The Conchologists' Exchange.

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., xlviii, 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 U. S.
SUB-FAMILY TAPESINÆ }

Sub-family Dosiniinæ 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, Sby., 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; same 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.*)

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

BY WILLIAM A. MARSH.

91.—Limnaea 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 desidiosa* 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 Amnicolas 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 appearence 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, terminating 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 ¼ 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 2¾ 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.

LYOGYRUS, 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* (*luo*) meaning loose in the Greek. I mention this in order to correct a false etymology, *Liogyrus*, that has found its way into print.

This group has been referred to *Valvatidæ* 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*, Ancey, 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 striæ; and indeed the names *V. striateæ*, 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. Ancey, 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*, Ancey. 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 *Limnæidæ*, 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 specimans 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 occured 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 Strepomatidæ," 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 encouragment 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-sacrificlng 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 betore him a representation of the conchology of the world. Scarcely a known species of all the tens of thousands described is missing, and the arrangment 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 occassions 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 Universal Postal Union*	75 "
Single copies	5 "

ADVERTISING RATES.

¼ inch	$ .25	1 inch	$ .50
1 inch, 3 months	1.00	½ column, 1 month	2.00
½ 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 *Scalaria pretiosa* would not be traded evenly, by a well-informed collector, for a *Purpura hæmostoma*, 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 Melanias, 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 terresterial formation, the chances of obtaining by thorough search, extremely rare and in several cases entirely new forms gives a smack of excitment 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 *bellela*, 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.*)

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:

Urosalpinx cinerea, Say,	50	specimens.
Eupleura caudata, Say,	5	"
Fulgur carica, Gmelin,	10	"
Sycotypus canaliculatus, Say,	8	"
Phrontis vibex, Say,	15	"
Tritia trivittata, Say,	50	"
Ilyanassa obsoleta, Say,	50	"
Mitrella lunata, Say,	100	"
Neverita duplicata, Say,	15	"
Crepidula convexa, Say,	25	"
" *fornicata*, Linn,	30	"
Littorina palliata, Say,	25	"
" *littorea*, Linn,	50	"
Bittium nigrum, Stimp,	125	"
Triforis nigrocinctus, Adams,	25	"
Collisella testudinalis, Mull,	3	"
Chætopleura apiculatus, Say,	2	"
Metampus bidentatus, Say,	20	"
Ensatella Americana, Gould,	10	"
Solecurtus gibbus, Spengler,	5	"
Macoma fusca, Say,	25	"
Crassivenus mercenaria, Linn,	10	"
Mya arenaria, Linn,	20	"
Argina pexata, Say,	20	"

They were mostly live specimens.

Specimens of *Mitrella lunata* were very plentifu 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.

Fulger 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 *Zirphœa crispata*, Linn, at Newport, R. I., which had escaped the ever watchful eye of Mr. Carpenter.

This is the first specimen of *Zirphœa 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, ½ inch; height, 5-16.

Providence, R. I., Ap. 23, 1888. 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; *Acmœa testudinalis*, Mull; etc. etc.

Wanted—*Strepomatidœ*, *Viviparidœ*, *Limnaeidœ*, *Pupadœ*. *Succinea Corbiculadœ*, *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, florenceensis. 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, 642 pp: 23 plates, 441 figures, 270 illustrations. London, 1880 edition. Price $2.50, postpaid. Formerly, $2.60.

The same, 1875 edition, $1.60 postpaid.

Keep, 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 Strepomatidæ. (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, $25; 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 Unionidæ 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

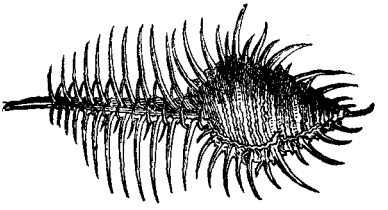
CHESTNUT HILL,

PHILADELPHIA, PA., U. S. A.

The Conchologists' Exchange.

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

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



CONTENTS.

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.