CHESTNUT HILL,
PHILADELPHIA, PA., U. S. A.



Helix (Aglaiia), fidelis, Gray, Oregon.

WEST COAST SHELLS.

By Prof. Josiah Keep, Mills College, California.

A familiar description of the Marine, Fresh Water and Land Mollusks, found in the United States, West of the Rocky Mountains. 182 Illustrations, 230 pages. The frontispiece is a hand-painted engraving of the very rare and beautiful.

Surcula Carpenteriana, Gabb.

To aid in the study of Shells, the pronunciation Latin names is indicated, and a Glossary, Key, Biographical Index of Naturalists, and a Check List are added. Beautifully printed and bound. Price, postpaid, \$1.75.

Bancroft Brothers & Co., Publishers, 532 Market St., San Francisco, Cal.

Please mention this paper.

The Conchologists' Exchange.

COPYRIGHT SECURED.

VOL. II. CHESTNUT HILL, PHILADELPHIA, PA., MAR. & APR., 1888. No. 9.

THE SHELL-BEARING MOLLUSCA OF RHODE ISLAND.

BY HORACE F. CARPENTER.

Chapter XLIV.

Genus *Cytherea*, Lam., 1805.

Distribution world wide. There are 150 living species and 80 fossils.

167.—*Cytherea (Callista) Sayii*, Conrad.

Syns :

Cytherea convexa, Say, Sowb., DeKay, Hanly, Romer, Gld., Adams, etc.

Dione convexa, Desh., Reeve.

Callista “ Dall.

Cytherea Sayana, Conrad.

“ *Sayii*, Perkins.

Shell oval, thin, convex ; surface dead white, chalky ; interior milk white, polished ; beaks elevated and pointing forwards ; in front of the beaks is a heart-shaped lunale. Length, one and three-quarter inches ; height, one and one-half ; breadth, one inch. Inhabits from New Jersey to Gulf of St. Lawrence. It is not an attractive looking shell ; it appears like a small, dead quahog. Say's species, *convexa*, described in Journ. Acad. Nat. Sci., Phila., iv, 149, 1824, was a fossil, and occurs in the miocene of Maryland, North and South Carolina, etc. Authors since have called our species by Say's name, supposing them to be the same, but Conrad, in Silliman's Jour. xxiii, 345, 1833, described the recent species supposing them still to be identical and named it *Sayana*, as he said Say's name was preoccupied. In his “Cata. of Miocene Shells,” in Proc. Phil. Acad. Sci. xiv, 575, 1862, while recognizing *Cytherea convexa* as a miocene fossil, he believes the recent species to be distinct. If the two species are identical, then Mr. Say's name should stand, as *convexa* is not preoccupied in

the genus or sub-genus *Callista*, although it is in *Cytherea*. If they are not identical, Conrad's name is the proper one. These shells are not very abundant in Rhode Island ; dead shells are often found on the shores, and live ones are dredged off Rumstick in mud.

168.—*Cytherea (Gouldia) mactracea*, Linsley.

Syns :

Astarte mactracea, Linsley, Gould.

Gouldia “ Dall., Binney, Tryon.

Shell small, quadrant shaped ; apex acute ; anterior margin a little concave ; basal margin rounded ; surface with fourteen concentric valves and striated between the waves by regular, minute, radiating lines. Color pale yellowish green, with darker shades in fine radiation. Length and height, each one-quarter inch ; breadth, one-tenth.

This species was described from a single valve, found in the stomach of a haddock, at Stonington, Conn., by Rev. James H. Linsley, in Silliman's Jour., xlvi, 275, 1845, (name only), and by Dr. A. A. Gould, in the same journal, 233, Sept. 1848. Since dredged in New Bedford Harbor (Prime & Stimpson). Huntington and Greenport, (C. Smith). Prof. Verrill says : “ Florida and northern shores of the Gulf of Mexico to Cape Cod. Common, living and of large size, in Vineyard Sound and Buzzard's Bay, especially at Wood's Holl, 3 to 10 fathoms.” It has not yet been found in Rhode Island.

SUB-FAMILY MEROEINÆ } Not represented in the
SUB-FAMILY TAPESINÆ } U. S.

Sub-family *Dosiniinae* contains four living genera and four fossil, represented in New England by one species.

169.—*Tottenia gemma*, Totten, 1834.

Syns :

Venus gemma, Totten, Gld., DeKay, Wood, Shy., etc.

Gemma Totteni, Stimp.
 Cyrena purpurea, H. C. Lea.
 Gemma gemma, Desh., Chenu., Adams, Dall,
 etc.
 Tottenia gemma, Perkins.
 Venus Manhattensis, Prime.

Shell small, nearly circular, beaks central, slightly elevated; surface shining, covered with very minute concentric lines; color white, the posterior portion purple inside and out. Length, three-twentieths of an inch; height, one-eighth; breadth, one-sixteenth. Inner margin crenulated. Inhabits from South Carolina to Labrador.

This shell seems to combine the hinge of a Venus, the external appearance of a Circe and the deep angular mantle bend of a Dosinia. Although the first settlers observed this curious little gem and sent home specimens of it to England, no one seems to have taken the trouble to describe it, until Col. Joseph G. Totten, finding it at Newport, R. I., gave a description of it in Silliman's Jour. xxvi, 367, 1834, under the name of Venus gemma. Deshayes, in 1853, Catal. Brit. Mus., separated the genus Gemma from Venus. The same objections to this name exist as those given under Venus mercenaria. Dr. Perkins, in the "Molluscan Fauna of New Haven," proposed the Genus Tottenia, which I have used in this work.

The variety Manhattensis was found near Hell Gate, N. Y., by Temple Prime, who described it as a new species in Ann. N. Y. Syc. Nat. Hist., vii, 482, 1852. He made it a new species on the ground that the interior of the shell was white and the exterior straw color, and the shape of the shell being more triangular. It is extremely abundant in Rhode Island, and is found in our bay, from circular to triangular through all its grades of shape; some specimens are pure white; others with the purple posterior; some with the anterior and base rose colored and some of a beautiful amethystine purple all over, inside and outside.

FAMILY GLAUCOMYIDÆ.

Absent from our fauna (Asiatic).

(To be continued.)

SUBSCRIBE now and get a premium.

BRIEF NOTES ON THE LAND AND FRESH-WATER SHELLS OF MERCER CO., ILL.

BY WILLIAM A. MARSH.

91.—*Limnæa humilis*, Say.

Shell ovate-conic, thin, translucent. Slightly wrinkled, whirls from five to six, convex, terminal whirl very minute, often absent, sutures indented, labrum covered with a calcareous deposit, umbilicus distinct, color varying from reddish brown to yellowish white. This is a common species throughout the northern tier of States, but rather rare in this country. It is found sparingly in small ponds and wet, marshy places throughout the whole length of our county, especially along Pope and Edwards Creeks, also about springs along all our inland sloughs. Often found associated with *Limnæa desidirosa* and is sometimes difficult to separate from the species. How long this species may remain buried in the mud, I cannot tell, but I have ponds on my land that have remained dry for three years at a stretch and the fourth year filling up with water in which the little *Limnæa humilis* were found apparently as abundant as ever.

92.—*Limnæa parva*, Lea,

Shell subturreted, thin, smooth, diaphanous, horn color. Subperforated, spire elevated, sutures impressed, whirls five, convex aperture, elliptical. This very minute species I find about perennial springs, sometimes in water troughs, and cattle tanks, very remote from any ponds or sloughs. I have often found this little species clinging to the moss collected on the sides of my horse trough, at my barn well, which is nowhere near any pond or slough. How they happened to be found here remains a mystery to me. I have also found this species in considerable numbers about the margins of small basins on my lands that had been dry for three or four years.

93.—*Limnæa curta*, Lea.

Shell subturreted, thin, shining, diaphanous, whirls five to six, terminal whirl very minute, body whirl inflated, yellow aperture, small,

elliptical, perforate, columella thickened and reflected over the perforation. I found this shell in 1879, quite plenty in a slough in Green Township, in this county, crawling over flat slabs of coal measure limestone, a short distance below Blaine's coal shaft. At the time I supposed them to be *Ammicolas* and only secured about forty specimens. I have looked the same locality over many times since and have failed to be rewarded with a single specimen. This should prove a warning to shell collectors. When you have an opportunity to secure a shell do not defer it until a more convenient season, for very likely it will never come.

Genus *Physa*. Draparnaud.

94.—*Physa gyrina*, Say.

Shell heterostrophic, oblong, rather solid, whirls from five to six, gradually acuminating to an acute apex, sutures slightly impressed, labrum slightly thickened, spire elongated. This very common and well-known species is known to inhabit a very wide area of country, having a distribution from Vermont to Utah, also found in most of the Southern States. It is our most common species, being found in all the sloughs and lakes of the Mississippi River bottom; along all the creeks that flow through our county above the river bluffs, and also in our small ponds and basins, in many places associated with *Physa heterostropha*. It varies considerably in color, size and texture, being much lighter in color and much more solid in the river bottom than it is above the bluffs. This species is very active both in walking and gliding along on the surface of the waters, shell downward. This very remarkable species puts in an appearance very early in the Spring, and can endure a considerable degree of cold. In the month of April I have watched its motions through the ice, sufficiently thick to bear up a man, and have seen it in vast numbers crawling around on the bottom of shallow ponds. Full of motion and life it remains with us much later in the season than *Limnæa* as I have found fine specimens in October.

95.—*Physa heterostropha*, Say.

Shell sinistral, subovate, color pale yellow, chestnut brown to reddish wine color; whirls five, body whirl large, the others small, termin-

ating abruptly to an acute apex; aperture large, oval, within pearly, often blackish; lip thickened, sometimes tinged with red. This species has even a much greater distribution than *gyrina*, being found in the British possessions, all over the United States, and even in Mexico. Here it is much less common than *gyrina*, rarely found above the Mississippi River bluffs. It is, however, found in all the lakes and sloughs of the river bottom, often associated with *gyrina*. Both the *gyrina* and *heterostropha* as found here are very variable, yet it is by no means likely that those variable forms are more than varieties of those two protean species.

Genus *Planorbis*. Guettard.

SUB-GENUS HELISOMA. SWAINSON.

96.—*Planorbis (Helisoma) trivolvis*, Say.

Shell, pale yellow to light horn color, often chestnut brown, sub-carinate above and beneath, whirls three to four, striate across, with fine raised equidistant, acute lines, forming grooves between them, spire concave, aperture large, lip a little thickened internally, and of a red or brownish color; vaulted above, umbilicus large, exhibiting the volutions. This species probably inhabits all North America, as far south as Mexico, and of course throughout this vast extent of country presents many variations. The typical form is not very common in our county, but seems to be found rather sparingly in all stations where there is water.

To be Continued.

NOTES ON THE UNIONIDÆ OF FLORIDA.

BY DR. S. HART WRIGHT & BERLIN H. WRIGHT.

Unio granulatus, Lea, Sig., little grains, R=56.

Shell thin, about an inch long, and resembles *U. parvus*, Bar. On the beaks, and about $\frac{1}{4}$ inch out, there are several concentric undulations or granules, giving the appearance of folds. Epidermis dark olive, generally rayless and generally sulcate in front. Found in Manatee River, on the west coast of Florida, by Mr. C. T. Simpson. An Alabama shell.

Unio Jewettii, Lea, Sig., personal name for Col. E. Jewett, R=58.

Shell oblong, smooth, rather inflated, very inequateral; rather thin, brownish; faintly rayed with distant marks of growth. The epidermis is scaly, like that of *U. Blandingianus* and *obesus*. The posterior slope is wide and raised into a sharp carina, which descends towards the beaks. Nacre white, with salmon near the margin. Lateral teeth very long, lamellar; cardinal teeth small. Lake Woodruff and Lake Beresford, Fla.

Unio Kleinianus, Lea, Sig., personal name for J. T. Klein, a Prussian naturalist, who died in 1759, R=75.

Shell nearly oval, plicated irregularly between the lines of growth; color dark brown, polished. Posterior slope large, with a high abrupt carina. Umbonial ridge angular. Beak inflated, posterior margin truncated, cavity deep, nacre white. Habitat, Suwanee River, Fla.

Unio lepidus, Gould, Sig., elegant, R=54.

Shell elongated, ovate, thin, ventricose, very inequilateral, oblique: disc olivaceous, scarcely radiated; umbos tumid. Anterior margin rounded, posterior margin arcuate; cardinal teeth erect, lamellar, fimbriated; lateral teeth straight, acute. Nacre silvery white, iridescent transverse. Axis $2\frac{3}{4}$ inches long. Lake Monroe, Fla.

Its affinity is very close to *U. trosculus*, Lea, but is larger, more fragile, and cardinal teeth more compressed.

Unio minor, Lea, Sig., little, R=92.

The largest specimens we find are 1.3 inches wide, .8 long, and .56 diameter. Shell elliptical when mature, and obovate when young; very inequilateral; inflated below the umbos; nearly black or olive-green above, not polished, finely striated, with transmitted light a yellowish brown color is noticed. Faint rays are sometimes seen. The back view is that of an acute isosceles triangle, like that of *U. decisus*, Lea. Umbonial ridge nearly obsolete; cardinal teeth not bifurcate, many pitted. A distinct cicatrix (the third) may be seen on the side of the front portion of the cardinal teeth. This character is peculiar, and is seen in *U. trosculus*, Lea, in nearly the same position. No other North

American species of *Unio*, it is believed, will show such a cicatrix. Habitats Lake Woodruff, Lake Beresford, and found by Mr. C. T. Simpson, near Manatee River, on the west side of Florida.

U. modioliformis, Lea, Sig., like the *Modiolus* in outline, which is a genus of marine bivalves, so named from their resemblance to a small drinking vessel of the ancients, R=.56.

Shell smooth, obovate, very narrow in front, broadly rounded behind, and sometimes slightly emarginate on the basal margin, inflated, thin, translucent, brown, grayish-black, or lutescent. Rays usually present and mostly on the posterior half. Lines of growth many and close. Nacre thin, cream color or white, mingled with purple. The lateral teeth are slender, long and almost on the very margin of the dorsum. This is a South Carolina species, but we found it in Lake Beresford, and elsewhere in Florida. Lea gives this shell as a sample of the *obovate* form in page xxvii of the Introductory Chapter of his Synopsis, and yet he classifies it with the ovate shells on page 44. L. C. 4th Edition. His type was 2.7 inches transversely. We have not found any as large as that, but have specimens, apparently mature, much smaller.

(To be Continued.)

Prof. Faber, of Germany, has invented pencils for writing upon glass, porcelain and metals, in red, white or blue. The pencils are made of four parts of spermaceti, three of tallow, and two of wax, to which he adds six parts of either red lead, white lead, or Prussian blue, according to the color desired.

RECOLLECT that on and after May 1st, 1888, all new subscribers, and all old subscribers renewing their subscriptions, will receive a choice of three premiums, viz: 1st, 25 cents worth of Choice Shells; 2d, a free copy of Berlin H. Wright's New Check List of Fresh Water Bivalves of North America; 3d, a free copy of D. D. Baldwin's Land Shells of Hawaiian Islands.

LYOGRYUS, GILL, AND OTHER AMERICAN SHELLS

BY H. A. PILSBRY, PHILA., PA.

The genus *Lyogyrus* was established in 1862 for the single species *Valvata pupoidea* Gld. Its distinctive characters as stated by Mr. Gill, are found in the elongated form and last whorl loose from the preceding. From this last character the shell receives its name, *Lyo* (*huo*) meaning loose in the Greek. I mention this in order to correct a false etymology, *Lio-gyru*s, that has found its way into print.

This group has been referred to *Valvatidae* as a subgenus of *Valvata* by Binney, Tryon, Fischer and others who have treated of it. Upon examining specimens in the Academy collection recently, I ascertained the dentition to be Amnicoloid. The operculum is multispiral, and similar to that of *Valvata*. These peculiarities are sufficient to give generic rank to the group, which may be placed next to *Amnicola* in the system. Tryon in 1883, and Fischer in 1885, referred *Heterocyclus*, Crosse, to this genus. It is hardly worth while to speculate upon this point until the dentition of the new Caledonian form is examined.

A single species, *L. pupoides*, Gld., is known. The form recently described as *L. Lehnerti* has no affinity with the present genus, but is simply a monstrosity of *Amnicola*, possessing paucispiral operculum and other characters of that genus. Such distorted shells are of not infrequent occurrence, and their characters having no constancy, not even varietal rank can be given them.

Although American Conchologists have not been finding "new species" of fresh water shells in the Eastern States for the last decade or two, Continental writers, with delicious coolness, continue to describe "novelties" from Massachusetts, Maryland, and other well-known localities.

In regard to another late edition to the nomenclature of U. S. shells, we may note that in place of *Triodopsis Harfordiana*, W. G. Binney (preoc in *Helix*), Mr. Tryon, in Sept. 1887, proposed the name of *H. Salmonensis*. This will of course take precedence over the name *H. commutanda*, Ancy, 1888.

Another of these "new species" is the *Valvata mergella*, Westerlund, described last year from Alaska. This is nothing more than the striate variety of *V. sincera*, Say. The species frequently in the north exhibits strong rib-like striae; and indeed the names *V. striateae*, Lewis, and *V. Lewisi* Currier, were applied to this very form.

The fact that the nomenclature of our American shells is becoming so over-burdened with synonyms will perhaps justify me in offering a few additional remarks on useless generic and specific names recently proposed.

In an article in *Le Naturaliste*, in which certain of Mr. H. Crosse's genera are rudely handled, Mr. C. F. Ancy, proposes for the *Physa* ("Paludina") *scalaris*, Jay, the subgeneric name of "*Thompsonia*." And, *scalaris* being preoccupied in *Physa*, changes the name of the species also, so as to stand *Physa* (*Thompsonia*) *carinifera*, Ancy. We will now analyze this result. That this Floridan species is not a *Physa* was long ago recognized by one of the foremost of American Conchologists, who, in an admirable revision of the *Limnæide*, placed it in the exotic group *Ameria*. From a study of alcoholic material and very numerous specimens of the shells, I find that the real position of the species is in *Planorbis*, and that some of its varieties are exceedingly close to the *Planorbis Duryi*, Wetherby. We may consider *scalaris* to be a lengthened form of the section of *Planorbis* known as *Helisoma*. So much for the generic reference. In view of these indisputable facts, *Thompsonia* becomes a synonym of *Helisoma*. But even if it were distinct, we could not use the name, because it has long been in use in Zoölogy for a universally accepted genus. And since, so far as I can ascertain, *scalaris* is not preoccupied in *Planorbis*, that name may still stand for the species, with *carinifera* as a synonym.

Academy of Natural Sciences, Feb., 1888.

Prof. Cattell, of the University of Penna., read a paper recently before the Aristotelian Society, at London, on "The Psychological Laboratory at Leipzig." The paper appeared in January *Mind*.

MARGARITANA HILDRETHIANA (LEA.)

BY B. SHIMEK, C. E., IOWA CITY, IOWA.

Many of our species of *Mollusca* are considered rare simply because, seeking secluded or almost inaccessible places, they are seldom found by those who are unfamiliar with their habits.

Judging from the notes which have come under the writer's observation, as well as from his own experience, *Margaritana Hildrethiana* (Lea) is one of these species. During the Summer of 1887 this species was found in such numbers, and under such peculiar circumstances, in the Iowa River, Iowa City, that a note of it may be of interest.

Living specimens of this species were first discovered after the great overflow of the Iowa River, in 1881, when one of our mill ponds was drained by a washout. These specimens were found burrowing in the mud under large stones in such a position that to get them it was necessary in most cases to remove the stones. Careful search at different times after this brought nearly 200 specimens to light, which was considered a very large set.

During the past Summer, however, a search on the rocky bottom of the Iowa River, west of the city, was rewarded by the discovery of several thousand specimens of this species in good condition and of all sizes. Nearly all of these specimens were found in quiet water burrowing under large slabs of limestone in soft mud, so that to secure the specimens it was necessary to turn the slabs over. Some conception of their abundance may be found from the fact that under a single slab measuring 16 by 18 inches, three hundred and twenty-four specimens were found! It may be remarked that the river was very low during the past year, and the place was thus made easily accessible. No doubt the species exists under like conditions in other localities, and this note is offered with the hope that it may lead to its discovery in like abundance where now it is considered rare.

January 25, 1888.

NOTES ON AMERICAN SHELLS.

BY REV. WM. M. BEAUCHAMP.

The various notes on American shells in the CONCHOLOGISTS' EXCHANGE, are becoming of great value, especially some of those on the Unionidæ, on which the average collector finds it more difficult to get reliable information than on any other. It would be a real boon if the CONCHOLOGISTS' EXCHANGE could give serviceable descriptions of the species of this great group. Our difficulty is the incessant variations in all land and fresh water shells in America; a difficulty which I think Mr. Ancey hardly appreciates. I have always found *U. pressus* (Lea) a dark green shell with rays, but Mr. Benedict, of Syracuse, N. Y., has given me some from Jefferson County, N. Y., which are orange color and without rays. I have *U. complanatus* (Sol.) so different in form, size, and color, that they would certainly have been called different species had they been found far apart. A radius of five miles will not allow of their separation. Yet a highly alated specimen from Onondago Lake agrees with no description, and a long compressed specimen, with beaks nearly terminal, from the Erie Canal, seems widely separated from the short, swollen valves of some neighboring streams.

Helix albolabris (Say) varies more than many suppose. The shell may be thin or thick, dentate or not, even in the same locality, but the adult specimens that I have collected at the Thousand Islands of the St. Lawrence, and the Thimble Islands of Long Island Sound, are more elevated than, and about half the size of, the normal shell. In the same situations *H. thyroides* (Say) is small. *Melantho decisus* (Say) varies greatly in adjoining waters, and the same thing is true of many shells.

Some years ago I announced the discovery of *Bythinia tentaculata* (Lin.) at Oswego, N. Y., and soon after found it sparingly in the Erie Canal at Syracuse. It has now become the most abundant shell in the canal in that vicinity. I collected, last Spring, on a gravelly bottom in the canal, favorable to *Goniobasis Virginica* and *livescens*, but found only dead shells of these, while every stone was occupied by the

Bythinias. I think they devoured the food of the others, and so starved them out. The American shells in this way were yielding to foreign invaders. The latter thrive here and better specimens can now be had in New York than in Europe.

Though *Carychium exiguum* (Say) belongs to low lands, I have found it at the base of lime-stone cliffs, and other shells may as unexpectedly occur.

A NOTED SCIENTIST DEAD.

GEORGE W. TRYON, JR., THE EMINENT CONCHOLOGIST, AND HIS WORK FOR SCIENCE.

George W. Tryon, Jr., whose death occurred on Sunday afternoon, February 5th, 1888, was, since the death of Mr. Lea, the most prominent conchologist in this country, if not in the world, and his loss will be severely felt, not merely in this city, but wherever natural history is studied.

He was the son of the well-known gunsmith of this city, Edward K. Tryon, and was born in the Northern Liberties, on Green Street, between Front and Second, May 20, 1838. His education was gained at Friends' school, and at an early age he engaged in business with his father and brother. The lack of collegiate education he amply made up in later life by private study. His early years were devoted assiduously to his business and to his studies, and his attention having been concentrated on natural history, and especially on the study of shells, he withdrew in 1867 from business in order to devote himself solely to his favorite pursuit. A man of untiring energy and perseverance, he soon became eminent in this domain of science. His first paper was published in the proceedings of the Academy of Natural Sciences for 1881, under the title "On the Mollusca of Harper's Ferry, Virginia." In 1865 he established the "American Journal of Conchology," of which seven annual volumes were issued. To this, and to the proceedings of the Academy he contributed numerous papers, numbering at the end of 1873 no less than 64 contributions to this favorite science, all showing characteristic accuracy of detail and patient

research. In addition to these papers he also issued a Bibliography of American Writers on Conchology in 1861; a "Monograph of the Fresh Water Univalve Mollusca of the United States," in continuation of Haldeman's work on the same subject; a "Synonymy of the Species of Strepomatidae," in 1865; a "Monograph of the Terrestrial Mollusca inhabiting the United States," 1866; an "American Marine Conchology," 1873; the third volume of the "Land and Fresh Water Shells of the United States," published by the Smithsonian Institution, and a "Structural and Systematic Conchology," in two volumes, issued in 1883. The latter is a magnificent work, profusely illustrated, but was only preliminary to the crowning work of his life, which, unhappily, he has been unable to finish. This was his "Manual of Conchology, Structural and Systematic," of which the first volume appeared in 1879, and of which nine volumes of the first series, on marine shells, and three of the second, on land shells, have been issued. It is no exaggeration to say that this is the most extensive systematic work on any branch of natural science which has yet appeared in the United States. The amount of labor involved in the preparation of such a monograph can only be appreciated by those familiar with the vast collections at the Academy of Natural Sciences, which formed its basis and the ever-increasing literature of conchology, with which it had to keep pace. Four lithographic artists and ten or twelve colorists were constantly engaged in the preparation of the beautiful illustrative plates, while the author's entire time was devoted with indefatigable industry in the preparation of the regularly issued text. The reliability of the work was at once recognized on the appearance of the first number, and it is gratifying to be able to state that the enterprise met with an encouragement which was most gratifying to the author, and stimulated him to continual exertion.

But his literary industry did not prevent him from serving the Academy of Natural Sciences in many other ways. Elected a member of the Academy in June, 1859, he was conservator of the Conchological Section from the latter's formation in 1866, and was Secretary of the

Board of Trustees of the Building Fund of the Academy, to which he contributed \$3000. He was curator of the Academy from January, 1869, to July, 1876, this period covering the time when the institution was removed from Broad and Sansom to its present location. Much of the labor and responsibility of this removal rested on Mr. Tryon, who gave up his whole time to the work. It is impossible to enumerate all the services for which the Academy is indebted to Mr. Tryon's self-sacrificing spirit. His greatest service was undoubtedly given to the branch of science to which his whole life was devoted. On the upper floor of the Academy museum is arrayed a collection of shells, which is stated to be one-third larger than that of the British Museum, the only other collection with which it can be compared. This collection was largely the gift of Mr. Tryon, and its beautiful arrangement is wholly his work. As the visitor passes along the rows of cases, which seem endless, he sees displayed before him a representation of the conchology of the world. Scarcely a known species of all the tens of thousands described is missing, and the arrangement is such that any particular species may be found at once with its congeners about it. The library of the Academy has recently been described in these columns. Speaking of this particular branch, the article said: "On conchology the library contains, it is believed, every important title ever published on that subject. The collection has been very much increased by George W. Tryon, Jr., who gave his own valuable library, and has kept up full knowledge on the subject by his important work, 'The Manual of Conchology,' which has exhausted the bibliography of the subject.

Mr. Tryon was also well known in musical circles. He edited for Lee & Sheppard a pamphlet series of operas, which is very popular, and essayed on several occasions original music work, including an opera.

Mr. Tryon's death was very unexpected, and appears to have resulted from heart failure. He was seized about a week ago with what appeared to be an attack of asthma, from which he seemed recovering, when he was again suddenly attacked, and died on Sunday afternoon.

—*Phila. Public Ledger, of Feb. 7th, 1888.*

BELL TAPS.

THE Rev. Hiram C. Hayden, a graduate of Amherst, has been chosen President of Adelbert College.

HARVARD receives Dr. Asa Gray's copyrights and collections of photographs.

MR. JABEZ P. PENNINGTON, of Newark, N. J., and a graduate of Princeton, Class of '23, died March 27, aged 86.

MR. ANDREW LANG, has been chosen for the Gifford Lectureship at St. Andrew's University, Edinburgh.

HON. C. W. WOODMAN, a prominent graduate of Dartmouth College, died recently, aged 78.

RICHARD E. KEMBLE, the oldest living graduate of Columbia College (Class of '18), died recently, aged 88 years.

PROF. N. E. CROSBY, of Columbia College, recently returned from Greece, where he has been for a year or more in learning the modern Grecian tongue.

A. AUGUST PORTER, who died March 15th, was an Amherst graduate, and gained prominence for his vigilance as U. S. Consul at Clifton, Ontario, during the war.

THE Philadelphia Social Science Association will soon issue a monograph on *Chairs of Pedagogics in our Colleges and Universities*, by Prof. E. T. James, of the University of Pennsylvania.

MRS. LUCY M. MITCHELL, who died in Berlin, March 10, was the author of *History of Ancient Sculpture*, (New York, 1883) had gained part of her education at Mount Holyoke Seminary.

THREE names, well-known in the United States, are mentioned in connection with the vacant Chair of Botany in the University of Edinburgh: viz.: Professors Balfour of Glasgow, McNab of Dublin, and Traill of Aberdeen.

PROF. JEREMIAH TINGLEY, of Alleghany College has been chosen to succeed Prof. Hugo Blanck, in the Chair of Chemistry, at the Western Pennsylvania Medical College.

PROF. VON HELMHOLTZ has been appointed President of the Imperial Physico-Technical Institute, at Charlottenburg, Prussia.

YOUR attention is directed to the Premium Offers on second page of cover. We have several thousand shells which we will distribute in this way to all subscribers sending us 50 cents after May 1, 1888.

The Conchologists' Exchange.

A Publication designed for Conchologists and
Scientists generally.

ISSUED MONTHLY

BY

WM. D. AVERELL,

EDITOR AND PUBLISHER

Correspondence upon Conchology, as well as reliable items of interest concerning the Mollusca, their habits, localities, etc., kindly solicited from all.

Matter for publication must be received by the tenth of each month.

Draw Money Orders upon Station H, Philadelphia, Pa.

SUBSCRIPTIONS.

One year, post-paid.....	50 cts.
Three months, ".....	15 "
Six " ".....	25 "
To Foreign Countries.....	62 "
To countries not in <i>Universal Postal Union</i>	75 "
Single copies.....	5 "

ADVERTISING RATES.

1/2 inch.....	\$.25	1 inch.....	\$.50
1 inch, 3 months.....	1.00	1/2 column, 1 month,	2.00
1/2 column, 3 months,	4.00	1 column, 1 month,	4.00
1 column, 3 months..	8.00	1 column, 6 months,	12.00

Entered at the Post-office at Philadelphia, Pa., as second-class matter.

SUBSCRIPTIONS TO VOLUME II ARE NOW DUE. FOR EXPIRATION OF SUBSCRIPTION SEE DATE ON WRAPPER.

Editorial Notes.

SEVERAL communications have been received asking us for our opinion upon what we shall term the Standard of Exchange. What shells to exchange, and how to exchange them to the best advantage, must be determined by the owners, while the number and quality of specimens to be sent must be regulated by the number and quality of specimens to be received; that is self-evident. The relative value of shells

in exchange should be determined by their rarity, condition and history. Should a shell be rare it cannot be reasonably expected for a common one. A *Scalvria pretiosa* would not be traded evenly, by a well-informed collector, for a *Purpura haemostoma*, simply because, as values run, shells such as these are greatly different in price. And so with all shells, concessions should be made and extra specimens sent by the collector offering ordinary shells for rarer ones. A reliable price list will be of great aid in adjusting exchanges. Condition is also a very important preliminary to a trade, as no one wants poor shells, and everybody wants good ones. There are occasions, however, when a poor shell is far more valuable than a good one, simply because of its rarity and value for study. In the case of rare bivalves a single valve is acceptable to many collectors who value true science above mere show and who prefer half a shell to none at all. Therefore, condition, while exceedingly important in exchanging, must depend upon rarity in many cases; while in a moral sense, and everything else being equal, it is both wise and safe to treat your correspondents liberally, and to send them as good shells as they send you. So far as possible shells sent in trade should have the epidermis, and should be free from borings, cracks and scratches. Bivalves should be matched, with hinge entire, and when belonging to the gaping genera, such as *Mya*, *Pholas*, *Petricola*, etc., should have as much of the mantle preserved as possible; teeth perfect, and umbones, unless *naturally eroded*, entire. Univalves should have the spire intact unless *naturally decollated* as in many *Melania*s, *Viviparas*, etc.; the operculum should be provided where possible; and in all cases the body-whorl should be entire and *not filed*. By the history of a shell we mean its name and location and other data which is ordinarily placed upon a label. Collectors offering shells with complete and accurate histories can command better trades than those having the material without that advantage. In these days of hurry we all want to save as much time as possible and readily recognize the importance of trading with those having desirable shells, in good condition, and provided with reliable histories.

Young Collectors' Corner.

The Conchologist in Bermuda:

BY J. MATTHEW JONES.

Each year, when the Autumn days return, and the sear and tinted leaves fall before the chilly blast, how often do we sigh in memory of "the days of auld lang syne" when the pleasant balmy breezes of the "still vex'd Bermoothes" kindly fanned us as we roamed along the coral strand, or traversed the half-submerged reef, laved by the tepid waters of the Gulf Stream, without whose aid those fair isles would not have been. Yes, if the conchologist could only command the wild bird's wing and flit from the rude north to the gentle south at his own sweet will, one flight would assuredly be to those dear old ocean isles where many a happy day was spent bagging the numerous specimens now stored away among our many treasures and valued more highly than purest gold.

Perhaps no locality in the wide world could present a more charming and interesting field to the conchologist, or perhaps we should say the general marine zoologist, than the Bermudas, for apart from the consideration that the position of the place is so remote from any other terrestrial formation, the chances of obtaining by thorough search, extremely rare and in several cases entirely new forms gives a smack of excitement to every day's investigations wholly unknown to the collector working on well known and exhausted shores.

First to attract the collector's attention are the Littorinas, here represented by northern forms, whose original habitat was the Caribbean Sea. *L. muricata* and *L. dilatata* are by far the most numerous, while *L. scabra* occurs in some abundance in the mangrove swamps, those sheltered inlets where the curious matted roots of that tropical tree sink deep into the rich mud watered by the flow of each coming tide. *L. ziczac*, although not rare, is yet not common, and *L. mauritiana*, which

we think may prove to be but a variety of *ziczac*, is very rare.

The Neritas come next, *Nerita tessellata* being especially abundant. *N. peloronta*, commonly called "bleeding tooth," is not by any means common, and the collector may consider himself lucky if he gets a dozen good specimens in his day's ramble. The mollusca appears to be gregarious, for it is rarely to be found singly, generally two or three together, and sometimes the minute young with them. Numbers of the dead shells of *N. tessellata* are tenanted by hermit crabs, and the little rock pools at low tide are rendered quite animated by the movements of these crustaceans carrying their burdens hither and thither, while the larger hermit crabs occupy the *Turbo pica* shells, and seem to keep away from the reach of the tide, and mounting in some cases even the higher ground of the cliffs, some fifteen or twenty feet above the sea.

Occasionally after a northerly storm, when the bays and inlets become filled with a solid mass of gulf weed (*Sayanum bucciferum*) the floating *Ianthina* of two species *communis* and *globosa* occur in myriads of all sizes, and with them and of the same lovely violet, the oblique *bellula*, of which whole fleets are stranded on the shelving rocks of the northern shore.

The Limpets are represented by *Fissurella barbadensis* and *Siphonaria brunnea*, the latter in great abundance adhering to the smooth water-worn shore rocks near high water mark, while the former shelter themselves underneath the tubular rocks or wherever they are not exposed to the force of the raging waters. *Chiton squamosus* occurs in great abundance, lining the smooth water worn sides of the channels and indentations of the shore rocks between tidal marks. Old and young are massed together. The largest I have ever taken measured 5 inches in length by 2 inches, 3½ lines in breadth. It is called "suck-rock" by the natives.

(To be continued.)

DON'T forget to tell your friends that THE CONCHOLOGISTS' EXCHANGE is alive and well, and that for 50 cents they can read it for one year, and get the choice of 3 fine Premiums.

EDITOR THE CONCHOLOGISTS' EXCHANGE:

Sir—Thinking it might be of interest to the readers of THE CONCHOLOGISTS' EXCHANGE, I give you herewith the result of one hours collecting at Onset Bay, Massachusetts:

<i>Urosalpinx cinerea</i> , Say,	50 specimens.
<i>Eupleura caudata</i> , Say,	5 "
<i>Fulgur carica</i> , Gmelin,	10 "
<i>Scotyptus canaliculatus</i> , Say,	8 "
<i>Phrontis vibex</i> , Say,	15 "
<i>Tritia trivittata</i> , Say,	50 "
<i>Ilyanassa obsoleta</i> , Say,	50 "
<i>Mitrella lunata</i> , Say,	100 "
<i>Neverita duplicata</i> , Say,	15 "
<i>Crepidula convexa</i> , Say,	25 "
" <i>foenicata</i> , Linn,	30 "
<i>Littorina palliata</i> , Say,	25 "
" <i>littorea</i> , Linn,	50 "
<i>Bitium nigrum</i> , Stimp,	125 "
<i>Tritorix nigrocinetus</i> , Adams,	25 "
<i>Collisella testudinatis</i> , Mull,	3 "
<i>Chatopeura apiculatus</i> , Say,	2 "
<i>Melampus bidentatus</i> , Say,	20 "
<i>Ensatella Americana</i> , Gould,	10 "
<i>Solecurtus gibbus</i> , Spengler,	5 "
<i>Macoma fusca</i> , Say,	25 "
<i>Crassostrea mercenaria</i> , Linn,	10 "
<i>Mya arenaria</i> , Linn,	20 "
<i>Argina pexata</i> , Say,	20 "

They were mostly live specimens.

Specimens of *Mitrella lunata* were very plentiful upon the sea-weed, from which I collected them by scraping with a small piece of wood, from the sea-weed upon a large flat rock, and thence into a small bottle.

The specimens of *Phrontis vibex* seemed to form a small colony, and were only found in a small space about one foot square, and nowhere else in the bay.

Fulgur carica and *canaliculatus* were very large, handsome specimens, averaging from six to seven inches in length.

I also wish to report the finding of a specimen of *Zirphæa crispata*, Linn, at Newport, R. I., which had escaped the ever watchful eye of Mr. Carpenter.

This is the first specimen of *Zirphæa crispata* which has to my knowledge been found in Rhode Island; they are found at Nahant Beach, Mass., very large and fine; my specimen is a very small one, but perfect in every respect. Length, $\frac{1}{2}$ inch; height, 5-16.

Providence, R. I., Ap. 23, 1858. F. C. BAKER.

It is said that Herr Ladewigg, a German, has invented a paper that resists the action of both fire and water. It is composed of 25 parts of asbestos fibre, with from 25 to 30 parts of aluminum sulphate, after which the mixture is moistened with chloride of zinc and thoroughly washed in water. It is then treated with a solution of 1 part of resin soap in 8 to 10 parts of a pure aluminum sulphate, after which it is made into paper in the usual way.

Exchanges.

FREE TO SUBSCRIBERS.

Terms to NON-SUBSCRIBERS, which must be cash with order, are as follows: Exchanges of 20 words, including address, 10 cents; for each additional 10 words the charge will be 5 cents. No exchange will be inserted for less than 10 cents.

Shells of San Francisco Co. in return for those of any other county of the United States. WM. R. ECKART, JR., 2906 California St., San Francisco, Cal.

Offered.—Land, fresh water and marine shells. *Helicina occulta*, Say (recent and fossil); *Punctum Pygmaeum*, Drap; *Pupa Blandi*, Morse (fossil); *Marg. Hildrethiana*, Lea; *Aemæa testudinatis*, Mull; etc. etc.

Wanted.—*Strepomatidae*, *Viviparidae*, *Limnaeidae*, *Pupidae*, *Succinea Corbiculada*, *Unionidae*. B. SHIMEK, Iowa City, Ia.

Wanted.—Land shells of Florida and Texas. Offered.—50 species of California Marine, 150 species of Foreign Land and Marine Shells. G. W. MICHAEL, JR., Morro, Cal.

Offered.—*Unio alatus*, Say, *plicatus*, Leseuer, *fragosus*, Con., *trigonus*, Lea, *Margaritana complanata*, Say, and many others, for marine shells. JOSEPH ANDERSON, Box 1955, Muskegon, Mich.

Offered.—70 species of inland and 50 of marine shells for other shells. Send your list for ours. JOHN M. HOLZINGER, Winona, Minn.

Will exchange a fine set of Agassiz Con. Nat. Hist., 4 vols., 4to cloth, for old historical works. S. W. HUMPHREY, Dedham, Mass.

A collection of minerals, 50 varieties, for a collection of stamps, coins or Indian relics. All letters answered. WILL. P. ARNOLD, Shannock, R. I.

Offered.—*Unio lens*, *subrostratus*, *Æsopus donaciformis*, *metanevrus*, *ellipsis*, *pustulatus*, *alatus*, *Marg. complanata*, *marginata rugosa*, *Anodonta fragilis parvona*, *piana*, *grandis* (said by Mr. W. A. Marsh to be very fine and nearly typical.) *Pleurocera undulatum*, *troostii*, *florencensis*, *Sph. truncatum*. Lists exchanged. A printed list of Hendricks county shells will be sent on application. C. A. HARGRAVE, Danville, Ind.

Offered.—300 species land, fresh-water and marine shells in exchange for others. Correspond in Volapuk where possible. A. A. HINKLEY, DuBois, Ill.

STANDARD WORKS ON CONCHOLOGY.

SOLD ONLY FOR CASH.

CONCHOLOGY.

Tryon, Geo. W. Jr. STRUCTURAL AND SYSTEMATIC CONCHOLOGY, and, also, MANUAL OF CONCHOLOGY. The latest works for Conchologists. Subscriptions taken and filled. Circulars sent on application.

SPECIAL NOTICE:—Second-hand copies of **Tryon's** STRUCTURAL AND SYSTEMATIC CONCHOLOGY for sale at \$5.00—Cash. Postage prepaid.

Woodward. MANUAL OF THE MOLLUSCA, with Appendix, by Ralph Tate, 612 pp.; 23 plates, 441 figures, 270 illustrations. London, 1880 edition. Price \$2.50, postpaid. Formerly, \$2.60.
The same, 1875 edition, \$1.60 postpaid.

Keop, Josiah. WEST COAST SHELLS. The latest work on California and other West Coast Mollusca. Especially adapted to young collectors. Price \$1.75, postpaid. See advertisement.

Synonymy of the Species of Strepomatidae. (Melanians) of the United States. By GEO. W. TRYON, JR. Price in cloth, \$2; paper, \$1.75, postpaid.

List of American Writers on Recent Conchology, with Titles of their Memoirs and Dates of Publication. By GEORGE W. TRYON, JR. Cloth, \$2; paper, \$1.75, postpaid.

Monograph of the Order Pholadacea and other Papers. By GEO. W. TRYON, JR. Price in cloth, \$2; paper, \$1.75, postpaid.

Complete Writings on Recent and Fossil Conchology of C. S. Rafinesque. Edited by WM. G. BINNEY and GEO. W. TRYON, JR. Cloth, \$2.60, postpaid.

Descriptions of Shells of North America, with 68 colored plates. By THOMAS SAY 1830-34. Price \$10.50, postpaid.

Ruschenberger's Elements of Conchology from the Text of Milne-Edwards and Achille-Comte. '43 edition, 25 cents pp.; '46 edition, 30 cents pp.

Lea, Isaac. SYNOPSIS OF THE FAMILY OF NAIADES. 4to, bds., '52 edition. Price \$2, postpaid.

Monograph of the Terrestrial Mollusca of the United States, with illustrations of all the species. By GEO. W. TRYON, JR. Fine edition, plate paper, with duplicate plates colored and tinted, \$20; colored edition, \$13.50; plain edition, \$8.50.

Bernardi. GALATEA ET FISCHERIA, 49 pages, 10 plates, 42 beautifully colored figures, 4to, Paris, 1860. Slightly foxed. Wheatley's copy. Price \$4, postpaid.

Monograph of the Fresh-Water Univalve Mollusca of the United States. By S. S. HALDEMAN, 1840-44, with continuation to 1871, by GEO. W. TRYON, JR.; 2 vols., with many colored plates; fine edition; duplicate plates, \$40; with colored plates, \$26; with plain plates, \$18.

American Journal of Conchology, 1865-71. Seven vols., 8 mo., 2500 pages, illustrated by 150 plates, many colored, besides about a thousand wood engravings. Published at \$70. Price for 7 vols., new, complete, \$25.

Mollusca of Massachusetts. By W. G. BINNEY, Boston, 1870; 529 pp.; 12 plates, 11 colored; 134 figs.; 406 ills.; 8vo. New, unused. Price, postpaid, \$15.

Baldwin, D. D. Land Shells of the Hawaiian Islands, 9 pages, paper. Price, 25 cts. post-paid.

Wright, Berlin H. 'Check List of North American Unionida and other Fresh Water Bivalves; 8 pages, paper. Just issued. Price 25 cents, post paid.

MISCELLANEOUS.

Random Notes on Natural History. This journal, now out of print, is rapidly becoming scarce. We offer the back numbers containing the previous chapters of Mr. H. F. Carpenter's very instructive article upon "The Shell Bearing Mollusca of Rhode Island," Mr. John Ritchie, Jr.'s "Check List of Shells," besides numerous articles of interest to the conchologist, at the following prices:

Vol. I, complete,	\$1 50
Vol. I, minus Nos. 1 and 2,	1 00
Vol. II, complete,	1 00
Vol. III, complete,	75

Postage extra in each case at the rate of six (6) cents per volume.

American Journal of Science and Art. Vol. XI, 1876. Unbound. Complete \$3.75, postpaid.

Description of the Inferior Maxillary Bones of Mastodons, &c. 10 plates, 25 pp. By Isaac Hays, M. D. Price, post-paid, 50 cts.

Agassiz. Methods of Study in Natural History. 327 pp. ills., 1875. Post-paid, \$1.15.

ADDRESS

The Conchologists' Exchange

CHESTNUT HILL,

PHILADELPHIA, PA., U. S. A.

594.05
NA
v.3 No.1
o.1

\$1.00 per Year.

10cts. a copy.

THE NAUTILUS

A JOURNAL
DEVOTED TO THE INTERESTS
OF CONCHOLOGISTS.

ESTABLISHED IN 1886 AS "THE CONCHOLOGISTS' EXCHANGE."

L. III.

MAY, 1889.

No. 1.

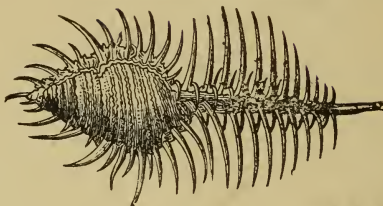
CONTENTS:

	PAGE.
Introduction	1
Notes on the soft parts of <i>Trochus infundibulum</i> Watson, with an account of a remarkable sexual modification of the epipodium. Dr. Wm. H. Dall.	2
CAST UP BY THE SEA. E. W. Roper.	5
GENUS MAKING. Chas. T. Simpson.	5
STRIÆ	8
On <i>Paludina scalaris</i> Jay.— <i>Patula cooperi</i> in Colorado.— <i>Limosina</i> in Texas.—Bermuda land snails.—A new Floridan <i>Bulimulus</i> .	
NOTES ON THE GENUS CYPRÆA. John Campbell.	10
PUBLICATIONS RECEIVED	12
ADVERTISEMENTS.	ii, iii, iv.

PHILADELPHIA:

Published monthly by H. A. PILSBRY and W. D. AVERELL.

Entered at Philadelphia Post-Office as second-class matter.



STANDARD WORKS ON CONCHOLOGY.

SOLD ONLY FOR CASH.

- STRUCTURAL AND SYSTEMATIC CONCHOLOGY.** By Geo. W. Tryon, Jr. New, complete, cheap edition. Illustrated. \$8.00, postpaid.
- WOODWARD'S MANUAL OF THE MOLLUSCA.** Appendix by Ralph Tate. Last edition, \$2.75, postpaid.
- KEEP'S WEST COAST SHELLS.** A fascinating book for collectors, young and old. 182 illustrations. \$1.75, postpaid.
- BALDWIN'S LAND SHELLS OF THE HAWAIIAN ISLANDS.** 25c., postpaid.
- WRIGHT'S CHECK LIST OF N. A. UNIONIDÆ, &c.** 25c., postpaid.
- RANDOM NOTES ON NAT. HISTORY.** Containing H. F. Carpenter's article, "The Shell-Bearing Mollusca of R. I.;" and Ritchie's "Check List of Shells." Vol. 1, minus Nos. 1 and 2, 75c.; Vol. 2, 60c.; Vol. 3, 60c. Postpaid.
- THE CONCHOLOGISTS' EXCHANGE.** Back numbers. Vol. 1, minus No. 1, 50c.; Vol. 2, Nos. 1 to 9, 35c. Postpaid.

Orders taken for Tryon's Manual. Conchological, and other works not in stock, supplied at short notice.

PRINTING IN ALL ITS BRANCHES, NEATLY AND PROMPTLY EXECUTED, AND ESTIMATES FURNISHED.

W. D. AVERELL, Mt. Airy, Phila., Pa.

PUBLICATIONS FOR SALE BY THE CONCHOLOGICAL SECTION, ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

STRUCTURAL AND SYSTEMATIC CONCHOLOGY, A Guide to the Study of Mollusca.

BY GEO. W. TRYON, JR.

- CHEAP EDITION.** Text on thin paper. Illustrations (printed on both sides of the pages), also on thin paper. 3 volumes bound in one, cloth, \$8.00
- PLAIN EDITION.** All the plates uncolored, but on plate paper. Letter-press same as in colored edition. 3 volumes, cloth (28 copies only unsold), \$16.00
- COLORED EDITION.** Seventy-two plates of recent shells colored; the other plates uncolored. Text printed on 50 lb. fine white paper. 3 volumes, cloth binding (8 copies unsold), \$25.00

MANUAL OF CONCHOLOGY.

BY GEO. W. TRYON, JR.

Continuation by HENRY A. PILSBRY.

- FIRST SERIES.**—Marine univalves, Vols I to X.
SECOND SERIES.—Terrestrial Mollusks, Vols. I to V.

Address for circulars giving contents,

S. RAYMOND ROBERTS,

Treasurer Conchological Section,

Logan Square, Philada., Pa.

Philada. Acad. Nat. Sciences.

THE NAUTILUS.

VOL. III.

MAY, 1889.

No. 1.

INTRODUCTION.

THE publishers of THE NAUTILUS feel that no explanation of their object in offering this journal to the scientific public is necessary. The need of an American publication devoted especially to the interests of Conchologists is felt throughout the country. One of the greatest difficulties which the student of science has to overcome is found in the scattered and fragmentary character of scientific literature. The "Proceedings" or "Transactions" of a hundred societies, and the pages of innumerable journals must be searched through before one can be certain that a given fact or observation has or has not been recorded.

The simplest way to better this condition of things will be to limit by some means the number of publications in which a certain subject is likely to be treated upon; and this is most easily done by establishing journals devoted to special branches of science. It is the aim of THE NAUTILUS to afford such a medium for all who are interested in studying the Mollusca; and to this end the co-operation of all friends of science is solicited.

All subscribers to the *Conchologists' Exchange* (of which this paper is the successor) will be credited on the books of THE NAUTILUS with the amounts due them upon the suspension of that journal. All subscribers will be allowed one insertion of twenty-five words in the Exchange Column, free of charge.

NOTES ON THE SOFT PARTS OF *TROCHUS INFUNDIBULUM* WATSON
With an account of a remarkable Sexual Modification of the
Epipodium, hitherto undescribed in Mollusca.

BY WM. H. DALL, CURATOR DEPT. OF MOLLUSKS, U. S. NAT. MUSEUM.

The presence of a verge, or intromittent male organ, has hitherto, among the Rhipidoglossate Mollusks, been recorded only in *Neritina* (Claparède) and certain Limpets. The organ as it exists in *Neritina* and *Nerita*, is so short and obscure that its function and even its existence has been called in question. When I showed its existence in the rather anomalous *Addisonia paradoxa* and *Cocculina spinigera*, curious deep-sea limpets, it was questioned whether they were not peculiarly modified *Tænioglossa*.

Since then, in several deep-sea Mollusks, such as *Rimula*, *Margarita* and others indisputably belonging to the *Rhipidoglossa*, I have found a well-developed verge; and there is little doubt that the ancestors of this group, as well as of the *Tænioglossa*, were so provided, and that some of these deep-sea forms have retained the organ now generally obsolete in their shallow water congeners. In combination with this survival, one of the species, *Trochus infundibulum* Watson, offers a singular and very interesting special modification of the anterior portion of the epipodium on the right side, which appears worthy of particular attention.

The soft parts of this species afford several notes of interest. The external parts, except the eyes, are white. The foot is wide, straight and double-edged in front, and, as far as one can judge from specimens contracted in alcohol, must have been somewhat pointed or produced at its anterior corners in life. The sides of the foot are nearly smooth, below the epipodial line.

The muzzle is small and slender at its proximal end, enlarged and transversely semi-lunar at its distal extremity. The oral surface of the muzzle is smooth, the mouth very small; the oral disk is flat and produced on each side into a thin linguiform lappet, with simple and entire edge. These lappets are remarkably long, their ends reaching as far as the ends of the true tentacles, and serve as tactile organs, like the oral tentacles of the *Lepetidae*, or the much smaller lappets of *Acmæa*. When not feeding, or seeking food, these lappets would seem to be applied to the sides of the foot below the epipodium.

The oral disk is entire, but is slightly indented in the median line below a furrow running up toward the mouth.

The cephalic tentacles are very stout and large, very elongate-conical, with moderately pointed tips. They are situated above, and not, as in most *Trochidæ*, on each side of the muzzle. Their inner bases are connate, and there is no intertentacular "veil," or any tubercular traces thereof.

The eyes are large, strongly pigmented, ovoid, and sessile on the outer bases of the tentacles, or perhaps I should say, just by the outer bases. They are not pedunculate or elevated on pedicels in any of the specimens examined, and I am quite confident that this is not caused by the contraction due to alcohol, but is normal to the species.

The epipodial apparatus is complicated, and exhibits a certain amount of variation between different individuals in the situation and number of its processes. In the males, it is subjected to a remarkable modification for sexual purposes. The epipodium begins immediately behind the eye and a trifle below it. In the females it is produced into a large broadly linguiform process, half as long as the cephalic tentacles and fringed with close-set uniform small pointed papillæ or filaments. This process exists in the male on the left side. The posterior margin then curves in toward the side of the foot; it becomes quite narrow and shows two lateral tentacles of moderate size; then a vacant space; then at the front edge of the operculum two or three filaments, small, but larger than any in the vacant space; then another, but larger one; and finally another, which is behind the middle of the operculum, and is the last on that side. The epipodial line is continued to the end of the foot, the dorsal surface above it, being transversely rugose and with a linear median furrow. On the other (right) side we find a small, a large, two sub-equal small, another large filament, followed by a slight gap and then by a still larger tentacular process. The flap which corresponds to the fringed process on the left side, is remarkably modified in the male.

Behind, and close to the right eye, is a small tubular, longitudinally striate, cylindrical verge, not exceeding (in alcohol) two millimetres in length. Below it the epipodial flap is enormously produced, and its front edge is rolled backward upon itself, forming a tube into the proximal opening of which the end of the verge may project. The flap is rolled so that it makes nearly two layers, and thus a very capable cylinder, which, when unrolled and released,

will immediately coil itself up again. This cylinder is of subequal diameter throughout, and is as long as, and somewhat stouter than, the cephalic tentacles. Externally, near its base, it is nearly smooth; further out, it is spirally striate; near its extremity, it becomes thicker and rather deeply externally grooved longitudinally, with short, even, close-set, slightly spiral, grooves. The opening at the distal end is fringed with short, equal papillæ, each one corresponding to the thickened interspace between two of the grooves. These raised folds, or interspaces, are also finely transversely striate. At the base of the cylinder, the epipodium extends backward to the first lateral filament; and the margin of this part is perfectly entire and simple, showing neither fringe nor granulation. The object of this apparatus is self-evident. The cylinder serves as a *conduit for the seminal fluid ejected from the verge*. Whether it may be employed in an actual copulation is doubtful; it may merely serve to spread the seminal matter over the eggs as they are deposited by the female. I am not aware that anything of this sort has been observed in any other gastropod, up to the present time.

The edge of the mantle is smooth, entire, and slightly thickened. Within the nuchal chamber the anus is visible on the right side. The end of the intestine, for a considerable distance, is free from the mantle and projects like a tentacle. The termination is slightly constricted, then enlarged into a cup, or trumpet-shaped ending, which nearly reaches the mantle-edge.

The intestine itself, after leaving the stomach, is much convoluted, but in the main, rises and is brought forward nearly to the mantle-edge above the stomach; then turns back and is carried far into the visceral coil before it is again brought forward and terminated as above described. The food consists of Foraminifera.

The gill is free, except at its base, and consists of very elongate-triangular foundation, from which depend triangular lamellæ, without a raphe and wide at their bases. These grow larger proximally.

The operculum is thin, polished, amber-colored, centrally depressed, having a central projection, or nipple, on its under-side, and consists of about four whorls.

The specimen affording the above notes has been identified with Mr. Watson's type specimen, and is now deposited with it in the British Museum. It was dredged by the U. S. Fish Commission east of Chesapeake Bay, in 1685 fathoms.

CAST UP BY THE SEA.

BY E. W. ROPER, REVERE, MASS.

While cleaning up the trophies of a recent successful trip to the beach, I wondered if my fellow shell collectors, who live near the sea-shore, appreciate the need of closely following up the storms. It is not enough to go occasionally. The beach ought to be searched every time a strong on-shore wind brings in a heavy surf. And the visit ought to be made at the first low tide. Another flood tide with change of wind may bury the most precious treasures under the sand. I may go nineteen times to the three-mile beach near my home, and get nothing new, although I should never come home empty handed; but on the twentieth visit a shell is found of a species I have not before collected. Once it was a little red *Margarita undulata*; and again a *Bela harpularia*. Only the enthusiastic collector knows the peculiar pleasure of such discoveries, and only the collector experiences a pang at the sight of some rare shell hopelessly broken, as I have many times seen the fragile *Thracia conradi*. The latter and other bivalves live beyond low-water mark, very likely so deep in the sand that a dredge would pass over them. But in a heavy easterly gale the great breakers, pounding on the outer bar at low tide, plow up their home, and rolling over and over, the helpless shells are brought to shore by the incoming tide. It is noticeable that seldom do two storms bring in a similar class of shells.

I remember one gale which literally strewed the beach with tens of thousands of the "little amethystine gems" which Totten called *Venus gemma*. Another time the razor shells and the pretty *Machæra costata* will suffer, and again the prevailing species will be *Lunatia*, *Buccinum* and *Fusus*. Eight times, in as many years, I have found the large *Solemya borealis*, twice alive. The little *S. velum* is more common. Once I captured a living *Pecten tenuicostatus* of large size. How violently he opened and shut his shell when placed in a shallow pan of fresh water! But in spite of assiduous collecting I can note less than seventy marine shells found in Revere. Doubtless collectors on more southern shores can find a greater variety.

GENUS MAKING.

BY CHAS. T. SIMPSON, TAGGART, MO.

Genus making is the fashion now-a-days with a certain school of conchologists. Parties addicted to this work have access to good

libraries and an extensive collection of shells, and their whole aim in life seems to be making new genera. In some one of the older groups a few species are found, having a certain peculiar pattern of sculpture or coloring, or some little singularity in the fold of the columella or hinge teeth, and presto, a genus is formed and the science is burdened with another name!

These genus-makers never stop to see whether this slight peculiarity does not imperceptibly shade out into other species which are not as marked; this is no business of theirs; the main point seems to be the attaining of a sort of cheap reputation for scientific knowledge.

According to Tryon's Structural and Systematic Conchology, there were, at the time of its publication in round numbers, about 6,000 of these so-called genera, besides a great many synonyms, a number which has been largely increased since that date. Even the old genus *Helix*, without *Nanina* and *Zonites*, has some 200 of these names, many of which have never been characterized. No doubt our increasing knowledge and the good of the science has demanded that some of these older genera should be divided. In days gone by the name *Pyrula* embraced a large proportion of the marine univalve shells, having a short spire and lengthened canal, while *Fusus* included about all with a similar canal and elevated spire. So *Buccinum* was a miscellaneous group, characterized principally by a notch at the base of the aperture. As now generally recognized, *Pyrula* includes only pear-shaped shells of thin papyraceous structure, *Fusus* a sort of spindle-shaped species, and *Buccinum* a small, well-defined, perfectly natural group.

I am aware that those who favor this dismemberment of the older genera claim that many of these groups are too large for studying advantageously, and that the variation from the type of a genus is very gradual through long series of species, to forms which are so different from the type that no description will cover the whole, and the very ambiguous description of *Helix* is quoted as an example of this. Mr. Binney, in the Manual of American Land Shells, says: "In common with all who have studied the Pfeifferian genus *Helix*, I have long been convinced of the necessity of recognizing among its species numerous distinct genera. * * * Before recognizing these groups as distinct genera, I desire to wait until we can ascertain whether generic characters can be found in the jaws and lingual dentition, as well as in the shells. Convinced that characters cannot be found in these organs, or in the genitalia, I adopted, in that work,

(Terr. Moll., U.S.) the dismemberment of the genus so much demanded by the number of its species, founding the distinction on the shell alone."

It was as if the court had made up its mind beforehand, but had waited for the evidence to establish the decision, and when the evidence did not support it, the decree was rendered just as the court had intended all along. Many of these so-called genera of *Helix* have no value at all, and others so little as to be almost worthless for purposes of classification. Our well-known *Mesodon* runs into *Triodopsis*, and *Arionta* and *Aglaia* cannot always be separated. Tryon at one time placed *Helix devius*, Gould, in the genus *Mesodon*, and at another time he, as well as Mr. W. G. Binney, called it a *Triodopsis*. Tryon put *Arionta townsendiana*, Lea, in the genus *Mesodon*, and Mr. Binney regards *Aglaia hillebrandi*, Newc., as a varietal form of *Arionta mormonum*. And I might give such illustrations to the end of the chapter, all of which go to show that even among the savants these so-called genera are well nigh valueless.

But let us suppose that in any of the larger genera there is a chain of species varying from the type to those which are very unlike it; that the variation is very gradual throughout the species. I cannot see that dividing such a genus into a dozen, a hundred, or a thousand genera is going to help the matter or give us any clearer insight into the relationship of the species. I think that the classification should be founded on nature, or in other words, that nature should do the classifying, and that our efforts should be directed to deciphering the Old Dame's work. And if a distinction does not exist between certain so-called species and genera, it is useless to put it there, as it will simply require that somebody in the future, when the truth is reached, will have to throw it out.

The genus *Unio*, with its thousand species and endless variations, has been divided into a number of sub-genera by the genus makers; but a *Unio* is a *Unio* for all that, and the merest novice in conchology would recognize it as such in a moment; while probably not one conchologist in a hundred could tell a *Bariosta*, Raf., from a *Hyridella*, Swains. Dr. Isaac Lea showed his great knowledge of this subject when he grouped them into mere divisions founded on form and sculpture.

I think the time has come when a healthful reaction from this fever of creating genera and species should set in. Such work simply renders the science of conchology contemptible, and it is a veritable

stumbling block to the ranks of the beginners. To these the science should be rendered as simple and attractive as possible, and they should rather be encouraged than discouraged by a formidable array of names without meaning. No one but an expert, a closet naturalist, who sits in his snug alcove, surrounded by scientific books and collections, and who devotes his entire time to the study, can keep track of the names introduced by this mania, and I doubt if many of these can do it.

The old landmarks of the noble science are going one by one, and we should seek to fill the ranks from the young and enthusiastic, from those who have a living to make, and cannot devote their whole time to puzzling over a lot of names that even their authors did not comprehend, and only inflicted upon the world for the sake of gaining notoriety.

STRIÆ.

Paludina scalaris, Jay. Apropos of Mr. Pilsbry's interesting note on this species, I would call attention to the fact, which does not seem to be well understood, that *Ameria* has been shown *in toto* to belong not to the *Physidæ*, where it was originally placed, but to the *Limnaeidae*. As there are rounded and carinate *Planorbis*, so there are rounded and carinate *Ameria*. Whether *Ameria* is more or less than a section of *Planorbis* is a question, but it seems to me that the high form of the shells is at least as well worthy of recognition by a name as *Gyraulus*, *Helisoma*, and other forms commonly so recognized. Whether *A. scalaris* belongs to the *Limnaeinae* or the *Planorbinae* should be easy of determination since the form of the tentacles would serve to decide this at a glance. Wm. H. Dall, Smithsonian Institution, Washington, D. C.

Patula cooperi, in Colorado and Utah. This interesting species is extremely common in parts of Colorado, and also, it would appear, in the Wahsatch Mountains of Utah, where it is accompanied by four others of the same group. It is decidedly variable and for reference it may be useful to class the principal varieties as follows: a. *typica*, the ordinary form in Colorado, with two distinct bands, diameter 19 to 25 mill.; b. *elevata*, spire elevated, Utah (Hemphill) and Colorado, a specimen found by Surface Creek, Delta Co., had alt., 12½, and diam. 16 mill; c. *minor*, very small, Utah (Hemphill); d. *confluens*, bands confluent, shell therefore brown with a broad white band above the periphery and a white umbilical region, Col-

orado, by the Grand River, in Garfield Co., and by Plateau Creek, in Mesa Co.; e. *trifasciata*, with three bands, one above the periphery and two below, all distinct, the area between the first band and the suture marbled with brown, Mamé Mountains, Mesa Co., Colorado; f. *alba*, white with rough striæ, Utah (Hemphill). Hemphill also mentions a white variety of *Patula strigosa*, Gld., from Utah, which may be called var. *alba*.

I have recently found *Cochlicopa lubrica* and *Hyalina radiatula* near here. Also *Lirnaea truncatula* and two species of small *Pupæ*, which may be new. Theo. D. A. Cockerell, West Cliff, Col.

ON the occurrence of *Limosina* in Texas. According to Prime, the species of this group are "widely and abundantly distributed through Central and South America and the West Indies," to the exclusion of the equally abundant species of *Sphærium* peculiar to the United States. Several years ago Mr. G. C. Heron sent me three specimens of a *Sphærium* from Cedar Creek, Hudson Co., Texas, whose unusual shape and mottled epidermis at once struck me as peculiar. On sending one of the specimens directly to Mr. H. A. Pilsbry, of the Philadelphia Academy of Natural Sciences, for identification, I was informed that he could not satisfactorily identify it with any known species, but that it was nearer to *L. cubense* Prime, than to anything else, although for the present the specific identity of the specimen must remain uncertain. The occurrence of this group, hitherto unknown to our fauna within the United States, would seem to be a fact worthy of record. Bryant Walker, Detroit, Mich.

H. (Fruticicola) similaris, Fer., *Triodopsis appressa*, Say, *Stenogyra decollata*, L., in Bermuda. All three have been probably introduced in the past 25 years. During a recent visit, I found the first mentioned near the Government house in Hamilton. The second species was shown me by Miss A. M. Peniston, of The Flatts, who secured it from Mr. Bartram. It occurs near St. Georges. The last species is so common it threatens to become injurious to the crops there. It was introduced with some European plants, and first made its appearance at Mt. Longdon. *Stenogyra octona* Chem., is also found upon the island, and is not mentioned by Bland. T. H. Aldrich, Southern Ave., Cincinnati, Ohio.

In the *Western American Scientist* for April, p. 8, Mr. Berlin H. Wright has described as new, under the name of *Bulimulus hemphilli*, the species figured by Binney (Manual N. A. Land Shells, fig. 440) as a variety of *B. floridanus*. The form in question should be compared with *B. marielinus* Poey.

NOTES ON THE GENUS *CYPRÆA*.

BY JOHN H. CAMPBELL.

Since the publication of the latest monograph on the genus *Cypræa*—that by Mr. Roberts in Tryon's Manual of Conchology—four new species have been described, viz:—

Cypræa amphithales Melvill, *South Africa*.

Cypræa caput-draconis Melvill, *Hong-Kong*.

Cypræa Hungerfordii Sowerby, *Hong-Kong*.

Cypræa Rashleighana Melvill, *hab. unknown*.

Each of them has been described, apparently, from a single specimen, and it is not at all certain but that two of Mr. Melvill's species, *amphithales* and *caput-draconis* may turn out to be mere varieties.

In Mr. Melvill's "Survey of the genus *Cypræa*," reprinted in pamphlet form in Manchester, England, last year, a large number of new varieties of known species are described—some of them founded upon mere color variations. Most of them seem to me unnecessary additions to shell nomenclature. Tryon and Roberts recognized 146 species of *Cypræa* proper and 40 species of *Trivia*—making 186 species in the genus. Mr. Melvill, in his survey, differs with them upon some points. He changes *C. princeps*, Gray, to *C. valentia*, Perry; *C. undata*, Lam., to *C. diluculum*, Reeve; and *C. turdus*, Lam., to *C. ovata*, Perry; reduces from specific to varietal rank, *C. reticulata*, Martyn; *C. coxi*, Brazier; *C. polita* Roberts; *C. semiplota*, Mighels; *C. cernica*, Sowerby; *C. coxeni*, Cox; *C. sophie*, Brazier; *C. microdon*, Gray; *C. macula*, Adams; and *C. fuscomaculata*, Pease; and advances to specific rank the following varieties: *C. caput-anguis*, Phil.; *C. fabula*, Kiener; *C. coffea*, Sowerby; *C. menkeana*, Deshayes; *C. brevidentata*, Sowerby; *C. bregeriana*, Crosse; *C. comptoni*, Gray; *C. depauperata*, Sowerby; and *C. scabriuscula*, Gray.

I have lately received a fine specimen of *C. bregeriana*, Crosse, *New Caledonia*, from Mr. G. B. Sowerby, of London, who writes to me that he is now of the opinion that it is a good species and not a variety of *C. walkeri*, Gray, as he thought it to be when he published his monograph in the *Thesaurus*. Mr. Roberts also make it a variety of *C. walkeri*. Weinkauff and Melvill give it specific rank, as does also Mr. Richard C. Rossiter, of *New Caledonia*. I think it is, undoubtedly, a good species. The white specks are characteristic and are not found in *C. walkeri*.

A large series of specimens of *C. cervus* Linn. and *C. exanthema* Linn., which I have in my collection, leads me to doubt whether these two species are really distinct. No authentic localities outside of Panama and vicinity, West Indies, Florida and Southeastern United States are known in connection with either of them, and they are found indiscriminately in the localities named. A beautiful set of specimens of *C. cervus*, from the South Florida Keys, are in the Academy of Natural Sciences of Philadelphia. I have spec-

imens of both species from several localities in the West Indies, and the characters described in the books do not hold good to separate them. It is a pity that some naturalist has not examined the animals.

It is also doubtful if *C. exusta* Sowerby, and *C. talpa*, Linn, are distinct. I have a specimen of the typical *C. exusta* from Mr. Sowerby, and another which I received from Mr. Damon, of Weymouth, England, seems to me to connect the two species. Weinkauff may be right in making *C. exusta* a variety of *C. talpa*.

The opinion held by some that *C. decipiens* Smith, was a dwarf variety of *C. thersites* Gaskoin, has been definitely set at rest by Mr. Sowerby receiving last summer, a number of fine specimens of *C. decipiens* from Australia. I was fortunate enough to obtain one of them—probably the first specimen that has reached America. It is certainly a good species, and one of the most beautiful of all the Cypreæ. The palm of beauty probably lies between it and *C. aurantium* Martyn. By the way, the fabulous prices given for the last-named shell are things of the past. Instead of costing anywhere from \$50 to \$100, a good specimen can be obtained for \$15, and the finest kind of one for \$20 to \$22. It is no longer a rare species, but can readily be obtained from any of the prominent shell-dealers of Europe.

Philadelphia, April 10, 1889.

THE SHELL-BEARING MOLLUSCA OF RHODE ISLAND.

BY HORACE F. CARPENTER.

Chapter XLV.

SUB-ORDER INTEGRIPALLIATA.

Siphons short, not retractile; pallial impression simple, without sinus. This sub-order, contains fifteen families.

FAMILY CYRENIDÆ.

Shell regular, oval or sub-trigonal, covered with an epidermis; hinge with two or three teeth in each valve; lateral teeth, two, simple or striated; ligament external; pallial impression simple, or with a short sinus.

This family has been made the special study of Mr. Temple Prime, a lawyer of N. Y. City, who is authority on this subject. He published, in 1865, a monograph of the species inhabiting the American Continent, illustrated with figures and giving all the synonyms, localities and other items of interest concerning them. In 1871 he published a catalogue of all the species in the world (of this family), known to date. He divided it into six genera and three hundred and twenty-two species, of which one hundred and eleven are American. There are now recognized seven genera and nearly four hun-

dred species. Four genera are represented in America, three in the U. S., and two in New England.

Genus *Sphærium*, Scopoli.

The genus *Sphærium* was characterized under its present name by Scopoli in 1777. It has borne some fourteen different names, but has been better known to conchologists, especially in Europe, by the name of *Cyclas*, given by Bruguière in 1792. Gray revived the name of *Sphærium* in 1847, and Mr. Prime was the first in America to recognize its claims. There are seventy-five species distributed world-wide; they are found in rivers, ponds, lakes and ditches, in fact, in all bodies of fresh water, but are more abundant in species and in individuals in the northern parts of our country than in any other section of the world. Four species inhabit Rhode Island, and possibly more.

170.—*Sphærium partumeium* Say.

I shall not attempt to give the synonymy of this, or any of the species of this genus, or of the next to follow; it would be a wearisome and a thankless task; these shells are so little known, and the animals inhabiting them have been so little studied that the synonymy is but an entangled mass of errors. For the benefit of those who might desire to study deeper into the subject, and to post themselves in regard to the views of authors who have written upon it, I would refer them to Prime's "Monograph of American Corbiculidæ," published by the Smithsonian Institution, at Washington, D. C., 1865.

Sphærium partumeium was first described by Say in Journ. Acad. Nat. Sci., Philadelphia, ii, 380, 1822, under the name of *Cyclas partumeia*. It is distributed all over the U. S., east of the Rocky Mountains, and its habitat is in stagnant pools and muddy ponds. The animal is of a delicate pink, and the syphonal tubes of the same color. The shell is rounded-oval, thin, fragile and pellucid; nearly equilateral; beaks central, calyculate approximate at the apex; epidermis glossy, light greenish or bluish in color; interior of valves light blue; hinge margin nearly straight, curving gradually into the anterior margin, but curving behind, so as to form an obtuse angle, causing the posterior side to appear broader; cardinal teeth strong; lateral teeth much elongated. The young shells are more compressed than the adult, and are of a light yellow color. Length of shell, 9-20, height, 2-5, breadth, 4-15 of an inch.

(To be continued.)

NUMEROUS publications received will be noticed in our next number.

EXCHANGES.

As a Premium, each subscriber is allowed an exchange of 25 words, including address.

Exchanges printed in this column for 25 cents per 25 words, including address. Notices over 25 words printed at the rate of one-half cent per word. No exchange inserted for less than 25 cents. Notices which are merely indirect methods of soliciting cash purchasers will not be admitted to this department under any pretence. Terms, cash with order.

Offered.—A herbarium of 1060 species Switzerland plants, 1750 specimens, for North American Unions or foreign (not European) Helices. V. STERKI, M. D., New Philadelphia, Ohio.

Three specimens each of *H. Nickliniana*, *Columbianus*, and *Vancouverensis*, and a lot of Cala shells for same from Eastern and South Eastern States. Lists exchanged. JOSEPH BALOUN, JR., 500 Montgomery St., San Francisco.

Wanted.—Correspondents interested in the study of the Mollusca of Colorado, Wyoming, Utah, Arizona, New Mexico, Kansas, Indian Territory and Nebraska. THEO. D. A. COCKERELL, West Cliff, Col.

Offered.—70 species of inland and 50 of marine shells for other shells. Send your list for ours. JOHN M. HOLZINGER, Winona, Minn.

Offered.—300 species land, fresh-water and marine shells in exchange for others. Correspond in Volapuk where possible. A. A. HINKLEY, DuBois, Ill.

Offered.—*Unio iris*, *clavus*, *occidens*, *triangularis*, etc. *Marg. calceola*, *marginata*; *Ano. ferruginea*, *decora*, *pavonia*; *Mesodon multilineata* *exoleta*, *elevata*, *thyroides*, etc. *Patula solitaria*, *alternata*; *Succinea obliqua*, *ovalis*; *Triodopsis palliata*, *inflecta*, etc

Wanted.—Fossils and land, fresh-water and marine shells. A. J. PHINNEY, Muncie, Ind.

Wanted.—Murices, Terebras, Mitras, and Marine Bivalves in fine condition, in exchange for 200 duplicates of Mediterranean, African and American dredged shells. WM. D. AVERELL, Mt. Airy, Philadelphia, Pa.

Offered.—*Unio alatus*, *Say*, *plicatus*, *Leseuer*, *fragosus*, *Con.*, *trigonus*, *Lea*; *Marg. complanata*, *Say*, and many others, for marine shells. JOSEPH ANDERSON, Box 1955, Muskegon, Mich



*A Perfect Fountain Pen
for 75 cents.*

The only Fountain Holder practical with Steel Pens. We guarantee these pens to give perfect satisfaction. Sent post-paid on receipt of price. Address,

W. B. BENSINGER'S SONS, Tamaqua, Pa.

THE CANADIAN ENTOMOLOGIST.

Published by the Entomological Society of Ontario.

ANNUAL FEES OF MEMBERSHIP.

For Ordinary Members.....\$1.00	For Associate Members in England, 4s. sterling
For Associate Members in the U. S. 1.00	For Associate Members elsewhere... ..\$1.25

The Fees are payable in advance on the 1st of January in each year, and their payment entitles the members to a copy of all the Society's publications during the year, including the Illustrated Annual Report made to the Ontario Government.

Remittances may be made in the form of Express Order, Postal Note, Canadian, U. S., or English Stamps, P. O. Order or draft on New York, but cheques on local banks will not be received

All remittances and other business communications should be addressed to the Secretary-Treasurer of the Society, W. E. SAUNDERS, 240 Central Ave., London, Ontario. Send all manuscript for publication to the General Editor, Rev. C. J. S. BETHUNE, Port Hope, Ont.

THE WEST AMERICAN SCIENTIST

Will hereafter be published by the undersigned. MR. CHARLES R. ORCUTT of San Diego will continue as its editor.

First issued as a four-page monthly in 1884, this magazine has steadily grown in merit and popular favor until it is now in the forefront of the scientific magazines of the country.

SAMUEL CARSON & Co.,

Publishers, Booksellers and Stationers, Wholesale and Retail,

208 Post St., San Francisco.

"Frank H. Lattin, of Albion, Orleans Co., N. Y., a dealer in natural history specimens, instruments, supplies and publications of all kinds. Every A. A. Chapter should have a copy of his complete catalogue and price-lists before making purchases. His specimens are the very best, and his prices will be found to be much lower than those of any other reliable dealer."

The above we copy from Three Kingdoms, the Hand-Book of the Agassiz Association. Our readers would no doubt save money by complying with President Ballard's advice.

TEACHERS' REPORT CARDS.

Send for Samples to **PEOPLE'S REGISTER, Chambersburg, Pa.**

WHAT HAVE YOU TO EXCHANGE for a Catarrh Remedy that never Fails?
Address, **Mrs. E. E. Yates, Sharon, Wisconsin.**



Helix (Aglaiia) fidelis Gray, Oregon.

WEST COAST SHELLS

By Prof. Josiah Keep, Mills College, California.

A familiar description of the Marine, Fresh-Water and Land Mollusks, found in the United States, West of the Rocky Mountains. 182 Illustrations, 230 pages. The frontispiece is a hand-painted engraving of the very rare and beautiful *Succula Carpenteriana*, Gabb.

To aid in the study of Shells, the pronunciation of the Latin names is indicated, and a Glossary, Key, Biographical Index of Naturalists, and a Check List are added. Beautifully printed and bound. Price, postpaid, \$1.75. Samuel Carson & Co., Publishers, 208 Post St., San Francisco, Cal.

Please mention this paper.

FOR SALE.—A COLLECTION OF LAND, FRESH-WATER AND MARINE SHELLS.

Many of the most desirable West Coast Species.

The following genera well represented:

Cypræa, *Oliva*, *Conus*, *Trochus*, *Strombus*,
Etc.

700 Species. Over 2500 Examples. Price, \$250.

Address, HARRY E. DORE, 122 Front Street, Portland, Oregon.

T Do you appreciate an absolutely Pure, Uncolored, and Fragrant Tea? Drop us a postal card, mentioning this paper, and we will mail you a free sample of

ACKER'S CEYLON TEA.

After trying it, we believe you will use it regularly. Address,
FINLEY ACKER & CO., 123 North Eighth St., Philadelphia, Pa

OLD BOOKS.—Catalogues of Old, Rare and Second-hand Standard Books, sent free.
JORDAN BROS., No. 211 N. Ninth St., Philadelphia, Pa.

John B. Wheeler, East Templeton, Mass., Importer and dealer in Curiosities, Shells, Relics, and Natural History specimens from all parts of the world. Send \$1.00 for best 50 specimen collection ever put up. Warranted to give satisfaction.

THE NAUTILUS ADVERTISING RATES. CASH WITH ORDER.

Space.	1 mo.	3 mo.	6 mo.	1 year.	Space.	1 mo.	3 mo.	6 mo.	1 year.
½ inch.	.25	.60	1.00	1.90	¼ page.	1.50	4.00	7.00	12.50
1 inch.	.50	1.10	2.00	3.80	½ page.	2.75	7.00	12.00	20.00
2 inches.	.90	2.15	3.90	7.50	¾ page.	4.00	10.00	18.00	30.00
3 inches.	1.30	3.20	6.00	11.50	1 page.	5.00	12.00	22.00	40.00

In writing to Advertisers please mention "THE NAUTILUS."
Address, Wm. D. Averell, Manager, Mt. Airy, Phila., Pa.

594.05
NA
v.3 no.11
H

11. 11

\$1.00 per Year. [(\$1.12 to Foreign Countries.) 10cts. a copy.

THE NAUTILUS

A MONTHLY
DEVOTED TO THE INTERESTS
OF CONCHOLOGISTS.

ESTABLISHED BY W. D. AVERELL, IN 1886, AS
"THE CONCHOLOGISTS' EXCHANGE."

Vol. III.

MARCH, 1890.

No. 11.

CONTENTS:

	PAGE.
ON A NEW SPECIES OF TYLODINA. Wm. H. Dall.	121
A NEW AMERICAN BULIMULUS. H. A. Pilsbry.	122
ON SOME NORTHERN PUPIDÆ, WITH DESCRIPTIONS OF NEW SPECIES. Dr. V. Sterki.	123
ON THE GENERIC POSITION OF ARION FOLIOLATUS, GOULD. T. D. A. Cockerell.	126
A FEW LAST WORDS ON CREPIDULA. John Ford.	128
COLLECTING LAND SHELLS IN EASTERN NEW YORK. W. S. Teator.	129
GENERAL NOTES.	132

Published by

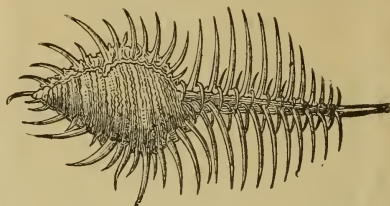
H. A. PILSBRY, Editor, Academy of Nat. Sciences, Philadelphia.

W. D. AVERELL, Manager, Mt. Airy, Philad'a.

Entered at Philadelphia Post-Office as second-class matter.

FOREIGN AGENCIES:—London, Trübner & Co., 57 and 59 Ludgate Hill;
Berlin, R. Friedlander & Son, 11 Carlstrasse.

Smithsonian Institution Library
1890



STANDARD WORKS ON CONCHOLOGY.

SOLD ONLY FOR CASH.

- STRUCTURAL AND SYSTEMATIC CONCHOLOGY. By Geo. W. Tryon, Jr. New, complete, plain edition. Illustrated. \$16.00, postpaid.
- WOODWARD'S MANUAL OF THE MOLLUSCA. Appendix by Ralph Tate. Last edition, \$2.75, postpaid.
- KEEP'S WEST COAST SHELLS. A fascinating book for collectors, young and old. 182 illustrations. \$1.75, postpaid.
- BALDWIN'S LAND SHELLS OF THE HAWAIIAN ISLANDS. 25c., postpaid.
- WRIGHT'S CHECK LIST OF N. A. UNIONIDÆ, &c. 25c., postpaid.
- RANDOM NOTES ON NAT. HISTORY. Containing H. F. Carpenter's article, "The Shell-Bearing Mollusca of R. I.;" and Ritchie's "Check List of Shells." Vol. 1, minus Nos. 1 and 2, 75c.; Vol. 2, 60c.; Vol. 3, 60c. Postpaid.
- THE CONCHOLOGISTS' EXCHANGE. Back numbers. Vol. 1, minus No. 1, 50c.; Vol. 2, Nos. 1 to 9, 35c. Postpaid.
- CONTRIBUTIONS to the Mollusca of Florida. By Chas. T. Simpson. Price 25c., postpaid.
- NOMENCLATURE AND CHECK-LIST OF AMERICAN LAND SHELLS. By H. A. Pilsbry. Price 10c., postpaid. 50c. per dozen copies, postpaid.

YOU CAN SAVE MONEY BY ORDERING SCIENTIFIC BOOKS FROM

W. D. AVERELL, Mt. Airy, Phila., Pa.

Nomenclature and Check-List

—OF—

AMERICAN LAND SHELLS.

A list of United States Land Shells, complete to Sept., 1889, containing the species and varieties with their habitats, prefaced by a brief discussion of their nomenclature.

Collectors interested in American Shells will find this a useful list for arranging and naming their collections, checking desiderata in making exchanges, etc.

20 pages, Octavo, Price, single copies	-	10 cts.
“ “ “ per dozen	-	50 cts.

Address:

H. A. PILSBRY,
Academy of Natural Sciences,
Logan Square, Philadelphia, Pa.

REDUCTION OF PRICE.

Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft. Redigert von Kobelt, 12 volumes, 1869-80, roy. 8, with several plates (48 mk.), \$5 50

Jahrbucher der Deutschen Malakozoologischen Gesellschaft. Redigert von Kobelt, 7 volumes, 1876-80, roy. 8, with 84 plates partly colored (108 mk.), \$10 50

Containing many papers on the geographical distribution of Mollusca, which are also to be had separately.

Westerlund, Fauna der in der Palaearktischen Region (Europe Caucasian, Liberian, Turanian, Persian, Kurdistan Egyptian, Tunisian, Morocco, etc.) lebenden Zinnenconchylien. 8 parts.

Published: Parts I-VI. \$10 60

The most complete Conchyliology of Europe and the neighboring parts of Asia and Africa; part VII, VIII will appear before long. Every genus to be had separately.

R. FRIEDLANDER & SON,

11 CARLSTRASSE, BERLIN, GERMANY.

LARGEST STOCK OF CONCHOLOGICAL WORKS.

Catalogue No. 377.

MOLLUSCA.

78 PAGES ROYAL OCTAVO.

Sent post free on application.

Subscribe

for the NAUTILUS.

\$1.00 per Annum—\$1.12 to Foreign Countries.

NORTH AMERICAN SHELLS FOR SALE.

An experience of many years, as an active collector of American Shells, enables the undersigned to supply unusually large and choice collections at moderate prices.

West Coast Shells and their varieties a specialty.

I can supply collections largely illustrating the following important publications on American Conchology: Report on West Coast Mollusks by P. P. Carpenter, B. A., Ph. D., Smithsonian Institution Series, Washington, 1872.

West Coast Shells by Prof. Josiah Keep.

Catalogue of the Shells of the Southeastern Coast of United States by W. H. Dall.

Manual of American Land Shells by W. G. Binney.

These shells have been collected with great care, and every effort has been made to make them scientifically correct in every respect.

The series contains many rare species, interesting and important varieties and are, undoubtedly, the best collections of American Shells extant. Collections of these Shells can be seen at the United States National Museum, Washington; Philadelphia Academy Sciences; State Normal School, San Jose, California; Mills College, California, and in many other public and private Museums.

ADDRESS,

HENRY HEMPHILL,

SAN DIEGO, CALIFORNIA.

THE NAUTILUS.

VOL. III.

MARCH, 1890.

No. 11.

ON A NEW SPECIES OF TYLODINA

BY WM. H. DALL.

In my Report on the Blake Gasteropods I have (p. 60, pl. xiv, figs. 9, 10) described and figured a shell, which, in the absence of the soft parts, I was obliged to refer doubtfully to the young of *Umbraculum* or *Tyrodina*, under the head of "*Umbraculum bermudense* Mörch?"

This shell now proves to be a genuine *Tyrodina*, different from the species of the Mediterranean or of California, and which may take the name of *T. americana*. The shell which was well figured as above, in life has a membranous extension 3–5mm. wide around the margin, continuous with the epidermis. The latter is smooth and pale with radiating broad purplish rays of color. The animal is much smaller than that of *T. Rafinesqui* in proportion to the shell, which abundantly covers it, and it emits a dark purple dye. It does not seem to differ essentially in the superficial characters of its soft parts from the species of the Mediterranean, which, however, has not been very well figured. The gill is attached to the edge of mantle on the right side. The other characters are much as stated in H. & A. Adams' generic description of the genus (Gen. Rec. Moll. II, 42).

The Blake specimen was obtained off Havana, dead, in 80 fathoms. The present specimen was obtained on the northern border of the Gulf of Mexico by the U. S. Fish Commission at Station 2406, in 26 fathoms, coarse sand and broken coral, on the line between the mouth of the Mississippi River and Cedar Keys, Florida.

This enables us to add this interesting genus to the fauna of the United States. At a more convenient season I hope to describe and figure the soft parts and dentition, but at present can only notify the conchological world of its discovery and identification.

A NEW AMERICAN BULIMULUS.

BY H. A. PILSBRY.

Some weeks since Mr. Averell, Business Manager of the NAUTILUS, placed in my hands examples of a *Bulimulus* differing notably from all other American species, and which, in his opinion, was new. Upon writing to Mr. G. H. Ragsdale, of Gainesville, Texas, from whom the first specimens were obtained, I received six more in addition to Mr. Averell's. I propose for the new form the name BULIMULUS RAGSDALEI. It is about the size and form of *B. schiedeanus mooreanus* W. G. B., but rather more slender and elevated. The surface is not smooth, as in other American Bulimuli, but strongly ribbed-striate longitudinally. The apex is blunt; outer lip thickened within; columella reflexed over the narrow but open umbilicus. The aperture is less than half the entire height of shell. Whorls 6½.

Alt. 22, diam. 10 mill.; alt. of aperture 10½, diam. 7 mill.

Color, brownish corneous, somewhat translucent, the riblets opaque white.

Mr. W. G. Binney writes as follows of the specimens submitted to him:

“There is in my mind no doubt of their deserving a specific name—unless, indeed, you are in possession of examples showing a gradual change from the usual sculpturing to these ribs. It is not often one gets so interesting a form to describe! Is it not nearer to *dealbatus* than *Schiedeanus*?”

No specimens showing a transition to *B. dealbatus* or *schiedeanus* were found; nor have I ever seen any, although I have collected thousands of *Bulimuli* in Texas and examined many hundreds more collected by Singley, Sampson and others, from Kansas and Arkansas to the Rio Grande. Mr. Ragsdale writes me the circumstances of its finding as follows:

“I send by this mail more of the *Bulimulus* you ask about; they are all dead shells. I could find no living ones; and have found these only in Cook and Montague Counties, Texas, at the top of the Red River Bluff, associated with the small shell (*Helicina orbiculata*) inclosed. The large *Helix* inclosed (*H. roemeri*) was at the foot of Bluff in the Red River Bottom. The *Bulimulus* was discovered by myself one mile north of St. Jo, Texas, in 1888, and again at the lower end of Warren's Bend, 25 miles N. W. of Gainesville, Texas, December 28, 1889.”

An illustration will be given later.

ON SOME NORTHERN PUPIDÆ, WITH DESCRIPTIONS OF
NEW SPECIES.

BY DR. V. STERKI.

Pupa pentodon, Say.

Not very much is to be added to the foregoing. It may be said, that this species is not so generally found with such a pure glassy shell, as curvidens when fresh and living, but more or less opaque or spermaceti white. It is decidedly variable in size and also in shape, being shorter, and more tumid or conical, in decidedly wet localities. I have a specimen from Helena, Mont. (Mr. Elliott), and several from Ottawa, Ont. and Winnipeg, Manitoba (sent by Mr. Geo. W. Taylor). Those from the latter locality are long and slender with a very strong callus inside of the parietal wall, in which the lamellæ are in appearance nearly buried.

Pupa Pilsbryana n. sp.

Among a few examples of the smaller form of “*Pupa hordacea* Gabb” now described by Mr. Pilsbry as *hordeacella* from Arizona, in Mr. W. G. Mazyck's collection, there was one specimen of an evidently new species, well formed and mature, and fresh although dead. Possibly there are more such in lots of the species mentioned above and sent out by Gabb. A few days ago among Pupidæ from Albuquerque I found 4 examples, although somewhat different, evidently being of the same species, which consequently is confirmed. Known from the region of the Rio Grande del Norte, and that of the Colorado River, and being doubtless distinct from all the species described, it is to be brought to general knowledge under a new name,

for which I propose that of Mr. Pilsbry, the active student of our Pupidæ, to whom I am indebted for a number of valuable specimens and facilities to examine such.

Description: Shell minute, narrowly perforate, cylindrical-oblong to cylindrical, somewhat attenuated towards the rather blunt apex, colorless (when fresh glassy) with a very delicate bluish tint, smooth and polished, with few, irregular, microscopic striæ which are more marked near the aperture. Whorls $4\frac{1}{2}$ – $5\frac{1}{2}$ moderately rounded with a rather deep suture especially in the upper half, regularly and slowly increasing, the embryonal being relatively large, the last somewhat ascending toward the aperture; the latter of moderate size, lateral, subovate, margins approached, peristome somewhat expanded without a thickened lip or a callus in the palatal wall; outside is a barely perceptible trace of a crest near the margin and behind that a slight impression most marked upon the inferior palatal fold. Lamellæ 4 or 5; one apertural, rather high of moderate length, simple; one columellar, horizontal, of moderate size, simple; basal very small or wanting; palatals the typical, inferior deeper seated, of moderate size, superior small or very small.

Alt. 1.5–1.7; diam. 0.8–0.9mm.

There is a slight variation; the example from New Mexico being of lesser diameter, and having no trace of a basal lamella.

The soft parts have not been seen so far, but will be of high interest, since, to judge from the shell, our species seems to be an intermediate form between the hordeacella, etc., group, and *P. curvidens*, especially its var. *gracilis*.

P. Pilsbryana has much resemblance in shape and size to small, albino examples of *P. hordeacella* Pilsb., but, under a glass, is at once distinguished by the shorter, simple apertural lamella not ending at or very near the upper termination of the palatal margin, as it is in hordeacella, and by the smooth surface; the fine bluish hue may also be a distinguishing character if it prove constant.

Vertigo (?) *variolosa* Gould.

So far as I know, no specimen of this species from the continent is existing now in collections, that or those in the B. & B. collection having been lost sometime; but in the same, among a number of *P. contracta* Say, from Jamaica, one has been detected lately. Mr. Henry Moores of Columbus, Ohio, has had one example from Cuba, collected some 35 years ago by John Bartlett, and he was kind enough to lend it to me. It is more conical than in the figure and there are two

lamellæ in the palatal wall, yet there is hardly a doubt but that it represents Gould's species. Messrs. Geo. W. & P. B. Webster took much pains, last fall and winter, on their trips in eastern Florida, to secure specimens, but so far did not succeed. Whoever visits the Peninsula should look after it.

From the whole configuration and especially the lamellæ, *variolosa* appears to be a *Vertigo*.

***Vertigo gouldii* Binn.**

The true *V. gouldii*¹ has been collected at Helena, Mont., by Mr. I. B. Elliott, and at Ottawa, Ont., by Mr. Geo. W. Taylor; from the latter place in 2 somewhat differing forms. To mention it here, my *V. callosa* has not been found South of New York, nor west of middle Ohio, so far, to my knowledge, and among hundreds of small Pupidæ collected in Northeastern Ohio, by Mr. A. Pettingell, there was no example of that species.

***Vertigo binneyana* Sterki.**

When this species was first published,² I had only 2 examples from Helena, Mont., and 2 from Winnipeg, Manitoba, but was satisfied that it is a distinct form. Since then I have seen 2 from Glendive, Mont., and one from Albuquerque, N. Mex., the latter differing somewhat from the northern example, but unmistakably ranging with them. Thus it seems to live in the whole region of the western mountains.

***Vertigo bollesiana* Morse.**

Specimens have been collected at Sewanee, Tenn., the most southern habitat on the continent I know of, by Mr. Sanderson Smith. But a short time ago I saw, in a number of *P. servilis* Gld., from St. Croix, W. I., one example of this species, with rather strong lamellæ. Whether it was collected with its companions or later accidentally mixed in, is hardly to be decided otherwise than by other specimens brought from the West Indies.

The species is variable. Most examples from New York, Ohio, etc., are of good size, regularly striate, and of chestnut color, while those from New England and Canada are generally smaller, lighter in color and scarcely striate or nearly smooth; the inferior columellar (or "basal") lamella is sometimes quite small or even wanting. A peculiarity of

¹ Sterki, four new *Vertigo* sp. in Proc. Acad. Phila., 1890.

² L. c.

this species is a very small, nodule-like supra-apertural lamella; but by no means constant, very often just a trace or entirely wanting. In its European equivalent, *V. substriata* Jeffr., this lamella is well formed and constant.

ON THE GENERIC POSITION OF *ARION FOLIOLATUS*, GOULD.

BY T. D. A. COCKERELL.

After remaining unknown and almost mythical for nearly forty years, the *Arion foliolatus* of Gould has been rediscovered by Mr. Henry Hemphill, in Washington Territory. Specimens were sent to Mr. W. G. Binney, which had been found near Gray's Harbor and at Olympia, and which are referable to two different forms, as follows:

Arion foliolatus Gould, type. One specimen agreeing with Gould's description and figure, from Olympia.

Arion foliolatus var. *hemphilli* W. G. Binney. Six specimens from Chehalis River, near Gray's Harbor. These slugs are described by Mr. Binney as "Bright yellow with bluish-black foot and edge of foot; reticulations dark reddish fawn." The genitalia also differ in some details from the type, but this may be partly due to a different degree of maturity.

Mr. Binney has kindly sent me the internal shell, genitalia, and skin of the typical example, as well as drawings of both, and copious notes, and at his request I offer a few remarks on the generic position of the species.

From the material I have examined, I should certainly have regarded the slug as a *Prophysaon* with affinities to *P. hemphilli*. But the Olympia example has lost the end of its body,¹ and the

¹ Mr. Hemphill, in his letter to Mr. Binney, relates of this example:—"When I found the specimen I noticed a constriction about one-third of the distance between the end of the tail and the mantle. I placed the specimen in a box with wet moss and leaves, where it remained for 24 hours. When I opened the box to examine the specimen I found I had two specimens instead of one. Upon examination of both I found my large *Prophysaon* had cut off his own tail, at the place where I noticed the constriction, and I was further surprised to find the severed tail piece possessed as much vitality as the other part of the animal. The ends of both parts at the point of separation were drawn in as if they were undergoing a healing process." When the box containing the slug reached Mr. Binney, the tail-piece was decomposed.

special generic character, the caudal mucus pore, is lost. This, however, undoubtedly existed, for it is indicated in Gould's description, and Mr. Binney informs me that it is present in the examples of var. *hemphilli* from the banks of Chehalis River. Hence the slug cannot be a *Prophysaon*, and the question arises, is it an *Arion*? From the peculiar reticulation, the position of the genital orifice, the shape of the penis-sac, and the general character of all its parts, I think we may safely say that it cannot be placed in *Arion*, nor does it agree with any other described genus. We have therefore no option but to propose a new generic name for it.

*Phenacarion*¹ n. g.

Animal limaciform, tapering, resembling a *Prophysaon*, but possessing a caudal mucus pore or pit. Respiratory orifice on right anterior side of mantle, about one-third of its length from the anterior border. The mantle conceals a thin and subrudimentary calcareous plate, easily fractured. The sole is not differentiated into parts. Genital orifice behind right tentacle. Jaw with numerous ribs. Penis sac elongate, cylindrical, thick, not tapering.

The mantle of *Phenacarion foliolatus* is quite long, with the shell situated near the respiratory orifice. There are black markings and spots as figured by Gould. The body has large elongate or irregular reticulations, the interspaces being minutely reticulated to give the foliated effect on which the specific name was based. The edge of the foot has dark transverse lines, alternating with paler lines, much as in *Arion ater*. The sole is transversely and somewhat obliquely grooved, but there is no separate locomotive disc. The jaw has about 23 ribs, denticulating either margin. The genitalia are much like *Prophysaon*, and decidedly different from *Arion*. The testicle (ovotestis) is somewhat subdivided. The vas deferens enters at the end of the penis sac.

Mr. Binney's notes concerning the typical *P. foliolatus* give "general color of animal reddish-fawn, also of reticulations. On the lower edge of the mantle, along the back from end of mantle to tail, and above the edge of the foot, is a lighter band, and also on top of neck almost to base of tentacles. The light band on edge of mantle is irregularly speckled with reddish dots. Mantle minutely tuberculated. The oblique perpendicular lines on edge of foot alternate wide and narrow."

¹ phénax=an impostor; *Arion*.

Phenacarion might almost be a variety of *Prophysaon hemphilli*, except for the generic character. Possibly Prof. E. D. Cope would regard this as an instance of "the same specific form" existing "though a succession of genera," which he has regarded as probable in his "Origin of the Fittest" (quoted by Wallace, "Darwinism," p. 421). Indeed, it not very rarely happens that almost the only difference between two species is a generic one. Good instances of this are afforded among the *Hymenoptera*, e. g., the resemblance of *Vipio coloradensis* Ashm., to *Agathis vulgaris* Cress., is almost exact on superficial examination. Except the generic and family characters, the *Agathis* is only a little larger with entirely fuscous wings, and the posterior femora and tibiæ mostly orange—peculiarities which might elsewhere be varietal only.

NOTE.—Mr. Cockerell writes me that he now regards *Phenacarion* as a subgenus of *Prophysaon*.—Ed.

A FEW LAST WORDS ON CREPIDULA.

BY JOHN FORD.

In my article on *Crepidula* published in the 8th number of the NAUTILUS, I endeavored to show that the shells described by Say as *C. glauca* were altogether distinct from the *C. fornicata* of Linné, and therefore the name should have been retained in Bulletin No. 30 of the National Museum recently published by Dr. Dall, instead of discarded. As in the following number their distinctness from *fornicata* was acknowledged by Dr. Dall, no further evidence seems necessary to sustain it.

The assertion by him however in the same issue, that the series of shells presented by me to the National Museum under the name of *C. glauca* "are distinct from *C. fornicata* but that they do not show the characters called for by Say's description," does, perhaps, challenge further remark; since it appears to be partly correct and partly conjectural. They are certainly not *C. fornicata*, but they as certainly do embody every character called for by Say's description of the true *C. glauca* written in 1821-2, and published in Vol. 2, Journal of the Academy of Natural Sciences of Philadelphia; also in Say's Conchology of the United States.

It is possible, as Dr. Dall asserts, that the series in question are depressed specimens of *C. convexa*;—the extreme convex form of which he supposes to be caused by growing on the rounded surfaces of small univalves, but I do not think it at all probable.

Quite a number of those in my own collection were taken from small univalves but they are precisely the same in character as the series alluded to, and, like them, are labeled *C. glauca*, Say. As a matter of fact the peculiarly arched forms known as *C. convexa* are very rare on our immediate coasts, while those described as *C. glauca* are comparatively plentiful.

Why should there be this disparity in numbers? It surely cannot be for the want of those "roosting conditions" so needful to the growth of *C. convexa*, since it is well known that the small univalves of our region greatly outnumber the large ones.

Though many hundreds of the former have been examined by me I have never seen a *C. convexa* upon them. I have also scanned every available point on the New Jersey coast scores of times within the last twenty-five years, and during all of that period have secured but six specimens (all dead), corresponding to Say's description of *C. convexa*.

This fact of course proves nothing; nevertheless, until further evidence to the contrary is adduced I shall deem it prudent to consider them two distinct and well-marked species.

Should they, however, eventually prove to be the same, even then, as my friend, Mr. H. A. Pilsbry, has stated, the name *C. glauca*, having precedence over *C. convexa* in Say's original paper, must always stand for the type form, and be entitled therefore to a "place of honor" in all monographs of the genus.

Young Collectors' Department.

COLLECTING LAND SHELLS IN EASTERN NEW YORK.

BY W. S. TEATOR.

(Continued from February No.)

More careful hunting under the logs will bring to light good specimens of *Zonites arboreus*, *indentatus*, and *viridulus*; the last two rather scarce. Also a few *Zonites fulvus*, *H. labyrinthica* and

pulchella, and *Pupa contracta*; but they are more partial to swampy situations, and with other small species are found in great numbers in certain places farther back in the country. Just one dead shell of *nitidus* has been taken—near the water, and it would seem to be a splendid locality for them. The *albolabris* is worthy of special mention on account of the superior size to which they attain: very seldom are they less than 30 mill. in diameter, while one shell measures 36. The *H. palliata* also are very perfect.

From the lower end of these woods to the 'Vly' is but a short distance; a long narrow strip of woodland lies on the north side of the causeway and forms the entire south shore of the cove. Here the conditions are much different; the ground is not over a foot or two above the high tides, and portions of it are occasionally inundated. The soil is of rich black mould with clay substratum, and has produced a dense growth of trees, principally elm; and a luxurious, almost tropical, undergrowth of shrubbery, ferns, and weeds.

Here lives and flourishes a colony of *Succinea obliqua* that is peculiarly interesting. During the warm months, May, June, July and August, they are wonderfully abundant. After the rains they are swarming over everything; feeding on the decaying rubbish, crawling on the weeds and bushes, going up the trunks of trees, and disporting themselves generally as if they really enjoyed their existence. Sometimes I have observed eighteen or twenty large fellows gathered around the foot of a tree as if on the point of a forward march of ascension. They never go very high however; I have not noticed them beyond five or six feet from the ground. Nor do they confine their attention to the woods; for in an adjacent large meadow many of them may be found traveling in the deep grass, some as much as a third of a mile away on the hillsides. So congenial are all the conditions surrounding them that they grow to surprising proportions; the best shells average 24 to 25 millimeters, often exceeding this. I have recently obtained one that is 28 mill. long. Mr. Pilsbry, to whom I sent a few specimens, says of them, "they are simply phenomenal in size." Mr. Binney tells me one rarely meets such large ones. The greatest length he mentions in his Manual of American Land Shells is 25 mill. Toward the latter part of summer the older ones die off rapidly, and late in the fall very few of them can be seen—but some of course survive the winter, while plenty of young will be left in the field for another year, which

hibernate so carefully that one is amazed when spring opens to find such armies of them.

Living along with *Succineæ* are *H. thyroides* and *alternata*; shells of the former quite pretty, some of them delicate pink color, and a number of specimens are encircled with two or three bands of white, seemingly eroded. *Macrocyllis concava* and *Zonites fulvus* also occur. *Pupæ* are scarce; I have only seen a few *contracta* and *pentodon*. In the



H. thyroides.



wettest parts of the woods, in the moss, great numbers of *Pomatiopsis lapidaria* can be gathered; also *Carychium exiguum*; and in the cove and river in the near vicinity are twenty or more species of fresh water shells, many of them of excellent quality.



Selenites concava.

During the early part of the present winter, as frosty days were quite the exception, I visited "Almont" frequently for collecting, all of them delightfully successful trips. Have gleaned much of interest regarding the hibernation of the different snails there found. Here are my notes for the 7th of January this year:

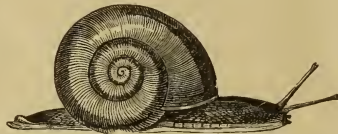
"Particularly numerous at this time are *H. palliata*, though not so easily found as in summer. They are invariably closed with the epiphragm, lying aperture upward, looking very pretty when first exposed to the light, their pearly white lips contrasting beautifully with the dark epidermis. Old bark nests seem to be a favorite place for them to congregate for winter. Sometimes they will be found singly, often five or six grouped together; and at times as many as twenty or thirty distributed about a single little vicinity. A situation of this sort is often chosen by *H. monodon (fraterna)*; this species can thus be found to the extent of twenty or more individuals in a cluster wintering along with *H. palliata*. Once in a while the collector is pleased by the finding of a large *Zonites fuliginosus* buried his whole depth in the ground, and nothing visible save the membranous covering over the aperture. *H. albolabris*, usually so plentiful in the warm season is now apparently very scarce; not over a half dozen live ones found this winter, and they were among the leaves, partially imbedded. In another wood near here the boys while raking



Z. fuliginosus.

leaves late last fall obtained for me about one hundred specimens hibernating in the same way. *H. thyroides* at this time is occasionally gotten here and more especially at the 'Vly,' mostly buried in the earth. In a few instances I find the animal out and crawling, observed them to-day, and on the 26th of December. A cluster of very well-developed *fulvus* was obtained on the latter date under stones near tide water. A goodly quantity of *S. ovalis* was gathered a while ago, among and attached to broken rushes between the tides (dormant); but their number has greatly decreased since last summer."

Thus the region is more than doubly interesting to the conchologist, and it is one of the fields to which I have given considerable attention.




Z. fuliginosus.

GENERAL NOTES.

The party of scientists in Mexico from the Academy of Natural Sciences of Philadelphia are now in the neighborhood of Vera Cruz. When last heard from they were about to make an ascent of the volcano of Orizaba; after which they will travel inland.

I find *Helix clausa* abundant in vacant lots within the city limits of St. Louis. Found a dozen last summer clinging to leaves of elder berry bushes (*Sambucus canadensis*) at a height of six feet or more from the ground.—G. D. LIND, St. Louis, Mo.

Combination Orders of


THE * NAUTILUS


with the following Newspapers and Magazines will be received and filled at prices which will save your money. Orders for any other publications will be received and filled promptly.

American Agriculturalist.	Home Journal.
American Naturalist.	Ladies Floral Cabinet (with seeds).
Arkansaw Traveler.	Life.
Army and Navy Journal.	Lippincott's Magazine.
Arthur's Home Magazine.	Microscope.
Atlanta Constitution.	Musical Courier.
Auk (The).	National Educator.
Bicycling World.	Nature.
Botanical Magazine.	Philadelphia Newspapers.
Book Buyer.	Puck.
Burlington Hawkeye.	Rural New Yorker (with seeds).
Chatterbox.	Saint Nicholas.
Christian Advocate.	Table Talk.
Canadian Entomologist.	Scientific American.
Demorest's Magazine.	Texas Siftings.
Farm Journal.	Vick's Illustrated Monthly.
Frank Leslie's Illustrated News- [paper.	Wide Awake.
Godey's Lady Book.	Youth's Companion.
Harper's "Weekly" and ["Monthly Magazine."]	Yankee Blade.
Home Queen.	Zion's Herald, etc., etc.

Address for Terms and Particulars.

W. D. AVERELL,

Mt. Airy, Philadelphia, Pa.

\$1.00 Offer No. 7. Land Shells.

Sent postpaid on receipt of price. 15 species, 30 specimens in each offer. Those marked (*) will be duplicates.

- 116 *Helix cyzicensis* Galland. Balearic Isles.
- * 117 *Helix apicina* Lam. Balearic Isles.
- * 118 *Helix carthusiana* Müll. Italy.
- * 119 *Helix circumfermata* Red. Germany.
- * 120 *Helix arbustorum* Müll. Switzerland.
- * 121 *Helix aspersa* Müll. England.
- * 122 *Helix unidentata* Chem. Seychelles.
- * 123 *Helix rotundata* Müll. Belgium.
- 124 *Helix rareguttata* Mouss. Philippines.
- * 125 *Cyclostoma Mauritianus* Adams. Mauritius.
- * 126 *Partula gibba* Fer. Marian Islands.
- * 127 *Achatinella vulpina* Fer. Hawaii.
- 128 *Bulimus fulguratus* Jay. Feejee Islands.
- 129 *Macroceramus tenuiplicatus* Pfr. San Domingo.
- 130 *Cochlostyla lais* Pfr. Tukan Bessi Island.

\$1.00 Offer No. 8. Marine Shells.

- 131 *Strombus dentatus* L. Philippines.
- * 132 *Neritina pupa* L. Cuba.
- 133 *Cerithium columna* Sby. Mauritius.
- * 134 *Potamides rhyzoporarum* A. Ad. Borneo.
- * 135 *Littorina scabra* L. West Indies.
- * 136 *Columbella nitida* Lam. West Indies.
- * 137 *Nassa vibex* Say. Santa Barbara, Cal.
- * 138 *Melampus olivaceus* Cpr. Santa Barbara, Cal.
- * 139 *Cypræa pediculus* L. West Indies.
- 140 *Psammicola togata* Desh. Philippines.
- 141 *Heterodonax bimaculatus* D'Orb. Long Beach, Cal.
- 142 *Donax vittatus* Da Costa. France.
- 143 *Donax denticulatus* L. Jamaica.
- 144 *Circe minima* Mtg. Mahon.
- * 145 *Mesodesma cornea* Desh. Mahon.

The two Offers and Nautilus for one year for \$2.50.

Address, **W. D. AVERELL,**

Mt. Airy, Philadelphia, Pa.

Un. Cal.

594.05
NA
v. 4 no. 1
No. 1

\$1.00 per Year. (\$1.12 to Foreign Countries.) 10cts. a copy.

THE NAUTILUS

A MONTHLY
DEVOTED TO THE INTERESTS
OF CONCHOLOGISTS.

EDITOR:

H. A. PILSBRY, Conservator Conchological Section, Academy of Natural Sciences, Philadelphia.

ASSOCIATE EDITOR:

C. W. JOHNSON, Acting Curator Wagner Institute of Science.

Vol. IV.

MAY, 1890

No. 1.

CONTENTS:

	PAGE.
EDITORIAL.	1
AN AMERICAN ANADENUS. Henry Hemphill.	2
TWO NEW SPECIES OF U. S. LAND SHELLS. H. A. Pilsbry.	3
ANNOTATED LIST OF THE SHELLS OF ST. AUGUSTINE, FLA. C. W. Johnson.	4
WHY DOES PROPHYSAON SHED ITS TAIL? W. J. Raymond.	6
NOTES ON SOME NORTH AMERICAN PUPIDÆ WITH DESCRIPTIONS OF NEW SPECIES. Dr. V. Sterki.	7
AMERICAN ASSOCIATION OF CONCHOLOGISTS.	9
NOTES AND EXCHANGES.	11

Published by

H. A. PILSBRY, Editor, Academy of Nat. Sciences, Philadelphia.

C. W. JOHNSON, Manager, Wagner Free Institute of Science, Philad'a.

Entered at Philadelphia Post-Office as second-class matter.

FOREIGN AGENCIES:—London, Trübner & Co., 57 and 59 Ludgate Hill;
Berlin, R. Friedlander & Son, 11 Carlstrasse.

Wagner Free Institute of Science
Library

Nomenclature and Check-List
—OF—
AMERICAN LAND SHELLS.

A list of United States Land Shells, complete to Sept., 1889, containing the species and varieties with their habitats, prefaced by a brief discussion of their nomenclature.

Collectors interested in American Shells will find this a useful list for arranging and naming their collections, checking desiderata in making exchanges, etc.

20 pages, Octavo, Price, single copies	-	10 cts.
“ “ “ per dozen	-	50 cts.

Address:

H. A. PILSBRY,
Academy of Natural Sciences,
Logan Square, Philadelphia, Pa.

FOR DISPOSAL:—Land, Fresh-Water, and Marine Shells from Europe, India, Cuba, Mexico, South Africa, and Australia.—All good specimens, correctly named, and localized.

WANTED:—North American Shells—English specimens offered in exchange. (No Post Cards.) Address to

DR. J. T. T. REED,
Ryhope, Sunderland, England.

CIGAR SPECIALTIES.

ACKER'S "OZEMA" OPERAS.

CLEAR HAVANA FILLER SUMATRA WRAPPER.

\$5.00 PER HUNDRED.

"OTELLO" FINEST HAVANA FILLER, \$6.00 per hundred.

In 50 and 100 Boxes.

FINLEY ACKER & CO., 123 N. 8th St., Phila., Pa.

Delivered at above prices. Express paid to all sections of the U. S. Write for information.

FOR SALE.—Mounted Odontophores of twenty-five species of California Marine Mollusca. Send for list to

MISS ANNA GOODSSELL,
Morgan House, Poughkeepsie, N. Y.

THE NAUTILUS.

VOL. IV.

MAY, 1890.

No. 1.

EDITORIAL.

With this number of the NAUTILUS we call the attention of our subscribers to a change in the proprietorship of the journal; Mr. Averell, heretofore its business manager, having retired, and entirely withdrawn his interest in the paper.

The editor has now associated with him, Mr. CHARLES W. JOHNSON, acting curator of the Wagner Free Institute of Science, Philadelphia. To the majority of American conchologists Mr. Johnson needs no introduction. It is a pleasure to the editor to be able to announce that he has secured the coöperation of so efficient a colleague.

All communications of a business nature should be addressed to Mr. Johnson. Contributions to the pages of the NAUTILUS may be sent to either Mr. Johnson or to the Editor, at the addresses given on the title-page.

After the first two numbers, the NAUTILUS will be issued *on the first of each month*. It is our intention to insure the prompt receipt of each number by our subscribers.

It is the purpose of the proprietors to publish articles of interest to beginners in the study as well as to experienced conchologists. The next number will contain an illustrated paper of great interest on *Haliotis* by Prof. Josiah Keep; the continuation of Mr. Carpenter's valuable notes on Rhode Island shells; articles by Dr. Sterki, Mr. Hemphill, the Editor and others.

AN AMERICAN ANADENUS.

BY HENRY HEMPHILL.

Recently, on the Cuyamaca Mountains in San Diego County, California, I was fortunate in finding specimens of what proved to be a genus new to America. Submitting them to Mr. Binney and Mr. Cockerell, they agreed with me in referring these species to *Anadenus*, formerly known of only from the Himalaya Mts.

The genus is characterized thus by Binney in his *Genera of Slugs*—"Animal limaciform, subcylindrical, tapering behind; tentacles simple; mantle anterior, concealing an internal shell-plate; no longitudinal furrows above the margin of the foot, and no caudal mucus pore; a distinct locomotive disk; external respiratory and anal orifices on the right posterior margin of the mantle; orifice of combined genital system behind and below the right eye peduncle.

Internal shell-plate small, oval, flat, with posterior nucleus and concentric striæ.

Jaw with numerous ribs.

Lingual membrane with tricuspid centrals, bicuspid laterals and quadrate marginals."

The genus differs from *Prophysaon* by its posterior respiratory orifice, the position of the genital orifice and by its locomotive disk. It will, however, be remembered that Fischer considers *Prophysaon* a subgenus of *Anadenus*. The distinction between the two is slight, especially as regards the respiratory orifice. The living slugs found by me had it slightly posterior. In alcoholic specimens of this and many of the *Prophysaons* it is difficult to detect its true position, so nearly subcentral is it.

ANADENUS COCKERELLI, n. sp.

Length contracted in alcohol $13\frac{1}{2}$ mill. Mantle $4\frac{1}{2}$ long, $2\frac{3}{4}$ wide. End of mantle to end of body 8. Foot 2 wide. Foot with a locomotive disk, being distinctly differentiated into median and lateral tracts. Respiratory orifice slightly posterior, on right edge of mantle. Genital orifice below right tentacle. No caudal mucus pore. Locomotive disk narrow, only half the width of the lateral areas. Sides of foot wrinkled, but not differentiated from lateral areas, nor specially marked, the wrinkles being a continuation of the transverse grooves of the lateral areas. Mantle tuberculate rugose, oval in outline, bluntly rounded at either end, not grooved as in *Amalia*. Man-

tle free in front as far as respiratory orifice. Back rather bluntly keeled its whole length; rugæ rather flattened and obtuse, consisting of grooves inclosing mostly hexagonal lozenge-shaped spaces, which are themselves rugose. Color, uniform brown-black without markings, except some dark marbling on the lighter sides. The portion beneath and in front of the mantle is pale, and the head and neck have a gray tinge. Foot brown. Internal shell solid, easily extricated without breaking.

Cuyamaca Mountains, San Diego Co., California.

Jaw low, wide, slightly arcuate, ends blunt, anterior surface with about twenty wide, flat ribs, squarely denticulating either margin.

Lingual membrane short and narrow. Teeth 20-1-20, of which eight only on either side are laterals. Centrals tricuspid, laterals bicuspid, marginals quadrate, bluntly bicuspid.

I am indebted to Mr. Binney and Mr. Cockerell for assistance in preparing the above description.

TWO NEW SPECIES OF U. S. LAND SHELLS.

BY H. A. PILSBRY.

Zonites Shimekii Pilsbry. This is a larger form than *Zonites limatulus*, much less depressed. The specimens are from the *Loess* formation, at Iowa City, Iowa, collected by Prof. B. Shimek and the writer some years ago. Being fossil, they lack color and epidermis. The sculpture is similar to *Z. limatulus*.

Alt. 3, diam 6 mill.

Pupa syngenes Pilsbry. Shell subcylindrical but wider above, composed of 8 narrow, convex whorls, *sinistrally convoluted*; texture as in *P. muscorum*, but color rather lighter brown. Last whorl ascending, imperforate, bearing a strong high crest just behind the outer lip. Aperture shaped as in *muscorum*, having a single small parietal denticle. Alt. $3\frac{3}{4}$, diam. $1\frac{3}{8}$ mill.

Two specimens of this form are before me, and I am in doubt whether to give them a new name, as they may be only sinistral monstrosities of the common *P. muscorum*. The shells are labeled "Arizona" in the Academy collection, collector not known.

[Since the above paragraphs were in type, I have received a communication from my friend Dr. V. Sterki, to whom I sent a speci-

men of *P. syngenes*, which I at first described as a variety of *muscorum*. He says:

"I am satisfied that it is a species, and not a var. of *muscorum*: the shape of the whole shell, the last whorl so considerably flattened, and ascending, the number of whorls, seem to me to prove its specific rank. * * * After washing out the aperture of your specimen I saw a rather strong lamella or tooth on the columella, and a barely perceptible trace of an inter-palatal lamella, which however is validated by the impression on the outside."]

ANNOTATED LIST OF THE SHELLS OF ST. AUGUSTINE, FLA.

BY C. W. JOHNSON.

Teredo nivalis L.

Pholas campechiensis Gmel. Single valves are common on the ocean beach but living examples are rarely found.

Pholas costata L. Common.

Pholas truncata Say. A few specimens in the hard mud on Anastasia Island.

Martesia cuneiformis Say. Common burrowing into coquina wood, etc.

Solen americana Gould. Not common and smaller than those from more northern localities.

Solen viridis Say. A few specimens.

Glycimeris reflexa Say. One specimen with both valves intact was found on a bar in the harbor.

Glycimeris americana Conr. (*G. bitruncata* Conr.) Single valves are occasionally found on the ocean beach—apparently recent.

Mya arenaria L. A few single valves.

Corbula contracta Say. Common.

Mactra solidissima Dillw. var. *similis* Say. Common.

Mactra lateralis Say. Common.

Mactra braziliana Lam. (*M. oblonga* Say.) Not common.

Labiosa lineata Say. A few single valves on the ocean beach.

Labiosa canaliculata Say. Common.

Semele orbiculata Say. Common.

Abra aequalis Say. Common.

Cumingia tellinoides Conr. Not common.

Tagelus gibbus Spengl. Common.

Tagelus devisus Spengl. Common.

Tellina alternata Say. Common.

Tellina polita Say. Common.

Tellina tenera Say. Common on the bar below the United States Barracks.

Tellina braziliensis Lam. A few single valves.

Macoma tenta Say. Not common.

Macoma constricta Brug. A few single valves.

Donax variabilis Say. Common.

Donax obesa d'Orb. Common at the mouth of the Lagoon.

Petricola pholadtiformis Lam. Common.

Petricola typicus Jonas. One specimen from a coquina rock at Matanzas Inlet.

Venus mercenaria L. Common.

Venus cancellata L. A few single valves.

Callista gigantea Gmel. Not common.

Dosinia discus Reeve. Common.

Cyrena carolinensis Bosc. Common in small brackish-water streams.

Sphaerium partiumium Say. Common in Moultrie Creek.

Sphaerium contractum Prime. A few near St. Mark's pond.

Cardium magnum Born. Common.

Cardium muricatum L. Not common.

Lævicardium serratum L. Rare.

Chama arcinella L. A few single valves.

Chama macrophylla. Not common.

Lucina dentata Wood. Common.

Lucina crenulata Conr. Not common.

Loripes edentula L. Large single valves are quite common but living examples are rare.

Solemya velum Say. Two specimens.

Parastarte triquetra Say. Not common.

Cardita tridentata Say. Not common.

Unio blandinianus Lea. Common in Cowan's Swamp. This is one of the Florida species that is able to survive a long time out of water.

Unio fuscatus Lea. Common in the upper part of Moultrie Creek.

Unio nigrinus Lea. Common in tributaries of the St. John's River west of St. Augustine.

- Nucula proxima*. Common.
Arca incongrua Say. Common.
Arca transversa Say. Common.
Arca pexata Say. Common.
Arca americana Gray. Common.
Arca ponderosa Say. Common.
Pectunculus sp.? Single valve.
Mytilus exustus L. Common.
Mytilus hamatus Say. Common.
Modiola tulipa L. A few small specimens.
Modiola plicatula Lam. Common.
Modiola lignea Reeve. Two specimens attached to Gorgonia.
Dreissensia leucophæata Cour. Common in brackish water.
Lithophagus appendiculata L. Common burrowing into Coquina.
Avicula atlantica Lam. Three specimens.
Avicula radiata Lam. One specimen attached to floating seaweed.
Pinna seminuda Lam. Common.
Pinna muricata L. Common.
Plicatula ramosa Lam. A few young specimens attached to coral.
Lima tenera Chemn. One living specimen.
Pecten dislocata Say. Living examples are rarely found.
Anomia ephippium L. Common.
Ostrea virginica Gmel.
Ostrea equestris Say.
Ostrea frons L. One specimen attached to Gorgonia.
Glottidia antillarum var. *pyramidata* Stimp (*Lingula*). A specimen taken near the old light-house is in a private collection.

WHY DOES PROPHYSAON SHED ITS TAIL?

BY W. J. RAYMOND.

While reading the March "Nautilus" my attention was directed to the foot-note on page 126, in which is related Mr. Hemphill's extraordinary experience with a specimen of Prophysaon. I have twice had a similar experience while handling living animals of the same genus, and think it may be of interest to record my observations.

In August, 1888, I collected on one occasion about a dozen examples of *Prophysaon andersoni* J. G. Cp., near the San José reservoir, above Lexington, Santa Clara County. While taking measurements of the living specimens, before putting them into alcohol, I noticed in several a contraction about two-thirds of the length from the head. This appeared as an indented line completely encircling the body. Upon handling the slugs to examine this phenomenon more closely, the line became deeper and in the case of two of the specimens the tail dropped off, almost as readily as the ray of the so-called "brittle" starfish. Only with mature slugs did this happen. The young, constituting the majority of those captured, showed no signs of shedding their tails. Perhaps they had further use for them. The discarded appendages showed vitality for a short time only, when they went to join their owners in my collecting bottle.

Again, only a few weeks ago, I collected on the northern boundary of Oakland some *Prophysaon hemphilli* Bl. & Binn. which together with *Ariolimax Californicus* and one of our smaller species of *Ariolimax*, inhabit a marshy spot near the Bay shore. At home the next day when taking my captives out of the can into which they had been put, I noticed the same contraction taking place in the specimens of *Prophysaon*, but in no case did it proceed to dismemberment. I put them into alcohol and in every one of them, seven in all, there is a well-marked, depressed line about the body near the tail, the body being attenuated behind the constriction, the whole looking very much as a soft iron wire looks just before it breaks under a tensile strain. In the largest specimen which measures 34 mm. contracted in alcohol, the depressed line is 8 mm. from the tail and is marked across the foot by a black line, as if the tissues were already almost severed. When collected there was no constriction visible.

In no other case have I observed this dropping of the tail among slugs, which seems as far as recorded to be confined to species of the genus *Prophysaon*. Here are the facts; who can explain them?

NOTES ON SOME NORTH AMERICAN PUPIDÆ WITH DESCRIPTIONS
OF NEW SPECIES.

BY DR. V. STERKI.

On my request, Mr. H. Hemphill, of San Diego, Cal., was so kind as to forward to me, for examination, all the North American

Pupidæ in his possession. Among them there are a number of very interesting forms and varieties, as well as some species new to our fauna.

Pupa californica, Rowell.¹

From Mr. Hemphill's material we learn that this species is variable to a very exceptional degree, so that the extreme forms appear to be, or to belong to, quite different species, or even genera. And it is more than probable that new specimens from other places will bring to light still more forms. The lots under consideration are the following:

1. *From San Francisco.* Several hundred examples of the well known form everywhere in collections. It may be regarded as typical, yet is somewhat variable in itself, as to shape of the shell and number and size of the lamellæ; many specimens are more or less oblong or obovate, while the majority are rather cylindrical; in some, the superior palatal lamella is very small and in a few even entirely wanting, while the apertural, columellar and inferior palatal seem to be constant, the first and last of them generally well formed, while the columellar may be small. In one specimen I saw a tiny but distinct supra-apertural, and in very many there is a small, nodule-like supra-apertural, close to the middle of the (outer side of the) apertural. So far I had thought this latter to be a special, distinguishing character of *P. rowelli*, Newc.

2. *From San Clemente Isl.* A little smaller and generally more cylindrical than the type; a part are even long cylindrical, having the appearance of an *Isthmia*. The coloration is somewhat paler, and the lamellæ are well formed—*elongata*. Among the more than 100 specimens there were 5 different from the balance, and ranging with the following form.

3. *From Santa Catalina Isl.* All the examples (about 200) are of quite a peculiar form: small, rather short, pale horn colored; shell thin, delicate; rib-like striæ less numerous and relatively larger; the whorls are less high, which gives the shell a different appearance. All lamellæ are present and well formed, especially the apertural. The shell is nearly exactly of the size and shape of

¹ Although I had ranged this species, with *corpulenta*, etc., among *Vertigo*, I prefer here leaving it once in the old place, on account of the varieties being so different from what we consider to be true *Vertigo*.

Vertigo bollesiana Morse, from New York or Ohio,¹ and also the lamellæ are much alike. One peculiarity is that in about one-third of the examples a part of the shell is wanting, always on the side of the aperture, so that 3 or even 4 whorls are opened. This can hardly be accidental, and probably that part of the thin shell is worn off by friction in moving. I would propose to name this form *var. catalinaria*; others might regard it as a species, as it appears to be rather well defined, and distinct from the other forms.

(*To be continued.*)

AMERICAN ASSOCIATION OF CONCHOLOGISTS.

JUNE 4, 1890.

John H. Campbell, President, Philadelphia. *Cypræidae*.

Charles W. Johnson, Secretary, Philadelphia. *South American Mollusca*.

Frank C. Baker, Philadelphia, Pa. *Muricidae*.

Rev. W. M. Beauchamp, Baldwinsville, N. Y. *Land and Fresh Water Shells of North America*.

Theodore G. Brinton, Philadelphia, Pa. *Mitridæ*.

J. J. Brown, M. D., Sheboygan, Wis.

F. C. Browne, Framingham, Mass. *Nassidae and Strophia*.

H. F. Carpenter, Providence, R. I. *Shell-bearing Mollusca of Rhode Island*.

Prof. Wm. B. Clark, Baltimore, M. D. *Eocene Mollusca*.

Thomas C. Curry, Connersville, Ind. *Succineidae*.

Wm. H. Dall, Washington, D. C. *Abysal Mollusks*.

Rev. A. Dean, Muncy, Pa. *Fusidae*.

Geo. W. Dean, Kent, Ohio. *Helicidae*.

James M. Delaney, Rochester, N. Y.

L. B. Elliott, Iowa City, Iowa. *Dentition*.

Frank J. Ford, Wichita, Kan. *Pupidae*.

John Ford, Philadelphia, Pa. *Olividae*.

T. Marshall Fry, Syracuse, N. Y. *Unionidae*.

Uly. S. Grant, Minneapolis, Minn. *Land and Fresh Water shells of North America*.

¹ The New York and Ohio specimens of *V. bollesiana* are larger and more distinctly striate than those from New England and Canada.

- I. Greegor, Jacksonville, Florida. *Tritonidae*.
 C. A. Hargrave, Danville, Ind. *Unionidae*.
 Geo. W. Harper, Cincinnati, Ohio. *Land and Fresh Water shells of North America*.
 Dr. W. D. Hartman, West Chester, Pa. *Partula, Achatinella and Helicina*.
 A. A. Hinkley, Dubois, Ill. *Strepomatidae*.
 Prof. Josiah Keep, Mills College, Cal. *West Coast Shells*.
 Rev. A. B. Kendig, Brooklyn, N. Y. *Amphidromus*.
 F. R. Latchford, Ottawa, Ont. *Linnaeidae of North America*.
 M. L. Leach, M. D., Wexford, Mich. *Mollusks of Michigan*.
 W. Victor Lehman, Tremont, Pa. *Unionidae*.
 G. D. Lind, St. Louis, Mo. *Helicidae*.
 G. W. Lichtenthaler, Bloomington, Ill. *West Coast Shells*.
 Wm. A. Marsh, Aledo, Ill. *Unionidae*.
 Geo. T. Marston, Green Bay, Wis. *Wisconsin Mollusca*.
 Chas. J. Maynard, Newtonville, Mass. *Strophia*.
 Wm. G. Mazyck, Charleston, S. C. *North American Land Shells*.
 Thomas Morgan, Somerville, N. J.
 James H. Morrison, Lexington, Va. *Specific Variation*.
 Wm. J. McGinty, Philadelphia, Pa. *Marginellidae*.
 Philip Nell, Philadelphia, Pa. *Unionidae*.
 H. A. Pilsbry, Philadelphia, Pa. *Land and Fresh Water shells*.
 Wm. J. Raymond, Oakland, Cal. *West Coast Land and Fresh Water Shells and Tertiary and Quaternary Shells*.
 John Ritchie Jr., Boston, Mass. *Strombidae*.
 S. Raymond Roberts, Glen Ridge, N. J. *Cypraeidae*.
 Edward W. Roper, Revere, Mass. *Cyrenidae*.
 John Shalleross, Philadelphia, Pa. *Volutidae*.
 Prof. Benj. Sharp, Philadelphia, Pa. *Dentaliidae*.
 Ida M. Shepherd, Long Branch, Cal. *West Coast Shells*.
 Prof. B. Shimek, Lincoln, Neb. *Ancylus and Succineidae*.
 Chas. T. Simpson, Washington, D. C. *Geographical Distribution and Nomenclature*.
 J. A. Singley, Giddings, Tex. *Land Shells of North America*.
 Sanderson Smith, New York, N. Y. *Mollusca of N. W. Atlantic*.
 Uselma C. Smith, Philadelphia, Pa. *Conidae*.
 Dr. V. Sterki, New Philadelphia, O. *No. Amer. Pupidae and Hyalinia*.
 L. H. Streng, Grand Rapids, Mich.

W. S. Strode M. D., Bernadotte, Ill. *Unionidae of Illinois R. and tributaries.*

Geo. W. Taylor, Stewarton, Ottawa. *Mollusca of Vancouver Province and Patellidae.*

John H. Thomson, New Bedford, Mass. *Helicidae.*

Bryant Walker, Detroit, Mich. *Land and Fr. W. Shells of No. America.*

Rev. John Walton, Lakeside, N. Y. *Cypræidae.*

Henry A. Ward, Rochester, N. Y. *General Conchology.*

W. W. Westgate, Houston, Tex. *Land and Fr. W. Shells.*

Mrs. A. M. Whelden, Campello, Mass.

Prof. R. P. Whitfield, New York, N. Y. *Fossil Forms of the Mollusca.*

Joseph Willcox, Philadelphia, Pa. *Fulgur.*

Mrs. M. Burton Williamson, University Cal. *Haliotidae and Fissurellidae.*

S. Hart Wright, Penn Yan, N. Y. *Unionidae.*

Lorenzo G. Yates, M. D., Santa Barbara, Cal. *Land Shells of the Americas, South of the U. S.*

All applications for membership should be addressed to the Secretary, Charles W. Johnson, Wagner Institute, Philadelphia, Pa. The Rules of the Association were printed in the last number of the NAUTILUS.

NOTES AND EXCHANGES.

THE ORIGIN OF SPECIES.—The botanist Ball believes that species are produced by the successive variations of individuals continued through generations, and the subsequent dying out of the intermediate forms. In a recent address he refers to the *Escallonias* in this manner: "There are an immense number of forms of this genus in Chili, which would make first-class species if only the intermediate links would hurry and get out of the way." Anybody who has examined the Hemphill series of the *Helix strigosa* group cannot fail to notice how admirably the theory applies to that shell. And I believe that groups hardly less extensive can be made of the forms of *Sphaerium striatinum*, *Unio complanatus*, the Michigan *Anodontas*

and other species. The American student of conchology has a broad field for work in his own country, and his researches will not be less valuable, if they result in a consolidation rather than an increase of species.—E. W. ROPER.

OFFERED.—North American Land and Fresh-water shells for shells from other localities.—THOS. C. CURRY, *Connersville, Indiana*, P. O. Box 366.

OFFERED.—Land and Fresh-water shells of Indiana for the same or marine species from any part of the world. *Unionidae* preferred. Printed list of Hendricks County Shells sent free. Mounted lingual ribbons for microscopists.—CHAS. A. HARGRAVE, *President of Central Normal College, Danville, Indiana*.

LIMAX ARBORUM form SUBMACULATUS f. nov. Resembles var. *maculatus* Roeb., except that the spots are gray and partly coalesced on the body; and some black and some gray on the mantle. Found in County Waterford, Ireland, by Rev. A. H. Delap.—T. D. A. COCKERELL.

IDENTIFICATION OF SHELLS FOR SUBSCRIBERS.—Specimens of North and South American (including Mexican and West Indian) shells will be named *for subscribers* on the following conditions:

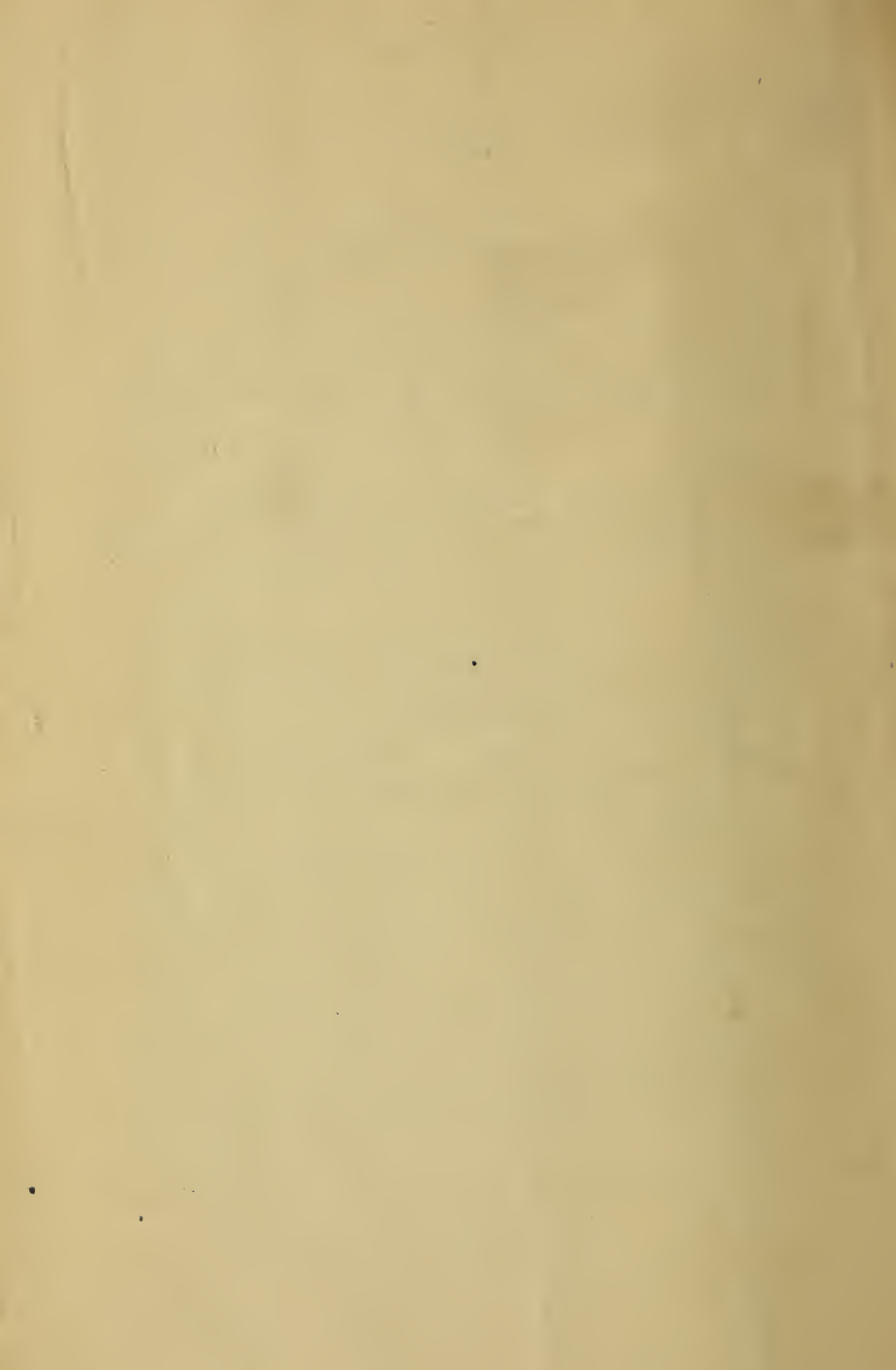
- 1st. The number of species in one sending to be limited to 12.
- 2nd. The sender to pay all expenses of transportation, and the specimens to become the property of the Philadelphia Academy of Sciences.

3rd. Each species must be numbered, so that the identifications may be announced *by number* in this department of the NAUTILUS.

Address packages to H. A. Pilsbry, Academy of Natural Sciences, Philadelphia, or to C. W. Johnson, Wagner Institute, Philadelphia.

HELIX INTROFERENS Bland has been collected by Mr. William Fox at Atco, N. J. (on the Camden and Atlantic R. R.). This species has not heretofore been noticed so far northward.—H. A. P.

MR. CHAS. W. JOHNSON, Junior Editor of the NAUTILUS, will spend the first half of June in Virginia, on a geological trip.



WARD'S
NATURAL SCIENCE ESTABLISHMENT,
ROCHESTER, N. Y.

—•—•—•—
DEPARTMENT OF CONCHOLOGY.
 —•—•—•—

We beg to inform students and collectors that we have for sale 6000 species of Marine, Land, and Fresh-water Shells. These we offer either as single specimens or in large or small collections. Specimens can be furnished in either their natural condition, or cleaned to bring out their brightest colors. We are constantly receiving boxes of shells from our correspondents in Australia, Japan, the Philippines, etc., which gives us exceptional opportunities of offering for sale rare and desirable species.

We also carry in stock a number of species in alcohol for anatomical purposes.

We call attention to our Catalogue of Mollusca, 120 pages, 86 wood-cuts, price 30 cents. To this we have lately added two 10 page supplements.

For further particulars, address,

Prof. HENRY A. WARD,
16-26 COLLEGE AVENUE,
ROCHESTER, N. Y.

The West American Scientist.
AN ILLUSTRATED MONTHLY MAGAZINE OF POPULAR SCIENCE.

The regular monthly editions consist of 1000 copies.

PRICE, 10 CENTS. ANNUAL SUBSCRIPTION, \$1.00

ADVERTISING RATES AS FOLLOWS:

One inch, \$1.00 for each insertion. One page, \$10.00 for each insertion.
Yearly contracts rated as ten months.

—•—•—•—
 "Decidedly the best of its class."—GEO. W. TRYON, JR.

C. R. ORCUTT, EDITOR AND PUBLISHER,

Orcutt, San Diego County, California.

ADVERTISING RATES.

Advertisements will be inserted at the rate of \$1.00 per inch for each insertion in advance. Smaller space in proportion. A discount of 25 per cent. will be made on insertions of six months or longer.

594.05
NA
v.4 No.10
o.10

Am. Cat.

\$1.00 per Year. (\$1.12 to Foreign Countries.) 10cts. a copy.

THE NAUTILUS

A MONTHLY
DEVOTED TO THE INTERESTS
OF CONCHOLOGISTS.

EDITOR :
H. A. PILSBRY, Conservator Conchological Section, Academy of Natural Sciences, Philadelphia.
ASSOCIATE EDITOR :
C. W. JOHNSON, Acting Curator Wagner Institute of Science.

Vol. IV. FEBRUARY, 1891. No. 10.

CONTENTS:

	PAGE.
FORMS OF AMERICAN CARYCHIUM. H. A. Pilsbry.	109
NOTES ON MR. HEMPHILL'S CATALOGUE. Chas. T. Simpson.	110
EDIBLE MOLLUSKS OF MAINE. Henry Winckley.	112
LIST OF MOLLUSCA OF GLOUCESTER CO., N. J. Wm. J. Fox.	113
A CATALOGUE OF CONCHOLOGICAL ABBREVIATIONS. F. C. Baker.	115
AMERICAN ASSOCIATION OF CONCHOLOGISTS. (Contributed.)	117
GENERAL NOTES.	120

Published by
H. A. PILSBRY, Editor, Academy of Nat. Sciences, Philadelphia.
C. W. JOHNSON, Manager, Wagner Free Institute of Science, Philad'a.
Entered at Philadelphia Post-Office as second-class matter.
FOREIGN AGENCIES:—London, Trübner & Co., 57 and 59 Ludgate Hill ;
Berlin, R. Friedlander & Son, 11 Carlstrasse.

Smithsonian National History Survey
Library

North American Shells for Sale.

The undersigned is prepared to supply unusually large and good collections of North American shells at moderate prices.

New Catalogue and Price-list now ready. It contains the names of over 1,700 species and varieties of North American shells. Price 20 cts., free on all orders of one dollar and over.

Address

HENRY HEMPHILL,

P. O. Box 973.

San Diego, Cal.

The West American Scientist. AN ILLUSTRATED MONTHLY MAGAZINE OF POPULAR SCIENCE.

The regular monthly editions consist of 1000 copies.

PRICE, 10 CENTS.

ANNUAL SUBSCRIPTION, \$1.00

ADVERTISING RATES AS FOLLOWS:

One inch, \$1.00 for each insertion.

One page, \$10.00 for each insertion.

Yearly contracts rated as ten months.

"Decidedly the best of its class."—GEO. W. TRYON, JR.

C. R. ORCUTT, EDITOR AND PUBLISHER,

Orcutt, San Diego County, California.

CIGAR SPECIALTIES.

ACKER'S "OZEMA" OPERAS.

CLEAR HAVANA FILLER SUMATRA WRAPPER.

\$5.00 PER HUNDRED.

"OTELLO" FINEST HAVANA FILLER, \$6.00 per hundred.

In 50 and 100 Boxes.

FINLEY ACKER & CO., 123 N. 8th St., Phila., Pa.

Delivered at above prices. Express paid to all sections of the U. S. Write for information

THE NAUTILUS.

VOL. IV.

FEBRUARY, 1891.

No. 10.

FORMS OF AMERICAN CARYCHIUM.

BY H. A. PILSBRY.

The forms of *Carychium* found in America have all been referred to the one species *exiguum* by Mr. Binney. In examining a series collected by Mr. Geo. W. Dean of Kent, Ohio, referred to me by my friend John Ford, I found a certain form which Mr. Dean considered distinct. It is far more slender than ordinary *exiguum*. The amount of difference is considerable, and only the extreme minuteness of the shells has prevented conchologists generally from recognizing it. One conchologist however, *has* done so:—Henry Carey Lea, Apostle of microscopic shells! The forms may be distinguished thus:

C. exiguum Say, (typical). Rather cylindrical, the next to the last whorl nearly equaling the last in diameter; mouth one-third (or more) the length of shell; outer lip thickened, expanded, sometimes obsoletely thickened, scarcely toothed, in the middle. This is by far the most abundant and generally distributed form.

C. exiguum var. *exile* H. C. Lea. Much slenderer than the preceding, longer, more distinctly striated; mouth smaller, less than one-third the total length of shell; outer lip thickened, often distinctly toothed in the middle. Specimens described are from Kent, Ohio.

C. exiguum var. *occidentalis* Pilsbry. Somewhat larger than typical *exiguum*, *distinctly conical*, not at all cylindrical, acute; outer lip expanded, thin, not at all toothed. It is from Portland, Oregon.

The writer proposes to figure the forms later. I may say that Mr. Ford concurs with me in the arrangement of varieties here offered.

The entire series of American *Carychium* is closely allied to *C. minimum* of Europe, and doubtless sprang from the same circumpolar stock.

NOTES ON MR. HEMPHILL'S CATALOGUE.

BY CHAS. T. SIMPSON.

In a late number of THE NAUTILUS the editor¹ called attention to the catalogue of shells recently issued by Mr. Henry Hemphill, (in which he has made a considerable reduction in the number of species) and asked for the opinions of students throughout the country. As Mr. Hemphill is known to all to be a most careful collector, and a close observer of the facts connected with the lives and surroundings of Mollusks, such a reduction by him of the number of our hitherto acknowledged species is, as has been remarked, rather startling, and is, on account of the prominence of its author entitled to at least careful consideration.

It seems to me that the time is near at hand for quite a change in our ideas concerning the classification of the forms of organic life and their variations. The old idea which has so long prevailed, that species were formed by an act of creation, fixed and unchangeable, as coins are stamped out at a mint; that genera and higher groups have an invariable limit, is fast becoming obsolete, and we are being daily forced by stubborn facts to learn that variation is the rule and fixity the rare exception, that the limits of species and the higher groups of forms are very often vague, or so absolutely uncertain as to be impossible to define. By far the greater number of scientists believe in the theory of evolution in some form or other, and hold that all the existing animals and plants are but the direct descendants of other and extinct species, that the infinite variation which is found is caused largely by environment and other circumstances connected with the life of the organism. In the United States we should expect to find an excellent field for such variation.

¹ The article on Mr. Hemphill's Catalogue to which allusion is made was not written by the Editor. It was contributed by the officers of the American Association of Conchologists.—ED.

Its continental area, its diversity of climate from the boreal regions of the British possessions to the very borderland of the tropics, its wide stretches of plains, varying from forest covered to entirely naked, the difference in the height of its mountains, its areas of almost perpetual humidity which shade out into desert regions, would give just the conditions necessary for the wide distribution of species, and for great and gradual variation. Such wide distribution and variation we find with most of our forms of mollusks.

Various methods have been proposed by which these lesser variations may be designated. Some have classed them as varieties of species, giving to each a varietal name, others have resorted to lettering or numbering, while the ornithologists of America class them as sub-species. The New School of Conchologists of Europe seeks a way out of the difficulty by applying specific names to a great many of the minor variations, and generic names to small and ill-defined groups of species. Unfortunately for such systems of nomenclature, variation does not always occur in a lineal direction, or in other words, from one genus or species directly to another, but often seems to be broken up so that certain forms or groups combine the characters of several other forms or groups, and appear very much like hybrids.

In the wonderful series of *Patula*, beginning with elevated shells with rounded whorls and strong radiating ribs known as *Helix Idahoensis* which varies gradually through the less elevated and smoother forms of *Cooperi* and *strigosa*, to *Hemphilli* and *Haydeni* which are lenticular and sharply keeled with strong revolving sculpture, we find such irregular varieties or natural hybrids, which hardly admit of naming. Elevated forms are not rare, having radiating sculpture and sharp keels, in others of the same general form the ridges are revolving, thus partaking more or less of the characters of *Idahoensis* and *Hemphilli*; and greatly flattened shells are met with, without keels and with more or less decussated or even radiating sculpture, in fact in the 1500 or more specimens of this protean form in the collection of the National Museum, one can observe this crossing of characters in almost every direction. To attempt to designate these hybrids, if such they are, by name is simply an impossibility. The argument is put forth by many that it is better to give any form a name than to have to describe it every time, it is mentioned, but to carry it out one could apply fifty names to the variations of *Melongenella corona* or *Cyrena Floridana*, or twice that

number to the color varieties of *Oliva inflata*, *Helix picta* or *varians*, and to designate all the forms of the above mentioned group of *Patula* would seriously tax the brain of the most ardent devotee of New School doctrines.

Another way out of the difficulty is by throwing together under one name those things which cannot be separated, as Fischer has done to some extent with genera, and Tryon with species. The consolidation by Dr. Dall of *Helix microdonta*, *Febigeri*, *septemvolva*, *Carpenteriana* and *cereolus*, under the latter and older name; the union of the group of *Patulas* I have mentioned under a single appellation, and Mr. Pilsbry's somewhat startling announcement putting such genera as *Mesodon*, *Polygyra*, *Triodopsis* and *Stenotrema* into one group, are examples which I believed are approved by the good sense of a majority of American Conchologists. Mr. Hemphill has simply gone a little farther in the direction which these gentlemen have moved, and I believed there is a wide field here in the United States for further work in the same way. I do not believe in naming or holding on to names for those things which have neither beginning nor end.

EDIBLE MOLLUSKS OF MAINE.

BY HENRY WINCKLEY.

As a supplement to the article by Prof. Keep in the January NAUTILUS, and in accordance with his suggestion, Maine responds to California with the following list of Mollusks found in the markets.

Ostræa virginica (Gmel). As in all Eastern States this is by far the most popular food mollusk; they are obtained from the South, *i. e.* from Providence to Norfolk, Va. There is a small bed of living oysters in the Sheepscote River, some fifteen miles from the sea, and occasionally a few are obtained and eaten by some energetic individual; they are not numerous and hence do not find their way to the markets.

Mya arenaria Linn., is largely used and abounds everywhere along the coast. It is an inexpensive food and used by all classes. Large quantities are canned.

Pecten tenuicostatus Mighels & Adams. This last species is quite an important article of food in the winter season, and probably is not found in any market to the south of this state. It has as a rival the popular *Pecten irradians* imported from Long Island Sound, but is common in our markets.

Macra solidissima Chemnitz. The presence of this species in the market is somewhat dependent upon the storms. Some weather brings them out and at such times they can be bought. They occupy a place in the mollusks like that of game birds among the feathered population, very popular and when obtained in small quantities, as is frequently the case, it gets no further than the table of the finder, who rejoices over his good work. It is much prized.

Venus mercenaria Linn. Occurs at one spot on the coast, I have not seen it in the markets, whether it is occasionally used or not I am not sure.

In addition to the above, I do not know of any that can be reported as commonly used. Others are found; the edible muscle abounds, but is not sold. *Solen ensis* sometimes makes a meal for a lucky man who chances to obtain a sufficient quantity, but these are chances rather than regular market food.

LIST OF MOLLUSCA OF GLOUCESTER CO., N. J.

BY WM. J. FOX.

The following list includes all the species of Mollusca collected in Gloucester Co., N. J. from June to September, 1890. It is without doubt far from being complete, as my specialty being Insects, I could devote but little time to collecting shells. Southern New Jersey being but little frequented and unprofitable to shell collectors, being for the most part sandy soil, this list may prove of some interest to the readers of the NAUTILUS. For the determination of these species, I am indebted to Mr. H. A. Pilsbry.

LIMACIDÆ.

Limax sp.

Zonites ligerus Say, var. *Stonei* Pilsbry.

Zonites arboreus Say.

Zonites radiatulus Alder.

Zonites indentatus Say.

Zonites minusculus Binn.

Zonites suppressus Say.

HELICIDÆ.

Patula striatella Anth.

Patula lineata Say.

Punctum pygmaeum minutissimum Lea.

Helix thyroides Say.

Helix albolabris Say.

PUPIDÆ.

Pupa contracta Say.

Vertigo sp. (juv.)

SUCCINEIDÆ.

Succinea avara Say.

Succinea obliqua Say.

Succinea ovalis Gould.

LIMNAEIDÆ.

Limnæa catascopium Say.

Limnæa humilis Say.

Planorbis trivolvus Say.

Planorbis bicarinatus Say.

Planorbis parvus Say.

Planorbula armigera Say.

Ancylus rivularis Say.

PHYSIDÆ.

Physa ancillaria Say.

AURICULIDÆ.

Carychium exiguum Say.

VIVIPARIDÆ.

Campeloma decisum Say.

Lioplax subcarinata Say.

AMNICOLIDÆ.

Amnicola limosa Say.

Amnicola grana Say.

Pomatiopsis lapidaria Say.

Somatogyrus altilis Lea.

VALVATIDÆ.

Valvata bicarinata Lea.

STREPOMATIDÆ.

Goniobasis virginica Gmel.

CORBICULIDÆ.

Sphaerium transversum Say.*Sphaerium striatinum* Lam.*Pisidium virginicum* Gmel.

UNIONIDÆ.

Unio complanatus Sol.*Unio cariosus* Say.*Unio nasutus* Say.*Anodonta Tryonii* Lea.

A CATALOGUE OF CONCHOLOGICAL ABBREVIATIONS.

BY F. C. BAKER, ROCHESTER, N. Y.

G.

Garr. or Grt.	Garrett, Andrew.	American.
Gld	Gould, Dr. A. A.	American.
Gmel.	Gmelin, J. F.	German.
Greg.	Gregorio, Antonio de.	Italian.
Gundl.	Gundlach, J.	Cuban.
Guild.	Guilding, L.	English.
Gut.	Gutierrez.	Cuban.

H.

H. & J.	Hombron & Jacquinot.	French.
Hald.	Haldeman, S. S.	American.
Hanl.	Hanley, Sylvanius.	English.
Hartm.	Hartmann, D. W.	Swiss.
Heyn.	Heynemann, D. F.	German.
Hds.	Hinds, R. B.	English.
Hombr.	Hombron, M.	French.
Humph.	Humphreys, J. D.	English.
Hutt.	Hutton, F. W.	English. New Zealand.

J.

Jacq.	Jacquinot, H.	French.
Jeffr.	Jeffreys, J. G.	English.
Jouss.	Jousseume, Dr.	French.

K.

Kien.	Kiener, L. C.	French.
Kregl.	Kreglinger, G.	German.
Küst.	Küster, H. C.	German.

L.

Lam.	Lamarck, M. le Chev.	French.
Lindstr.	Lindstrom, G.	Danish.
Linn.	Linné (Linnæus,) Carl von.	Swedish.

M.

Mab.	Mabille, M. P.	French.
Mart.	Martyn, Thos.	English.
Midd.	Middendorf, A. T. von.	Russian.
Mich.	Michaud, A. L. G.	French.
Migh.	Mighels, J. W.	American.
Mke.	Menke, C. T.	German.
Mtg. or Mont.	Montagu, G.	English.
Montf.	Montfort, Denys de.	French.
Montr.	Montrouzier, M.	French.
Monts.	Monterosato, M. di.	Italian.
Mouss.	Mousson, A.	French.
Moq.-Tand.	Moquin-Tandon, A.	French.
Müll.	Müller, O. F.	German.

N.

Newc.	Newcomb, Dr. Wesley.	American.
Nutt.	Nuttall, Thomas.	English.

P.

Payr.	Payraudeau, P. C.	French.
Parr.	Parreyss, Dr.	German.
Pfr.	Pfeiffer, Dr. Louis.	German.
Phil.	Philippi, Dr. R. A.	German.
Pse.	Pease, W. Harper.	American.

Q.

Q. & G.	Quoy & Gaimard.	French.
---------	-----------------	---------

R.

Raf.	Rafinesque, C. S.	French-American.
Redf.	Redfield, John H.	American.
Rossm.	Rossmässler, E. A.	German.
Rve.	Reeve, Lovell.	English.

S.

Schum.	Schumacher, C. J.	German.
Sowb. or Sby.	Sowerby, G. B.	English.
Shuttl.	Shuttleworth, R. J.	German.
Spengl.	Spengler, L.	German.
Stimp.	Stimpson, W.	American.

T.

Theob.	Theobald, W. Jr.	English.
Trosch.	Troschel, F. H.	German.

V.

Val.	Valenciennes, M. A.	French.
------	---------------------	---------

W.

Wein.	Weinkauff, H. C.	German.
Woll.	Wollaston, T. V.	English.
W. G. B.	Binney, W. G.	American.

[CONTRIBUTED.]

AMERICAN ASSOCIATION OF CONCHOLOGISTS.

JANUARY 21, 1891.

Since last announcement the following new members have been enrolled:—

130. John Brady, Aledo, Ill. *Unionidæ*.

131. John H. Britts, Clinton, Mo. *Carboniferous Palaeozoic Mollusca*.

132. Delos Arnold, Pasadena, Cal.

133. A. W. Hanham, Brantford, Ont. *Canadian Land and Fresh Water Mollusca*.

134. Mrs. J. M. Gaige, Detroit, Mich. *Muricidæ*.

135. Mrs. Amos O. Osborne, Waterville, N. Y. *Land and Fresh Water Shells.*
136. Mrs. Mary P. Olney, Spokane Falls, Wash.
137. Berlin H. Wright, De Leon Springs, Fla. *Unionidæ of Gulf States.*
138. Anna Goodsell, Poughkeepsie, N. Y.

The following members have chosen subjects:—

Dr. Fred. Stein, Indianapolis, Ind. *Air-breathing Mollusks of U. S. and Europe.*

Francisco E. Blanes, Key West, Fla. *Marine Mollusca of Florida and Cuba.*

Ida M. Shepard, Long Beach, Cal., has changed her subject from *West Coast Shells* to *West Coast Marine Shells and Helicidæ.*

G. W. Lichtenthaler is now upon a visit to California, where he will doubtless add to his already extensive knowledge of West Coast Shells.

Joseph Willcox and Uselma C. Smith, of Philadelphia, are traveling in Florida at the present time.

C. A. Hargrave, Danville, Ind., has accepted the editorship of the Department of Conchology in "The Observer," published in that city. He is a good conchologist, and will no doubt make his department a success.

Henry A. Ward, Rochester, N. Y., is about to pay a visit to Cuba and Jamaica on a natural history quest.

Ida M. Shepard, Long Beach, Cal., will shortly start upon a two months' collecting tour in the Gulf of California.

Mrs. S. H. Young has changed her residence from Long Beach, Cal., to Butler, Pa.

Rev. H. W. Winkley, Saco, Me., writes: "I am delighted with my experience in the Association. I have exchanged with several, received letters, etc. They all seem to have the same interest in Conchology that I have."

Chas. Schuchert, Albany, N. Y., is preparing a "Bibliographical Catalogue of American Fossil Brachiopoda." It is a much-needed work, and is in thoroughly competent hands.

Members desiring to have any Cypræas named, will please mail them to the President, who will take pleasure in naming and promptly returning them. Of course no charge will be made.

The pleasure of assisting members will be a sufficient recompense to him.

Donations to the United States Collection.

The collection is progressing wonderfully, and it is a source of much gratification to note the general interest evinced by members, and the receipt of such fine specimens as are sent. Some of the specimens and suites sent are superb. Since last acknowledgment, the following have been received, mounted, and placed in the cases:—

O. A. Crandall, Sedalia, Mo.—More than 20 species of Land Shells from Missouri, Arkansas and Texas, including *Goniobasis sordida*, Lea; *Saffordi*, Lea, and *Crandalli*, Pilsbry; *Helix inflecta*, Leaii, *Dorfeuillana*, var. *Sampsoni*, Weth., *appressa*, *elevata* and *Roemeri*; *Pupa fallax*, Say, and *armifera*, Say; and *Sphaerium striatinum*, Lam.

Rev. H. W. Winkley, Saco, Me.—12 species of New England Shells, including *Aplexa hypnorum*, Linn.; *Segmentina armigera*, Say; *Cryptodon Gouldii*, Phil.; *Macoma Baltica*, Linn.; *Littorinella minuta*, Totten; *Gemma gemma*, Totten, and *Helix pulchella*, Müll.

John Ford, Philadelphia, Pa.—*Nerita peleronta*, Linn, Key West, Fla., and a fine suite of *Oliva litterata*, Lam., from S. W. Florida.

J. A. Singley, Giddings, Tex.—Over 30 species of Texas Land Shells, and 12 species of Texas Tertiary Fossils, including fine suites of *Bulimulus alternatus*, Say, and *Holospira Goldfussi*, Menke; *Helix Texasiana*, *leporina*, *Berlandieriana*, Copei, *labyrinthica*, *Henriettae*, *Cragini*, *Mooreana*, and *thyroides*; *Zonites Singleyanus*, *minusculus* and *friabilis*; *Helicina tropica*, Jan.; *Goniobasis Comalensis*, Pilsbry; *Physa Sayii*, *Forsheyi* and *Halei*; *Amnicola peracuta*, Pilsbry and Walker; *Pisidium compressum*, Prime and *Sphaerium subtransversum*, Prime.

Chas. LeR. Wheeler, Cape May, N. Y.—Additional examples of *Fulgur canaliculata* and *carica* (magnificent specimens); *Natica heros*, Say; *Dosinia discus*, Reeve, Swansboro, N. C.; *Pholas truncata* and *Zirphaea crispata*, Linn., Cape May, N. J.

E. H. Harn, Blairsville, Pa.—*Helix profunda*, Say, and *Pennsylvanica*, Green.

- H. Moores, Columbus, O.—*Helix multilineata profunda*, monodon, exoleta, fallax and albolabris from Columbus, Ohio; two species of *Pomatiopsis* and two of *Amnicola*.
- E. W. Roper, Revere, Mass.—A very valuable series of *Pisidium* and *Sphaerium*, ranging from the youngest to the oldest forms, including *Sphaerium secure*, *rhomboideum*, and *partumeium*; *Pisidium Idahoense* (his new species), *variabile*, *compressum* and *abditum*. Also a fine series of *Purpura lapillus*, Linn.
- Chas. W. Johnson, Philadelphia, Pa.—Fine suite of *Melongena corona*, Gmel., from S. W. Florida; *Succinea effusa*, Shuttl. Ocklawaha River, Fla., and *Helix pustula*, Fér., St. Augustine, Fla.
- Dr. V. Sterki, New Philadelphia, O.—Pupa *rupicola*, Say, and *Vertigo rugosula*, var. *ovulum*, Sterki, both from Volusia County, Fla. Also an interesting lot of *Unio* from the Tuscarawas River, Ohio, including *Unio luteolus*, Lam.; *multiradiatus*, Lea; *phaseolus*, Hildr; *lens*, Lea; *pustulosus*, Lea; *subrotundus*, Lea; *pyramidatus*, Lea; *coccineus*, Lea; *rubiginosus*, Lea; *irroratus*, Lea; *triangularis*, Barnes, and *undulatus*, Barnes. Also 3 species of *Margaritana* (*Alasmodonta*), and 4 species of *Anodonta*.
- Total, 138 genera, 352 species, 402 trays.

GENERAL NOTES.

ARIOLIMARY COLUMBIANUS VAR. STRAMINEA. Animal when extended about six inches long, with the marking of *A. Columbianus*, of a uniform light straw color, a shade lighter beneath the foot. Habitat, Santa Cruz Island, California.—*Henry Hemphill*.

NOTES ON CERTAIN SPECIES OF CEPOLIS. In the *Manual of Conchology*, 2d. series, vol. V, the writer described as new, under the name *Helix pimesoma*, a Haitian shell which proves to be the same as the unfigured *H. trizonaloides* A. D. Brown, as I have satisfied myself by finding Brown's types with his original label, in the collection of Mr. John H. Campbell, Philadelphia. I may also note here that *Helix squamosa* Fér. placed in *Cepolis* in the *Manual*, is really a species of *Jeanneretia*,—a section having apparently no especial affinity to *Cepolis*.—*H. A. Pilsbry*.

ADVERTISING RATES.

Advertisements will be inserted at the rate of \$1.00 per inch for each insertion in advance. Smaller space in proportion. A discount of 25 per cent. will be made on insertions of six months or longer.

COLLECTORS.

20,000 species of Land, Marine, and fresh-water shells for sale. The largest stock in the world:—Always new arrivals. *Prices cheaper than elsewhere.* PRICE-LISTS GRATIS.

Offer also smaller and larger collections representing the general families and most characteristic species from all parts of the world.

A Collection of 50 Species.

a.	Marine shells	univalves	-	-	-	-	-	-	-	-	\$8.00
b.	“	bivalves	-	-	-	-	-	-	-	-	\$6.00
c.	Land shells	-	-	-	-	-	-	-	-	-	\$5.00

A general collection of marine and landshells, 300 species \$35.00.

All correctly named and in perfect condition.

New Price-list of Land Shells sent free on application.

Address: HERMANN ROLLE,
Berlin S. W. (Germany). Zimmerstrasse 85.

CONCHOLOGY.

Hugh Fulton, Dealer in Recent Shells, informs Collectors and Directors of Museums that he has a large and choice stock which is being constantly added to by the purchase of collections and by consignments from correspondants abroad.

Hugh Fulton has just acquired some specimens of the beautiful little shell *Opisthostoma grandispinosa*, described by Col. Godwin Austen in the Zool. Soc. Proc. London, June 18, 1889, the author there writes: “This is certainly the most beautiful little thing found for a long time. It is almost impossible to describe the delicate structure of the spines that cover the shell rising from the golden-colored whorls.”

PRICE \$2.50. POST FREE.

Collectors are invited to send lists of desiderata.

Collections purchased. Good prices given for rare shells.

HUGH FULTON, 89 FULHAM ROAD, LONDON, S. W.

(Near the National Museum of Natural History).

59405
NA
v. 4 NO. 11
No. 11

\$1.00 per Year. (\$1.12 to Foreign Countries.) 10cts. a copy.

THE NAUTILUS

A MONTHLY
DEVOTED TO THE INTERESTS
OF CONCHOLOGISTS.

EDITOR :

H. A. PILSBRY, Conservator Conchological Section, Academy of Natural Sciences, Philadelphia.

ASSOCIATE EDITOR :

C. W. JOHNSON, Acting Curator Wagner Institute of Science.

Vol. IV.

MARCH, 1891.

No. 11.

CONTENTS:

	PAGE.
NOTES ON THE SCULPTURE OF AMERICAN LIMNÆAS, ETC. Robt. E. C. Stearns.	121
NOTE ON GONIOBASIS CATENARIA SAY. H. A. Pilsbry.	124
UNIONIDÆ OF GA., ALA., S. C., AND LA., IN SOUTH FLORIDA. S. Hart Wright.	125
NOTES ON THE CLASSIFICATION OF AMERICAN LAND SNAILS. H. A. Pilsbry.	125
A NEW SPECIES OF ARCONAIA. H. A. Pilsbry.	127
AMERICAN ASSOCIATION OF CONCHOLOGISTS. (Contributed.)	128
GENERAL NOTES.	131
EDWARD RICHARDS MAYO OBITUARY.	132

Published by

H. A. PILSBRY, Editor, Academy of Nat. Sciences, Philadelphia.

C. W. JOHNSON, Manager, Wagner Free Institute of Science, Philad'a.

Entered at Philadelphia Post-Office as second-class matter.

FOREIGN AGENCIES:—London, Trübner & Co., 57 and 59 Ludgate Hill;
Berlin, R. Friedlander & Son, 11 Carlstrasse.



THE NAUTILUS.

VOL. IV.

MARCH, 1891.

No. 11.

NOTES ON THE SCULPTURE OF AMERICAN LIMNÆAS, ETC.

BY ROBT. E. C. STEARNS.

In several instances parties who have sent specimens of American Limnæas to the U. S. National Museum for identification, have called attention to the sculpture of the specimens, as if this character was peculiar to the examples sent by them, and not previously observed; hence the following notes which may be of some use in connection with the study of pond-snails, by beginners in this class of molluscan forms.

The extensive geographical series, and numerous examples in the National Collection show the sculpture characters to be as follows, and that all of the so-called species, of which without doubt there are at least "twice too many," exhibit in a greater or less degree when a large geographical series is brought together, with an ample representation of individuals, the same aspects of sculpture variation.

FIRST. The longitudinal incremental or growth lines are often conspicuously developed in forms that generally are smooth or with scarcely discernible growth lines, and occasionally individuals are met with in which there is apparently a serial or alternating arrangement of bands or zones of fine and coarse growth lines, suggestive of a positive longitudinal sculpture, which we may suppose to be due to a more vigorous growth at one season than another. Again the larger whorls often exhibit a tumid or bulging elevation or prominence which is rarely or seldom regular, usually irregular in occurrence, and not infrequently so conspicuous as to produce absolute

distortion, as if a season of moderate food supply had been followed by an aldermanic dinner or two, resulting in sudden and phenomenal growth followed by a penitential period of more temperate eating.

These bulgings as before stated, seldom if ever exhibit any regularity of occurrence in the *Limnæas*; they often do, however, in the nearly related pond snails *Planorbis* and *Physa* as may be seen not infrequently in *Planorbis glabratus* wherein they seem to occur in somewhat orderly sequence. In the beautiful little *Physa* (*Costatella*) *costata* described by my venerable friend Dr. Newcomb, a form which inhabits Clear Lake, California—these bulgings are numerous and regular and are arranged nearly equidistant and give a postively *sculptured aspect* to the shell, in distinction from the suggestion of *pathologic eccentricity* like the bulgings of the *Limnæas* and many of the *Planorbis*.

The above variation in strength or prominence of growth or incremental lines, as they are usually called, is also common to many of the *Planorbis*, notably in *P. corpulentus* Say, from the West coast, and is also frequently exhibited in examples of the curious and interesting genus *Carinifex* another West coast form from Eagle Lake, California and elsewhere, and in the equally curious little shells of the genus *Pompholyx*; that enterprising and intelligent collector Henry Hemphill detected a pretty costate variety at the Dalles of the Columbia River, wherein the ribs are quite evenly placed and suggestive of frequent variceal thickening as in some of the *Strophias*.

Many of the land shells of North America, as well as exotic species, exhibit varying aspects or facies of incremental sculpture, and many who read this will at once call to mind the difference, in this respect, of examples of *Mesodon* of the same species from different localities, also of *Patula alternata*, and the remarkable sculptural diversity of the forms now included with *Patula strigosa* and its synonyms. There are other groups of the *Helicidæ* which might be included, but these are sufficient for the purposes of illustration and among the *Bulimulidæ* we have no lack of instances, and the group *Strophia* of the *Pupidæ*, which has led Mr. Maynard into a sort of conchological quick-sand or "slough of despond," furnishes a further appropriate illustration.

SECOND. Inclusive of the first or above class of variation, we have the dented or malleated aspect of sculpture, as if the shell had received a succession of light blows from a small hammer, blows

carefully given with sufficient force to dint the surface without breaking the substance of the shell. These dints are sometimes quite regular in arrangement and frequently have the aspect of zones following the basal and previous whorl transversely and parallel to the sutural line, like so many flat bands.

This form of sculpture is also met with not only in related groups like the *Physas*, often conspicuously shown in the form to which the late Dr. Lea gave the name of *P. Carltoni* as well as in other species of the same genus; frequently in *Planorbis* and *Carinifex* as well as in the river-snails *Ampullaria* and in the *Bulimi* among the land shells.

THIRD. Another and not infrequent aspect of sculpture is exhibited by several species, and consists of fine close set incremental lines crossed by transverse, somewhat waved and slightly incised grooves; the same character of sculpture is not infrequent in many terrestrial pulmonates. The Mexican *Glandinas*, for instance, furnish in several species, beautiful examples of this delicate tooling of the surface, to use a familiar mechanical term.

Mr. Dall recently collected several specimens of *Limnæa palustris* in the irrigation ditches near the Hot Springs in Honey Lake Valley, Lassen Co., California, (within the area of the extinct tertiary Lake Lahontan), which exhibit this form of sculpture markings. It is often if not generally present in the following species:

Limnæa lepida Gould, *Limnæa ampla* Mighels, *Limnæa Sumassi* Baird; and less frequently so far as I have observed, in *Limnæa columella* Say, *L. caperata* Say, and *L. lanceata* Gould. Doubtless many others of the numerous alleged species of this genus, occasionally exhibit this character of sculpture, which is seen in examples of all of those I have named even from widely separated areas.

It should not, however, be inferred that sculpture variation has any special or direct relation or connection with geographical distribution; that it has indirectly, in the *Limnæas* and the class of Mollusks to which said group belongs, there is no doubt, for it will at once come to the mind of any one familiar with the pond snails of all countries, that those inhabiting semitropical and tropical areas are much more constant or uniform in size, shape and sculpture than their fellows of the same kin from northern or colder latitudes, and the texture of the former is much finer and smoother on the whole, or all in all, than the forms that live in the cooler regions of the north. The influences that appear to induce, or cause variation

are environmental rather than geographical; and following in the general line or trend of this paper may be presented on another occasion.

NOTE ON GONIOBASIS CATENARIA SAY.

BY H. A. PILSBRY.

Having occasion recently to name some Florida *Goniobases*, the writer examined thoroughly the species described from that State. The characteristic type is *G. catenaria* Say. It is a turritid shell, blackish-brown or olive-brown, having numerous small folds extending from the suture to the angular periphery, crossed by two or three spiral threads, which form beads where they cross the folds; the periphery is more or less keeled and tuberculate; below it are a variable number (4-7) of spiral raised threads. The apex is eroded.

The sculpture is sometimes nearly obsolete, as in a blackish form collected in Marion Co. by Mr. G. W. Webster, and also sent me by Mr. Berlin H. Wright; or it may be very sharp and clear-cut, as in a beautiful form from Alexander Spring Co. The following synonymy I regard as unquestionably established:

- | | |
|-----------------------------------|----------------------------------|
| <i>G. catenaria</i> Say, 1822. | <i>G. Etowahensis</i> Lea, 1861. |
| <i>G. sublirata</i> Conr., 1850. | <i>G. papillosa</i> Anth., 1861 |
| <i>G. Floridensis</i> Rve., 1860. | <i>G. Downieana</i> Lea, 1862. |

Of the names given below, I have seen neither *G. Bentoniensis* or *G. Couperii*, but they seem to have very slight differential characters. *G. Hallenbecki* and *G. Boykiniana* are practically the same thing, as the suite before me shows. They differ from the *catenaria* in nothing but size. These four names may therefore be ranked as probable synonyms, or at best, species on probation:

- G. Boykiniana* Lea, 1840, + *G. Hallenbeckii* Lea, 1862.
G. Bentoniensis Lea, 1862.
G. Couperii Lea, 1862.

All of which is respectfully submitted. Notes on any of these forms from collectors will be very acceptable to the writer.

The specimens studied are in the general collection of the Academy of Sciences and the collection of the American Association of Conchologists.

UNIONIDÆ OF GA., ALA., S. C., AND LA., IN SOUTH FLORIDA.

BY S. HART WRIGHT, PENN YAN, N. Y.

An interesting fact in geographical distribution is noted in the finding of Unionidae in Central and Southern Florida, which belong to, or were originally described as from the Central States of the South. In Volusia County, Fla., over one hundred miles south of Jacksonville and more than three hundred miles south of the middle portions of Ga. and Ala., several species of *Unio* have been found which were described from the latter States, or from S. C.

The St. Johns River flows northward past Volusia County, to Jacksonville and the Atlantic Ocean; and the introduction of Ga., Ala. and S. C. species against the current of the river for so great a distance is remarkable. Although the Unionidae have locomotion in a slight degree and might make headway against rivers and creeks, when once in them, they cannot thus get into waters which do not connect. Their introduction into remote regions may be through the agency of water-birds, which might carry juveniles long distances, and then drop them into new stations.

We found in Volusia Co., Fla., in 1887, the following species supposed to be transplanted from Georgia: *Unio Dariensis* Lea, *U. cicur* Lea and *Anodonta Couperiana* Lea, perhaps the most beautiful *Anodonta* in America, and the only one found in Florida of which we have any knowledge. We also found there, *U. modioli-formis* Lea and *U. angustatus* Lea, both from South Carolina. Mr. Charles T. Simpson found in Manatee County, one hundred and fifty miles farther south and on the west side of the state, *U. obesus* Lea and *U. granulatus* Lea, from Ga. and Alabama. Mr. George W. Webster sent us a few weeks ago, a species he found in Lake Co., west of Volusia Co., which proved to be *U. hepaticus* Lea, from Ga. and S. C. *U. opacus* Lea, from Ga. and *U. nigerrimus* Lea, from La. have been reported from middle Florida. None of the species indigenous to Southern Florida, so far as we can learn, have ever been found in any of the other Southern States.

NOTES ON THE CLASSIFICATION OF AMERICAN LAND SNAILS.

BY H. A. PILSBRY.

Since the publication of my Check-list of American Land Shells, many new forms (species, varieties and absolute synonyms) have

been described, and various obscure question in phylogeny and classification have become more clear to me. It is my purpose to discuss these matters in a series of short papers.

Fischer has divided the suborder Geophila (=Stylommatophora) or stalked-eyed Pulmonates into two main branches, *Monotremata* and *Ditremata*. It seems to me that a more fundamental separation is indicated by the presence or absence of a jaw, together with the modifications accompanying this character. I would therefore primarily divide the land pulmonates into *Agnatha* and *Gnathophora*.

SUPERFAMILY AGNATHA.

No jaw; teeth of the radula arranged in very oblique V-shaped rows, all of them of the aculeate or thorn-shaped form, the side-teeth larger than the central tooth, which is often obsolete.

The families of *Agnatha* are as follows.¹

I. Mantle small, posterior; shell rudimentary or developed; a common genital orifice *Testacellidæ*.

II. Mantle enveloping the whole upper surface; no shell; genital orifices separated *Rathouisiidæ*.

The last named family is identical with the genus *Vaginulus* as understood by Stoliczka and Binney; not *Vaginulus* Fér., which as Férussac himself says has a jaw. *Veronicella* Blainv. and authors, is the same as *Vaginulus* Fér.

The *Rathouisiidæ* have been found only in India and China.

The *Testacellidæ* comprise a great variety of forms. The family is practically world-wide in distribution in tropical and subtropical regions.

Genus GLANDINA Schum.

Additional species and varieties.

G. truncata Gm., form *ovata* Dall. A short form, measuring 44 x 25 mm. Pliocene of the Caloosahatchie.

How does it differ from *bullata* Gould?

G. truncata Gm., form *macer* Dall. Long, narrow, but not parallel-sided, 75 x 20 mm. Recent, and fossil in the Caloosahatchie beds.

Like the form *parallela* W. G. B., these are doubtless only the extreme aspects of variation in a very mutable species.

¹ Fischer recognizes but one family, *Testacellidæ*; ignoring the agnathous *Vaginulus*-like forms.

SUPERFAMILY GNATHOPHORA.

Jaw present.

- I. Orifices of genitalia contiguous or united *Monotremata*.
 II. Orifices of genitalia widely separated; no shell; mantle covering the whole upper surface *Ditremata*.

The *Monotremata* divide naturally into two divisions:

1. Lateral teeth of the aculeate or thorn-shaped type *Vitrinea*.
 2. Lateral teeth of the quadrate type *Helicea*

1. Families of *Vitrinea*.

- a.* All of the teeth aculeate *Selenitidæ*.
b. Central and lateral teeth quadrate, uncini aculeate *Limacidæ*
Selenitidæ.

This family is not very distinct from *Limacidæ*, but the radula is more highly specialized. Of the genus *Selenites* numerous varieties and forms have been described since the publication of my check-list. They will be enumerated later.

Limacidæ.

All attempts to split this group into two or more families have proved impracticable. The various genera exhibit every stage in the degeneration of the shell. The presence or absence of a caudal mucus gland is equally unreliable, for genera otherwise closely allied, vary in this character.

The additions to our *Limax* list being unimportant will be deferred.

Additional species of *Zonites*.

- Z. Shimekii* Pilsbry. Loess formation of Iowa and Nebraska.
Z. Simpsoni Pilsbry. Indian Territory.

A NEW SPECIES OF ARCONAIA.

BY H. A. PILSBRY.

Unio (*Arconaia*) *Provancheriana* sp. nov.

Shell wide, oblong, beaks at the anterior third. The whole shell twisted, very strongly resembling *Arca* (*Parallelopipedum*) *tortuosa* L., in the direction and degree of the twist. Hinge-line sigmoid. Anterior and posterior margins rounded; basal margin gently

curved, sigmoid; epidermis strong, olive-brown with a few darker concentric streaks; concentrically striate, nearly smooth. The left valve has a slight ridge extending from the beaks to the posterior extremity. Cavity of the left valve very shallow, of the right valve deeper; nacre purplish flesh-colored. The left valve has two widely separated cardinal teeth, lateral teeth remote from cardinals, double; right valve with single cardinal and lateral teeth. Height 32, width $53\frac{1}{2}$, thickness 18 mill.

The specimen is said to be from China. It is from the collection of l'abbé Provancher, Cap Rouge, Quebec.

The ends are not produced as in *A. contorta* Lea, nor is the shell bow-shaped like that species. It can be compared with none other known to me.

[CONTRIBUTED.]

AMERICAN ASSOCIATION OF CONCHOLOGISTS.

FEBRUARY 23, 1891.

Since our last announcement the following new members have been enrolled:

- 139. E. R. Mayo,¹ Boston, Mass. *Massachusetts Mollusca.*
- 140. R. T. Shepherd, Piqua, Ohio. *Unionidae.*
- 141. Elwood Pleas, Dunreith, Ind. *Indiana Mollusca.*
- 142. Hale Montgomery, Clinton, Mo.

Nearly all of the North American Conchologists and many Palaeontologists are now enrolled in the Association, the progress of which has been very gratifying. The members are taking advantage of their privileges to correspond with each other, and much special study has been accomplished. Several of the members have undertaken the preparation of lists of species, similar to the list of Haliotidae recently published by the President. A list of the American Cypræidae (fossil and recent) is now ready, but for want of room, will not appear until next number. Several other lists are approaching completion and we trust that it will not be long before we have complete lists of all North American mollusks.

The United States Collection.

The collection of United States shells, now being formed by the members is growing very rapidly. Many species have been added

¹ Deceased since his election.

during the past month and the specimens and suites received are magnificent. It should be borne in mind :

1st. That donating to the Collection is purely a voluntary matter on the part of members.

2d. That none but the finest kinds of specimens are accepted.

3d. That all shells must have the localities accurately designated.

4th. That consignments should be forwarded to the President, care of Academy of Natural Sciences, 19th and Race Sts., Philadelphia, at which institution the Phila. members of the Association meet at intervals, and prepare, label and mount the shells for permanent exhibition.

To avoid duplicating, it would be well for members to forward to the President lists of such shells as can be sent and he will erase the names of the species already received, and return the lists to the senders.

Donations to United States Collection.

Since last announcement, the following have been mounted and placed in the Collection. [Names of donors annexed.]

H. Moores, Columbus, Ohio.—

A lot of fresh-water shells including 12 species of Strepomatidae; 3 of Paludina; Sphaerium solidulum and transversum; Pyrgula Nevadensis, Stearns; Bythinella obtusa, Lea and Limnaea humilis, Say and exilis, Say. Also Helix clausa, Say.

E. R. Mayo, Boston, Mass.—

16 species of Marine Shells of New England, including Astarte sulcata, Costa, and castanea, Say; Chrysodomus decemcostatus, Say; Buccinum undatum, Linn. and ciliatum, Fabr.; Leda limatula, Say and thraciaeformis, Storer; Natica flava, Gld. and canaliculata, Gld., and Pecten Magellanicus, Lam.

J. A. Singley, Giddings, Tex.—

8 species of Eocene fossils from Moseley's Ferry and Wheelock, Tex., including Surcula Desnoyersii, Lea and Buccitriton Texanum, Gabb.

John Ford, Philadelphia, Pa.—

Anodonta Tryonii, Lea; Martesia cuneiformis, Say; and Lioplax subcarinata, Say.

Wm. J. Fox, Philadelphia, Pa.—

Vertigo pentodon, and *Pupa corticaria*, Say.

Geo. W. Webster, Lake Helen, Fla.—

A very fine lot of Florida and Tennessee shells, including the new variety "albida" of *Bulimulus Dormani*; *Helix stenotrema*, *spinosa*, *auriculata*, *avara* and *Hubbardi*; *Goniobasis catenaria*, Say (a handsome variety); *Glandina truncata*, Gmel.; *Patula vortex*, Pfr. and *caeca*, Guppy; *Bythinella Monroeensis*, Dall and *Floridana*, Fr.; *Succinea luteola*, Gld. and *Salleana*, Pfr.; *Spirula Peronii*, Lam.; *Iphigenia Braziliana*, Lam.; *Marginella apicina*, Menke; *Iauthina globosa*, Swm.; *Seila terebralis*, C. B. Ad.; *Echinella nodulosa*, Pfr.; *Unio Anthonyii*, Blandingianus, *aheneus*, *amygdalum*, *corvunculus*, and *Jewettii*, all of Lea.

John H. Campbell, Philadelphia, Pa.—

Haminea vesicula, Gould; *Cypraea Sowerbyi*; *Trivia Californica* and *Solandri* and *Mangilia merita*, Gld.

Geo. J. Streator, Garrettsville, O.—

Zonites ferreus, Morse; *Sphaerium rhomboideum* and *fabalis*; *Ancylus rivularis*, Say; and others.

Dr. G. D. Lind, St. Louis, Mo.—

Unio Higginsii, Lea and *Limnaea umbilicata*, C. B. Ad.

Jas. M. De Laney, Rochester, N. Y.—

One of the finest lots yet received, including *Cardium consors*, Sby.; *procerum*, Sby. and *muricatum*, Linn.; *Calliostoma canaliculatum*, Mart. and *annulatum*, Mart.; *Pecten aequisulcatus*, Cooper; *Helix devius*, Gld., *ptychophora*, A. D. Br., and *Stearnsiana*, Gabb; *Venus gnidia*, Br. & Sby.; *Strombus granulatus*, Wood; *Bulla nebulosa*, Gld.; *Tellina rubescens*, Ham. and *Gouldii*, Han.; *Tapes grata*, Say; *Modulus cerodes*, A. Ad.; and *Unio luteolus*. Lam., *iris*, Lea, and *undulatus*, Barnes.

Elwood Pleas, Dunreith, Ind.—

20 species of Claiborne fossils, including *Marginella larvata*, Conr. and *plicata*, Lea; *Conomitra fusoides*, Conr.; *Limopsis declivis*, Conr.; *Strepsidura bella*, Conr.; 3 species of *Solarium*; *Pasithea sulcata*, Lea; and *Corbula nasuta*, Conr.

S. Raymond Roberts, Glen Ridge, N. J.—

Helix Columbiana, Lea (collected by W. M. Gabb.)

H. A. Pilsbry, Philadelphia, Pa.—

35 species of Palaeozoic fossils from Bedford, Ind. All of them belong to the Warsaw Group. They include 4 species of *Straparollus*, 4 of *Pleurotomaria*; 3 of *Rhynchonella*; 4 of *Murchisonia*; 3 of *Bulimorpha*; *Productus Indianensis*, Hall; *Naticopsis Carleyana*, Hall; *Orthoceras epigrus*, Hall; *Nucula Shumardana*, Hall; and 2 species of *Terebratula*.

E. H. Fiske, Santa Cruz, Cal.—

5 species of Post-Pliocene fossils from Santa Cruz, viz.: *Purpura canaliculata* and *crispata*; *Nassa mendica*, Gld.; *Oliva biplicata*, Sby. and *Crepidula navicelloides*, Nutt.

W. J. Raymond, Oakland, Cal.—

10 species of California land and fresh-water shells, including the new *Sphaerium Raymondii*, J. G. Cooper, and *Planorbis subcrenatus*, Carp., var. *disjectus*, J. G. Cooper, described in Proc. Cal. Acad. Science; *Physa Gabbii*, Tryon; *Helix arrosa*, Gld., *armigera*, Ancey and *Dupetithouarsii*, Desh. Some examples of the last named species introduced in 1884 into Oakland from San Simeon, San Luis Obispo Co., show a stunting of growth and slight deformity, which appear to be constant.

Elwood Pleas, Dunreith, Ind.—

6 species of Post-Pliocene shells found associated with bones of *Mastodon Americanus* at Losantville, Randolph Co., Ind. All of them are species yet living, viz.: *Planorbis bicarinatus*, *campanulatus* and *deflectus*, *Amnicola porata*, *Pisidium compressum* and *Limnaea humilis*.

Total to date—199 genera, 573 species, 659 trays.

GENERAL NOTES.

POLYGYRA (MESODON) KIAWAENSIS Simpson var. **ARKANSAENSIS** Pilsbry.—These shells differ from the types of *Kiawaensis* in being larger, more robust, the aperture larger, umbilicus smaller. There are also certain anatomical peculiarities which will be described in another place. The lip of these forms is much thickened within; it

is still a very doubtful question whether the species should be referred to *Mesodon* or *Triodopsis*. The form here described seems to establish a slight bond with such shells as *Mesodon thyroides*. The specimens were collected by Mr. F. A. Sampson near Hot Springs, Ark.—*H. A. Pulsbry*.

SNAIL EATERS.—Reading Mr. John Ford's experience with the voracious *Limax agrestis* (Nautilus No. 7, vol. IV) reminds me of another American "Cannibal."

While looking for *Glandina truncata* (in Florida) I had occasion to observe several of them chasing the *Helix Carpenteriana*, catching and devouring them, shell and all, and not only one or two of them, nay, five, six and more within a few minutes. In cleaning the specimens afterward I found nine specimens of *H. Carpenteriana* in the stomach of a single *Glandina*, some of the *Helix* yet alive.—*Dr. Fr. Stein, Indianapolis, Ind.*

EDWARD RICHARDS MAYO, AGED 82 YEARS.

Died, in Boston, Feb. 12th, of pneumonia.

Mr. Mayo was probably the oldest student of conchology in this country, being a few weeks older than his friend Dr. Wesley Newcomb. He was born in Roxbury, Mass., now a part of Boston. His occupation was book-keeping, and the last forty years of his life were spent with two firms—the great dry-goods house of A. & A. Lawrence & Co., and the law office of S. W. Dexter. When a young man he took up the study of shells, and his interest in them continued to the last. In the halcyon days of the American clipper ships and whalers, Mr. Mayo was among the first to systematically purchase the shells brought as curiosities.

He was personally acquainted with Drs. Gould, Lewis, Stimpson, Anthony and other well-known conchologists, who frequently had occasion to study the contents of his cabinet. He had also an extensive correspondence with collectors in many countries. His collection was particularly rich in foreign shells, of which he had several thousand beautiful specimens.

Mr. Mayo was a very modest man, unselfish, and to his younger fellow-students a useful friend, giving freely of his extensive information and of his specimens, and encouraging them in their pursuit of knowledge. To many readers of the NAUTILUS the news of his death will bring a feeling of personal loss.

EDWARD W. ROPER.

594.05
NA
v. 4 Index

Index.

THE
NAUTILUS

A MONTHLY JOURNAL
DEVOTED TO THE INTERESTS OF
CONCHOLOGISTS.



VOL. IV.

MAY 1890 to APRIL 1891.



PHILADELPHIA :

Published by H. A. PILSBRY and C. W. JOHNSON.

INDEX

TO

THE NAUTILUS, VOL. IV.

INDEX TO TITLES.

Academy of Natural Sciences of Philadelphia.	75
A few "nevers" for Conchologists.	50
American Association of Conchologists. 9, 33, 45, 54, 68, 82, 91, [104, 117, 128	91,
Amnicolidae, Preliminary Notices of New	52, 63
Amnicola Sheldoni Pilsbry.	52
Amnicola lacustris Pilsbry.	53
An American Anadenus (A. Cockerelli, n. sp.).	2
Anctus, Description of a New Species of (A. Pilsbry, Ford.)	81
Annotated List of the Shells of St. Augustine, Fla.	4
Arconaia, A New Species of (A. Provancheriana, Pilsbry.)	127
Ariolimax Columbianus var. straminea.	120
Australian Limax.	107
Bulimuli, Critical Notes on the	61
Bulimuli, Notes on Florida	85
Bulimulus in Texas.	60
Bulimulus Dormani, Notes on	79
Bythinella Hemphilli Pilsbry.	63
Bythinella brevissima Pilsbry.	63
Carychium, Forms of American	109
Catalogue of Conchological Abbreviations.	87, 115
Cepolis, Notes on Certain Species of	120
Classification of American Land Snails, Notes on the	125
Collecting Chitons on the Pacific Coast.	32
Conchological Notes from Oregon.	87
Constructed or Secreted?	60
Cypraea Spadicea.	71, 54

Distribution of Unionidae in the Mahoning, Cuyahoga and Tuscarawas Rivers.	20
Eastern New York Notes.	66
Edible Mollusks of Maine.	112
Goniobases, Remarks on Certain	49
Goniobasis Catenaria Say, Notes on	124
Haliotis.	13
Haliotis rufescens.	59
Haliotidae.	102
Helix introferens in N. J.	12
Helix hortensis in Nantucket.	24, 48
Helix ptychophorus var. castanea Hemphill.	41
Helix tudiculata var. subdulus Hemphill.	41
Helix Carpenteri, New Variety of (Var. Indioensis).	51, 63
Isaac Lea Chapter of the Agassiz Association.	31
Limax arborum from submaculatus f. nov.	12
Limnaea Pilsbryi n. sp.	25
Limnaea stagnalis var. occidentalis Hemphill.	26
Limnaea columella in Phila.	47
List of Mollusca of Gloucester Co., N. J.	113
Lucapinella.	96
Mayo, Edward Richards (Obituary.)	132
Mollusks of the San Francisco Markets.	97
Mollusks of the United States.	101
Nanina, New Species of (N. Ruschenbergeri Pilsbry.)	64
New Species of U. S. Land Shells.	3
New Forms of Western Limniades.	25
New Eocene Fossil from Texas.	25
New Varieties of Western Land Shells.	41
New Species of Limpet from Japan.	100
Notes on North American Pupidæ with Description of New Species.	7, 27
Notes on Mr. Hemphill's Catalogue.	110
Notes on the Sculpture of American Limnæas, etc.	121
Omalax Singleyi, n. sp.	3
Origin of Species.	11
Ostrea gigas Thunberg.	95
Patella (Helcioniscus) Stearnsii, n. sp.	100
Patula strigosa, New Varieties of	15
Pisidium, New American (P. Idahoëense Roper.)	85

Physa ampullacea Gld. var. Columbiana Hemphill.	27
Polygyra Kiawaensis var. Arkansaënsis Pilsbry.	131
Preservation of Color in Fossil Shells.	30
Prophysaon. Why does it shed its tail?	6
Publications Received.	23, 36, 48, 72, 107
Pupa syngenes n. sp.	3
Pupa Californica.	8
Pupa Dalliana sp., nov.	19
Pupidae, New Forms of American.	18
Pupidae, New United States.	39
Pupa Hemphilli sp. nov.	27
Pupa Clementina sp. nov.	44
Scalpellum Stearnsii.	96
Shell Bearing Mollusca of Rhode Island.	22, 35, 46, 56, 70
Shells within City Limits.	82
Snail Eaters.	132
Some American Cannibals.	85
Sphærium secure Prime, Notes on	39
Strength of Limpets.	32
Tebennophorus Hemphilli.	95
Unionidæ of Ga., Ala., S. C. and La. in South Florida.	125
Urosalpinx perrugatus Conr., Remarks on	29
West American Notes.	67
Zonites Shimekii n. sp..	3

INDEX TO CONTRIBUTORS.

Aldrich, T. H.	25
Baker, F. C.	29, 89, 115
Boyce, Mrs. Sarah E.	71
Campbell, John H.	101
Carpenter, Horace F.	22, 35, 46, 56, 70
Dall, Dr. Wm. H.	87
Dean, Geo. W.	20
Ford, John	75, 81, 85
Fox, Wm. J.	113
Hemphill, Henry	2, 15, 25, 41
Johnson, C. W.	4
Keep, Josiah	13, 97
Keyes, Chas. R.	30
Leach, Dr. M. L.	31, 60
Oreutt, C. R.	67
Pilsbry, H. A.	3, 24, 49, 52, 63, 64, 100, 109, 124, 125, 127
Raymond, W. J.	6
Roper, Edw. W.	11, 39, 85, 132
Sampson, F. A.	82
Simpson, Chas. T.	79, 110
Stearns, Dr. R. E. C.	; 121
Stein, Dr. Frederick	95, 132
Sterki, Dr. V.	7, 18, 27, 44, 50
Teator, W. S.	66
Webster, G. W.	85
Winkley, Henry	112
Williamson, Mrs. M. Burton	32
Wright, Berlin H.	61
Wright, S. Hart	125
Yates, Dr. Lorenzo G.	51, 54, 63

HISTORY OF THE NAUTILUS.

In answer to numerous inquiries, it has been deemed advisable to give a brief historical sketch of THE NAUTILUS and its predecessor *The Conchologists' Exchange*.

The present conchological periodical "THE NAUTILUS" was preceded by "*The Conchologists' Exchange*," a monthly published by Mr. Wm. D. Averell. The first number of the *Exchange* was printed on a postal card in July, 1886. Beginning with August, 1886 the *Exchange* was printed in 12 mo. form, $5\frac{1}{2} \times 6\frac{1}{2}$ inches, with a varying number of pages. Eleven numbers (Nos. 9 and 10 being printed together as a "double number") were issued of this first volume. The second volume began with July, 1887. Nine numbers were issued, when publication was suspended.

In May, 1889, Mr. H. A. Pilsbry with Mr. Averell issued the first number of THE NAUTILUS. The new periodical assuming the unexpired subscriptions on the list of the "*Exchange*." At the completion of volume I (including May, 1889 to April, 1890), Mr. Chas. W. Johnson purchased Mr. Averell's interest in THE NAUTILUS, Mr. Averell entirely severing his connection with it.

The present publishers of THE NAUTILUS are unable to furnish copies of "*The Conchologists' Exchange*."

H. A. P. & C. W. J.

