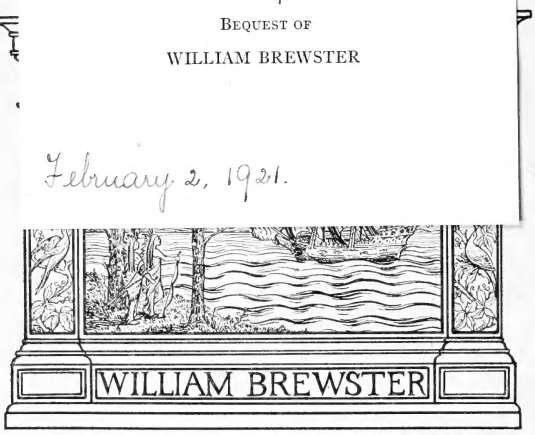


William Brewster.

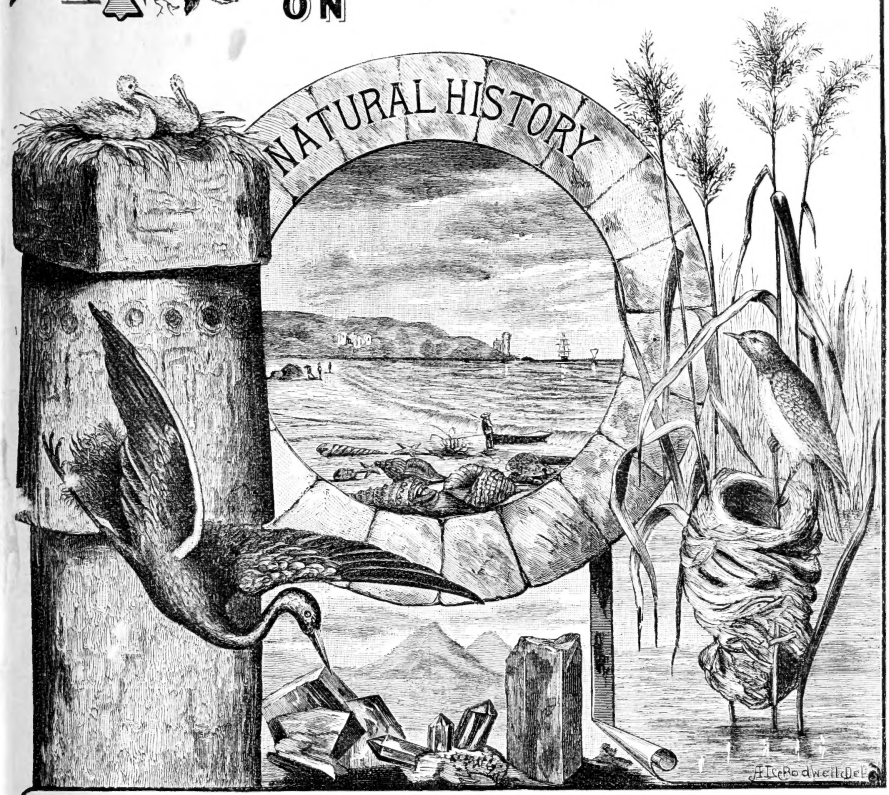
All notes of any importance relating to N. E. birds in these three vols. have been carefully compiled by me and entered in my interleaved copy of Coues's Birds N. W. Boundary

—'RANDOM Notes on Natural History' is the title of a twelve-page monthly "devoted to the distribution of useful knowledge concerning the various departments of zoölogy, mineralogy, and botany," published by Southwick and Jencks, Providence, R. I. The two numbers that have reached us are carefully edited and neatly printed, and contain, besides the business advertisements of the publishers, many short articles relating to the subjects above mentioned, including various interesting bird notes.

Auk. 1, Apr. 1884, p 206.

VOL. 1. NO. 1.

RANDOM NOTES ON NATURAL HISTORY



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Random Notes on Natural History.

Vol. 1. PROVIDENCE, JANUARY 1, 1884. No. 1.

Random Notes on Natural History.

A Pamphlet Devoted to the Distribution of Useful Knowledge Concerning the Various Departments of Zoology, Mineralogy, and Botany. 50 Cents a Year.

Address all communications to

SOUTHWICK & JENCKS,

258 Westminster St., Providence, R. I., U. S. A.

It is proposed in these pages to note the occurrence in Rhode Island of unusual species, or those otherwise of interest, beside such general news as shall be profitable to the student and collector, to report the progress of various scientific societies in this state, and at each issue to devote a portion to publishing a checking-list of shells.

TAXIDERMY.

Color of Birds' Eyes.

Books on ornithology are not explicit enough in this particular. While in a few cases errors are quoted from one book to another without any one taking the pains to correct them. A very prominent case of this sort, is that of the Long-tailed Duck, *harelda glacialis*, generally given as white, though it is light brown, as we have proved by many specimens. An exceptional case may be white, for many species show different colors in different individuals. The adult and young birds are also frequently different.

Bald Eagle, adult; usually nearly white or cream.

Bald Eagle, young, dark brown, called "hazel."

Bald Eagle, adult (one specimen), clear *vermillion*.

Osprey, adult, straw.

Osprey, young, reddish brown, hazel.

Golden-winged Woodpecker, dark red, hazel.

Downy Woodpecker, dark red, hazel.

American Sheldrake, usually red. Two fresh ones recently received, had hazel.

American Swan, hazel.

Mallard, hazel.

Gannet, adult, cream.

We have already made numerous notes upon the color of the iris, and have received many more from correspondents. We shall, however, be grateful for further assistance, which, if not new, will serve to confirm observations already in hand, and which may be looked for in succeeding numbers.

How to Soften an Owl's Feet.— First with a sponge sop the feathers on the feet and legs until soaked through, and then put to soak in a dish of scalding water for a few moments.

HORNBLENDE.

Particularly beautiful specimens of this species, are found at Calumet Hill, Cumberland, R. I., penetrating sometimes the opaque, but oftener limpid quartz, in long black crystals from the size of hair to those measuring a sixteenth of an inch in diameter, interlacing and crossing the matrix in all directions. The accompanying rock is a syenyte, which has been wrought for monumental purposes. The veins of this desirable material are exposed occasionally, as the work of quarrying proceeds. The workmen soon learn its value and monopolize the best at once. Work in the quarry is for the present abandoned, and this, almost the only avenue for obtaining specimens, is closed, while such material as was on hand has been absorbed by a few persons; one large lot has been sent to Europe and cut for jewelry. Clear and well-formed crystals of quartz, from three-quarters to two inches long, are occasionally found, and they also are penetrated by the hornblende.

The occurrence of ascicular crystals of hornblende penetrating quartz is very uncommon, this being the only reported locality in America.

We have never seen finer specimens from any other place, and correspondence with several gentlemen well posted on minerals establishes their occurrence at Minas Geraes, Brazil, possibly at St. Gothard, and in China, from whence they come cut usually into curious bottles and ornaments.

THE PROVIDENCE FRANKLIN SOCIETY

is the oldest society in the state devoted to general scientific research, holding its meetings every alternate Tuesday.

President — LEVI W. RUSSELL.
Vice-President — DAVID HOYT.
Secretary — CHARLES M. SALISBURY, ESQ.
Treasurer — A. L. CALDER.

A course of lectures in botany, by Prof. W. W. Bailey, is now in progress, and others upon kindred topics are proposed. The committee of the Geological department is trying to bring together all published facts regarding the geology of the state, and so far as their limited opportunities permit, to accumulate new material and make a more extended survey.

THE NEWPORT NATURAL HISTORY SOCIETY

was incorporated June 1st, 1883, numbering among its members many of Newport's most distinguished citizens, as well as several of the prominent summer residents.

President — PROF. RAPHAEL PUMPELLY.
Corresponding Secretary — GEORGE C. MASON.
Treasurer — DR. WILLIAM C. RIVERS, JR.
Curator — J. J. MASON.

During the past two months there have been three very interesting lectures: Prof. Dale, on the "Paradise Rocks"; Prof. Pumpelly, on "A Journey through the Rocky Mountains," and Mr. Richard Bliss, on "Some Curious Forms of Fishes." The society proposes to do active work. A good general collection and an aquarium are looked forward to with confidence.

THE RHODE ISLAND ENTOMOLOGICAL SOCIETY.

THIS society was organized June 6th, 1883.

President — EDWIN E. CALDER.
Vice-President — H. TERRY, M. D.
Secretary and Treasurer — F. E. GRAY.

Meetings are held fortnightly; thirty-three active members are now enrolled. At the meeting Dec. 12th, Mr. G. M. Gray read a paper upon the wings of insects, and specimens of the moth, *Ecpanthia Scribonia*, beetles, *Dynastes tityus*, and a larva of *Dynastes Hercules* were exhibited and discussed. Dec. 26th, Edwin E. Calder read a paper upon the mouth parts of some coleopterous insects.

SEA-URCHINS.

FEW marine animals are more readily recognized than the sea-urchin. There is scarcely a rocky point along our entire coast where colonies of them cannot be found.

Slowly crawling over the surface of rocks just below low-water mark, or in pools left by the receding tide, to the casual observer they appear like so many chestnut burs, but on endeavoring to take them up one soon sees his mistake. Even on a smooth rock the sea-urchin, by means of its ambulacral suckers, has a most tenacious hold, and even when placed on its back, it will, by drawing with these suckers and skillfully propping with its spines, soon right itself.

Not satisfied with the protection necessarily rendered by its dull green or purple color, it collects bits of sea-weed and shells, with which it often so skillfully covers itself as to be indistinguishable from the groups of algæ always found in its immediate neighborhood.

Physiologically it is a most interesting animal. The simple alimentary canal; highly differentiated mouth parts, of which the dentary apparatus forms the so-called Aristotle's lantern; the water vascular system, and a most generalized nervous system, consisting of little more than a ring of nerve fibre surrounding the mouth and sending radiating nerves to the several divisions of the body, render the sea-urchin a most excellent subject for dissection, and as such it holds an important position in the majority of elementary text-books on general anatomy.

The dried specimens, as objects for comparison with allied forms, such as the stars, crinoids, ophiurans and holothurians, are extremely interesting and useful, both when entire or when denuded of the spines. Naturally-prepared specimens of the latter kind are often found along sandy beaches where they have been rolled, from their original positions among the rocks, by the waves. In this state they are clean and white, and are at once recognized as the fisherman's sea-eggs.

* *

CURIOUS DEATH OF A SAW WHET OWL.— A boy in Kingston, R. I., found one in a partridge snare.

An Introduction to a Series of Papers on the Shell-Bearing Mollusca of Rhode Island.

[BY HORACE F. CARPENTER.]

THE study of shells, aside from the technicalities of scientific description, is beautiful and interesting. The gaily colored and fantastic marked shells of the tropics, had been gathered and preserved by sailors and travelers, for their beauty or their rarity, long before the anatomist had observed and described the animals contained in them, or before conchology had taken its place among the natural sciences.

There are many people who say, What is the use of these things? they are of no benefit to man unless they have a commercial value. For the benefit of such persons who can see no beauty or pleasure in anything which does not represent money, I would say, that every shell, however humble in appearance, or however common in certain localities, has its market value, established by dealers in such things in all the large cities of the world, whose business consists in buying and selling objects like those I am about to describe. Rare species have great value in the eyes of such dealers. Two hundred and fifty dollars have been paid for a single specimen of Conus gloriamaris, and one hundred and fifty for a specimen of Cypræa umbilicata; while in Western Africa, the Cypræa moneta is used for money itself, many tons of this shell being annually collected in the Pacific, and carried to Liverpool to be again exported for barter with the native tribes of Africa.

That trading in these insignicfiant objects is remunerative, may be shown from the fact, that one of the largest dealers in London told me that his annual net profit from the sale of shells, fossils, etc., amounted to £1500 to £2000 sterling. A detailed account of the uses to which shells are put would fill a volume; suffice it to say, that in the preparation of hundreds of articles of necessity and of luxury, and in the mechanical arts, shells play a prominent part.

The animals which inhabit the shells of the various classes of the type Mollusca, differ from each other in their appearance and in their habits, as much perhaps, as do the higher animals. A large proportion of the marine Mollusca are carnivorous, feeding upon each other, as well as upon other species, which are vegetable eaters, and in their turn furnish food for millions of other creatures. Animals of every rank in the scale of being, and of every type, class and order, feed more or less upon the Mollusca. Man also, in common with the higher animals, subsists to a great extent upon them.

Snails are considered a great delicacy in France, Spain, and Switzerland, and in Italy, where they are fattened for the market in pens or sties. In Paris they are to be found in the restaurants, cooked and stuffed with some green herb, and are also sold in the streets, alive.

In England, a small marine snail, Littorina littorea, is sold by old women at the street corners, to people, who after picking out the boiled animal with a pin, throw the shell in the gutters. Buccinum undatum, Cardium edule, and Mytillus edulis form a large part of the food of the poorer classes in Great Britain. Pholas costata may be seen daily in the markets of Havana, and the Haliotis, or pearly ear shell, is collected by thousands on the coasts of California by the Chinese, who eat the animal and send the shells to China, there to be manufactured into various articles of virtu.

In our own state, who can say how many oysters, clams, quahaugs, scallops and mussels are annually devoured by our citizens. Those who advocate a fish diet on account of the phosphorous, or brain food contained in it, might with equal propriety include the Mollusca, as they also contain a large proportion of phosphorus.

The science of Conchology is one in which *ladies* may engage, with much profit and pleasure to themselves and to others. There are many ladies in different parts of Europe who have accumulated quite extensive collections of shells, and who have added largely to our stock of knowledge by their personal researches. In America, among many who have studied and collected our shells, may be mentioned Miss Annie E. Law, of Concord, East Tennessee, who has personally explored the Holston River for a distance of twenty miles, and has published in the *American Journal of Conchology* for 1870, a list of the fluviatile shells found by her in that river, numbering ninety-five species; also a synopsis of the land shells of East Tennessee, collected by her and numbering

thirty-three species. In Bermuda, Miss Annie M. Peniston is collecting in quantities, the shells of those islands, of which there are many varieties, with a view to exchanging Bermuda shells for those of other parts of the world.

The largest collection of shells in the world is in the British Museum in London; its immense collection, which has been accumulating for years, having recently received the addition of the cabinet of the late Hugh Cumming, a gentleman who spent thirty years of his life traveling in all parts of the world, constantly collecting, buying, and exchanging duplicates with others, until he had accumulated nearly thirty thousand species. The largest collection in this country is in the Academy of Natural Sciences, at Philadelphia. Besides the public collections contained in the various museums throughout the country, such as the museum at Central Park, N. Y., the Boston Society of Natural History, the Essex Institute at Salem, Brown University in Providence, and many others, there are a great many private cabinets, one of which, belonging to a gentleman in New York City, contains twelve thousand species; another in Oakland, California, contains ten thousand species. A great deal of interest is taken in Conchology in New Bedford, Mass., there being nearly fifty private cabinets in that city containing one thousand species and upwards in each.

The Mollusca are distributed over the surface of the earth, in geographical and in zoological provinces, or centres of distribution. No one section of country or continent, even, can furnish species of all the genera, families, orders or classes, of any branch of natural history. The *world* is the field; and only by comparison and research in all parts of our globe, can we obtain the material for a monograph of any group.

The fauna of Rhode Island is of course very limited, and there are many families, orders, and even whole classes, not represented at all. Out of more than thirty thousand species of shells, known and described by naturalists, there are but a little over two hundred existing in our state. The marine species may be represented as largely in numbers perhaps, as in any other portion of our cold northern shores, but the land and fresh water species are not only numerically small, but are also stunted in size; specimens of the same species found in Rhode Island being much smaller than those found farther west. The reason for this is, that our soil is destitute of lime, while the western states are rich in it; and as the animal secretes its shell (which is composed of carbonate of lime) from the food it lives upon, the reason is obvious.

[*To be continued.*]

A Very Rare Bird in Rhode Island.

A young Gyrfalcon, *Hierofalco gyrfalco var. sacer*, was killed by E. S. Hopkins, Esq., at Point Judith, Oct. 11, 1883, and brought to us. For the benefit of those who may be unacquainted with this bird in the young phase of plumage, we would state: It most nearly resembles the adult Goshawk in general coloration, but the breast is streaked up and down as in the young Goshawk, and not crosswise as in the adult bird. This is the second record for Rhode Island, the first being by Mr. Dexter, winter of 1864–65.

The specimen in the collection of Brown University has quite a story connected with it. It was sent alive from Maine to a gentleman here, and he, not knowing what to do with it, came to us, representing it to be, as he supposed, a Goshawk. As we could not use it at the price it had cost him, he signified his intention of giving it to Roger Williams Park, where we assured him it would be acceptable. We visited the park shortly afterward, and saw the bird for the first time, which was not a Goshawk, but a Jerfalcon. We told Mr. Adcock about it, and upon visiting the park he learned of its death, and the wings were pointed out to him tacked up in the barn. These he obtained, as also the body, which had been buried about a week, and with careful work succeeded in making a good specimen of it.

Brunnich's Guillemot in Rhode Island. — Mr. H. A. Talbot shot one between Warwick Neck Light and Patience Island, Dec. 26, 1883. The first specimen we have ever known taken in Narragansett Bay.

Since the above article was set up, another specimen has been received from Bristol.

FROM THE EGG TO THE TOAD.

THERE are some facts connected with the natural history of the toad which may not be familiar to some of our younger readers. The female toad, when the period of incubation approaches completion, seeks water, where she deposits her spawn in shallow places, winding the spiral beads of eggs around the grass, where it is left to hatch. In a few days — the time depending on the temperature of the water — the eggs hatch, not a toad, but a tadpole, breathing like a fish through gills, and living entirely in water as fish do.

This tadpole grows very rapidly, and in ten or twelve days the transformation to the toad commences by the appearance of the two hind-legs; next come the fore-legs, and the little fellow presents the curious appearance of a toad with a tail. The horny beak with which the tadpole's mouth is armed now drops off and the toad's mouth takes its place. Gradually the tail is absorbed and a diminutive toad leaves the water, breathes like an animal through nostrils instead of gills, and now may be drowned in water while the tadpole would have been drowned in air. The little toad now starts out to make his living by catching the insects.— *J. S. N., in Southern World.*

QUERCUS MAGNIFICA.

THIS surviving monarch of the "forest primeval," found at Munroe's Four Corners, in South Seekonk, about five miles from Market Square, on the Providence and Fall River road, measures ten feet in diameter at the ground, and for thirty feet in height the diameter of the trunk is about five feet. Its arms, too, are giants and spread to a prodigious length. On roots, trunk and limbs, the knots and gnarls are many and massive. The age of this kingly white oak, probably the largest now to be found on the Atlantic coast, has been a deep question. Its best traditions may be found in the Munroe family and with Mr. Matthew W. Armington, the oracle of East Providence history. With reason it is thought that it can count from six to eight hundred years, the probabilities being with the larger number. It is known that about two hundred years ago it was as large as it is at present, for during that time the gales have robbed it of some Herculean limbs. It is told that Revolutionary soldiers, marching through the country, here halted and boiled their beef and pork under its branches. On one of its large arms for a time swung the sign of the old and famed Munroe Tavern. For several generations, as men count them, the huge trunk has been somewhat hollow, and has been inhabited by squirrels and swarms of honey-bees. Boys have exterminated the squirrels, but the bees still hold the fort. Multitudes of travelers and festive parties have stopped to rest and share their lunches beneath the royal branches. This is the historic tree mentioned in Bliss' History of Rehoboth. It is commended to photographers. It ought to be protected by an iron fence.

To stand under this tree, with Mr. Armington as its interpreter, is to be filled with a sentiment of veneration and be carried back through all the history of New England and into the dim centuries of Indian life. It is easy to imagine that here paused Massasoit, Roger Williams, and King Philip. It is not hard to believe that the ancestors of Massasoit might have held war councils in its shade, for its grandeur naturally invited grave assemblies. Now if the famed merchants, Brown & Ives, deemed it suitable and wise to protect the life of the grand old oak at Lonsdale, how strong is the claim for this nobler patriarch of the forest to be sacredly preserved. Woe to the hand that shall rudely strike it. Even the birds of centuries have sanctified it with their songs.

F. D.

MR. J. B. Smith prepares his duplicate Coleoptera in the following manner: They are soaked for a week or more in a fluid composed of 100 grammes of alum, 25 of salt, 12 of saltpetre, 60 of potash, and 10 of white arsenic dissolved in 3000 grammes of boiling water. The solution is filtered, and when cold add to every ten parts four of glycerine and one of methyl alcohol. Insects prepared in this manner remain soft and flexible, and can be sent in boxes without being pinned and without danger of breaking.— *Science Record.*

We think no periodical devotes any regular space to taxidermy, and in many particulars no work on the subject is explicit enough. For the benefit of our readers and the furtherance of the art, we shall be pleased to use our columns in answering queries on this subject.

Our correspondence is large, and hardly a day passes, without queries of "what will you give for this or that?"

Parties writing us to sell goods, are respectfully requested to send a list of them with prices, and to enclose a stamp, which will insure the more prompt attention.

It will also be a great assistance if those desiring to collect for us would carefully state what articles in particular they expect to obtain. We often receive propositions, of which the following is a fair example, and to which a definite reply is quite impossible:

"I am going to Florida for some months. Please write me a full list of what you want from there and what you will pay, and if it is any object to me I would like to collect for you."

Catalogues Issued by Southwick & Jencks' Natural History Store.

Our Catalogue of March, 1883, is as applicable to our general stock now as when issued. We shall use space in RANDOM NOTES to advertise additions, and also offer special inducements on stock of which we may have an excessive quantity, or on which we get bargains ourselves. But such special prices will be only for limited time, at the expiration of which the regular catalogue rates will be asked.

Send for Catalogues as follows:

Birds. — Contains Ridgway's Check-list, entitled *Nomenclature of North American Birds*. It is printed entire, with both scientific and common names, and old and new numbers. It gives instructions for skinning birds and blowing eggs; also, price-lists of foreign bird-skins, insects, and all naturalists' supplies. Price, 20 cents.

With the *Nomenclature* printed only on one side, for labeling, 25 cents.

Minerals. — Gives Dana's species number, localities, and valuations — 6 cents.

Shells. — Contains a very full list of prominent species and gives authorities and many synonyms; also, habitat and valuations — 10 cents.

The three catalogues for 25 cents.

Every person buying to the amount of $1.00 or more is entitled to one copy free, and may deduct the amount paid for same from the first order amounting to $1.00.

Short-Eared Owl's Nest.

While hunting for ducks' nests in a patch of old prairie grass, I chanced to look around, and espied a Short-eared Owl flying in the opposite direction from that we chanced to be moving, and which my companion had evidently started. When at a safe distance it turned face toward us, and began ascending, until it looked no larger than a sparrow. Feeling sure it must have a nest we searched diligently, but without success, and when we left the owl was still watching us from its secure height. About three hours later I returned to make one more effort, and flush the bird if possible. On nearing the spot a flock of Black Terns came within range, and thinking the report of my gun might benefit my cause, I killed one, and the owl arose from close by where the tern fell. The nest was in the hollow left by treading down the grass in every direction, radiating from the centre, and was over two feet across. It was, moreover, on one of the most prominent hillocks.

The incubation was too far advanced to please an oölogist, as the seven eggs were just hatching, with the exception of two that were rotten.

In the proceedings of the Zoological-Botanical Union of Vienna, for 1882, Mr. A. F. Rogenhofer figures a specimen of moth (*Zygæna minos*) with five wings. The additional wing is between the two normal wings of the left side. It resembles the hind wing in shape, but the distribution of the nerves is peculiar. Such deformities are very rare. — *Science Record.*

Cement for Stone or Marble. — The best cement for mending marble or any kind of stone, is made by mixing 20 parts of litharge and 1 part of freshly burned lime in fine dry powder. This is made into a putty by linseed oil. It sets in a few hours, having the appearance of light stone.

Taming Wild Humming-Birds.

A LADY residing at San Rafael, one of the many pleasant health resorts of California, has sent to friends in London an account of the taming of two free wild humming-birds by her daughter, who, under medical direction, has for some months passed several hours daily reclining on rugs spread on the garden lawn. "E. has a new source of interest," her mother writes. "The humming-birds have claimed her companionship and manifested their curiosity by inspecting her, with their little wise heads turned to one side, at a safe distance, watching her movements, evidently wishing to become acquainted. To entice them to a nearer approach, E. plucked a fuchsia, attached it to a branch of a tree over her head, and filled it with sweetened water. The intelligent little creatures soon had their slender bills thrust into the flower, from which they took long draughts. Then E. took honey, thinking they might prefer it, and filled a fresh flower each day. They would sometimes become so impatient as scarcely to wait for her to leave before they were into the sweets, and, finally, while she held a flower in one hand and filled it with drops from a spoon, the now little tame pets would catch the drops as they fell, and dart into the honey cup their silvery, threadlike tongues. E. is delighted, and so fascinated with them that she passes hours each day of her resting time talking to them and watching their quick, lively movements. Although these tiny birds are humming all day among the flowers, two only have monopolized the honey-filled flower, and these are both males, consequently there are constant squabbles as to which shall take possession. They will not permit a wasp or a bee to come near their honey flower, and not only drive them away, but chase them some distance, uttering a shrill note of protest against all intruders." Referring to them again, at the close of the rainless Californian summer, in a letter dated October 26, this lady writes: "We have had threatening clouds for two days and a heavy rainfall today. E. has continued her devotion to her little hummingbirds. Since the change of weather she has tried to coax them to the parlor windows. They appeared to think there must be some mistake, and would hum about the window where she stood with the honey flower and spoonful of honey, or they would sit on a branch and watch every movement, yet not daring to take a sip until to-day, when at her peculiar call, which they always recognize, one ventured repeatedly to take the honey from her hand.— *Scientific American.*

A CLEVER process has been discovered by which snails, frogs and other reptiles can be preserved and retain the color of the flesh. The animal being cleansed, is soaked in chromic acid until hardened; then being thoroughly washed in water, it is subjected to a bath of absolute alcohol, until the water which has more or less saturated the skin leaves no trace of its presence. The third operation consists in putting the specimen in turpentine three or four days, when it will be found ready for the fourth and last process, which is to paint the entire body with a solution of sugar and glycerine. We have kept small insects in glycerine, and it is wonderful how they will remain unchanged if a rubber cloth be placed alone over the mouth of the bottle.— *American Angler.*

"PAPA," said Rollo, looking up from *Roughing It*, "what is gold-bearing quartz?" "Well, my son," replied Rollo's father, who was glancing in a troubled manner at the milkman's bill for October, "when a man sells diluted water for nine cents a quart, I think he has struck better gold-bearing quarts than ever Mr. Mark Twain dreamed of."— *Burlington Hawkeye.*

AN ornithologist has discovered that to have an appetite proportional to that of a robin, a man would have to devour daily a string of sausages sixty-seven feet long and nine inches in diameter. Make a "bob 'o link" of himself, in fact.— *Boston Courier.*

NIGHT HERON IN WINTER. — A young Night Heron was killed in Bristol, R. I., Jan. 5th. For several days previous to this date the weather had been below the freezing point. How did he get a living?

OWLS last winter were abundant, but the change of a year is a radical one, for while several kinds were unusually plenty then, all kinds are now scarce.

CONCHOLOGICAL CHECK-LIST. I.

J. RITCHIE, JR.

Having prepared for my own use some lists of the families *cyclostomacea* and *helicinacea*, it has occurred to me that these lists might be of service to other collectors. I have therefore extended the original scheme somewhat, and have included all the genera in the sub-order *pneumonopoma* Pfr. The system followed is that which is used in Pactel's excellent catalogue, and the species not listed by him have been supplied from such other lists, printed and manuscript, as have been found in our libraries in Boston. These lists cannot claim to be either complete or faultless, but they do include many species which probably have not before been brought together.

Class. Gasteropoda Cuv.
Sub-class. Pulmonata Cuv.
Order. Pneumonopoma Pfr.
Sub-order. Opisophthalma Pfr.
Family. Aciculacea Pfr.

Acicula fusca Walk.
lineata Drap.
polita Pfr.
producta Lowe.
simonaria Charp.
spectabilis Rouss.
striata Q. and G.

Acmella hyalina Theob. & Stol.
moreletiana Stol?
roepstorffiana Stol?
tersa Bens.

Paladitha macleyana Bourg.

Moetessieria rollandi Bourg.

Geomelania affinis C. B. Adams.
angustata Gund.
beardsleana C. B. Adams.
conica C. B. Adams.
costulata C. B. Adams.
elegans C. B. Adams.
exilis C. B. Adams.
expansa C. B. Adams.
fortis C. B. Adams.
gracilis C. B. Adams.
greyana C. B. Adams.
hilliana C. B. Adams.
jamaicensis Pfr.
magna C. B. Adams.
media C. B. Adams.
minor C. B. Adams.
pauperata C. B. Adams.
procera C. B. Adams.
pygmæa C. B. Adams.
pyramidata C. B. Adams.
striosa C. B. Adams.
typica C. B. Adams.
vicina C. B. Adams.

Chittia sinuosa Chitty.

Truncatella adamsi Pfr.
aurantia Gld.
arctecostata Mouss.
bairdiana C. B. Adams.
bilabiata Pfr.
californica Pfr.
capillacea Gund.
caribæensis Sow.
ceylanica Pfr.
clathrus Lowe.
concinna Pease.
conspicua Bronn.
crassicostata Sow.
cylindracea Pease.
filicosta Gund.
funicula Mouss.
futunaensis Mouss.
gouldi C. B. Adams.
granum Garrett.
guerini Villa.
laminata Cpr.
littorina Phil.
marginata Küster.
montagui Lowe.
pacifica Pease.
pallida Pfr.
pellucida Dohrn.
porrecta Gld.
princeps Dohrn.
pulchella Pfr.
quoyi Pfr.
rostrata Gld.
rustica Mouss.
semicostulata Jick.
scalariformis Reeve.
scalarina Krefft.
scalaris Mich.
semicostata Montrz.
stimpsoni Stearns.
striata Sow.
subcylindrica Gray.
teres Pfr.
truncatula Drap.
turricula Mouss.
valida Pfr.
vitiana Gould.

Tomichia melanoides Benson.
ventricosa Sow.

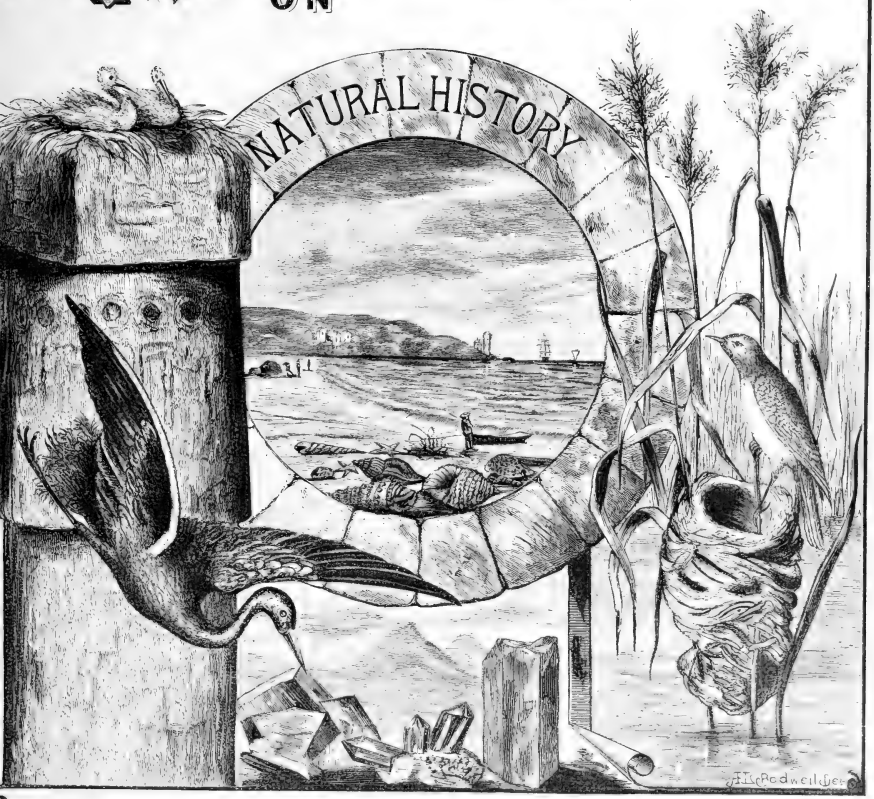
Blanfordia bensoni A. Adams.
japonica A. Adams.
pyrostoma Cox.
striatula Menke.
viridescens Pease.

Cecina manchurica H. Adams.

PRESS OF J. A. & R. A. REID.

VOL. I. NO. II.

RANDOM NOTES ON NATURAL HISTORY



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Random Notes on Natural History.

Vol. 1. PROVIDENCE, FEBRUARY 2, 1884. No. II.

Entered at the Providence Post-Office as Second-Class Matter.

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VALUE OF STEAM IN TAXIDERMY.

Steam is generally used to soften the wings of birds so they can be spread, or the feet that they may be opened or closed. The positions of various portions of dried skins or mounted specimens, may, to a limited extent, be changed by its use. For all of the above uses it is valuable, insomuch as it saves time. The steam does its work quickly, but a few seconds' exposure being necessary; while the slower method of wet cotton, cloths, or sand, requires several hours, according to the nature of the specimens. Another advantage in favor of the former is, that while the latter keeps the specimens soft for a considerable time, steam dries away almost immediately.

It is also very valuable for restoring crumpled or bent feathers (not broken) to their original shape, though it *will not* interlace the webs if parted. Many taxidermists have doubtless tried steaming skins they intended to mount, but such as we have heard from were not pleased at the result.

The fact that steam will shrink skin may not be new, but we think its practical use in Taxidermy has but recently been discovered, and Mr. G. M. Gray, in our employ, has that honor. It was a purely accidental discovery, but, like many others, will come under —"necessity is the mother of invention." The facts of the case are as follows: We had mounted a small black and tan dog, the skin of which stretched so badly that we stuffed it a trifle too full, to dispose of the wrinkles. The owner was not satisfied, and wanted it made smaller. We agreed to do what we could to remedy the trouble, and turned the job over to Mr. Gray. He tried every conceivable way to make it smaller, but all to no purpose. The tea-kettle was steaming merrily, and as a last resort, he thrust the dog into the volume of steam pouring from the nose, then rubbed it down with his hand. After doing this a few times, to his surprise and pleasure, he saw the much desired object was being obtained, and a few moments later had the satisfaction of seeing the dog reduced all over to the required size. The owner also, was pleased.

We next experimented on a Roseate Spoonbill which had been mounted for five years, and of which the naked throat was badly wrinkled. This also was a success.

Still another trial was made on a rattlesnake, that had the skin so badly distended in places that some parts had to be filled much too full. These parts were worked down to be uniform with the rest. The snake was next coiled, and all of the kinks steamed out.

Since then we have made use of steam constantly, and keep the kettle ready to boil at nearly all times. We should be pleased to hear the results of experiments by others.

COLOR OF BIRDS' EYES.

If these observations differ from those of others, we shall be pleased to hear from them.

Black-backed Gull, adult, straw;* skin around eye, bright orange.
Herring Gull, adult, straw; young, hazel.*
Night Heron, adult, red; young, brown.
Snowy Heron, straw.
American Egret, straw.
Louisiana Heron, red.
Bittern, yellow.*
Little Blue Heron, adult, gray.
Great Blue Heron, straw.

*It is rather unfortunate that the colors of artificial eyes are in some cases mis-named. *Hazel* is the very dark, almost black, eye that most birds possess. *Straw*, the clear light yellow. *Yellow*, the deep color inclining to orange. If parties ordering will bear these points in mind, much confusion will be saved.

Among the Buff-breasted Sandpipers.

An unusually good day's collecting is not easily forgotten, and especially when several new species have been obtained. The following is the record of May 22, 1882, at Vermillion, Dak.:

At the outset, and before passing the limits of the town, I added a new bird to my list of captures, an Arkansas Flycatcher, or Western Kingbird, *Tyrannus verticalis*. The capture of a bird never before seen alive usually puts a naturalist in good spirits, so that while traversing several miles we were quite satisfied to pick up an occasional Bartram's Sandpiper, or Yellow-headed Blackbird. Our rendezvous was a slough—pronounced in the West *slew*—eight miles distant. Shortly after reaching it, a whirring of wings over my head caused me to look up, and a moment later I was the happy possessor of a fine pair of Hudsonian Godwits, or Ring-tailed Marlin, *Limosa haemastica*, second new capture. They were so fat that both were burst open on the breast by the fall. Another Western Kingbird was next added, and a third pursued, but not captured, because at this juncture a flock of birds flew by, which were immediately recognized as Buff-breasted Sandpipers, *Tryngites rufescens*. They alighted in a newly ploughed field and one was obtained, making the third new capture. The balance of the flock were hunted for, but vainly.

It being noon, we now sought a ravine in which to eat our dinner, for Dakota is, or should be, famous for high winds. While at our repast, hist! and about a hundred Golden Plover went over our heads so quickly, it was useless to attempt to shoot. Then a second and third *hist!* in quick succession, and two more flocks had passed. The Golden Plover fly very swiftly and but a few yards from the ground. Scarcely was our lunch over than a large flock of Buff-breasted Sandpipers went by, and we ran up the side of the ravine and saw them alight on a piece of newly burnt ground about two hundred yards away. When we reached the spot nothing was to be seen of them, but soon away they went from all about us.

Upon their alighting, we marked them down as closely as possible, and when within about two gun-shots, stopped for a short time, when the birds, gaining confidence, began feeding. When two or three were in range, we moved on and the birds stopped, and keeping our eyes riveted upon them until within shot, dropped them. Leaving my companion, who had no gun but a large basket, to pick up the birds, I noted where the flock dropped down, and hurried to the spot. This time they were in a low grassy place, where there was an inch or two of water, and clustered better, enabling me to pick four sitting and two flying. Here I threw down my hat, and, following the flock to another moist place, killed three or four more, which I picked up, and lo! they were Pectoral Sandpiper, *Actodromas maculata*, as were also the previous six, but the first were Buff-breasts. It was not till after killing sixteen Pectorals that we discovered the Buff-breasts did not visit damp places, which the Pectorals always did. At the report of the gun, all the birds within two hundred to three hundred yards would rise, fly around, intermingle, then divide, and each visit its peculiar feeding-place, and it was but natural to follow the largest flock, or the one which alighted nearest. A flock of large Plover were now espied coming, which flew near enough to enable us to drop two, but one, although marked down, could not be found, but was captured about half a mile away, two hours later. The balance of the afternoon was spent hunting the Buff-breasts, until our cartridges were well-nigh exhausted, and we had few left, except 4^s and 6^s. With the last charges of fine shot three Chestnut-collared Longspurs, *Plectrophanes ornatus*, were secured, fourth new capture. The sky being overcast and rain threatening, we moved homeward. Buff-breasts were then literally swarming, and flying from before us constantly.

We left the prairie with two baskets full of birds. Just before reaching town we found a fine Bittern, evidently just dead, which had probably died of a wound received a few days before. The number of birds obtained was sixty-four, of which twenty-eight were Buff-breasts. We also took three eggs that were just hatching from a Mallard's nest, from which we obtained fine young birds. All of the Sandpipers were very fat, and more than three-fourths of the Buff-breasts were females. The males are readily distinguished by their larger size, the wing and tarsus being strikingly longer. The markings on the under side of the wings are very beautiful.

Magnetic Sand.

Attention has been called in the *Scientific American* to the Magnetic Iron Sand at New Zealand, and we now quote largely from an article by A. W. Brown, in the Providence *Journal*, relative to a similar sand, covering a few acres in the vicinity of the bathing-beach at Block Island. The particles of magnetite in this sand do not readily oxydize, and their brilliant faces reflect fiercely the light and heat of summer, severely trying to the eyes of one crossing there, and giving the whole place, when seen from a hill near by, the appearance of a dark cloud swimming in a quivering atmosphere.

This spot has been rented by New York parties since 1868, and after many experiments, they have been able to produce a variety of iron of peculiar fibrous structure, well adapted for placing between two pieces of iron, as a thin film of glue is employed between two pieces of wood, when the parts are to be united with unusual strength. This iron was called a "welding composition," and was sold for twelve cents per pound.

The sand is gathered on the beach in as pure a state as possible and carted to the place of separation, where it is dried, either by the sun or by means of artificial heat. From the dryer it passes by gravity into a large receiving bin, whence, by the buckets of an elevator, it is raised and dropped into a hopper having a long, narrow opening, nearly over the centre of a cylinder, made powerfully magnetic. All the non-magnetic portion, influenced by gravity alone, falls to the ground, while the iron particles, attracted by the cylinder, adhere to the magnetic surface. This nearly pure iron is packed into bags containing 112 pounds each. The separator, if properly fed and run, is guaranteed to separate two tons per hour from sand containing 33⅓ per cent. of magnetic ore. It separates one ton per hour with little care, and when working at its best, with sand of a high grade, it has delivered into the bags from four to five tons per hour. The largest results given were seldom obtained.

The product is a purely magnetic ore, of which several analyses show about the same results as those given below, obtained by a Brooklyn chemist from a sample taken at random from one of the bags:

Magnetic oxide of iron	87.22
Manganese oxide	1.06
Magnesia	0.72
Lime	1.60
Titanium oxide	4.10
Silica	5.30
	100 00

Mere traces were found of phosphorus and sulphur. The metallization, or per cent. yielded of actual iron, is marked at 63.15.

A few words may be permitted in relation to the amount of the Block Island deposit. A careful examination has been made, holes have been dug in several places to the depth of from ten to fifteen feet, and the ground sounded by iron bars nearly or quite five feet further. In several places black sand was found as deep as the holes extended, and to the bottom of every hole the mingled sand and cobble-stones of a beach formation, indicating that this part of the island has probably been built up by the sea. Encased in a rubber suit, Professor Jackson examined the bottom near the shore; and afterwards from a boat, he made careful soundings over a large area, using a strong magnet at the end of his line. For a distance of two miles eastward from the northern half of the island, the magnet invariably brought up magnetic ore, in some places gathering enough to serve as an armature. It was estimated that fully a million tons are readily available on land, while on the bottom of the sea, perhaps at a depth not too great to preclude the idea of obtaining it profitably, there is a much larger amount. Besides the sand which the separator removes, there is a large amount of black sand which is not magnetic, but is still richly metallic.

A New Volcano in Behring Sea.

Sergeant Applegate, the signal-service observer at Unalashka, Alaska, reports that during the past summer a new volcano burst out from the bottom of the sea, latitude 54° north, longitude 168° west. "It has been exceedingly active, as it has already formed an island from eight hundred to twelve hundred feet high. According to the report of Captain Anderson, the discoverer, who sails one of the Company's vessels, and who went within two thousand yards of it, it presents a magnificent sight. The fire, smoke, and lava are coming out of many crevices, even under the waterline. Large bowlders are shot high in the air, which, striking the water, send forth steam and hissing sound.

The Shell-Bearing Mollusca of Rhode Island.

[BY HORACE F. CARPENTER.]

Chapter II.

Cuvier named the second grand type of animal creation Mollusca, from the Latin, *mollis* or soft, meaning soft-bodied animals. This term is not exclusively characteristic of this department of nature. There are many soft-bodied animals not included in the Mollusca, and there are also members of this group which are not wholly soft.

Mr. Edward S. Morse, of Salem, Mass., in a paper read before the Essex Institute, called "A Classification of Mollusca, based on the principle of Cephalization," proposed the name "Saccata," suggested by Alpheus Hyatt, as better expressing their plan of structure: the stomachs and viscera of *all* mollusks being enclosed in a fleshy sac, which, in the different classes, is open or closed at one or both ends; but as naturalists have not seen fit to adopt this change of nomenclature, we must continue at present to use that given by Cuvier. Linnæus was the first to systematize the study of animals and plants, and gave to each variety two Latin names, the generic and specific, viz.: *Mytillus edulis*, the edible mussel. Afterwards Cuvier established the system of the division of animal forms into types, classes, orders, and families.

The study of the *animals* of the type Mollusca, is called Malacology. Conchology is the study of the shells (secreted by the animals, forming the houses in which they live), together with descriptions of the habits, location, distribution, etc. In preparing these papers on the "Conchology of Rhode Island," I shall recognize only those mollusks which secrete a calcareous shell.

The Mollusca proper, excluding the Molluscoida (Brachiopoda, Tunicata, and Bryozoa), may be divided into two great groups, as follows:

1. Encephala. The animal possesses a head, and is usually, but not always, protected by a spiral, or otherwise univalve shell. Example, the snail.

2. Acephala. The animal has no head, and is always protected by a bivalve shell, or one consisting of two parts, connected at the back by a ligament, or hinge. Example, the oyster.

The Encephala comprises four out of the five classes into which the Mollusca are divided, and includes more than three-fourths of the whole number of known molluscous animals. These classes are:

1. Cephalopoda. These animals live in the ocean, and are found in all parts of the world. They are carnivorous in their habits. They have large heads, separate from the body portion; the name of the class is given to it from the mouth of the animal being surrounded by eight or ten long fleshy arms, or feet, and arising from the top of the head.

2. Pteropoda. These animals also inhabit the ocean, swimming by means of a pair of wings extending laterally from the back of the head.

3. Gasteropoda. The under side of the body forms a muscular foot, by which they crawl along, dragging the shell after them, to which they are attached by the mantle.

4. Scaphopoda. The shell is a hollow cylinder, open at both ends; the animal with a rudimentary head; foot vermiform, furnished with lobes.

5. Acephala. This term is synonymous with Pelecypoda, Lamellibranchiata, and Conchifera, the meaning of which will be explained in its proper place.

Class 1. Cephalopoda.

This first and highest class of the Mollusca is divided into two orders:

1. Dibranchiata. Breathing by a single pair of branchiæ or gills. Mandibles, horny. Arms, eight or ten, furnished with rows of suckers. Shell, internal or none.

2. Tetrabranchiata. Breathing by two pair of branchiæ. Mandibles, shelly. Arms, very numerous, without suckers. Shell, external, chambered; capable of containing the animal.

Order 1. Dibranchiata.

Sub Order 1. Octopoda. Arms, eight, sessile; no shell.

Sub Order 2. Decapoda. Arms ten, eight of which are sessile, and two (longer) tentacular. Shell internal.

Sub Order 1, Octopoda, consists of three families, containing thirteen genera, and eighty-three described species, none of which having shells, are all excluded from these papers on "the Shell-bearing Mollusca of Rhode Island."

Sub Order 2, Decapoda, consists of eleven

families, containing fifty genera, and about one hundred and fifty recent species, and as many more fossil. The only shell represented in Rhode Island of this immense order is

SPIRULA PERONII, LAM.

Shell nacreous, cylindrical, conical, tapering, the whorls separate from each other and chambered.

Although thousands of shells of these pelagic mollusks are washed ashore in all parts of the world, the animal is almost unknown, two perfect specimens only having been found in New Zealand. Its habitat is in the tropical Atlantic and Pacific oceans. Specimens of the shells have been drifted upon the island of Nantucket, which is the nearest place to our state they have ever been found, but they may as well be looked for on Block Island or the ocean shores of our state.

ORDER 2. TETRABRANCHIATA.

This order contains two families, Nautilidæ and Ammonitidæ.

Family 1. Nautilidæ. Septa simply curved, concave on the outer face, sutures simple, undulate or lobed; mouth simple; siphonal opening nearly central. Shell smooth, or but little sculptured. Six living and about six hundred fossil species.

Family 2. Ammonitidæ. Septa convex in their median section, sutures complex, lobed, ramified or denticulated; septal tube cylindrical and directed forwards; siphuncle cylindrical small, marginal. Fossil only, about sixteen hundred species, varying in size from less than an inch to over three feet in diameter.

Several of these enormous Ammonites are represented by artificial models, lying around on the shores of the Secondary Island, so called, in the grounds of the Crystal Palace, at Sydenham, Eng. On this island, in the centre of an artificial lake, it is intended to represent all the extinct animals of the Secondary Formation, restored by means of models, built life-size, and standing or lying in such positions as to show to the best advantage their uncouth and unwieldy forms. Among others may be mentioned the Iguanodons (vegetable feeding lizards), who, in their turn, formed the prey of still larger carnivorous animals. The great size of one of these Iguanodons will be appreciated by the fact that on the last day of the year 1853, twenty-one scientific gentlemen dined inside its body. Though not as large as some of these extinct monsters, it contains six hundred and fifty bushels of artificial stone, one hundred feet of iron bars, and six hundred bricks.

[To be continued.]

Dynastes Hercules, one of the largest Beetles in the World.

THIS wonderful insect is, we learn by reference to the works of the Rev. J. G. Wood and Mr. J. A. Ober, a native of Guiana, and is never found out of South America, except in the island of Dominica. It burrows in the ground or under decaying leaves, etc., during the day, and is strictly nocturnal, flying high among the trees, probably seeking mates. This tends to make it difficult to obtain. The natives call these beetles Razor-grinders, and it is stated that they use their horns like a thumb and finger clasping a small branch of a tree, and by whirling rapidly around it, cut it off.

The males that we have examined have measured from four to six and a half inches in length, the thorax horns from two and three-quarters to three and one-half inches long. The elytra are sage green with black spots and dashes, and black margins around their whole circumference. The thorax black and glossy, extended into the long horn, which is thickly set below with yellow-brown hairs; scutel black, the under parts very dark brown, with an abundance of yellowish hairs; legs black and about one and three-quarters inches long. Two small protuberances near the base of the upper horn, and upon the head a black horn one and one quarter inches long, compressed, toothed at the end, and at about half its length two more short teeth.

The female is about three inches long, the elytra one and five-eighths inches long, and one and one-half wide, dark brown tinged with dull green, and somewhat spotted posteriorly, three longitudinal ribs on each, and roughly honeycombed. The head dull black, with a rudimentary horn; thorax rusty black, and rugose, the rusty shade occasioned by short brown hairs; all the under parts dark brown or black, and very closely punctured. The larva lives in, and feeds upon, rotten tree trunks and branches,

and is a marvel to look upon. We have just had the privilege of examining an alcoholic specimen. Its full length was eight and one-half inches; circumference, four and five-eighths inches, a little larger at the ends than in the middle. The general color was light fawn brown, this may have been intensified by the spirits in which it was preserved, the head and very powerful mouth parts were black, the head punctured all over and with a few brown hairs. Number of segments, fourteen. No prop legs, but three pairs of dark, red-brown, hairy legs on the first three segments. Four small tubercles on each side, on the first and second segments, followed by ten large tubercles, one on each succeeding segment. A large, somewhat triangular shaped spot of brown on each side of the first segment, and small, round, black or dark brown spots on all the others, except the second and third and the last two. Light brown hairs about one-eighth of an inch long are sparsely scattered all over the body, thickest on the first six and the last segment.

Viewed from above, the back is so wrinkled as to appear to be made up of twenty-nine segments. It is reported that the natives find morsels of this sort very toothsome, and verily, half a dozen of them would make a hearty meal.

Dynastes Tityus.

A North American species occurs to our knowledge as far north as Pennsylvania; some specimens from North Carolina now before us look, at first, like miniature D. Hercules; they vary considerably in general color and marking, but these are about as follows: The male is two inches long, exclusive of the horn, the horn upon the thorax is one-half inch long, notched at the end, and is black, faced below with yellow-brown hairs, the black horn upon the head is nine-sixteenths long; thorax and horn one inch; elytra one and one-fourth inch. The general color is light or whitish green, more yellow on the thorax at base of horn. Scutel black, with a green spot in the middle. The elytra bordered all around with black, a row of fine black punctures on each side of the dividing line, and clustered thickly about the corners next the scutel, a quantity of small black spots and rings scattered irregularly over them, also a few hair-like scrawls; the thorax is sparsely marked with similar lines; two horns, each three-sixteenths long, appear at the base, just below and on each side of the thorax horn; these, with the front of the thorax and head, are black. Antennæ black and palmate. All the under parts and legs, dark red brown, finely punctured in the middle portions and set about with yellow-brown hairs, which on the abdomen protrude one-eighth of an inch beyond the elytra.

The female is one and three-fourths inches long, no horn upon the thorax, and just a suggestion of one on the head. The head and thorax are of a smoky, greenish black, thickly punctured, and somewhat broader than in the male, which she is otherwise like in general appearance, except that the elytra are a duller green, more punctured, and have very few black spots. In the new book, *Insects Injurious to Fruits*, by Wm. Saunders, is an excellent cut and description of this insect.

THE PROVIDENCE FRANKLIN SOCIETY

held its annual meeting Jan. 1, 1884. The reports of the various officers show that during the past year, ten papers have been read before the Society, and that five excursions have been made under its auspices. New names have been added to its membership, and its working force remains as large as ever. The treasurer's report shows that the receipts for the year have covered the expenses, leaving a margin of two hundred dollars for the new year. The cabinet keeper, Mr. T. R. Shurrocks, reported one hundred additions to the collections. The election of officers resulted in returning the entire board of the past year.

President — L. W. Russell.
Vice-President — D. W. Hoyt.
Secretary — C. M. Salisbury, Esq.
Treasurer — A. L. Calder.
Cabinet Keeper — T. H. Shurrocks.
Librarian — Frank Titcomb.

Two weeks later, Mr. C. R. Kruger lectured upon *Photography*, giving a clear and connected explanation of the steps and processes of the present methods, and reviewing many of the past.

Last month, we recorded two Brunnich's guillemots killed in Narragansett Bay, and have now ten more to report from the same locality. Also another Night Heron killed at Bristol, R. I., Jan. 10, 1884.

About Insects.

Professor Elliot, of New York City, is conducting some interesting experiments to test the sensibility or insensibility of insects to pain. A dragon-fly was fastened to a board and its abdomen severed from the rest of its body. The latter was then fed to the insect by piecemeal, which it ate with evident relish, the parts eaten of course dropping out of the severed end. Having eaten its own abdomen, it was served with six spiders and sixty flies, swallowing them all and losing them immediately, evidently suffering no pain.—*Scientific Times.*

ALBINISM.

We have frequent opportunities to observe albinistic tendencies in animals as well as birds, and think that with the gray squirrel, *Sciurus carolinensis*, it is not uncommon. Two specimens have come to our notice within the past three months, both taken within ten miles of Providence. Another has been reported from the vicinity of Greenfield, Mass., and yet another near Brooklyn, Conn., while each past year we have had, or have heard of, one or two specimens.

Nov. 13, 1883, we received a muskrat, *Fiber zibethicus*, mottled all over, above and below, with silvery-white in large patches, the tail half brown, half white. Three of the legs and paws white (the other was lost in the trap), all the brown color on the breast and belly very light, and the eyes hazel. This specimen was taken in Cranston two days before we received it, and is now in the Museum of Brown University. Another, still more nearly white, is reported as taken at the same time, but being in some way damaged, it was thrown away as useless.

A King Eider, *Somateria spectabilis*, was shot at Nayatt Point, Bristol Co., R. I., about Jan. 1, 1884, by Mr. Frank Tobey. It was an adult male. This is not the first record for Rhode Island, Mr. F. B. Webster having a female, which was taken at same place Nov. 27, 1879.

Purple Finches, *Carpodacus purpureus*, are common this winter. They must be wintering in the North in considerable numbers also, for we received about seventy on Jan. 15, killed near the Rangeley Lakes in Maine.

Stuffed Spiders.

When it comes to a real live, energetic, ugly, vicious, poisonous spider, says the Santa Barbara *Independent*, Southern California can enter prize animals at any fair. The most precious trophies the tourists bear away from this coast are, in all probability, the neat cards decorated with these monsters of the insect world. Every one is familiar with the trap door and nest of this cunning but ugly creation, and of which strange little habitations every adope ranch is full. So densely populated with these beautifully lined tunnels are some of the sunny, quiet valleys among the foot hills, that close inspection will reveal their almost invisible trap doors hardly a foot apart. Yet, in spite of this, hardly a living animal will be seen. There is a legitimate demand for prepared specimens, both at wholesale and retail. When first brought in they are deprived of what life is left in their bodies by poisonous fumes or other application of poison. After the taxidermist has made sure they are quite dead—a wise precaution—he cuts them open on the under side and, removing the loose matter therefrom, carefully stuffs them with cotton. This stuffing process is quite a delicate operation, and requires no little knack to perform neatly and successfully, without injuring the animal, and bringing it back to its normal shape and size. A humming-bird would seem to be about as small an object as could easily be put through this painstaking operation, let alone an insect even of the size of a tarantula. This having been completed, the spider is placed upon a board and properly held in position by pins, one through the body and one in each foot, and set in the sun to dry.

The sale of them in Santa Barbara is carried on both at wholesale and retail, several parties carrying on the business, the supply seeming never to crowd the demand. In spite of their great numbers, few instances occur where people have been bitten by them, the tarantulas generally being more anxious than the other party to get out of the way.—*Scientific American.*

CONCHOLOGICAL CHECK-LIST. II.

J. RITCHIE, JR.

Order. Pneumonopoma Pfr.
Sub-order. Opisophthalma Pfr.
Family. Diplommatinacea Pfr.

Diplommatina affinis Theob.
anamalayana Bedd.
angulata Theob. & Stol.
austeni Blanf.
australiae Benson.
bensoni A. Ad.
blanfordi Benson.
burti G-Austen.
canarica Bedd.
cantori Pfr.
capillacea Pfr.
carneola Stol.
ceylanica Bedd.
chordata Pfr.
convoluta G-Austen.
costulata Hutt.
crispata Stol.
depressa G-Austen.
diplocheilus Benson.
distorta Mouss.
exilis Blanf.
fairbanki Blanf.
folliculus Pfr.
gibbosa Blanf.
godeffroyana Mouss.
gracilis Bedd.
homeri G-Austen.
huttoni Pfr.
insignis G-Austen.
jaintiaca G-Austen.
jatingana G-Austen.
kingiana W. & H. Blanf.
labiosa Blanf.
levigata G-Austen.
liricincta Blanf.
macgillivrayi Pfr.
macrostoma Mouss.
minima Bedd.
minor A. Ad.
nana Blanf.
nilgirica Blanf.
nitidula Blanf.
oligopleuris Blanf.

Diplommatina pachycheilus Benson.
parvula G-Austen.
pedronis Bedd.
polypleuris Benson.
pullula Benson.
pulneyana Blanf.
puppensis Blanf.
richthofeni Theob. & Stol.
salwiniana Theob.
scalaris Blanf.
scalaroides Theob.
semisculpta Blanf.
sherfaiensis G-Austen.
sperata Blanf.
subovata Bedd.
tricincta Balf.
tuberosa Mouss.
tumida G-Austen.
ungulata G-Austen.

Moussonia fuscula Mouss.
problematica Mouss.
typica Semper.

Palaina alata Semper.
constricta Martens.
dimorpha Semper.
inflatula Semper.
lamellata Semper.
martensi H. Adams.
moussoni Semper.
patula Semper.
polymorpha Semper.
pupa Semper.
pyramis Semper.
ringens Semper.
strigata Semper.
striolata Semper.

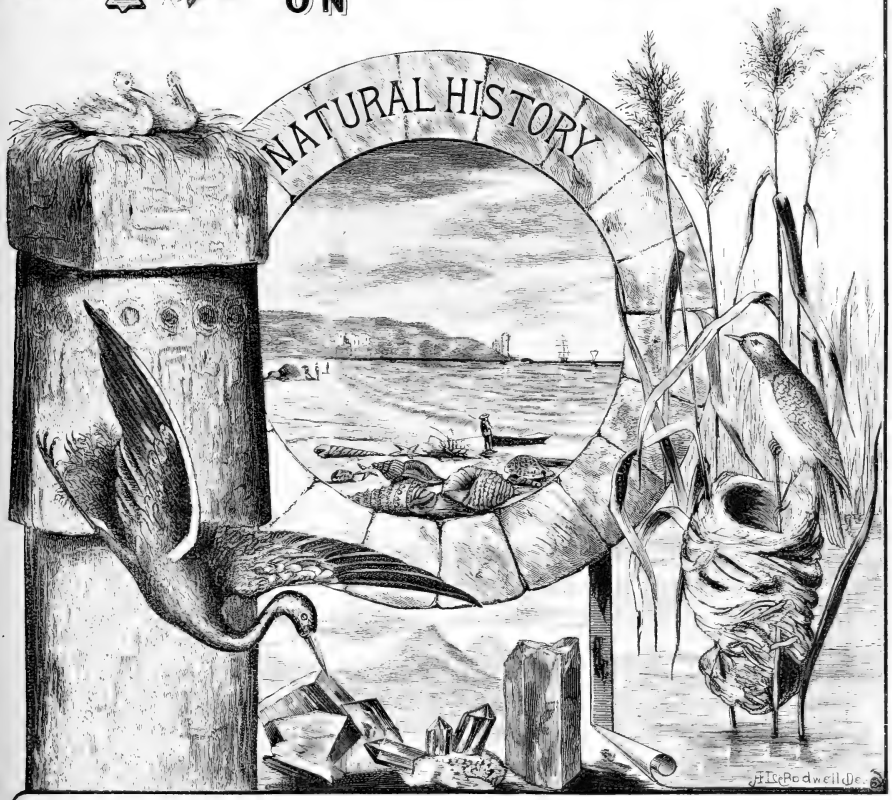
Clostopsis sankeyi Benson.

Arinia minor Sow.
scalatella Dohrn.

Paxillus adversa H. & A. Adams.
beccarii Issel.
lyratus Gould.
peregrina Gould.
rubicunda Mart.
tantillus Gould.

VOL. I. NO. III.

RANDOM NOTES ON NATURAL HISTORY



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SPECIAL NOTICE.

Subscriptions hereafter will begin with the current number, or the March number if desired.

We laid by what we supposed a liberal quantity of January and February numbers, but the rapid increase of our subscription list has nearly exhausted our surplus of those numbers.

We will pay ten cents each for the return of either January or February numbers in good condition, and those desiring them will be supplied at the same price.

Beginning with the March issue, we shall lay by a sufficient number to prevent the above occurrence in future.

That children have eyes, and use them; that they have tongues, and use them; and that they think, is unquestionable, the limit, in each case being the natural powers of the child. What more sensible plan can be adopted, than to take these powers when they are in natural and active operation, and train them easily and naturally, but surely, in the proper direction?

The awakening of mental activity being taken as the foremost aim of zoölogical study for children, it follows that there must first be an interest awakened,— no, not awakened, but encouraged. It will be hard to find a child of five or six years, whose mind gives evidence of ordinary power, who has not already an interest in the study of animals. Cats, dogs, horses, cows, flies, butterflies, etc., are just as surely, and just as naturally, matters of interest to a child as a pool of water is to a young duck,— not necessary to its *existence*, but essential to its happiness and fullest development.

The teacher, then, needs only to encourage the child in the exercise of this natural impulse; taking care to so direct the effort that the results shall not be dissipated into vague and shadowy "notions."

It is a matter of marvel that teachers have not more generally recognized the immense value of nature-study as a basis for language-work. The abundance and variety of material for study, and the interest the children take in the work, should be unanswerable arguments; yet hundreds of teachers, at the mere mention of the beautiful study of insects, exclaim with a shudder, "Ugh! I wouldn't have the nasty things around."— *Chas. H. Ford, Journal of Education.*

We have to report three more cases of death among animals from curious causes.

A Biddeford gentleman, having occasion to go into his wood-shed, found a weasel lying dead on the block, with his tongue frozen to an axe blade. The axe had been used in cutting beef in the morning, and the animal in attempting to secure a piece of the meat which adhered to the blade, had singularly met his death. — *Cotton, Wool and Iron.*

Some time since, a specimen of the Little Black-head Duck (*Fulix affinis*) was brought to us with an edible muscle (*Mytillus edulis*) firmly fastened to its tongue. The duck must have closed its beak on the open bivalve, which in turn closed upon the tongue. The duck in distress flew at least four miles, and was seen to fall, nearly choked to death, completely exhausted, and an easy capture.

An esteemed correspondent from Pennsylvania writes that a gentleman riding through a rough piece of country, saw a fox run out in front of him. Trotting a little way, Reynard sprang up a slight elevation, and crouching under a shelving rock, turned and watched the carriage. The gentleman, alighting, threw a stone with such precision that it struck him squarely in the head and killed him at once.

The Roseate Spoonbill in Florida Rookeries.

With the exception of perhaps the Flamingo and Scarlet Ibis, there is no bird in our fauna so truly tropical in appearance as the Roseate Spoonbill, *Ajaja rosea*. It is called in Florida, Pink Curlew — accent on last syllable — and the Seminole Indian name is A-la-loo-la-set-teé.

My acquaintance with this bird was in 1874, when I was just beginning my collecting career, and my enthusiasm was unimpaired. I had seen only the young Spoonbill, which is of a light pink color nearly all over, and should have been quite satisfied to have secured even these. The reports received, however, were very discouraging, one party presuming to state that their destruction had been so great, that probably not one hundred remained in Florida. As may be imagined, our expectations were not great, but there was for us more in store than our fondest dreams had hoped to realize. But to return to the beginning.

We were encamped eight miles west of Fort Pearce, which stands nearly opposite to Indian River Inlet, and all of our ramblings were in Brevard County. We had been to one rookery on Feb. 28th, but it was a small affair, only American Egrets and Snake Birds breeding in it, and we obtained but few eggs. But now our guide said he would take us to a larger one where the Spoonbill was breeding. But we believed him not, for the previous fortnight had chronicled only disappointments. After various delays we obtained a *boat*, if such it could be called, but *scow* would be more appropriate, for it was a square-ended contrivance, twelve feet by four feet. This was placed upon the ox-team and all our camping equipage put into it, and a start made March 6th.

There is so little of interest in the pine woods that cover most of the high land, that we will pass to our entrance of the Seventeen Mile Swamp, said to be the headwaters of the St. Johns River. This tract is not properly a swamp, but is inundated by the rainy season, and at the time of our visit the water covered it to a depth of six to twelve inches. Here and there were places entirely uncovered, and numerous snipe borings were to be seen. Two weeks previous, Wilson's Snipe were very plentiful, but only an occasional straggler now remained, the greater portion being *en route* north. Throughout this great expanse, dotted here and there were what we were pleased to call oases, likening this watery waste to a desert. These oases are called "hammocks," but are properly hummocks.

These are the fertile spots upon which is a luxuriant growth, of which the Cabbage Palm figures most prominently. These fertile spots were generally small, from a few square yards to an acre in extent. This watery tract presented a grand appearance, for, grouped in every direction, were the herons engaged in feeding. There were the strikingly graceful forms of the American Egrets and Snowy Herons, a bold contrast among their dark cousins, the Louisiana, Great Blue, and Little Blue Herons.

Their forms, as with measured strokes they flew, their feet extended behind, and their necks recurved so that their heads seemed to protrude from their breasts, were in marked contrast to the swift-flying rows of White Ibis, with their necks extended. Occasionally a few Gannets (Wood Ibis) appeared, or some Sandhill Cranes, while the Turkey Buzzards and Carrion Crows were rarely absent from the scene. But the most peculiar bird of all is the Snake Bird, commonly called Water Turkey, *Plotus anhinga*. Its wings and tail are large, while its neck is long and very slim, and as it sails about in the air it resembles an ace of clubs with a single line drawn from the joining of the three lobes. These sights, as well as the various notes of the birds, among which the loud notes of the Sandhill Crane were most noticeable, all served to keep up a thrill of excitement. We chose for our camp one of the largest of the hammocks, and I was left to put it in order while my companion went to the rookery with the boat. On his return he reported seeing Spoonbills, and we were in ecstasies. Our team was now dismissed for a week, and we were left about ten miles from any human habitation, and five miles from the edge of the swamp.

With the gobbling of the Wild Turkeys at daybreak we were awake, and shortly afterwards a Cardinal Grosbeak tuned his mellow whistle but a few yards away, while several Jackdaws (Boat-tailed Grackle) were boiling over with music, one would think, to see them swell up in their vain attempts to make some, but in the production of which they are not more fortunate than the Purple Grackles and Cow Birds.

(To be continued.)

LIEUT. A. W. GREELEY.

WHAT the present circumstances of this investigator of Arctic phenomena and his associates may be, is probably a matter of as much general interest, throughout all civilized countries, as any one subject that could be mentioned.

A. W. Greeley was born in Newburyport, Mass., March 27, 1844. The writer remembers him as a member of a higher class at the Brown High School in Newburyport, a fellow quiet and studious, familiarly known as "Dolph'," and with no lack of energy at games. His stamina and nerve were exhibited one spring day, when, in tumbling over a fence, he broke his arm. Making no complaint, he sat quiet and very pale, until some method was devised for taking him home. After graduating from the above school at the age of seventeen, he joined the 19th Massachusetts regiment of volunteers, and remained in the service to the end of the war. He attained in the volunteer service the rank of captain and brevet major. He made one of the forlorn hope at the storming of Fredericksburg, in December, 1862, was in twenty engagements and fourteen pitched-battles, and was three times wounded; after the riot of July, 1866, he played an important part in New Orleans, and was appointed lieutenant in the Regular Army, in March, 1867.

For thirteen years he has been on duty as an officer of the Signal Corps, part of his duties being the construction, superintendence and inspection of telegraph lines. In this capacity, he built at one time an extreme length, coming inside in its completion, of the estimates, both as to time and expense, this having been previously declared an impossibility. At another time he visited the signal station on Mt. Washington, in the winter, and making the descent alone, was overtaken by a storm and lost his way. Wandering about, benumbed and bewildered, he finally came to shelter, but none too soon. As the result of his exposure and suffering he was laid up for some weeks. As Assistant Chief Signal Officer, he became known to the Country as "Old Probabilities," grinding out the weather, as he said. He paid close attention to international meteorology, and was called upon to give advice before the Jeannette Search Board, relative to winds and weather in the Arctic. As official predicting officer, he successfully indicated four days in advance the weather for presidential election day. He was finally appointed to take command of the Lady Franklin Bay Expedition, and sailed away from St. Johns, July 7, 1881. His diary-letter, sent back by the "Proteus" to his relatives, says: "We start with the bluest of skies and the fairest of weather.

July 12. We now have continuous daylight; large print can be read on deck at midnight. The temperature is 34 to 44 degrees and very comfortable. I enclose a specimen of the Arctic poppy.

Aug. 1. Lieutenant Lockwood killed a walrus as large as an elephant. It came at the boat in a great rage, and is said to have been terrible in aspect.

Aug. 3, 4.10 P. M. The sea is smooth as a mill pond, with here and there a thin film of last night's ice. Temperature 37^{5} degrees, and the entire absence of wind makes it seem like a May morning in New England.

Aug. 4. We are delayed by ice for the first time, only eight miles from our destination, and here white whales, a sword-fish, and a norwhal are reported.

Aug. 11. Arriving at the situation for a permanent camp, a herd of eleven musk-oxen was discovered; the men following the herd killed them all. I gathered enough sorrel for a nice salad. Lieutenant Lockwood reports near at hand coal of nice quality and easily accessible.

Aug. 17. One of the party caught an humble-bee."

Selections have been made here and there from the diary, which gave also a more full account of the manner of landing, the putting up of their house, and the unfortunate death of some of their dogs, mentioning also Lieutenant Kislingburg, and Dr. Parry who had already made valuable collections of specimens in many departments.

The unfortunate result of the 1883 expedition for their relief is well known. Immediately on the opening of navigation, the government will dispatch a thoroughly equipped relief party. Three vessels have been secured. Several of our best naval officers have volunteered for the service, and also a number of seamen of Arctic experience.

LONSDALE BOTANICAL AND FIELD NATURALIST SOCIETY.

Organized Dec. 9, 1880. This society was formed and established for the study of Botany and other branches of Natural History.

The above society held its regular meeting January 21st, when the following officers were elected for the present year:

President—Ralph Drabble.
Vice-President—James Moss.
Secretary—John Dearden.
Treasurer—James Isherwood.
Librarian—William T. Butler.
Executive Committee—James Isherwood, Thomas Barber, John Osborne, James Lord.

At the close of the business meeting the president exhibited fine microscopical specimens.

The society is in a flourishing condition, having more than forty members, a well stocked library, and a comfortable sum in the treasury. At the next regular meeting the secretary, John Dearden, will read a paper on insects, injurious and beneficial. Meetings held monthly.

RHODE ISLAND ENTOMOLOGICAL SOCIETY.

The last regular meeting was held in their new room, 54 North Main Street, the largely increased membership and need of larger and better accommodations having made a change necessary.

Prof. A. S. Packard spoke at some length upon the ravages of the moth, *Tortrix fumiferana* among the spruce trees, on and adjacent to the coast of Maine, exhibiting perfect insects and chrysalis, and drawings of the larvæ.

At a previous meeting Mr. S. Schofield read a paper and illustrated it by diagrams, upon the difficulties he had experienced in raising from the eggs, the larvæ of *Eacles imperialis*, the Imperial Custard Moth.

THE PROVIDENCE FRANKLIN SOCIETY

has held its regular meetings. Prof. W. W. Bailey occupied one evening with an account of the Royal Botanical Gardens at Kew, Eng., and the influence of that institution in making botanists throughout the English colonies, and in collecting and distributing seeds and plants. The herbarium there is the finest in the world, and the identity of plants is ascertained as a final resort through Kew. Their museum of economic botany was at first the only one in the world, but this example is now being followed in other places, at Berlin, Ghent, Paris, and Boston. At a later meeting Mr. T. R. Shurrocks spoke upon the different forms and appearances, and the alterations of pyrite.

AN UNUSUAL BOUQUET.

By the kindness of Mr. S. Schofield, we saw last breeding season, a bouquet about fifteen inches across the top, of apple tree twigs, full of fresh leaves, and on them were feeding fourteen larvæ of *Platysamia cecropia* in fine healthy condition. A bunch like this placed in a pint of water, replenished daily, will keep fresh three days; it may be kept standing anywhere, and the larvæ, though perfectly free, will not attempt to crawl away so long as fresh leaves are plenty. Mr. S. experimented with many sorts of leaves. None kept fresh so long and seemed to please as well as the apple.

He observes also that when first hatched the larva is one-quarter of an inch long, and nearly black. In about eight days it sheds its skin and appears in a brown coat (although one retained its black). About ten days later occurs a second moult, or casting of the skin; it then appears of a beautiful green color, with numerous short nodular protuberances, four of them near the head, of a bright coral color, the others yellowish, greenish or bluish, and each surmounted with a star of short black hairs. At the next moult, of which there are four, the coral fades to an orange, and after each moult the larva eats up the old skin. When about ready for a change of dress, it feeds less for three or four days, and lies quiet. Suddenly the skin cracks at the head and comes off in a moment, and is nearly transparent. After the final feeding the larva, selecting a twig to its fancy, proceeds to spin the well-known brown silky cocoon.

Who says it is unhealthy to sleep in feathers? Look at the spring chicken, and see how tough he is.—*Exchange.*

How to find a chip of the old block — Axe the block.

The Shell-Bearing Mollusca of Rhode Island.

[BY HORACE F. CARPENTER.]

Chapter III.

Class 2. Pteropoda.

The pteropods are all small mollusks, some of them microscopic; they are commonly known as sea-butterflies and whale food. They spend their entire existence in the open ocean, but are sometimes seen at rare intervals drifted upon the shore. They are brought up by the dredge, in the fine sediment from the bottom of the sea, at great depths. In the arctic regions, they exist in immense numbers, discoloring the waters for miles. They form the principal food of the Greenland whale and of many sea-fowl. These animals are carnivorous; they have heads, but no eyes; some species are destitute of a shell, others are protected by an external, testaceous, or membranaceous covering of variable form, with or without opercula; still others have an internal shell. They ascend and descend with great rapidity, and swim by means of a pair of wings situated near the mouth. The different species swim near the surface at certain definite hours of the day and night, remaining but a short time, then sinking, to be seen no more until the following day at the same hour. As one species disappears, another takes its place, and they pursue this endless routine throughout the whole twenty-four hours. One rare species is only seen at 12 o'clock, P. M.

The sexes are united in the same individual. They comprise two orders, *Thecosomata* and *Gymnosomata*; five families, Hyaleidæ, Cymbuliidæ, Limacinidæ, Cliidæ, and Eurybiidæ. There are forty-seven genera and sub-genera, and more than two hundred species, recent and fossil.

The pteropods are infrequent visitors to the New England coasts; *Spirialis flemingii* occurred at Nahant, Mass., in great numbers during the summer of 1863. Mr. Alexander Agassiz gives an interesting account of their habits in the *Proc. Bost. Soc. Nat. Hist.*, vol. x., p. 14.

Class 3. Gasteropoda.

These animals are the highest in the scale of being of all the Mollusca, excepting the Cephalopods. They occur in immense numbers, and are represented everywhere; in the ocean, in all fresh water lakes, ponds, rivers, and stagnant ditches; in swamps, in lowlands, and upon the highest mountains; in forest, meadow, and in gardens; on trees, on walls, and sometimes, even in our houses. The species are numbered by thousands, almost every island in the ocean having species peculiar to itself. They are also found on the bottom of the sea, on the sands of the shore, attached to rocks and sea-weeds, and floating in mid-ocean; one species, *Janthina fragilis*, secretes a shell, white on the upper half, and of a beautiful violet color on the lower portion. The animal constructs a raft or float, several times the length of its shell, and loads it with eggs. The animal has not the power of sinking and rising to the surface, but floats along with its raft of eggs attached to its foot. These shells are thrown upon the shores of Europe and America by storms, and as they are liable to be driven upon our coasts (they have been found on Nantucket) I include them among Rhode Island shells.

The Gasteropods have well developed heads, with eyes and tentacles. The lower part of the body is thickened into an expanded, creeping dise, called the foot, by which they crawl along, dragging the shell after them, to which they are attached by the mantle. They cannot leave, or come wholly out of their shells, and as they grow, they enlarge the shell by secreting carbonate of lime from the food on which they live, and adding layer after layer of this material, as their increasing size demands more room.

I will explain here the meaning and application of some of the terms to be used in the descriptions of the Gasteropods in these papers, by using for an example a common fluviatite shell, *Vivipara contecta*. When first hatched from the eggs, these animals are provided with a shell about one-fourth of an inch in length, which grows quite rapidly by the addition of calcareous matter, as described above. The point where the shell commences to grow is called the *apex;* this, in some species, is decollated, or cut off when the animal arrives at maturity. The animal retires from the extreme

end, into the body portion of the shell, and having no further use for the apex, and not being strengthened and protected by the presence of the animal within, it falls off. In some situations, carbonic acid in the water dissolves off the thin point, and in others it is eaten off by other carnivorous mollusca; in these cases the shells are said to be *eroded*. The shells of these Gasteropods are built in a spiral form, and coiled around an *axis*, which is in the centre of the shell, running from the apex to the opposite end, called the *base*. Each turn of the shell around its apex constitutes a *whorl;* each whorl as it recedes from the apex being larger in circumference than the preceding one. The line, or groove, formed by the junction of the whorls, is called a *suture*. At the end of the last turn, or *body whorl*, as it is termed, is the *aperture* or mouth of the shell. This aperture, in some species, is wholly are partially closed (when the animal has retired into the shell) by a horny substance (unlike the material composing the shell) which is attached to the foot of the animal and drawn in after it, forming a sort of door; this is called an *operculum*. From the top of the aperture to the apex, embracing all the whorls, is called the *spire*. The aperture in some families is entire; in others it is notched or produced into a canal. The margin of the aperture is the *peristome;* sometimes it is continuous; frequently it is interrupted; the left side of the aperture being formed by the body whorl. The right side of the aperture is called the *labrum* or outer lip; the left side, the *labium* or inner lip, also called the *columella*.

The base of a shell, at the axis, around which the whorls are coiled is sometimes open or hollow; this opening is called the *umbilicus;* and such shells are said to be *umbilicated*, or perforated. In other shells the umbilicus may be filled up by a calcareous deposit, or covered by the inner lip being expanded over it; such shells are *imperforate*. Lines of sculpture, or of color, running from the apex to the aperture are either *spiral* or *longitudinal;* other lines crossing the whorls are *transverse* lines, like the lines of growth. Most shells, while the animals inhabit them, are covered with an *epidermis*, more or less thick, composed of animal matter, similar to the cuticle, or scarf skin upon our bodies, to protect the shell from the action of acids, gases, etc., in the air or water in which they live. After the animal dies, and the shell is exposed to the sun and rain, the epidermis peels off, leaving the shell bleached in appearance and not desirable for cabinet specimens.

The Class Gasteropoda are separated for convenience into three great sub-classes: Prosobranchiata, Opisthobranchiata, and Pulmonifera, the characteristics of which will be described in their proper places.

(To be continued.)

CATLINITE.

The beautiful red stone pipes in collections of Indian culture-objects are made of a stone called catlinite. Mr. E. A. Barber tells us that for many generations the aborigines have procured this material from the great red pipe-stone quarry, situated on the dividing ridge between the Minnesota and Missouri rivers, at a place called by the French, Couteau des Prairies. Catlin, the celebrated traveler, was the first white man permitted by the Indians to visit the place, and therefore Dr. C. T. Jackson, to whom specimens were sent, named the mineral catlinite. The myths relating to the quarry, as well as surface indications, show that the place has been worked for a very long time.

In 1673 Marquette smoked in peace a catlinite pipe with the Indians of the upper Mississippi. Father Hennepin applies the term "calumet" to these ceremonial pipes.

There is no doubt that an extensive traffic was carried on in this material for a considerable length of time by the aboriginal tribes, extending from the Atlantic coast to the Rocky Mountain system, and from New York and Minnesota on the north to the Gulf of Mexico. The fact that objects of catlinite have been taken from Indian graves in the State of New York; and that others were found on the ancient site of an abandoned village in Georgia, at opposite points twelve hundred miles distant from the pipe-stone quarry of Minnesota, reveals the great extent of intercommunication which formerly existed among the North American peoples.—*American Naturalist, July.* — *J. W. P.*

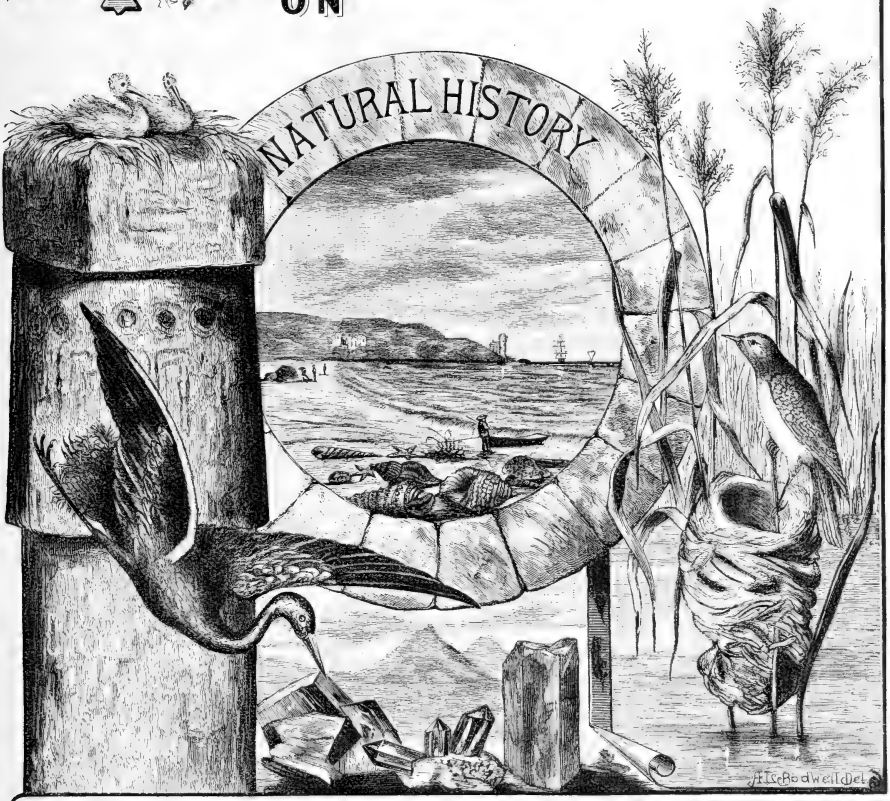
CONCHOLOGICAL CHECK-LIST. III.

J. RITCHIE, JR.

Family. Cyclostomacea Pfr.
Sub-family. Cyclotea Pfr.
Cyclotus amboinensis Pfr.
asperulus Sow.
batchianensis Pfr.
bogotensis Pfr.
campanulatus Martens.
cingulatus Sow.
conoideus Pfr.
corniculum Mouss.
corrugatus Sow.
crassus C. B. Adams.
crosseanus Hidalg.
diatretus Gould.
discoideus Sow.
disjunctus Moric.
distinctus Sow.
dubiosus C. B. Adams.
duffianus C. B. Adams.
dysoni Pfr.
exiguus Sow.
filocinctus Benson.
fortunei Pfr.
fulminulatus Martens.
giganteus Gray.
glaucostomus Pfr.
granulosus Pfr.
guttatus Pfr.
hebraicus Less.
inca D'Orb.
incomptus Sow.
jamaicensis Chem.
jugosus C. B. Adams.
junquensis Pfr.
laxatus Sow.
lineatus Gray.
liratulus Martens.
macgillivrayi Pfr.
metcalfi Issel.
minutus H. Adams.
mucronatus Sow.
opalinus Mouss.
orbellus Lam.
pallescens C. B. Adams.
parvulus Martens.
perdistinctus Gund.
perezi Hidalg.
perpallidus C. B. Adams.
planorbulus Lam.
plebeius Sow.
popayanus Lea.
Cyclotus prominulus Fer.
pusillus Sow.
quitensis Pfr.
recluzianus Pfr.
scalaris Pfr.
schrammi Shut.
seminudus C. B. Adams.
semistriatus Sow.
stramineus Reeve.
subdiscoideus Sow.
subflammulatus Pfr.
subrugosus Sow.
substriatus Sow.
succinctus Martens.
saturalis Sow.
translucidus Sow.
varians C. B. Adams.
variegatus Swains.
vulvoides Sow.
Bucleya martinezi Hidalg.
Cyathopoma bicarmatum Bedd.
blanfordianum H. Adams.
ceylonicum Bedd.
coonoorense Blanf.
decanense Blanf.
elatum Bedd.
garoense G-Austen.
hirsutum Bedd.
jawaiense G-Austen.
kalryenense W. T. and H. T. Blanf.
kolamulliense Blanf.
latilabre Bedd.
limbiferum Blanf.
malabaricum Blanf.
procerum Blanf.
shevaroyanum Bedd.
sivagherrianum Bedd.
trochlea Benson.
vitreum Bedd.
Opisthoporus biciliatus Mouss.
birostris Pfr.
euryomphalus Pfr.
penangensis Stol.
rostellatus Pfr.
solutus Stol.
tubuliferus Pfr.
Rhiostoma hainesii Pfr.
haughtoni Benson.
housei Haines.
simplicilabris Pfr.

VOL. I. NO. IV.

RANDOM NOTES ON NATURAL HISTORY



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Random Notes on Natural History.

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Subscriptions hereafter will begin with the current number, or the March number, as desired.

Error. — By some oversight, No. 3, our March issue, appeared dated February. If subscribers do not find enclosed a slip printed MARCH 1, it will be forwarded to them upon application.

Ten Cents Each will be paid for Nos. 1 and 2 returned to us in good condition, which those desiring may have at the same price.

TAXIDERMY.

Shall taxidermy be seclusive or not? Does seclusion benefit any one in the profession? Does giving away our petty secrets harm us any? Most assuredly *no*. Let us look at the other sciences. Medicine would never have reached its present state, were the secrets kept now, as in olden times. The arts also would not have reached their present popularity, had the public been kept ignorant. Taxidermy is an art, and if the followers of it desire popularity, they must teach those about them to appreciate it. There is not a good taxidermist throughout the length and breadth of this land who does not realize the fact — aye, and keenly — that in general a good job brings no more than a poor one, and if he *has* any competition, the point of excellence counts for little, that of price nearly all.

We believe, to raise taxidermy among the arts, we must help each other to excel, and with this object in view, unfurl *our banner* and invite every one to join us, and if they have anything worth knowing, that they will not withhold it.

Let us have an interchange of opinions through the columns of this paper. The Society of American Taxidermists was formed for this very purpose, and much good has already come of it. But the science needs more light, still; it is *now* but in its infancy.

Poisons and How to Use Them on Birds.

The best preservative known is arsenic. It is used in several combinations, and also pure.

In general, each taxidermist is inclined to adhere strictly to one preparation, and that usually the one first taught him, and he uses it for nearly all cases.

Pure arsenic, as it is usually called, is probably most used. The persons who use it seem to be much troubled with sore hands, the fingers beneath the nails frequently festering and causing intense suffering.

Arsenic in effect, arrests decomposition, and if the bird has been prepared while perfectly fresh, it may be softened and mounted without danger of loosening the feathers; but if the specimen was tender when skinned, when the attempt is made to soften it, it will often resume its decay from the point where it was checked, and go to ruin.

Arsenic and Alum, in the proportion of three parts to two parts by weight, is the best dry mixture. The astringent property of the alum does fully as much good to the specimen as the arsenic does. Besides this, the alum also is a good preservative, but alone is no hinderance to vermin. The effect of the alum on the hands is to close the pores, and its presence almost entirely counteracts the evil effects of the poison, so that the user of this mixture *rarely ever* has sore hands.

The benefit to the specimens is equally good, for even if a specimen is tender when skinned, the alum does so much to toughen

the skin that when softened again, one is rarely aware of its previous poor condition. During spells of wet weather the latter curative will be found much the best, for skins often spoil if too long in drying. The skins prepared in part with alum always set firmer, and are less susceptible of bending than those cured by either arsenic, or arsenical soap. This also is an advantage with mounted birds, as they are wanted in the exact positions in which placed.

An arsenic cured skin breaks from weakness more often than an arsenic and alum poisoned one does from brittleness. While I would give clear arsenic *no* preference in any case, another valuable preparation demands attention — arsenical soap. In making skins the use of soap is tedious, for it is slimy stuff, and the inside of a skin has to be thoroughly painted with it. A skin cured with soap is neither tender nor brittle, but will stand more rough usage than if cured by either of the preceding methods. Its great disadvantage is the length of time required before the specimens are dry, though this property can often be turned to good use, for a fairly large bird may be poisoned with soap, and after being turned back, it may be allowed to lie for three to five days without any wet covering, and then mounted as if freshly skinned. I would advise painting the bills and feet of birds with soap as a preventive for *dermestes*. Lay some cotton beneath the feet to prevent the soap soiling the tail feathers. For mammals I would advise the use of soap almost entirely.

Use all poisons with caution, and do not leave the dry powder standing around uncovered, as its inhalation is a decided injury. If it is used with *reckless impunity* it will sooner or later show its evil effects.

COLOR OF BIRDS' EYES.

Mocking-bird, yellow.
Brown Thrasher, straw.
Ground Titmouse, white.
Least Titmouse, white.
Red-eyed Vireo, red.
White-eyed Vireo, white.
Chewink, red.
Spurred Towhee, reddish brown.
Brewer's Blackbird, white.
Rusty Blackbird, straw.
White-headed Woodpecker, red.
Red-shafted Woodpecker, red.
California Woodpecker, white.
Barn Owl, nearly black.
Long-eared Owl, yellow.
Short-eared Owl, yellow.
Barred Owl, nearly black.
Great Gray Owl, straw.
Richardson's Owl, straw.
Saw Whet Owl, yellow.
Little Screech Owl, straw.
California Screech Owl, yellow.
Great Horned Owl, straw, yellow.
Burrowing Owl, yellow.
California Pigmy Owl, yellow.

We are pleased to learn that the second volume of the *Transactions of the Linnæan Society of New York* is now in press, and soon to appear. It is to contain, among other matter, the continuation of Dr. C. Hart Merriam's Vertebrates of the Adirondack Region, being the conclusion of his treatment of the mammalia. That part included in the first volume is one of the most interesting contributions to natural history literature ever published. Even the unscientific reader is absorbed from the beginning, and sure to devour every word. Dr. Merriam has the power to create intense interest in the general reader, and we sincerely hope to see others aid in arousing a widespread interest in science by similar popular-scientific articles.

The second volume is promised to be equal to the first, and, like it, typographically elegant.

Mrs. Sarah E. Bonney, of Sterling, Mass., died March 3, 1884. She was one of the best taxidermists of her sex, possessed much originality, and was very popular. Mrs. Bonney and Mrs. Maxwell awakened far more interest at our Centennial Exhibition than their male competitors.

If there is any truth in the doctrine of evolution, the future residents of the Ohio valley will have web feet. — *Chicago Times.*

It isn't a great way to the end of a cat's nose, but it's fur to the end of its tail.

The riches which always take to themselves wings — Ost-riches.

The Roseate Spoonbill in Florida Rookeries.

Part II.

Breakfast was quickly disposed of and the camp put in order, and we started for the rookery in high spirits and found the boat without difficulty.

The rookery was a cypress swamp, the extent of which we did not determine, but at its southwest corner was a small pond, in and about which grew numerous small trees and large bushes, while on the outside edge was a dense mass of shrubbery, shutting off the view from the outside. The few herons flying in and out, or perched upon the tree-tops, would hardly raise a suspicion as to the numbers concealed behind the outside hedge.

We pushed our boat beneath the bushes, and upon emerging on the other side, there was a loud sound of wings as the herons left their nests, but our eyes centered upon one object, and that a full-plumaged Roseate Spoonbill,* standing beside its nest.

Kind reader, can you imagine a greater surprise than this? I don't believe the bird exists that could stir me to-day as that Spoonbill did then. *Roseate Spoonbill*, a name richly deserved. I have no wish to cut it to *Rosy*. It lies in my memory so dear, I do not think of any bird more beautiful than this one is in life. Its disproportionate and, to many, ungainly bill, and naked head, are beautifully colored and blended with its exquisite plumage; and its motions — grace itself.

But there was the bird, about ten yards distant, holding us spell-bound. The Fish Crows were, as usual, not slow in pillaging the nests of the departed herons, and some even tried to take the Spoonbill's treasures; but the noble bird pushed at them with its bill whenever they made the attempt. In a moment the desire to possess caused the death of the brave parent, and the eggs, three in number, were taken from the nest. This first nest was situated about eight or ten feet high, placed in an awkward-shaped stunted tree.

The sight was now a wonderful one, the trees at a safe distance being clothed with the forms of the various inmates of the breeding-place. The American Egrets, being the shyest, were in the background, with a sprinkling of Snowy and Louisiana Herons among them, though the majority of these species and the few little Blue Herons did not retire so far. Mingled among them here and there stood a few Spoonbills, usually three or four in a place. Snake Birds were also sparingly distributed among the rest, but the majority flocked together on one large tree. But a more remarkable sight was overhead; hundreds of birds at various heights, from within an easy gunshot to an almost remote height, were sailing about or flying quickly back and forth, all watching the intruders and making various notes, some sharp, and others harsh and gutteral. The cuk-cuk, cuk-cuk, cuk-cuk of the young American Egrets was continually to be heard. The only sound we heard the Spoonbill make, though entirely different, reminded us of a disconsolate hen when she goes cur-r-k cuk-cuk-cuk.

The second Spoonbill shot was taken by an alligator and carried under, but the water was not deep, and a short time after the bird was espied by my companion, who struck the 'gator on the head with his pole. It relinquished its hold, and the bird rose to the surface and was recovered, minus only a few feathers.

These huge reptiles were plentiful in the open water, and one day we nearly walked upon one lying beside our boat just outside of the rookery. We gave him three charges of coarse shot in the eye and behind his fore leg, and left him for dead, but on our return he was gone. The Spoonbills now received our first attention, and we secured one or both birds with each nest. It being Saturday, we killed only five birds, and took what eggs we could carry to fill up, of the Louisiana and Snowy Herons and American Egrets.

(To be continued.)

* The fully adult bird is of a rich pink, with wing patches of the richest crimson floss, beginning at the bend of the wing and extending back six inches by two inches wide. The upper and lower tail coverts, a tas-el in front of the breast, and a trace on the back of the neck joining the head, are also of this rich silky red. The tail is brownish orange above and pink beneath. The neck is white, fading insensibly into the pink on breast and back. There is a buff spot on breast at bend of each wing. The eye is carmine, and legs crimson. The naked head is of a beautiful mottled greenish to match the bill, only more intense. The skin at base of skull to the line of the feathers is black.

A Remarkable Shot.—Mr. Lord informs us that a sportsman shot a Barred Owl, and seeing something else drop also, he found that to be a Saw Whet Owl.

The Preservation of Animal Life in Winter.

In the animal kingdom there are three remarkable provisions for the preservation of those whose supplies of food are likely to fail. The first is the instinct to store food, as best seen among insects in the honey-bee, among birds in the noisy jay, and among our mammals in the striped squirrel or chipmunk. The bee-keeper knows his bees must have so many pounds of honey to be able to winter without his help, and the blue-jay, apparently the most reckless bird that flies, stuffs acorns and corn into every crack and cranny he can find, as though he intended not only to have enough for himself, but expected to be robbed of his scattered hoard, as he himself has lived by robbery, or worse. But the little chipmunk is a model provider. Acorns, beech-nuts, corn, or pumpkin seeds — anything that will feed a squirrel in winter — are equally welcome to him. And when he is on his way to his hole, if ever a fellow had "cheek" he has! How he gets such loads into one small mouth is a marvel that no one would credit who had not seen him at his harvest work. But such a bright, cheerful, social fellow is certainly welcome to his home, and welcome also to the few grains of corn and wheat he may chance to glean from our fields. His cousin, the little brown striped squirrel of the Rocky Mountains, is not so harmless a neighbor, as many a miner would testify who has lost his rice and bread by the plundering of these adroit little thieves. At one camp as they caught them, instead of killing them, they cut off their ears and tails, and set them free as a warning to others of their tribe. It did not seem to have the desired effect even upon the culprits themselves. They cut a most comical figure, as they could be seen among the camps for months, bearing the marks of their punishment, but not cured of their old tricks.

The second of nature's methods of preserving animal life is by hibernation. The lower animals, as insects and some reptiles, become to all appearance entirely dormant, and without essential change during the cold in winter, and wake to active life only when food is again ready for them. Others, like the woodchuck, after growing fat on the abundant food of autumn, roll themselves up in nests and sleep. Vital action is lowered, they consume but little oxygen, and live upon the stores of fat with which they went into winter quarters. The black bear generally hibernates in caves and under old tree-tops, but he is never so sleepy that he is not ready for a battle if disturbed; and farther south he does not hibernate at all. In New England he grows fat on green corn, roots, and nuts in the fall, and so has had the credit of growing fat by "sucking his paw." This old notion is only another illustration of theories in mechanics and life that something can come from nothing. The truth about the bear is that he grows thin every day he lies in his den.

The third general method of preserving the species through winter is by migration, as best seen among birds, but practiced also by some of the higher mammals. As the autumn advances many of the smaller birds from our midst and from the far North quietly make their way south to find warm weather and new stores of food for the winter months. Others assemble in flocks and seem to have grave consultations over the projected journey. The metallic note of the wild goose comes to us from among the clouds, as night and day the flocks wend their way in long lines to the South. Long before they appear with us they collect their broods in the lakes and bays near their breeding-places, and seem to be organizing for the long flight which most of them are to take for the first time to a land that most of them have never seen; for of every flock that starts from those northern resting-places, the larger part are young and have never flown but a few miles before they commence their long flight to an unknown land. They follow their leaders, it is said. When did the first leaders learn the way? We have seen them in the bays of Newfoundland, gathering like a great army, practicing for days; and then one flock after another separates itself from the great host and follows its chosen leader to the South. They return in spring, even while snow and ice abound, to be ready for the opening of the short northern summer. In the long days of the North and by the unmolested lakes and bays of Newfoundland and Labrador, they find the best conditions for rearing their young.—*Springfield Republican.*

The Shell-Bearing Mollusca of Rhode Island.

[BY HORACE F. CARPENTER.]

Chapter IV.

Before entering into a detailed description of the species comprising this immense class, representatives of which are found everywhere, I wish to say a few words about the peculiar situation of Rhode Island, and to offer a few suggestions on collecting specimens.

The surface of the earth is divided into zoölogical provinces, or centres of distribution. The eastern coast of North America comprises four of the marine zoölogical provinces: The Arctic, the Canadian or Boreal, the Atlantic, and the Caribbean. The Arctic Province extends from the Polar Sea, including Greenland and British America, to Newfoundland; the Boreal, from Newfoundland to Cape Cod; the Atlantic, from Cape Cod to Florida; and the Caribbean includes the Gulf of Mexico, Mexico and Central America, and the islands of the West Indies.

Rhode Island is situated nearthe extreme end of the Atlantic Province. Consequently, our fauna is limited in species and in size, hundreds of shells being found on the coasts of the Middle and Southern States which are not found here. On the other hand, we are near the junction of two distinct provinces, and as, in the distribution of species, the zoölogical provinces lap over, as we may term it, into each other, we have in Rhode Island representatives of a portion of the Boreal fauna, which, however, do not extend much farther southward.

Cape Cod forms a barrier to many species, a large number of which, though found in abundance on the northern shores of the Cape, are never found on the southern side, just as at Panama, the Atlantic and Pacific species are unlike, though separated only by a few miles of land. For the above reasons I have included among the species liable to be found in Rhode Island, all those which have been found in Massachusetts south of Cape Cod, and those of the Connecticut and Long Island shores.

The habits of the marine Mollusca differ much from each other. Some species bury themselves in mud; others adhere closely to rocks; some are found in sand, and others always on seaweed; some bore for themselves a home in the chalk cliffs, or other and more solid stone; others penetrate floating logs and timber; while others, such as the Stilifer, are found as parasites on star-fish and sea-urchins. In searching for the marine shells, we are obliged to look for the different species under different conditions and circumstances, so that for convenience we may divide the field of exploration into four belts or zones, viz.: The Littoral, the Laminarian, the Coralline, and the Deep Sea Zones.

The Littoral Zone is the tract of shore lying between tide-marks, and the time for collecting those species which inhabit this zone must be regulated by the hour of low tide. If we arrive at the shore when the tide is ebbing, we first examine near high-water mark, the piles of seaweed thrown up by the tide, and look for shell sand to carry home, where we can examine it at leisure; we then carefully explore the tidal pools, the muddy flats, and the sandy shore, and the rocks left bare by the retreating tide; some species bury themselves in the sand as soon as they are uncovered from the water, and can only be obtained by digging to the depth of a foot or more below the surface, while others conceal themselves in the crevices of rocks and under stones; finally, we search at the moment of lowest tide among the seaweed and stones at its edge, and by the help of a good pair of rubber boots we wade out still farther into the water for those species which live at the edge of the Laminarian Zone. Advantage may also be taken at the time of full moon to examine tracts of shore that are inaccessible at other times.

The Laminarian Zone reaches from low water mark to fifteen fathoms. In searching for shells in this zone, we no longer confine ourselves to a particular hour of the day; the work must be done in boats, and by means of the dredge. Here we have real labor to perform, not simply stooping over to look for specimens as on shore, but he who would succeed in dredging must have not only perseverance and patience, but a pair of strong arms (for pulling in a loaded dredge from the bottom of the bay is no boy's play), to say nothing of a strong stomach to be able to escape the *mal de mer*, the terror of landsmen.

The greatest number of genera and species belong to this zone. Here they are found living upon the various seaweeds, or upon the bottom, adhering to stones and other objects. Off Rumstick, at the mouth of Warren River, is a deposit of fine, soft mud, spread out over the bottom of the bay for more than a mile, being the sediment brought down by the fresh water of the river; in this mud are found several species of highly polished bivalve shells, which form the prey of various carniverous gasteropods. In tropical countries, the reef-building corals take the place of seaweeds, and many species of mollusks live there, feeding upon the zoöphytes which build up the coral. Here are obtained the bright-colored shells of the tropics, and in this zone are found the pearl oysters, as well as the edible oysters of our bay.

The Coralline Zone extends from fifteen to fifty fathoms. Beyond the belt of seaweed, which fringes our northern shores, the only vegetable growth consists of Nullipores, which cover the rocks and shells with their stony looking incrustations. Many vegetable feeders, with their carnivorous enemies, inhabit this zone. Many species of fish feed upon these mollusks, and many rare species of shells can be obtained only from the maws of these fishes.

Dr. Gould, in *The Invertebrata of Massachusetts*, 1841, describes 270 species found north of Cape Cod, more than half of which were obtained from the maws of fishes from the markets in Boston. Codfish and haddock consume immense quantities of deep-water Mollusca, and many new species may yet be obtained by this means.

The Deep Sea Zone reaches from fifty fathoms to unknown depths. In these solitary regions certain species are found, small in size and dull of color. The Terebratulæ and other Brachiopods are found here, and, as this region is but little known, we may expect to reap rich harvest in the future.

Although the marine Mollusca may be found at all times and seasons of the year, it is not so with the fluviatile or fresh water, or the terrestrial or land shells in this northern climate. The best time for collecting our fresh water shells is in early spring, say the first of April, or even sooner, while May or June is early enough to look for the terrestrial species. To an amateur asking for directions to find land and fresh water shells, I would say, look everywhere, in all sorts of possible and impossible places; you will find them where you least expect, and will be almost sure not to find them where their existence would seem most probable. The best time to collect them is when you and they are both in the same place at once, for there is nothing so uncertain as a "locality"; you may find a species abundant to-day, and next week there are none to be seen.

In the next chapter I will give descriptions of some of the species of Gasteropoda inhabiting our state.

(To be continued.)

Cheap Setting Boards.

To our insect collectors we would say that for mounting and drying beetles the cheapest setting board possible, and at the same time as good as any, is a pasteboard box of two inches deep or more, turned upside down. Take care that the bottom is firm enough not to spring much when a pin is stuck into it, or withdrawn, and if it turns the points of the delicate insect pins, start the holes with a fine needle. Common brass pins will do nicely to stretch and pin the legs in position, but the best are the blue steel ones with round heads. They have sharper points.

LONSDALE BOTANICAL AND FIELD NATURALISTS' SOCIETY.

At a regular meeting held Feb. 18, 1884, the Secretary, Mr. John Dearden, delivered an essay upon "Useful and Injurious Insects." Those, he said, most useful to man are the silk-worms, the larvæ of the Bombycidea and Saturnidea moths.

Bombex mori is the only one of economic value reared in Europe. Their usual food is the mulberry, but Mr. D. had raised great numbers on the garden lettuce.

Attempts have lately been made to introduce other silk-worms into Europe, the best known being the Ailanthus silk-worm (*Attacus-cinthia*), common throughout the East Indies, which feeds on *Ailanthus glaudulosa*, but feeds well on the common lilac; it yields, however, a small cocoon of doubtful quality, which is difficult to unwind, the American oak-feeding species (*Telea polyphemus*), the Japanese and North Chinese oak-feeding species (*Antheria yamamai*), and (*A. pernyi*) yield large cocoons of excellent quality, which are easily unwound; but they are only reared with great difficulty and uncertainty, and rapidly degenerate in Europe. Mr. D. gave a very interesting account of the injury caused to vegetation by various lepidoptera and coleoptera, and exhibited many beautiful specimens.

Preserving the Colors of Pressed Plants.

The following process is said by the London *Chemist and Druggist* to give very excellent results: Dissolve one part of salicylic acid in 600 parts of alcohol, and heat the solution to the boiling point in an evaporating dish. Draw the plant slowly through the liquid, wave gently in the air to get rid of superfluous moisture, and dry between folds of blotting-paper several times repeated. In this manner the plants dry rapidly, which is a great gain, and they thus furnish specimens of superior beauty.

PORPHYRITIC IRON ORE.

BY REV. E. B. EDDY.

Cumberland is the Switzerland of Rhode Island. Cumberland Hill itself, where the village stands, is 556 feet above the sea-level. Beacon Hill, where signal fires blazed during the Revolution of '76 is 756 feet. Diamond Hill, abruptly precipitous on the west, is about the same height. The Quarry Hill opposite, commanding a magnificent view, is higher. The hill back of Sneech Pond rises boldly from the lake, and is about 600 feet. There are fifty ancient mine-holes on this hill, which the gray fathers worked for gold before the Revolution. Iron Mine Hill is 660 feet above the sea. Compare with these the *celebrated* Mount Hope of Bristol, which is scarcely 195 feet above the tide.

These country hills may not vie with the Matterhorn or Mont Blanc in altitude; yet planted in Rhode Island, the grand Radial of all the civil and religious liberty the world enjoys to-day, they are more distinguished and interesting than the highest of the Alps.

Our state, although the smallest, is foremost in every department of human interest and welfare. We have the oldest and the poorest coal, "stone coal," decidedly; coal debituminized and altered not simply to an obdurate anthracite, but to plumbago or graphite, which the great axles of machinery cannot burn. We have the oldest and the poorest mines, which yet furnish some of the finest minerals and most curious gems. But we must hasten to Iron Mine Hill.

Fifty-nine years ago Dr. Robinson, in a valuable but now seldom seen book, entitled, *American Minerals and their Localities*, under Cumberland, R. I., wrote:

"*Magnetic Oxide of Iron, two miles N. N. E. of the m. h., on the left of the Wrentham road, in an immense bed constituting a hill.* Most of this ore is a Metalliferous Porphyry, having crystals of feldspar imbedded in the iron."

The hill is bleak and cold, and, this winter at least, covered with perpetual snow. But little shelter is afforded by the few stunted oaks near the top, or the sweet-smelling pines on the south side. It is a mountain mass of magnetic iron 462 feet long, 132

feet wide, and 104 feet above the adjoining meadows. We cannot measure its depth. What one sees here is the mere summit of a mountain larger and higher than any mountain on the face of the earth.

The ore is full of distinct crystals of feldspar, and is beautifully porphyritic, forming, when polished, very fine specimens. This immense mass of Titanic Magnetyte looks as if it had been thrust up bodily through the earth's crust; through gneiss and sienite on the north, and granite and hornblende on the south. But, like lava, it came up melted through a fissure in the earth during the great disturbance millions of years ago, that split open the Atlantic coast from Nova Scotia to South Carolina. Oozing out of the narrow crack which a man might have straddled, it heaped itself up in a great hill, as the greenstone hills and mountains were formed, a hill immensely larger and higher than it is at present. The depth of the liquid source of the erupted mass is unknown, but as the movement was almost continental it must have been hundreds of miles beneath the surface. There are vast caverns, mammoth caves, in the generally solid interior of the globe, in which lakes of fire and seas of melted minerals surge and roar unheard, except as earthquakes and volcanos speak.

The only analysis of the ore at command is Dr. Jackson's, who in 1840 made a geological survey of the state. Hardly anything is of more need to-day than a new and thorough geological survey to develop the latent mineral resources and promote the industrial prosperity of the state. Nobody knows what there is an inch underground anywhere. There are productive mines and quarries yet to be discovered.

Analysis: Per-oxide of iron, 27.60; Protoxide do, 12.40; Silicic acid, 23.00; Titanic acid, 15.30; Alumina, 13.10; Magnesia, 4.00; Manganese, 2.00; Water and loss, 2.60; = 100.00.

The feldspar in this rock is translucent, and of a dark green color, looking like serpentine. It is triclinic. With a good lens the striæ of every crystal are visible. The crystals are rudely defined, not clearly cut. All of them enclose particles of the iron which disturbed the crystallization. The largest seldom measure more than three-eighths of an inch in length. The feldspar, we believe, is a microlinic Labradorite. We have observed in several polished specimens, bright and chatoyant reflections from within.

The specific gravity of the mineral is below that of most iron ores, being about 3.86. It is too poor and refractory to be worked profitably. It is excessively tough, and immense quantities were shipped to New York some years ago for the construction of fortifications in the harbor.

Its distribution locally is a matter of special interest, affording as it does, definite and decisive evidence of the Glacial or Drift period, and of the gigantic forces employed in splitting up "the unwedgeable and gnarled" ore, and transporting it in lumps weighing twelve and fifteen tons so many miles.

The rock is (1) distinguished from every other kind in the world by its peculiar appearance, structure and composition. (2) No fragments of it are scattered to the north, to the east, or west of the hill; while to the south they occur profusely of every size. The stone walls of farms and roads consist largely of them. The white-spotted boulders are common all the way to Providence, and, decreasing in size, extend to Bristol, Warwick Neck, and Newport, even, where they are only a few inches in diameter, having been freighted forty-five miles in a direction four or five degrees east of south. (3) A cubic foot of the ore weighs 240 1-2 lbs. Boulders are known to exist in swamps and woods to the north from the Friends' College to Pawtucket and beyond, weighing from two and three to twelve and fifteen tons each.

(4) Some of these masses are merely smoothed and scratched; others are grooved and furrowed also by the ledges over which they were slowly but irresistibly pushed and pressed by an embracing superincumbent mass of ice two miles in thickness. These marks correspond to the diluvial scratches and grooves observable wherever the rocks in situ south of the hill are exposed. Nothing, we believe, but the Glacial Theory, can account for the distribution of this distinctive ore.

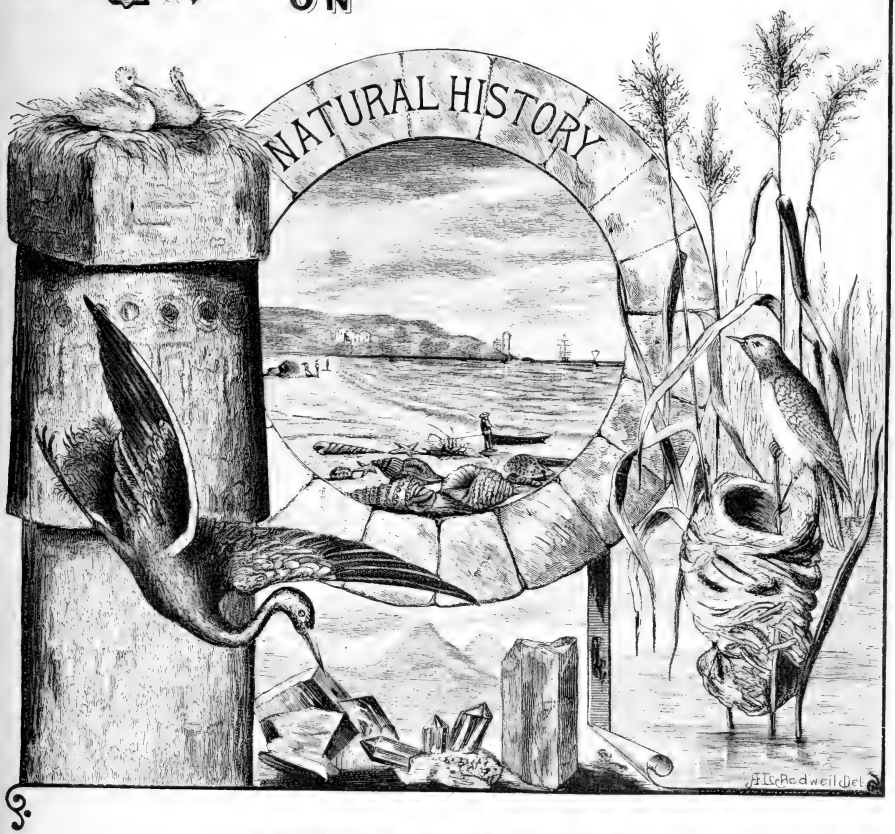
CONCHOLOGICAL CHECK-LIST. IV.

J. RITCHIE, JR.

Family. Cyclostomacea Pfr.
Sub-family. Cyclotea. Pfr.
Pterocyclos albersi Pfr.
andersoni Blanf.
anguliferus Soul.
ater Stol.
avanus Blanf.
beddomei Blanf.
bhamoensis Theob.
bifrons Pfr.
bilabiatus Benson.
blandi Benson.
cetra Benson.
cingalensis Benson.
cumingi Pfr.
fairbanki Blanf.
feddeni Blanf.
gordoni Benson.
hispidus Pearson.
insignis Theob.
labuanensis Pfr.
lowianus Pfr.
magnus G-Austen.
mastersi Blanf.
nanus Benson.
nevilli G-Austen.
parvus Pearson.
pullatus Benson.
rupestris Benson.
tenuilabiatus Metcalf.
troscheli Benson.
wilsoni Pfr.
(*diadema*) biangulata Pease.
(*diadema*) parva Pease.
(*diadema*) rotella Pease.
Alycœus amphora Benson.
andamaniæ Benson.
armillatus Benson.
avæ Blanf.
bembex Benson.
bicrenatus G-Austen.
bifrons Theob.
burti G-Austen.
conicus G-Austen.
constrictus Benson.
crenatus G-Austen.
crenulatus Benson.
crispatus G-Austen.
cucullatus Theob.
daflaensis G-Austen.
diagonius G-Austen.
digitatus H. F. Blanf.
expatriatus Blanf.
feddenianus Theob.
Alycœus footei Blanf.
gemmula Benson.
gibbosulus Stol.
gibbus Fer.
glaber Blanf.
globosus Adams.
globulus G-Austen.
graphicus Blanf.
hebes Benson.
hochstetteri Pfr.
humilis Blanf.
inflatus G-Austen.
ingrami Blanf.
jagori Martens.
jaintiacus G-Austen.
khasiacus Benson.
kurzianus Theob. and Stol.
margarita Theob.
montanus Stol?
multirugosus G-Austen.
mutatus G-Austen.
nitidus Blanf.
notatus G-Austen.
otiphorus Benson.
physis Benson.
plectocheilus Benson.
politus Blanf.
polygonoma Blanf.
prosectus Benson.
pusillus G-Austen.
pyramidalis Benson.
reinhardi Mörch.
richthofeni Blanf.
sculptilis Benson.
sculpturus G-Austen.
serratus G-Austen.
spiracellum Adams and Reeve.
stoliczki G-Austen.
strangulatus Hutton.
strigatus G-Austen.
stylifer Benson.
succineus Blanf.
theobaldi Blanf.
umbonalis Benson.
urnula Benson.
vestitus Blanf.
vulcani Blanf.
Opisthostoma decrepignyi H. A. Adams.
distortum Bedd.
fairbanki Blanf.
macroscoma Bedd.
nilgiricum Blanfords.
Hybocystis gravida Benson.
mouhoti Pfr.

VOL. I. NO. V.

RANDOM NOTES ON NATURAL HISTORY



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Random Notes on Natural History.

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The Toes of Birds.

This subject has just been forcibly brought to mind by having a Red-shouldered Hawk grasp my hand with his talons. He did not, however, succeed in hurting me, as I would not permit him to bend his leg, but kept it extended while I asked a man standing near to bend his heel joint backwards, which instantly released me. The *heel* joint is that at the top of the tarsus, and is frequently called the knee by those not well versed.

Many birds have not the power to open and shut their toes, unless the legs are in certain positions. This may be modified somewhat by saying they have not the advantage of the use of their full strength. For example: a hawk pounces upon his prey with legs extended and toes open, but he has not the power in his toes to close them tightly. Why? Because the toes of most of our hawks and owls are worked by leverage, the tendons passing over the heel. The hawk knows this, and no sooner does he strike his feet upon his prey then he bends his legs, thereby drawing his victim close to his body and burying his talons deep in its flesh. Without the reverse motion he is equally unable to release it.

The opening and shutting of a dead hawk's leg has doubtless been tried by every taxidermist, and probably not a few have had my own experience of being obliged to kill an owl to make it loose its hold of his fingers.

The osprey is notably a wise exception, for in the pursuit of his slippery prey he doubtless needs the free use of his toes.

Most, if not all, of our small land birds have this leverage, and it is this which enables them to sleep with no fear of letting go their hold.

Rhode Island Iron.

In our last issue we printed an article upon the peculiar features of the Porphyrytic Iron ore of Rhode Island, situated in Cumberland near the Manville station. The statement that this ore could not be profitably worked seems to require modification. An article printed in the Providence *Journal* states: "Experts have recently been at work, whose report says of the various deposits of magnetic iron ore in this part of the United States, that at Cumberland Hill is the most extensive and valuable. About 1,000,000 tons above water level, while, as the deposit shows an indefinite extension in depth, the quantity of this ore may be said to be practically inexhaustible." Prof. R. H. Thurston, of the Stevens Institute, Hoboken, writes: "That portion of the mountain lying above the natural drainage, and which may be obtained by 'open working' or quarrying, and without expense for hoisting or pumping, would alone supply a smelting furnace of the largest capacity for a century. The quantity below the ground is incalculable."

Mr. J. B. Moorehead, of Philadelphia, states that it is one of the purest ores known, containing 35 or 40 per cent. of net iron, and is richer at the foot than the apex of the hill.

To quote Professor Thurston again, "The Cumberland ore is free from noxious elements, and though somewhat refractory, it will furnish a very strong iron, or a most excellent steel." With the development of the Sieman's Direct Process, a new and immediate use for this ore has arisen.

The Roseate Spoonbill in Florida Rookeries.

Part III.

On Monday, March 9, we made a second visit, and captured six more Spoonbills, and took their eggs. A third visit was made the 11th, but a great change had taken place, only two Spoonbills being seen, and we were unable to secure either, though we took their eggs. The rookery was quite deserted, only the birds having nests remaining, and but a small portion of these with eggs, the majority having young birds in them. The eight Spoonbills' nests found contained 3, 3, 3 and one young, 3, 4, 4, 5, and 2 and one young. The young birds were covered with down, which we think was of a light pink color, but this tint has now disappeared.

The set of five eggs was a difficult one to obtain, the nest being placed about fifteen feet from the perpendicular of the base of the tree, and twelve feet high. The limb was not strong enough to climb out upon, and neither could it be pressed down within reach of my companion, without the eggs sliding off. But he was equal to the emergency, and after leaving me at the base of the tree, he placed the centre of the boat beneath the nest, and putting his pole against the limb, held it up while I climbed out and gathered the contents. The two birds were standing side by side on a limb, and were both obtained at one shot. They were both very high plumaged. The eggs of the Spoonbill are about the size and shape of Wild Turkeys'. The shell is white and marked with bran-colored spots. The set of five is probably the largest known, and the eggs are otherwise good representatives of the species. Mr. Snowdon Howland, in whose possession it is, gives the measurements as follows: 2.56x1.76, 2.54 x1.71, 2.53x1.79, 2.49x1.79, and 2.43x1.83. One pure white egg was taken from a bird, and at the next rookery visited, an immaculate one was taken from a nest that had a spotted one for a companion. Audubon describes the eggs as white, and if his observations were limited to the finding of a single nest with perhaps but an egg or two, they may have been so, and if sparingly spotted, like one or two others obtained, he may have thought it some foreign substance or stain. But seven out of eight are strongly marked.

The nests of Spoonbills, Herons, and Snakebirds are all made nearly alike, and when a rookery is in a progressive state, the sticks with which to build are in such demand, that no sooner is a nest emptied than the sticks are appropriated by the other birds, just building. As soon as the Spoonbills disappeared we turned our attention to the other birds. We took three or four nests of the Great Blue Heron, or its Florida representative. The eggs were either three or four in number, and varied from fresh to nearly hatched. The Snakebirds laid from three to five, and there were fresh eggs and young birds in all stages to two-thirds grown. The same condition applies to the American Egret, except the number was never more than three, and while the other birds all nested closely about the pond, giving their preference to the small trees and bushes, this species preferred the cypresses, and sometimes built at considerable height, though their nests did not extend far into the swamp. The Snowy and Louisiana Herons usually laid four for a complement, and incubation was not far advanced in either. The eggs of these two species are easily distinguished, the latter being much the darker, though after considerable exposure to light they will intergrade. The White Ibis and Little Blue Herons had not begun nesting, and the Reddish Egret and White-crowned Night Heron were not observed in any of the rookeries. We found a very few Black-crowned Night Herons, and took one nest.

In a colony of this kind, all of the species have habits alike in one particular, viz.: Both birds incubate, as one must stay by the nest always. A horde of Fish Crows is always hovering around to seize upon and bear away any eggs left for a moment unprotected, and the shells are to be found at distances quite far removed. The ever-watchful alligators in the water beneath are always on the alert to seize upon any unlucky young one that may be precipitated from the nest. When these monsters close their jaws upon their prey, the sound may be heard a distance of several hundred yards.

One day, as we were returning from the farther side of the rookery, we killed a Snake Bird, and immediately a Wood Ibis flew from the foot of a large tree. A charge from the second barrel dropped it

into the pond, wing-broken. But scarcely had it touched than an alligator arose and began a hot pursuit, which was fully realized by the wounded bird. Meantime we were poling and reloading as rapidly as possible, but scarcely was one cartridge in than the 'gator was about to seize his prey, and a shot behind the eye set him to thrashing in the agonies of death; but another moment and the Ibis would be ashore, when it could quickly run out of range; but just as it was gaining its feet, another shot laid *it* low also.

One afternoon we visited the rookery, taking our blankets with us, so we could stay until dark and see what birds came in to roost, and then sleep in the nearest hammock. We were disappointed at not seeing any Spoonbills, but pleased that we had a chance to see the White Ibis come in to roost. They came in long rows, with a loud rustle of wings, and gathered on three or four trees. After several flocks had alighted and standing room was getting scarce, another flock swung in and a general flapping and dislodgment took place, and then, as if by common consent, away they all went, forming themselves into three or four ranks as they flew. After going a distance of perhaps a quarter of a mile they wheeled, and back they came with a rush and alighted upon the same trees from which they started, only perhaps occupying another tree also. The next arrival caused another commotion and another general flight, and several times this was repeated. The White Ibis is a beautiful bird in life, though strange looking, with its blood-red face and blue eyes. Its whole plumage is of cleanest white, with the exception of the blue-black tips to its wings, a very noticeable character when flying.

On one occasion when shooting American Egrets a pair of Pileated Woodpeckers began work scarce twenty feet above our heads, and seemed not in the least concerned, although we fired about two dozen shots at the Herons. These Woodpeckers were the least shy of any birds I ever met, and it is the more remarkable on account of their usual extreme wariness. The flesh of the Spoonbill is excellent eating, as we had abundant chance to determine, for it was only by close calculating that we were not starved out before our team came for us.

(To be continued.)

A few Points about Loading a Gun. — This topic does not naturally fall within the scope of taxidermy, though it does practically, and is to most young collectors a source of trouble. The principle of loading correctly is the same as that used in choosing a stone to throw. There is a certain weight that can be thrown a greater distance than one either lighter or heavier. The common fault is to load too heavy. If too much powder is used it cannot all burn before leaving the barrel, thus being a waste if nothing more. If too much shot is used it will not be propelled so far, besides giving the sensation known as a kick, which is nothing more nor less than the gun moving back to free itself of the charge. There is, of course, always a recoil, but this should be so slight that the shoulder can withstand it without flinching. If the recoil is allowed there is no doubt but the force of the charge is much impaired. This will account for a gun shooting so much harder when held by some persons, than by others.

A *foul* gun will shoot much harder than a *clean* one. If you doubt this, fire at a pamphlet with a clean gun and observe the penetration, then after shooting a few times try it again. The reason is obvious; when the gun is clean the shot leave the barrel with the burning of the first of the powder, but when the barrel is not shiny, the friction retards it to get the full benefit of the powder. If you use a cheap quality, it is almost a necessity to clean your gun daily; but if you use good powder it will not perhaps need cleaning oftener than once in several weeks, and this is no injury to the gun either. We have for several seasons past used Hazard's Duck Shooting Gunpowder, No. 3 grain, for collecting, and think it superior to any other.

Several years' experience have given us the following results as being the best for a 12-bore breech-loader. Never use over 3 drams of powder or 1 ounce of shot. This is the strongest load for all sizes of shot to No. 10. There is more friction, and consequently more kick, to a charge of small shot, so that $2\frac{1}{2}$ drams of powder is sufficient for one ounce of 10^s, 11^s, or 12^s. We use dust shot very largely, and find it very effective. The heaviest charge we load of this size is $\frac{3}{4}$ oz. to $2\frac{1}{2}$ drams of powder, and for short distances of 20 yards and under, $\frac{1}{2}$ oz shot and $1\frac{3}{4}$ drams of powder.

Use good felt wads, one over the powder, and another over the shot in all light charges, but the sizes of shot larger than 10^s should have 2 wads over the powder. If the ends of the shells are turned down with a crimper, it will save the loss of many a charge of shot. The light charges should have the top wad gummed in, by passing a mucilage brush around on top of the wad. Paper shells are much cheaper than brass in the long or short run. If you can make the brass shells figure the cheapest in actual dollars and cents, then figure the convenience of not having to stop to load when weary after a long day's work. Buy several hundred paper shells of good quality and load them before the season commences. Then each day bring back your empty shells and fill your pockets with loaded ones, and after the season is passed recap and reload, buy what extra you need, and you are ready for the next year. The collector who does not manage in this way, does not know what a comfort he misses.

The chief objection to paper shells is, that if even slightly wet they swell so they cannot be put into the gun. This objection is easily overcome by unwinding the outer layers of paper until the cartridge is reduced to the required size.

Action of the Electric Light.

A European journal relates that a few months since workmen employed upon some constructions on the bank of the River Dnieper, in Central Russia, employed the electric light to enable them to prosecute their labors at night. The brilliant rays of light attracted so many millions of nocturnal moths, beetles, and other insects, that from time to time it was necessary to stop work and set all hands to destroying the clouds of winged victims that frequently obscured the light. This suggested the idea of employing the electric light to destroy nocturnal insects prejudicial to agriculture, and experiments in that direction are to be tried this spring. Not only to insects, but to fish, the light proved fatally attractive. Its rays, directed to the surface of the water, drew together vast quantities of all the fishes found in the Dnieper, and when within the charmed field of illumination, they lay crowded together in masses, seemingly blinded and stupefied. The workmen, improving the opportunity, made a notable haul of fish.

We cannot record any such remarkable effects, but we were surprised and gratified by obtaining from the globes on our principal business street, during the collecting months of 1883, quantities of moths, *i. e.*, cæcropia, polyphemus, imperialis, luna, io D. rubicunda, and a host of small species, as well as many beetles. The principal objection to this kind of collection was, that very many specimens were burned and torn so badly as to be useful only for study, and of no cabinet value. However, as a means of discovering the different species frequenting the neighborhood (and perhaps for a mile or so away), these lights are invaluable.

Apropos of the effect of the light upon fish, we note that the United States fish-commission steamer "Albatross" has been fitted up with electric lighting, to enable the naturalists to labor at night, examine the contents of the dredge, and note with greater precision the reports of their laboratory apparatus.

From articles in *Science* of Nov. 16th, 25d, and 30th, 1883, from page 706, we quote: "That it is a common thing for flying-fish to come on board ship at night if a light be advantageously placed to attract them.

"Until incandescent lamps were invented, there were no convenient means of sustaining a light beneath the surface of the waters; and there is consequently opened up to us an unexplored field in fishing.

"Just what service our submarine lamps will be, we are unable to say; but, with the small lamp which we used from one to ten feet below the surface, amphipods in great numbers, silver-sides, young blue-fish, young lobster, squid, and flying-fish, have been induced into the nets, and dolphins have approached it, but whether attracted by the light or in pursuit of the squid, Professor Benedict, the naturalist of the ship, was unable to say. Squid are especially susceptible to the influence of light. I am informed by Professor Verrill, of Yale College, that a heavy sea, breaking upon a lee shore when the full moon is casting its rays across the land into the sea, will throw hundreds of squid upon the beach in a single night,— an evidence of their moving in the direction of the light until caught in the spray and hurled to the shore."

THE RHODE ISLAND ENTOMOLOGICAL SOCIETY

have held their regular meetings. At the last session Mr. Wm. Smith exhibited ten species of small moths, taken at night near Providence, about April 10th, by means of a lure.

Mr. S. Schofield read a paper before the Society relative to some experiments he has made with the eggs and larvæ of *Ceratocampa imperialis*. Fifty or sixty eggs had been obtained from a moth so injured by the electric lamp as to be worthless as a cabinet specimen. The fluid contents of the egg impart to it a bright amber-yellow color, the shell, unlike that of the egg of the silk-producing moths, *e. g.*, the *cecropia*, being transparent. As the larva becomes developed it can be seen coiled up within the shell, which it proceeds to perforate when fully developed, making an aperture sufficiently large to allow the passage of the head, the largest portion of the larva. After its exit, in many cases the larva continued to eat the shell, obeying, the reader thought, a similar instinct to that which prompts the larvæ of other moths to eat their discarded skins after moulting.

At first the horns of the *imperialis* larvæ are soft and feebly developed, but rapidly become elongated and strengthened, at the same time changing markedly in color.

The reader described very graphically a few proofs of the belligerent propensities shown by the larvæ while under observation, and instanced the apparent possession of considerable thinking power. Unlike other larvæ, which blindly strike from side to side when disturbed, the *imperialis* uses its horns in a manner calculated to do the greatest harm to its adversary. As the larvæ grew older, they grew wiser as well, and in their battles one would with his mandibles seize his opponent at about the middle of the body, and holding him for a moment suspended over the edge of the leaf, dash him spitefully to the table below. The reader questioned if such encounters in nature might not explain the scarcity and isolation of the *imperialis* larva. One thrown to the ground from a tree, if surviving its injuries, would probably perish from being deprived of its food.

Many larvæ, especially when young, deposit a silken thread as they travel. The *imperialis* does this, and after biting into the edge of a leaf, usually at its base, the larva always returns to this spot to feed, guided by the silken thread. Always before feeding on a fresh leaf a fine network of silk was first woven over the point of attack, and to this the silken trail was attached.

The reader in conclusion quoted from Alfred Wailly's Report in the *Journal of the Society of Arts*, a description of the *Ceratocampa imperialis* in its different stages, and called attention to the possibility of the larvæ being not only carnivorous but also cannibalistic, when crowded. The larvæ seemed to thrive best on the oak or willow, though in nature they feed on the buttonwood.

The paper was rendered particularly interesting by the introduction of several large drawings during the reading, notably of the larva coiled up within the egg, and seen through the transparent shell, and also representations of various battle-fields.

H. T.

THE LONSDALE BOTANICAL AND FIELD NATURALIST SOCIETY

held their regular meetings March 17th and April 14th.

Beside other matters of interest, the Vice-President, Mr. James Moss, read a paper on "Local Trees," describing about fourteen species, the localities where they are found, and the practical use of various kinds of timber; he also named many botanical specimens. Among them some *Epigæa repens* in full bloom, and taking up a piece of smilax (*Myrsiphyllum*), he pointed out the difference in position between stems and leaves, and how easily one may, without close observation, be deceived by them.

In connection with the report of the Lonsdale Botanical and Field Naturalist Society, we would add that the *Myrsiphyllum*, or smilax of green-houses, gives an excellent illustration of abortion; the leaves being only represented by small bract-like organs, in the axils of which are the broadly expanded and highly specialized stems, performing the function of true leaves.

This plant also illustrates the confusion arising from the use of names given by those unfamiliar with the nature of plants. Thus, the smilax of the city is entirely dif-

ferent from the smilax of the woods, *Smilax rotundi folia*, commonly known as greenbrier, and *Smilax herbacea*, or the carrion-flower, the abominable odor of which attracts carrion insects which undoubtedly assist in its fertilization.

The accompanying verses, applicable to the cultivated smilax, appeared in the Providence *Journal* some time since:

THE SPIRIT OF MODERN SCIENCE.

A lady not fond of monotony
Decides that she'll master Botany;
So, taking a leaf,
To her glee and her grief,
She finds that she really has *not any*.

For her teacher with subtle analysis
(Where an innocent savor of malice is),
Says, "Madam, ahem!
This leaf is a stem,
And science must banish our fallacies."

A NEW BIRD FOR RHODE ISLAND, AND THE SECOND FOR NEW ENGLAND.—A Prothonotary Warbler was killed in South Kingstown, R. I., April 21, 1884, by Mr. R. G. Hazard 2d. The specimen is a highly colored ♂. The only other recorded for New England was taken in Maine, in October. The latter bird was doubtless a straggler, but the former, appearing as it does at this season, leads to the conclusion that it may occur regularly, but sparingly. The nature of its haunts, the worst possible swamps, allows of this suggestion. Furthermore, the song being lisping and the bird very restless, enables it to better escape detection.

A NONPAREIL *Passerina ciris* IN RHODE ISLAND. — Mr. Daniel Seamans reports shooting a Nonpareil in Scituate, R. I., during the summer of 1882, but as he was just about leaving home, he could not preserve it. Mr. Seamans also mounted a RICHARDSON'S OWL during the following winter. It also was shot in Scituate, R. I.

EARLY WOODCOCK.— Mr. R. G. Hazard, 2d, found a Woodcock's nest, April 16th, that the young had just left, and he collected the shells.

"MR. Cobb recently married Miss Webb. He knew she was meant for him, the first time he spied her."

Callidryas Eubule in Rhode Island.

THE first and only occasion upon which I have met with this insect on the wing in this region, was when I was collecting lepidoptera some fourteen or fifteen years ago.

It must have been sometime during the summer of 1869 or 1870, as I was walking along the road which runs between the hotel and the rocky shore at Narragansett Pier, that I noticed among the numerous specimens of *Colias philoidiee* which were flitting hither and thither in their usual profusion, one insect in particular which attracted my attention by its superior size and clear yellow coloring. If I remember rightly I was without my net, and it required a long and tedious chase to secure the unknown visitor.

In those days my knowledge of lepidoptera was chiefly confined to what I had learned from "Harris," and did not extend much beyond the common species to be met with in New England. I was therefore considerably puzzled and excited over my strange capture, which had hardly been secured, before, to my further surprise, several others appeared upon the scene.

I ran to the house for my net, and the pursuit of the butterflies now began in good earnest. They led me along the shore road toward the North Pier, and thence to a rough, marshy meadow, back of the beach, and here I truly had glorious sport. The Eubule were swarming about the brilliant cardinal flowers which grew in abundance, and their numbers were constantly augmented by new arrivals, which all appeared to come from the south. Most of the specimens were considerably mutilated, and appeared to have been on the wing for a considerable time. I obtained, however, some two dozen fair specimens, and some nearly perfect. They were common about the place for several days, and then gradually disappeared.

As I have never met with this insect alive, either before or since, and have never heard that it was indigenous to any localities in New England, I presume that this swarm of travel-worn insects, appearing suddenly as they did, must have come from their native climes a considerable distance south.

HOWARD L. CLARK.

The Shell-Bearing Mollusca of Rhode Island.

[BY HORACE F. CARPENTER.]

Chapter V.

Sub-Class. 1. Prosobranchiata.

Mostly marine mollusks, although a few species inhabit brackish water, some others live in fresh water only, and still others upon the land. The animals are provided with a shell, and generally with an operculum. (*All* the operculated mollusca belong in this sub-class.) They breath by gills or branchiæ. The sexes are separate in this group, while in the other sub-classes they are united in each individual.

The Prosobranchiates are divided into four orders, Pectinibranchiata, Scutibranchiata, Polyplacophora, and Nucleobranchiata.

Order 1. Pectinibranchiata.

Animal, with pectiniform branchiæ; that is, composed of leaflets arranged like the teeth of a comb, in one or two series or lines, situated upon the upper wall of a respiratory cavity formed by the mantle, having an external opening upon the side of the neck. Shell spiral.

This order contains forty-six families. As these papers are not intended for a complete classification of the mollusca, but only for those inhabiting Rhode Island, it is not necessary to name them all, excepting as they apply to the subject in hand.

Family 1. Muricidæ.

Shell spiral, fusiform; aperture more or less canaliculate, or simply notched in front; whorls thickened by varices or nodules at each rest period of growth. Operculum with subapical or lateral and marginal nucleus. This family is divided into two sub-families.

1. Muricinæ. Three or more varices on each whorl, the varices being nodulous, foliated, or spinose; canal long or short, but well marked. Operculum ovate.

2. Purpurinæ. Without varices, but tuberculate; columella flattened; canal very short, or often a mere notch. Operculum, oblong.

Sub-Family Muricinæ.

Muricinæ contains five genera; Murex (divided into eight sub-genera), Urosalpinx, Eupleura, Typhis, and Trophon. Two of these genera, Urosalpinx and Eupleura, are represented in Rhode Island.

Genus Urosalpinx, Stimpson. 1865.

Syns:

Adamsia, Dunker. Agnewia, T. Woods.

Fusiform; no proper varices, which are replaced by longitudinal ribs.

Distribution. Twenty species, one of which inhabits Rhode Island.

2. Urosalpinx cinera, Say. 1821.

Syns:

Fusus cinereus, Say. DeKay. Philippi.

Buccinum plicosum, Gould. Menke. 1830.

Buccinum cinereum, W. G. Binney. 1870.

Rapana cinera, Stimpson.

Urosalpinx cinera, Stm. Dall. Tryon, etc.

Shell elongated-oval, tapering at both ends, coarse, solid, of a reddish brown color, covered with an ashy gray epidermis; whorls five, crossed by ten to twelve robust costæ, and reticulated by numerous filiform, revolving lines, crenating the edge of the outer lip, which is sharp; aperture ovate, colored within from light flesh color to dark salmon, sometimes chocolate or purple; inner lip arched and enameled; beak short and slightly curved; shell operculate and slightly umbilicate. Length, one inch; breadth three-fifths. These shells inhabit the Atlantic coasts of the United States, from Maine to Florida. They are second only in abundance to Ilyanassa obsoleta in Rhode Island, and are found in our bay everywhere below Fox Point, on rocks between tides.

The females lay their eggs in June in small transparent membranous parchment-like vases, attached to the under side of some overhanging rock, just above low water mark. The vases are attached in rows, covering an area of three or four square inches. Each female deposits from ten to more than one hundred of these vases, the process of laying occupying several weeks.

Genus Eupleura, H. and A. Adams.

Ranelliform, with a pair of lateral varices, one on each side, with intermediate smaller varices; aperture dentate within.

Dist. 5 species, one of which inhabits Rhode Island.

3. Eupleura caudata, Say. 1822.

Syns.:

Ranella caudata, Say. Gould. Adams. DeKay. Stimp.
Triton caudata, Keiner.
Eupleura caudata, H. and A. Adams. Stimp. Dall. Perkins.

Shell rhomboidal, solid, brown; whorls five, crossed by eleven elevated ribs, the one on the left side of the body whorl, and the one bordering the aperture, are enlarged into strong, wing-like varices; these ribs are crossed by fine equidistant lines, revolving with the whorls; aperture inversely ovate, rounded behind and pointed before; outer lip thick, margined within with thick granules alternating with the exterior lines; inner lip smooth, flattened, and, like the interior of the mouth, is bluish white; canal coarctate, as long as the spire. Length one inch, breadth half an inch. It was first described by Say, *Journal Academy Natural Science*, Vol. II., p. 236.

It inhabits the Atlantic coast, from Cape Cod to Georgia. It is quite common South, but rare in Rhode Island. Its habitat is in the laminarian zone, but is sometimes found between tide marks. I have found about a dozen specimens in as many years, in Coweset Bay, below Apponaug.

Sub-Family Purpurinæ.

Purpurinæ contains twenty-one genera, one of which, Purpura, inhabits Rhode Island.

Genus Purpura, Bruguiere. 1789.

Syns.:

Mancinella, Link. Microstoma, Swainson. Thais, Link.

Shell oblong-oval, body whorl large; spire generally short; aperture ovate, large, terminating in a very short, oblique channel, or notched; columella flattened; outer lip simple. Animal carnivorous.

Dist. 57 species. Fossil, 40 species. All parts of the world, low water to twenty-five fathoms. The genus Purpura is divided into ten sub-genera, one of which, Polytropa, is native to our shores.

Sub-Genus Polytropa, Swainson.

Spire acuminate, whorls foliated or tuberculose; inner lip flattened; canal small, oblique; aperture narrowed at the front. This sub-genus contains several species, only one of which inhabits Rhode Island. This species, lapillus, will be described in the next chapter.

(To be continued.)

A Remarkable Sassafras Tree.

There is now standing upon the "Spring Brook," or "Larkin" farm, in Cranston, R. I., a sassafras tree worthy of note. My first visit to it was in company with Mr. George Hunt, in May, 1872. It is located in an open, cultivated field of several acres, and seems to have been spared on account of its size and beauty. A careful measurement, at the above date, gave the following results: Circumference of trunk, near the ground, 14 ft., 3 in.; 2 ft. up, 11 ft., 10½ in., — holding its size from this point with little diminution to the first limbs, 11 ft. up. The height of the tree, computed from its shadow, was 49½ ft. Measurements taken ten years from the first date, show only an inch or two increase in girth. Since I have known the tree it has had but few limbs and these irregularly scattered. But with all its evidence of great age it is still vigorous, and may keep its life for a decade or two more. If there is a larger tree of this kind in New England it would please the writer to learn where it is.

Near by this tree, in a pasture lot adjoining, is a noticeable colony of trees of the same kind. They number above fifty, and are irregularly ranged in a row by the side of a wall. They average about 30 feet in height and are 6 to 8 inches in diameter, 2 feet up. They are probably progeny of the patriarch tree in the lot, and, taken with it, form an interesting family group. It may be proper to add that there are several fine oaks, chestnuts, and elms near this locality.

L. W. Russell.

Cement for Mending Shells.

Gum Arabic, ten parts; sugar candy four parts. For large and heavy shells: Resin, eight parts; bees-wax, two parts; plaster of Paris, ten parts by weight. Melt all together. Slightly warm the fractured edges of the specimen, and apply the cement. The cement must always be heated a very little before using.

All superfluous cement may be scraped off when hardened.

AMBER.

Amber, like coal, is a mineral of organic origin, but, unlike the latter, it has undergone no serious change through its long entombment, and by its resurrection comes forth in all its original brilliancy and purity. Amber is the product of some early species of coniferous tree long since extinct. As the turpentine that exudes from the pine-tree of the present leaves, upon evaporation, a semi-transparent resin, so the sap that trickled from the limbs of those ancient pines left behind a resin, that has long survived the tree in which it was produced. These two resins closely resemble each other, and the modern product is often sold under the name of, and for the price of, the ancient resin, although inferior to it.

Most of the real amber used in the arts comes from the Prussian coast of the Baltic between Königsberg and Memel. Considerable quantities are found entangled in the sea-weed that is washed ashore after a storm, but much larger quantities are obtained by dredging. In 1876 there were eighteen steam dredges and two tug boats, with about one thousand men, employed in this industry at Kurische Haff, which is about twelve miles south of Memel. Amber is also found in Roumania, where it is obtained by mining, and forms quite an important industry. More highly prized than either of these is a variety of amber that comes from Sicily.

Amber is sometimes found in other parts of Europe, also in this country, especially in New Jersey and Maryland, but it is inferior to the varieties above mentioned.

Baltic amber is of a pale yellow color, not unlike pale ale (amber ale), but Roumanian amber is frequently red or brownish, sometimes blue, green, and even black.

It is a little heavier than water, the specific gravity varying from 1.065 to 1.080. It does not, of course, dissolve in water, and alcohol extracts but a small portion of it, including the coloring matter. It dissolves completely in strong sulphuric acid, and the solution has a reddish purple color. It is also soluble in alkalies, as other resins are. It seems to bear a peculiar relation to camphor, for on extracting the portion soluble in ether the residue has the same percentage composition as camphor ($C_{10}H_{16}O$); and when it is distilled with potassic hydrate, a substance passes over having all the properties of camphor. Nitric acid is said to convert it into artificial musk.

Baltic amber is rarely found in large pieces, and hence its price, like that of the diamond, increases very rapidly with the size. A piece in the Berlin Mineralogical Museum weighs eighteen pounds, and is valued at $30,000. Amber that contains insects is more valuable, other things being equal, than the clear pieces. No less than eight hundred species of these extinct insects have been found imbedded in amber.

Masses of amber of considerable size have been found in New Jersey, in the green sand and the ash marl just above it. American amber differs in several respects from Baltic amber, being lighter than water and fusing to a mobile liquid, while Baltic amber fuses to a thick, sluggish liquid. It burns easily with a strong, smoky flame, is soluble in chloroform, carbon disulphide, and oil of turpentine, is but slightly acted upon by nitric acid, and forms a red solution with sulphuric acid.

Amber is often imitated by colophony (rosin), the manufacturers even going so far as to introduce insects into it, but the naturalist would find no difficulty in distinguishing the modern from the extinct insect. Other tests for artificial amber are as follows: natural amber melts at 545° to 550° F., while the artificial melts at a much lower temperature; and the former is but slightly and slowly acted on by alcohol, while the latter is immediately attacked, the surface becoming dull, and it gradually softens.—*Popular Science News.*

Camels.—A number of years ago a company imported some camels for transporting goods across the plains of Arizona. The enterprise proved unprofitable and the animals were turned loose to care for themselves. The barren country seemed to suit them as well as their native Asiatic home, and they have increased so that now there is said to be a herd of four hundred wild camels in the territory. It is further reported that an Australian has bought the herd for ten thousand dollars from the company which still claims the ownership, the purchaser to capture them, when he proposes to ship them to Australia, with the expectation that he can employ the animals at a profit.—*Newburyport Herald.*

CONCHOLOGICAL CHECK-LIST. V.

J. RITCHIE, JR.

Family. Cyclostomacea Pfr.
Sub-family. Cyclophorea Pfr.

Craspedopoma costatum Shutt.
hespericum Morl.
lucidum Lowe.
lyonnetianum Lowe.
monizianum Lowe.

Craspedotropis cuspidatus Blanf.
galatheæ Mörch.
wüllerstorfi Zeleb.

Aulopoma grande Pfr.
helicinum Chem.
iteri Guerin.
sphæroideum Dohrn.

Micraulax scaber Theob.

Cyclophorus acutimarginatus Sow.
affinis Theob.
alabastrum Pfr.
alternans Pfr.
altivagus Benson.
amboinensis Pfr.
amvenus Pfr.
anguis Hanl.
annulatus Troschel.
apiæ Recluz.
appendiculatus Pfr.
aquila Sow.
artensis Montrz.
atomus Morl.
atramentarius Sow.
aurantiacus Schum.
aurora Benson.
bairdi Pfr.
balteatus Benson.
bathyraphe Smith.
beanianus Petit.
beddomei Blanf.
bensoni Pfr.
bifasciatus Mouss.
bifrons.
biliratus Bedd.
birmanus Pfr.
bocageanus Gass.
borneensis Metcalfe.
boucardi Sallé.
bourcieri Pfr.
brevis Martyn.
calyx Benson.
canaliferus Sow.
cantori Benson.
cayennensis Shutt.
ceylanicus Pfr.
charpentieri Mouss.
clouthianus Möll.

Cyclophorus coeloconus Benson.
conulus Pfr.
convexiusculus Pfr.
convexus Blanf.
cornu-venatorium Sow.
couderti Fischer.
crocatus Born.
crosseanus Hidalg.
cryptomphalus Benson.
cumingi Sow.
cuspidatus Benson.
cuticosta Möll.
cybeus Benson.
cytorta Gray.
denselineatus Pfr.
deplanatus Pfr.
disculus Pfr.
enomphalus Pfr.
erythrostomus Mrts.
exaltatus Pfr.
eximius Mouss.
expansus Pfr.
exul Benson.
flammeus Pfr.
flavilabris Benson.
floridus Pfr.
foliaceus Chem.
forbesianus Pfr.
fornicatus Pfr.
fulguratus Pfr.
garreli Eyd. et Soule.
guimarasensis Sow.
guttatus Pfr.
halophilus Bens.
haughtoni Theob.
herklotsi Mrts.
hildebrandti Mrts.
himalayanus Pfr.
hispidulus Blanf.
ibyatensis Pfr.
ictericus Sow.
indicus Desh.
inglisianis Stol.
involvulus Müll.
jerdoni Benson.
khasiensis Nevill.
labiosus Pfr.
layardi H. Adams.
leai Tryon.
leporinus Blanf.
leucostomus Pfr.
linguiferus Sow.
lingulatus Sow.
loxostomus Pfr.

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Date .....

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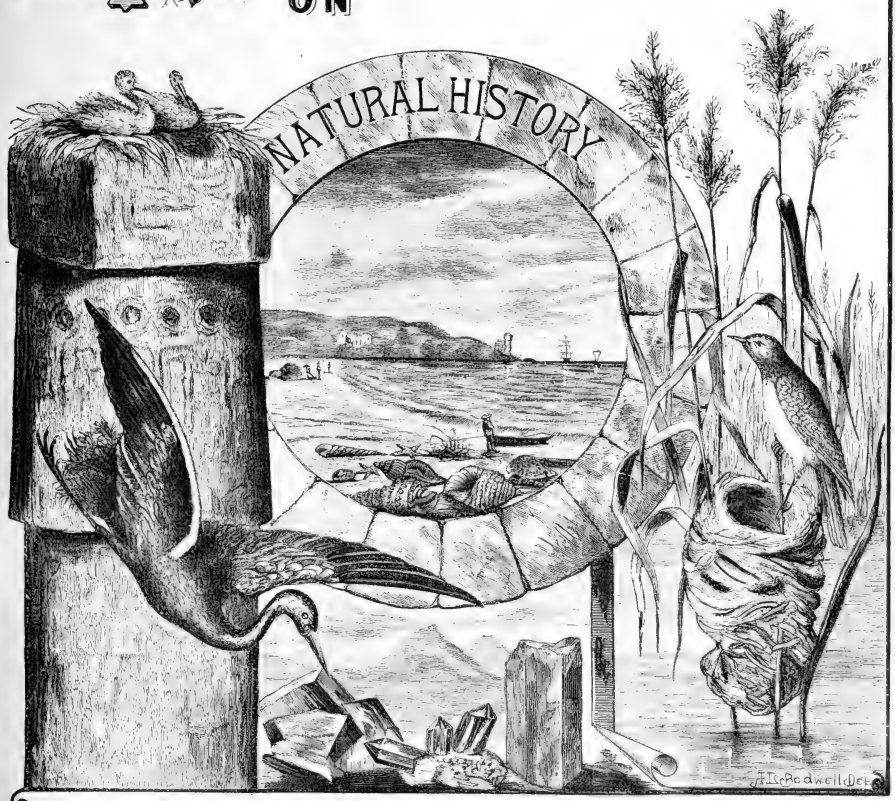
VOL. I. NO. VI.

RANDOM NOTES ON NATURAL HISTORY



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Random Notes on Natural History.

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Random Notes on Natural History.

A Monthly Devoted to the Distribution of Useful Knowledge Concerning the Various Departments of Zoölogy, Mineralogy, and Botany. 50 Cents a Year.

Address all communications to

SOUTHWICK & JENCKS,

258 Westminster St., Providence, R. I., U. S. A.

We are willing to accept from our patrons postage-stamps in any quantity or denomination below ten cents, and beg that they will send them in place of the new postal note, which gives no greater guarantee of safety, and which in the handling and collecting causes the loss of a great deal of valuable time.

Influence of Scientific Studies.—While it must be conceded that force of expression and facility in the communication of thought are best to be acquired through the philosophical, dialectical, and rhetorical studies and exercises which in the main compose the curriculum of the older institutions of our country, I believe it to be equally true that the faculties of clear perception, of careful discrimination, and of just generalization, are developed by the study of natural history, of chemistry, of physics, as they can be through no other educational means.— *Gen. F. A. Walker.*

It becomes our painful duty to announce to our readers the death of Edgar A. Small, of Hagerstown, Md. He died April 23d, in the twentieth year of his age, after a long and painful illness, which resisted the efforts of the most skillful physicians. Mr. Small was well known to many of our readers as an ardent ornithologist, oölogist, and artist, in all of which he excelled to a wonderful degree, considering his illness and limited opportunities. He was painstaking and cautious, and his every statement could be relied on, for it was to the best of his belief. In his correspondence to his most intimate friends he expressed a perfect resignation, and calmly awaited the time when he should pass to a better sphere.

The papers of his native town give rare tributes to his memory, which, had we the space, we should like to print at length, for few they are who suffer so much, are uncomplaining, accomplish so much, and make so many friends, as our young fellow ornithologist who has just gone from our midst.

Prothonotary Warbler.— Mr. R. G. Hazard writes the following regarding this bird, recorded by us in the last issue:

"Mr. Herbert Holland, who shot the Prothonotary says: The little fellow was entirely alone, and was very tame, as if wearied. This may have been the case, if we may judge from the much worn tail and wing feathers.* The capture was made under a dam upon a small stream near here, and the spot was very swampy."

An English Corn-Crake in Rhode Island.— Being recently called to name a portion of the birds in the Franklin Society collection, I found among them one of this species. On the bottom of the stand was written—"Land Rail, Cranston." As this collection was made by Mr. Newton Dexter, and by him presented to the society, I made inquiry of him. He says it was killed in Cranston about the year 1857, and taken by the sportsman to Mr. Pertia Aldrich, from whom he received it in the flesh

Correspondents have favored us with the following variations of color of iris:

Bald eagle, adult, bright gamboge yellow.

Bittern, straw.

Wood Duck, male, yellow.

* Quite a considerable proportion of a number of our small birds reach here in spring in worn plumage, while that of other individuals is fresh and bright. We think several species moult but once each year, and that some individuals of other species do the same. We invite correspondents' opinions on this subject.

The Roseate Spoonbill in Florida Rookeries.

Part IV.

March 17th we visited another and much larger rookery, about twenty-five or thirty miles north of the preceding one. The bushes and briers forming the outer wall of this one were impenetrable, and had to be cut down in order to get our boat in. The pond was much larger than that in the preceding, and a considerable portion of it was free from bushes. Fifty alligators could easily be counted as they lay on the shore, or in the various positions they take as they lie upon the water; some floating from tip of nose to tip of tail, others from nose to middle of back, others with head only above, and still others with only the knob on their nose and their eyes above, and so unsuspecting were they that we hooked into one with the boat-hook and enjoyed quite a ride; another took a crow offered to it from my hand, and held it unconcernedly in its mouth, while the boat went by within a foot of it.

A flock of from six to ten Everglade Kites, *Rostrhamne sociabilis plumbeus*, were sporting about like so many swallows over the pond and adjoining marshes, and were not in the least afraid of us. In general, the incubation in this rookery was much behind the last. We found but a couple of Spoonbills' nests with eggs, although there were three or four score of the birds to be seen. The first day we did no shooting but confined ourselves to egging. Young birds of even American Egrets and Snakebirds, were scarce, by far the majority of the nests having eggs, many of which were fresh, and as in the case at the first rookery, ten days previously, the Snowy and Louisiana Herons' had in most cases their complement of four fresh eggs each. The Fish Crows were far more numerous than before, and so fearless that we sometimes approached near enough to almost grasp their feet with our hands. We almost groaned in spirit as the contents were taken from a Spoonbill's nest directly before our eyes. But we felt powerless to prevent it, knowing the birds would leave by thousands when the firing began.

March 18th we secured fourteen Spoonbills and shot down two or three others which the 'gators appropriated. We also took three Everglade Kites, and it was fortunate that we did so, for on the following day the place was almost deserted, only one Spoonbill being taken. There were, however, a number of White Ibis at one end of the pond where a clump of Cabbage Palms grew. They were not there the day before during our shooting, having left for their feeding-grounds early in the morning, and returning at night, else they might have abandoned the place also. An investigation revealed the fact that they had just begun laying, and one egg each was taken from about twenty nests. These nests were placed among the dead stems of the palm leaves, and were quite difficult to climb to because many stems would break away when laid hold of.

At this place a Pileated Woodpecker was excavating for her nest within a gunshot of our tent. And on the day of our departure we investigated it, but the bird had not begun laying. We broke camp, and returned to Indian River on the 20th.

Since the above article was written, I have received a spoonbill from Tampa, Fla., which has nearly the entire neck tinted, many of the feathers having pink tips. It is otherwise a highly colored specimen, and as it was shot in November it may prove that this species is in its highest plumage during the autumn.

What collector is there, who in his younger days has not forgotten his powder-flask, caps, or even ramrod?

A prominent writer relates as follows, regarding his first crow's nest: It was in a large tree very difficult to ascend, but by laborious climbing he reached it, and safely secured the eggs, which he put in his hat. The descent was by no means easy, but the ground was reached in safety. His dismay may well be imagined upon discovering that he had left hat and eggs on the nest.

Brave Jay.— We are knowing to the fact, that a boy found a blue jay's nest, and on climbing to it, found it to contain young. At this juncture the old bird returned and fiercely flew into the boy's face; then alighting on his shoulder it pecked his face till it bled. He says he won't climb to any more jays' nests.

American Otter—Lutra canadensis.

The occurrence of this animal in Rhode Island is much more frequent than is commonly supposed, since the creature is generally shy and wary in his habits, and better paying business has served to discourage hunting and trapping.

Out-of-doors students or collectors of any zoölogical objects, have frequently to notice the wonderful adaptability of plumage, pelage, general form, and habit of movement, to the concealment of the creatures sought for, deceiving the most practiced eye, and altogether likely to hide them from any but the careful observer.

We have known of two of the *Lutra canadensis* being taken the past few months, one at Portsmouth, the other at Pawtuxet, while in the month of March, 1883, a magnificent specimen was killed near Bristol. Tracing back for a few years, we are able to get reports of several more.

All the specimens examined were taken in early spring, and a general description answers for both sexes. A long and rather heavy body, mounted upon legs very short in proportion, the hind pair the stouter, and the feet, when spread out, broad and round, the toes connected by a membrane, the callous spots on the soles divided by bands of fur. The neck is rather long, ears very small, the face broad and rather flat, with small eyes, and as a particular mark, the nose-pad, which has been described by Dr. Coues as shaped like the ace of spades.

These specimens weighed about eighteen or twenty pounds each, and measured from tip to tip from forty-six to forty-eight inches, the tail, which is flat and tapers to a point, being about seventeen or eighteen inches long, and were of a rich brown color above, almost black in some lights, a trifle lighter below and on the inside of the legs, while the lips, cheeks, chin, throat, and breast were a dirty whitish brown.

These specimens exhibited great strength and most vicious disposition. The one killed at Bristol was taking a morning stroll across lots, when he was confronted by the farmer's dog. This resulted in a furious unpleasantness, and the dog would speedily have had the worst of it had not the master appeared, and with a club decided the battle. Nevertheless they are said to have been very thoroughly tamed, and to exhibit considerable playfulness.

They are said to be very fond of sliding, choosing a steep clay bank that slopes into a stream, but probably from lack of proper situation, and because the thickly settled condition of the country obliges them to be more cautious, we get no reports of any slides in Rhode Island. Audubon says: "The otters ascend the bank at a place suitable for their diversion, and sometimes where it is very steep, so that they are obliged to make quite an effort to gain the top; they slide down in rapid succession where there are many at a sliding-place. On one occasion we were resting on the banks of Canoe Creek, a small stream near Henderson that empties into the Ohio, when a pair of otters made their appearance, and began to enjoy their sliding pastime.

"They glided down the soap-like, muddy surface of the slide, with the rapidity of an arrow from a bow. We counted each one making twenty-two slides before we disturbed their sportive occupation."

During the winter they pursue their pastime on the snow. Godman says: "Their favorite sport is sliding, and for this purpose, in winter the highest ridge of snow is selected, to the top of which the otters scramble, where, lying on the belly with the fore-feet bent backwards, they give themselves an impulse with their hind-legs, and swiftly glide head-foremost down the declivity, sometimes for the distance of twenty yards. This sport they continue, apparently with the keenest enjoyment, until fatigue or hunger induces them to desist."

Squirrel Incidents.—Mr. Wm. Temple reports that while out shooting last fall, he had paused to listen, when out of a hole near the butt of a tree, came a red squirrel. It made directly toward him, and, probably taking him for a stump, ran up his left trousers-leg and coat, then across his shoulders and down the other side to the ground. It was deliberate in its movements and made frequent stops, as is its custom when not alarmed.

Mr. G. M. Gray was out during the latter part of April with a dark-lantern, catching moths, when he received a violent blow in the face, the missile falling to the ground, but immediately began ascending his pants, for it was a flying-squirrel. It soon discovered its mistake and sprang on to a tree near by.

Quartz.—Rock Crystal.

Quartz is the most abundant mineral in the world, and in its clear, limpid, and crystalline state, appears as wonderful and elicits as much admiration from the casual and unscientific observer as any two others that could be mentioned.

Diamond Hill, in Cumberland, this state, has more than a local celebrity for its encrustations of crystals that face the rocks all over the hill, in druses like sugar, or often protruding one-sixteenth to one fourth of an inch.

At the Dexter lime rock, in Smithfield, occur beautiful crystals, often limpid, in veins of quartz intersecting the limestone. One perfect specimen is reported, six and three-fourths inches long and one inch in diameter.

Regarding other and more notable localities, we quote from the article on Gems and Precious Stones, by G. F. Kunz, published by the Department of the Interior:

"Rock crystal is found at a great many localities in America. In Herkimer County, at Lake George, and through the adjacent regions in New York State, the calciferous sandstone contains single crystals, and at times large cavities are found filled with doubly-terminated crystals, often of remarkable perfection and brilliancy; these are collected in numbers, cut, and often uncut, are mounted in jewelry and sold to tourists under the name of 'Lake George diamonds.' Those sold in large cities under the same name are, however, often simply paste or glass, which possess more brilliancy but have not the same durability. Of the Herkimer crystals possibly $3,000 worth are sold per annum.

"In Arkansas, at Crystal Mountain, and in the region for about forty miles around Hot Springs, large veins of quartz are frequently met with. The quartz is taken to Hot Springs and Little Rock by the wagon load by the farmers, who often do blasting to secure the crystals, looking for them at such times as their crops need no attention. In the course of a year possibly one hundred loads are sold, principally as mementoes, to the visitors at these resorts. Crystals are also sent to other localities for sale. Usually only one-half of the crystal is clear, and a clear space over two inches square is quite uncommon. The sale of the uncut ones from this region amounts to fully $10,000 per annum.

"At Hot Springs, clear, rolled pebbles are often sold, that have been found on the banks of the Ouachita; these are more highly prized than the crystals, as the common fallacy prevails that they cut clearer gems. The scarcity of these and the demand for them has so worked upon the cupidity of some that they have learned to produce rolled pebbles by putting numbers of the crystals in a box which is kept revolving for a few days by water-power. Any expert, however, can discern the difference, since the artificial ones are a little whiter on the surface.

"Many localities in Colorado furnish fine specimens. Large masses of clear rock crystal have been found in North Carolina, and would be of use in the arts.

"At many places large quantities of the quartz cut in gems, seals, and all manner of ornaments, are sold as having been found in the vicinity. Sometimes even the stones that have been found by the visitors and brought by them to be cut, are exchanged for those already cut and brought here from Bohemia, Oldenburg, and the Jura, where cutting is done on a large scale and by cheap labor; the cut stones costing, delivered in America, not more than one-tenth of the price of cutting done here.

"The annual sale of cut stones and money expended in cutting, at the different localities, may amount to $20,000 or more per annum, and the sale of specimens to as much more.

"The clear crystal for optical purposes, used in this country, is almost entirely from Brazilian,— not that the American is not fine enough, but the good material found here rarely reaches the proper channels, and the Brazilian is cheap and is used from custom."

Late Crossbills, L' americana. — On April 27, Mr. G. M. Gray observed a flock of about a dozen Red Crossbills in East Providence, R. I. His attention was attracted by their chattering, and after alighting they permitted a near approach.

On Saturday, May 10, Mr. Arthur Miller killed a Red Crossbill, which he sent to us with the remark that there was quite a flock of them. This was at Barrington, R. I.

SEDGES.

Sedges are grass-like plants, mostly growing in moist localities. They are of very limited economical use, and their interest to students has always been in the beauty of their minute parts and in the difficulty of their study. While, as a general thing, lacustrine or littoral plants, some grow in dry woods or fields, and not a few on Alpine mountain-tops. Thus *Carex rigida* and *Carex scirpoidea* we have found on the summit of Mt. Lafayette. Many other genera than *Carex* are included in *Cyperaceæ*, as the bulrushes, the golingales and the spike rushes. All these yield in interest to the true sedges, which have fascinated so many acute students. It is of these we shall here speak. They should especially attract Rhode Islanders, for the reason that we possess, in the herbarium of Brown University, an exceptionally fine and authentically-named collection. Special students of *Carex*, both here and abroad, must needs consult it. Here are many type forms, copious notes, and graphic illustrations, in the bequest of Colonel Olney.

True sedges, we have said, were grass-like in appearance; indeed, they are popularly confused with grasses. From these they differ in many essential particulars. The first thing we notice is the generally triangular stem, which is not jointed nor hollow. The flowers are of two kinds, either on separate plants or on different parts of the same plant, or commingled in one inflorescence. The starminate or mole flowers are of comparatively little account in the identification of species. A very close study, however, is given to the pistillate flowers. These consist of a flask-like or sack-like body, formed by a union of bracts, and inflated in various degrees or not at all. It is called the *perigynium*, and is the bugbear of young students. It assumes very various forms and diverse colors, is sometimes beautifully nerved, sometimes clothed with hairs, and often drawn out into a besk. Within is found the akene or fruit, which may be lenticular or triangular, smooth or rough. The flowers are arranged in spikes, and these are of different numbers and relative positions in the diverse species. They may also be very close together or more or less remote. It would be quite impossible, in a brief popular account, to enter much more fully into the recondite points of structure of this vast genus. Often the differences between species is extremely slight; indeed, we conjecture that they may dwell only in the imagination of some prolific author.

There is probably no object in nature so humble that a devoted student would fail to find in it an increasing delight. In these useless plants there is a perennial joy to those who love them. The pose of many of them is beautiful. Sometimes the masses of spikes resemble an old weapon of war, with its steel points of offence; sometimes they are graceful tassels dangling in the breeze. Usually the leaves are narrow like those of grasses, but in *Carex Froseriana*, and some others, become broad and conspicuous. — *Providence Journal.*

Frogs and Toads.

The difference between frogs and toads may be summed up as follows:

Beginning at first principles, they both lay their eggs in water; those of the frog are, soon after their deposit, about the size of a pea, jelly like, and adhering in large masses, while the toad lays a long string in two rows.

Frogs have smooth skins and are chiefly aquatic, though they come frequently to land and there obtain much of their food. Toads are smooth when young, but soon become covered with warty prominences, which contain a whitish fluid. The two large spots on each side of the head, at the back, discharge most freely. This fluid is not poisonous, nor does it produce warts upon one's hands, as is often reported, but is to the toad a valuable means of defence, as it is particularly unpleasant to most animals who would seize him with the mouth, either in sport or for food.

Frogs have teeth, the toad has none. Frogs seem to prefer to get along in the world by jumping, while the toad frequently walks.

Observing some toads singing, a short time since, they were seen to inflate the throat remarkably, often to the size of a shag-bark nut, and in some cases they were not disturbed when we stooped down and tickled the throat with the finger.

Our eastern North American toad, is *Bufo lentiginosus* of Shaw, the northern variety, *americanus*.

The Shell-Bearing Mollusca of Rhode Island.

[BY HORACE F. CARPENTER.]

Chapter VI.

4. Purpura (Polytropa) lapillus, Linn.

Syns.:

Buccinum lapillus, Linn. Penn. Wood. Don. Mont, etc.

Tritonium lapillus, Muller.

Purpuro-buccinum, Da Costa.

Purpura lapillus, Lam. Kiener. Gld. DeKay. Stimp., etc.

Shell ovate, acutely pointed at both ends, thick and solid, with almost every variety of coloring, from pure white, through yellow to dark brown, some with bands of white, yellow or red, of various widths. The shape of the shell and its surface is also much varied, as are nearly all littoral shells; some specimens being perfectly smooth, and others very rough to the touch; some have raised, acute, turreted spires, while others are flattened below the suture. The aperture is oval, the outer lip curved and sharp, but thickened and armed within with blunt teeth; inner lip smooth and somewhat flattened. Length, one and one-fourth inches. Breadth, seven-tenths. These shells are not found in our bay, but inhabit the ocean rocks at Newport, and are common on both sides of the Atlantic, extending northwards to the Arctic seas. The geographical centre of this species is in northern Europe, the American as well as the southern European and African specimens being stunted in size. Its fossil distribution extends as far back as the Red Crag of England. It is carnivorous in its habits, feeding upon dead fish, mussels, and bivalve shells generally. It is especially fond of oysters, and is considered a very destructive enemy to the oyster-beds in England.

Most of the Purpuræ contain a liquid which produces a crimson dye, obtained by pressing on the operculum or by crushing the shell. The celebrated Tyrian dye of the ancients is supposed to have been made from these animals. When this liquid is applied to linen and dried in the sun, it first appears of a light green color which changes to a deep green, then into blue, and then to a deep purple red; if now the linen be washed in hot water and soap and again dried in the sun, it becomes of a beautiful bright crimson, which is indelible, and without the use of any other reagent to set it.

Family 2. Tritonidæ, containing four fossil genera and three recent genera and eight sub-genera, with one hundred and three fossil and one hundred and forty-four recent species, is not represented at all in New England.

Family 3. Fusidæ, comprising four sub-families, ten genera, seventeen sub-genera, three hundred and thirty fossil and one hundred and sixty recent species, is not represented in Rhode Island. One species only, Ptychatractus ligatus, Migh and Adams, is found on the coasts of Maine and northwards, in deep water.

Family 4. Buccinidæ, is divided into six sub-families, twenty-six genera, with six sub-genera and hundreds of species, both recent and fossil. This immense family is represented in Rhode Island by three genera and five species, as follows:

Sub-Family, Neptuniinæ.

Genus, Sipho, Klein.

Shell thin, pyriform or fusiform, not tuberculate or spiny, smooth and rounded whorls; spire moderate; canal produced and recurved. Operculum ovate, nucleus apical.

5. Sipho Stimpsoni, Morch.

Dist. Long Island to Labrador. Deep water. This shell has until recently been confounded with Sipho Islandicus, which is a northern shell, inhabiting Iceland, and Greenland to Labador, and Norway to Scotland. It is more ventricose than that shell, with a shorter, wider and more curved canal. A robust shell, with a dark, rough epidermis. Length, two and one-quarter inches, breadth about one inch.

6. Sipho pygmæus, Gould.

Shell white, under a yellowish epidermis: whorls six, and preserving the same outlines as the previous species. The comparative length of the aperture is less, and the striæ are more numerous and more rounded,

while the apex is more pointed than in S. Stimpsoni. Length, fifteen to twenty mill. Connecticut to Newfoundland.

Genus Fulgur, Montfort.

Shell pear-shaped, thin; spire short, the angle of shoulder spinous; body-whorl very large; canal long and twisted; lip and columella smooth. Operculum ovate, nucleus apical.

7. Fulgur carica, Gmelin.

Syns.:

Murex carica, Gme.
Pyrula carica, Gould. De Kay.
Fulgur carica, Gill. Dall. Tryon, etc.

Dist. Atlantic coast from Cape Cod to Florida.

Shell large, solid, pear-shaped, cinerous; spire a low, pointed cone; suture well-defined but not channeled; whorls six, body-whorl large, crowned with a series of triangular nodules, or spines, one at each stage of growth; aperture large, long, ovate; outer lip simple and sharp; inner lip callused and twisted; canal long and flexuose; interior of aperture brick red, or a light fawn color. Operculum ovate, thick, with a broad callus around the inner edge; outer surface of operculum rough and coarse, color, greenish yellow; inner surface of a waxen texture.

This is the largest shell found in Rhode Island. Its size is seven inches in length by four in breadth. It belongs to the southern portion of the Atlantic Province, and is found on the coasts of the Southern States, of larger size and more brilliant color than those found here. It is not found north of Cape Cod. Its proper habitat is in the Laminarian Zone, but is sometimes found on sandy shores between tides.

The animal lays its eggs in March and April. The eggs of marine Gasteropods are called ova cases. In this species they consist of a series of membranous cases, from fifty to seventy in number, about the size and thickness of an old-fashioned copper cent; these are fastened together by a string or cord of the same substance, attached to their upper edges; they are placed about one-fourth of an inch apart, those cases forming the centre of the string being the largest; from the centre to each end they taper gradually in size, forming a string of cases a yard in length; each case has eleven ribs radiating from the point of attachment, and scalloping the edges, which are beveled nearly to a point; opposite the ligament is a small opening through which the young escape when sufficiently matured; each case contains forty or fifty embryos, which when ready to escape from their imprisonment are about one-sixth of an inch in length.

The animal is large, dirty white to almost black; mantle thick, white, edge plain, proboscis long, cylindrical; tentacles short, triangular; eyes on the outer side, near the base. Carnivorous in its habits, and is found more abundantly near oyster-beds, where it commits great ravages.

(To be continued.)

Curious Monstrosities.— We recently had a lamb to mount, which had one head and two bodies joined together on the chest, so that when standing, the legs on the body which joined beneath pointed upwards. It had eight legs, four ears, and but one eye, which was large and situated in the centre of the forehead. A correspondent now writes he has a pig that is a doublet, but differs from our sheep in having three eyes. We have had in our possession during the past six years three four-legged chickens, gotten up on two different patterns.

The Walker prize of the Boston Society of Natural History has been this year awarded to Mr. Albert H. Tuttle, of the Harvard Medical School, Boston. His subject was the embryology of *Lunatia heros*, thoroughly illustrated.

A scientist says: "The paleozoic cockroaches are distinguished from living species by having five veins in the wing instead of four, and have a decided mesozoic aspect." This is highly important; but a woman when she sees one of these insects, will not care whether it has five or fifteen veins in the wings. She will give a scream, draw her skirts tightly about her, and give the bug such a rap with an old shoe, that it will have more of a mashed than a mesozoic aspect. — *Norristown Herald.*

CONCHOLOGICAL CHECK-LIST. VI.

J. RITCHIE, JR.

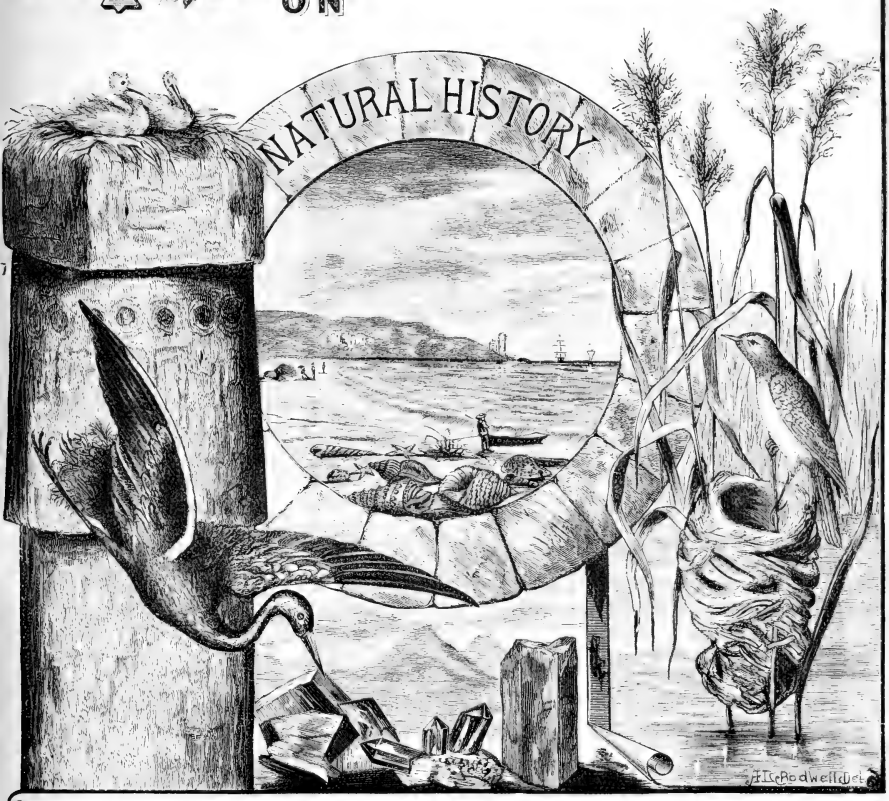
Family. Cyclostomacea Pfr.
Sub-family. Cyclophorea Pfr.

Cyclophorus luridus Pfr.
lutescens Pfr.
maculosus Sow.
malayanus Benson.
malleatus Blanf.
margarita Pfr.
marmoratus Fer.
martensianus Möll.
martinezi Hidalg.
menkeanus Phil.
metabletus Cross et F.
mexicanus Menke.
microscopicus Morl.
milium Benson.
montronzieri Souvrb.
moricandi Pfr.
nilagiricus Benson.
nivicola G. Austen.
obligatus Gould.
oculus-capri Wood.
orophilus Benson.
pæcilus Pfr.
parapsis Benson.
parvus Sow.
pearsoni Benson.
perdix Brod et Sow.
pernobilis Gould.
phænotopicus Benson.
philippinarum Sow.
picturatus Pfr.
pinnulifer Benson.
pirrieanus Pfr.
planorbis Blanf.
plicalus Gould.
poecilus Pfr.
polynema Pfr.
polynema Mörch. (*Lagocheilus*).
ponderosus Pfr.
porphyriticus Benson.
psilomitus Pfr.
punctatus Sow.
purus Forb.
pyrotrema Benson.
raripilus Morl.
Cyclophorus ravidus Benson.
rufescens Sow.
salleanus Mrts.
saturnus Pfr.
scissimargo Benson.
scurra Benson.
semisulcatus Sow.
semistriatus Sow.
shiplayi Pfr.
siamensis Sow.
Not found in Siam, re-named khasiensis Nevill.
speciosus Phil.
stenomphalus Pfr.
stenostomus Sow.
striatulus Pfr.
strigatus Gld.
striolatus Stol.
sublævigatus Blanf.
tenebricus Adams et Reeve.
texturatus Sow.
theobaldianus Benson.
thersites Shutt.
thwaitesi Pfr.
tiara Gould.
tigrinus Sow.
tissotianus Cross.
tomotrema Benson
triliratus Pfr.
tristis Blanf.
trochoides Stol.
tryblium Benson.
tuba Sow.
turbinatus Pfr.
turbo Chem.
turgidus Pfr.
upolensis Mouss.
validus Sow.
voloulus Müll.
wahlbergi Benson.
warnefordianus Nevill.
wilsoni Pfr.
woodianus Lea.
zebra Grateloup.
zebrinus Benson.
zollingeri Mouss.

MR. J. S. JOHNSON, in the *Naturalist's Journal*, describes an instrument useful for capturing moths, etc., that have once been disturbed, or are in obscure places, under bark, small twigs, etc. He says: "*The gig* is made from a metallic pen-holder; to prepare one, cut off the part where the pen is inserted, and force in a piece of wood, to which is fastened three needles set in a triangle, projecting from the holder half an inch or so. When not in use it can be carried in the pocket like a pen-holder; by simply reversing the plug, the holder forms a sheath for the needles.

VOL. I. NO. VII.

RANDOM NOTES ON NATURAL HISTORY



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SPECIAL NOTICE.

Supscriptions hereafter will begin with the current number, or the March number if desired.

Great Gray Owl. Spectral Owl.

Strix cinera.

Late in the winter of 1882 and '83 some persons shooting on Fox Island, near Wickford, killed a large ashen-colored owl, and sent it to Providence to be stuffed by an amateur.

Mr. G. M. Gray chanced to see it before work was commenced, and noting its peculiarities, made a liberal cash offer for it. The fact that two persons had fired at it, and both claimed the killing, made them willing to sell, and he secured the prize. It was the Great Gray Owl, and is the only reported capture for Rhode Island. A specimen in the collection at Brown University is said to have been taken in Seekonk, Mass., some twenty years ago.

This owl resembled very closely the common Barred Owl, *S. nebulosa*, but measured about four inches longer, and had a much greater extent of wing. The general appearance of great size is caused especially by the extreme length of the soft feathers, for the body after skinning was scarcely larger than that of the average Barred Owl. A prominent distinguishing mark is the yellow or straw-colored iris. The Barred Owl has a very dark hazel, but after death and when the pupil is dilated, the appearance is blue-black, or black.

For further description of the Great Gray we quote from Dr. Coues' new work: "Feet completely feathered to the claws, bill yellow; six primaries cut on inner web; entire upper parts dark brown, mottled with grayish white in confused and intricate pattern; wings and tail similar, broken-barred with grayish-white marbling; under-parts of the same dark brown and pale gray, the pattern in streaks on the breast, in cross-bars on the belly and flanks, in spots on the feet; the great facial disc watered with dark brown and light gray in regular rings, concentric with each eye, the outmost ring dark brown and stronger than the rest, bounded below with a ragged white collar.

"An immense owl, one of the largest of all, inhabiting Arctic America, straying irregularly south into the United States in winter, even to New Jersey, Illinois, and California; said to be common from our northern border northward, and perhaps resident in northern New England. Nest in trees, of sticks, moss, and feathers; eggs usually three or four, not equal-ended, and rather small for the bird, 2.25x1.80.

"Like others of the genus it is a wood owl; while its prowess enables it to prey upon creatures up to the size of grouse and hares."

Dr. Coues states that the Great Horned Owl, *Bubo Virginianus*, often appropriates the nest of some large hawk, such as the Red Shouldered. We have just learned of three boys who made a raid upon a Fish Hawk's nest for eggs. The nest was extra large and the climbing a test of endurance. The contents of the nest proved to be two young Great Horned Owls, in the down. They were finally dislodged and are now thriving well in captivity.

A gentleman being on Boston Common June 16, about noon, noticed a Robin, (*Turdus migratorius*), fly down several times fairly into the pond, paddle about and thoroughly wet himself. The sun was shining and the heat quite excessive, and the bird seemed to thoroughly enjoy his plunge bath in deep water.

The Rodentia of Rhode Island.

All animals belonging to the order Rodentia are distinguished by having between the front cutting teeth and the flat grinding back teeth, on each side of both upper and lower jaw, a long toothless space. Young hares have six upper front teeth, but soon shed two of them, and two of those that remain are small and supplementary, and placed not on each side, but directly behind the true and prominent front teeth. So that all rodents, when viewed in front, seem to have only two upper front teeth, and none have more than two in the lower jaw. These front teeth (called incisors) are long, slightly curved toward the mouth, and are extremely hard on the outer face, while the opposite side is soft. The tips of these upper and lower teeth meet when the mouth is shut, and their action upon each other serves to keep them all sharp, and worn away behind. They grow out rapidly from the jaw, and if they do not have continual rasping, or one is broken away, the owner suffers in consequence, by an unnatural length, the opposite tooth frequently growing around to complete a circle, and entering the jaw again, interferes with feeding and finally kills its owner. For this reason the cracking of nuts for pet squirrels is not a kindness, and I think also that the little animals, with seemingly no knowledge of the consequences, or because they cannot conquer their appetites for the softer dainties offered them in captivity, neglect the harder shelled nuts, to their own great disadvantage. The back or grinding teeth vary in the different families, often twelve, but with sixteen to eighteen among the squirrels, and twenty-six to twenty-eight among the hares.

The question, "What is the difference between a rabbit and a hare?" has been frequently answered, but still is not generally understood, and the two names are applied interchangeably and indiscriminately to the same animals. We have in America no true rabbits, that name belongs to the European species, *L. caniculus*, which is a persistent burrower, very prolific, and shorter and stouter in form, with comparatively short ears and hind legs. This animal has been naturalized all over the world, and all the various kinds of pet rabbits are derived from it.

The largest representative in Rhode Island of this order is the American or Varying hare, *Lepus Americanus var. Virginianus*. This species has a habit of keeping very close to cover, and its resort is thick swamps, among cedars and tangled briers, where it makes a nest or form, of grass, in which it sits. It is not very plentiful with us, and we have never met with it, but it occurs in the swamp in South Kingstown, and several energetic hunters in the northern part of the state report it. The creature averages about twenty inches in length, and the summer pellage is generally a cinnamon brown mixed with black, chin, throat, and under parts white, breast and front of neck yellow-brown, the brown hairs have broad tips of black, the short tail sooty brown above, and gray white below. In winter it changes with some variations, to nearly pure white, retaining generally a narrow band of black on the tips of the ears.

The Wood Rabbit, Gray Rabbit or Molly Cotton-tail, *Lepus sylvaticus Bach*, is well distributed through the state, and is plentiful in some sections. The length is about sixteen inches, the color of the pellage, which varies but slightly, if at all, with the changing seasons, is yellowish or reddish brown on the back, with black lines, the sides of the body light gray and brown, throat gray, under parts white, the short elevated tail same color on top as the back, and pure white below. With this exception, all the fur, which is soft and dense, is lead-colored at the base. This species, with varieties, is distributed all over the United States, and makes usually a form in the grass, but is said to make use of a hollow stump or stone wall, and frequently appropriates the burrow of some other animal, or, perhaps, digs one. In this respect, and in its compact shape, it approaches nearly to the true European rabbit. The hares are liable to the attacks of many enemies; ticks and tape-worms are their parasites, while all carnivorous animals, and man with gun and trap, pursue them relentlessly. Possessed of no means of defence, they would be liable to extermination, were it not for their great fecundity, their swiftness of foot, and that their ears and eyes are always on the alert. Their food is strictly vegetable.

PÉLÉS' HAIR.

The volcano of Kilanae, at Hawaii, Sandwich Islands, has for all known time been open and active. The situation has been described as "a vast chasm in the earth five or six times the depth of Niagara Falls, and seven or eight miles in circumference; think of this upon the flank of a huge mountain — a mountain gradually piled by powerful volcanic agencies for centuries past — and as a place ample in accommodation for the upbuilding of a great city, where the loftiest spires, viewed from the rim, would seem small and low, and all about are strewed abundant evidences of the great unrest — of billows of flame eternally swaying to and fro in the fathomless molten abyss, of jets of fire flowing in hot haste to form mounds and cones, of sudden spouts of scorching lava flashing and glowing as such only can, and all surrounded and kept back, as it were, by an irregularly formed elliptical wall of basaltic rocks, rearing itself a thousand feet above the surface of the lava and descending to unknown depths, while, terrace-like, six hundred feet below the verge, one may note a vast amphitheatre gallery of black indurated lava, once a brilliant, glowing mass, upon which might now be ranged on a drill a hundred thousand men. Not to the eye alone appeal impressions of grandeur; sepulchral tones fall on the ear — sharp whizzing calls, ringing like steel, and fierce as the whirlwind's breath, as gas and steam, rushing with varying force, seek through obstructed apertures entrance to light and freedom.

"Scores of craters rise from the fiery abyss, from which shoot out columns of gray smoke and pyramids of brilliant flame, while glowing ribbons of fire sweep onward to the seething caldron below; where in eternal numbers, 'deep calleth unto deep.' If grand by day, by night it becomes 'fearfully glorious,' every wave glowing with fervent heat, every point and pyramid of flame a thousandfold intensified in beauty."

In this abyss the Goddess Pélé was by the natives supposed to reside, and over the island and their destinies to exert an all-powerful influence.

One of the island queens, having become a convert to Christianity, accompanied by her trembling subjects, went boldly to the crater's mouth, threw in her slipper, and emptied in the contents of her wash-bowl.

"The shackles of superstition had been broken, and henceforth those timid South Sea Islanders would no longer do reverence to Pélé, the phantom queen."

Upon the mountain side collectors and tourists occasionally find masses of soft, shining, gray locks, not unlike human hair. These are particles of molten lava that have been caught by the winds, and drawn out to hairs like spun glass; whirled about by the varying currents, they become tangled together, and are floated over the sides of the crater.

In the *American Journal of Sciences*, August, 1879, Prof. James D. Dana says: "I have now to report two new satisfactory analyses of the capillary volcanic glass of Kilanae.

"For these, science is indebted to F. J. Allen, of the Sheffield Scientific School of Yale College, excepting the determination of the state of oxidation of the iron, which is by Prof. O. D. Allen. The results were as follows:

	I.	II.	Mean.
Silica	50·76	50·74	50·75
Alumina	16·68	16·39	16·54
Iron sesquioxide	2·15	2·05	2·10
Iron protoxide	7·90	7·87	7·88
Manganese protoxide	trace	trace	trace
Magnesia	7·65	7·65	7·65
Lime	11·95	11·97	11·96
Soda	2·11	2·16	2·13
Potash	0·55	0·57	0·56
Ignition	0·35	0·35	0·35
	100·10	99·75	99·92

An important paper on the microscopic characters of Pélé's Hair has been published at Tubingen (in 1877) by C. Fr. W. Krukenberg, in a pamphlet giving also the results of the author's investigations on Tachylyte, and Hyalumelan, Glassy Porous and Sphaerulitic Basalt and Obsidian. He states, and illustrates by figures, the following facts respecting Pélé's Hair: The fibres are sometimes bent and coalesced into loops; often are tubular; frequently contain air bubbles, and occasionally microlites. There is usually an enlargement of the diameter whenever a crystal (or microlite) exists within, and also about many of the air-cavities. The crystals are mostly rhombic, but as to their kinds the author makes no suggestion.

THE RHODE ISLAND ENTOMOLOGICAL SOCIETY

held its annual meeting June 6, resulting in the election of the following officers:

President—Edwin E. Calder.
Vice-President—Herbert Terry, M.D.
Secretary—Frank E. Gray.
Treasurer—Charles W. Biddles.
Standing Committee—J. M. Southwick, John A. Armstrong, Miss Mary C. Smith.

MEETING OF THE PROVIDENCE FRANKLIN SOCIETY.

A regular meeting of the Franklin Society was held June 16.

The president called attention to specimens of water-worn rocks, picked up at Beaver Tail, on the excursion of June 14. An iron-stone specimen was recognized as a Cumberland Hill fragment, and two others as the peculiar kind of rock from the Central Falls ledges, all having been transported to the Beaver Tail locality by glacial action.

Mr. D. W. Hoyt gave a very interesting explanation of the Snake Den ridges and the valley between, and what he believed to be the glacial action by which the "Round Rocks" boulders were transported from the ledges to their present position. He believed the rocks to be a terminal moraine of a comparatively thin glacier, the last of the great ice-fields of this region. An examination of the ridges and valley showed conditions which exactly fitted the theory of the transportation of the boulders, while their identity with the ledges was perfect. Mr. Hoyt has spent a day in taking measurements and examining this region, and expects to do more work upon the geology of this region.

Dr. W. O. Brown spoke briefly of the importance of a survey of the state, and of what had been already done. He also gave an instance of a man in Johnston saving his orchard from the ravages of the canker worm by showering the trees with a mixture of Paris green and water, it being perfectly effective.

The president announced the following Botanical Committee: George Hunt, Thomas Battey, D. W. Hoyt, and Mrs. Alden. Adjourned to the call of the secretary in September.

THE LONSDALE BOTANICAL AND FIELD NATURALIST SOCIETY.

held its regular meeting June 9. A large number of members were present, it being the annual flower exhibition of the Society. The display was good, showing that the collectors must have examined considerable country to obtain so many varieties.

For the best bouquet of wild flowers the first prize was awarded to James Moss, second prize to Thomas Dearden, Jr. For the best three wild flowers, the first prize, John Dearden; second prize, James Moss. For the best bouquet of cultivated flowers, first prize, James Lord; second prize, James Isherwood. For the best three cultivated flowers, first prize, John Osborn; second prize, John Dearden; third prize, James Moss.

Mr. Thomas Lambert exhibited a Bird of Paradise, a Trogon, and a Scarlet Ibis.

We are informed that Mr. John Krider, of Philadelphia, has sold his stock of birds' eggs to Dr. Detwiller, of Bethlehem, Penn.

Have watched the building of the nests of the Marsh Hawk this year. Of the five nests found, two were composed of a small quantity of grass and remained so. The remainder were started with a simple foundation, but were added to every day until they made substantial nests. One I visited June 2 was still being added to, although the young had been hatched for several days.

Found a Towhee's nest containing one egg of her own and three cowbird's.

G. S. A.

A French engineer, after a series of experiments with a loaf of bread baked by a Vassar College girl, now announces that the project of tunneling Mont Blanc is entirely practicable.—*Philadelphia News.*

A Cincinnati clergyman thought he would raise his own pork. So he bought five pigs and fattened them. Now that they are fit to kill, he says they seem so much like his own children that he hasn't the heart to kill them. The pigs are in good luck, but it's rather hard on the children.—*Boston Transcript.*

The Shell-Bearing Mollusca of Rhode Island.

[BY HORACE F. CARPENTER.]

Chapter VII.

Genus Sycotypus, Gill.

Shell with canaliculate suture, periostraca ciliated, nodulus instead of spinous.

Theodore Gill, M. D., in a treatise on the genus Fulgur and its allies, published in the *American Journal of Conchology*, Vol. III., pp. 141 to 152, 1867, gives a lengthy description of the genus, and his reasons for separating it from the genus Fulgur. Mr. George W. Tryon, in his latest work, *Manual of Conchology*, Vol. III., p. 142, 1881, considers it as a sub-genus of Fulgur.

8. Sycotypus canaliculatus, Linn.

Syns.:

Murex canaliculatus, Linn.

Pyrula canaliculatus, Gld. Lam. De Kay, etc.

Busycon canaliculatus, Stimpson.

Sycotypus canaliculatus, Gill. Dall. Perkins, etc.

Shell large, thin, pear-shaped, pale fawn color, coarsely wrinkled by revolving lines; surface covered with a coarse, thick, yellowish-brown epidermis, bristling with stiff, curved hairs along the lines of growth; this epidermis easily comes off, and it is rare to find a specimen wholly covered with it; whorls six, body-whorl very large; suture a broad and deep channel, so that the upper whorls consist of two portions; an upright and a nearly horizontal one, all terminating in a pointed apex, the suture resembling a pair of circular stairs, mounting upward on the outer portion of the spire; aperture ovate, three-fourths the length of the shell; outer lip simple, sharp and arched; inner lip concave, smooth, twisted at the lower half to form a long, enameled canal; interior of aperture chestnut or fawn color, polished; operculum small, oval, semi-transparent.

This species inhabits the same localities as Fulgur carica, viz., Cape Cod to Florida, but is much more abundant in Rhode Island than carica, although never found north of the Cape. Its length is from five to seven inches, and its breadth three to four. I once found a specimen in our bay, which I presented to the Providence Franklin Society in 1872, measuring eight and one-quarter inches in length by four and one quarter in breadth.

The ova cases of this species are laid in April in a similar manner, and much resemble these of Fulgur carica; the surfaces of the cases, however, are not ribbed like that species, but are smooth, and the edges instead of being beveled to a point, are flat, and about one-eighth of an inch across, with twelve to fifteen lines across them. A string of these cases from Atlantic City, N. J., contained ninety-eight embryos in each case, making about five thousand in all.

Sub-Family, Buccininæ.

Genus Buccinum, Linnæus. 1767.

Shell ovate or oblong, covered with a horny epidermis; spire elevated, apex acute; aperture large, oval, emarginate in front; canal wide and short; inner lip expanded; outer lip thin, smooth internally. The genus is limited to northern seas.

9. Buccinum undatum, Linn.

Shell thick, strong, ovate-conic, ventricose, encircled with raised lines, and with minute intervening striæ; with twelve or thirteen longitudinal obliquely waved ribs, traversing the upper whorls, fading away near the centre of the body-whorl; epidermis grayish; whorls six; aperture oval, one-half the length of the shell, white within, sometimes of a beautiful golden yellow; labium crenulated; labium broadly overlaid with callus and twisted at its lower portion; canal a mere notch. Length three inches, breadth nearly two inches.

It belongs to the Boreal Province, and is abundant and in fine condition at Portland, Me. It is not common in Rhode Island, and when found is dwarfed in size. It inhabits the ocean rocks at Newport at low-water mark and to fifty or more fathoms in depth. It is found in Newfoundland, Labrador, Greenland, Iceland, Norway, and Great Britain. The animal is very voracious, and devours immense numbers of fish. Fishes in their turn devour it with equal greediness. This species is the edible whelk of England (called Buckie in Scotland), and is collected by boat-loads, and

is eaten in immense numbers when in season —August and September. They lay their eggs in October, and about two months are required for the development of the fry.

This species, like most Arctic shells, is variable in form and in size; our New England specimens were considered by the late Dr. Wm. Stimpson to be a distinct variety from the European shells, and were named by him Buccinum undulatum. An immense number of specimens from all the various localities where this species is found, have been carefully compared, and all the so-called varieties grade into each other, so that there is no longer a doubt but our shell is the undatum of Linnæus. The name also was not well chosen, as other naturalists had previously given it to other species; thus, Buccinum undulatum is a synonym of B. Groenlandicum, Chemnitz, and B. undulatum, Moller, Hancock, is a synonym of B. Totteni, Stimpson.

Family 4. Nassidæ, contains six genera, one of which, Nassa, is represented in Rhode Island.

Genus Nassa, Lam.

Distr., about 130 species, world-wide. Fossil numerous species.

Shell ovate, ventricose, body whorl variously sculptured; aperture ovate, with a short, reflected, truncated, anterior canal; inner lip smooth, often widely spread over with enamel, with a posterior callosity or a blunt, dentiform plait; outer lip dentate, internally crenulated. The genus is divided into eleven sub-genera, three of which inhabit our state. They are Phrontis, Tritria, and Ilyanassa.

Sub-Genus Phrontis, H. & A. Adams.

Spire elevated, acuminate, whorls ribbed or nodulous, distinctly shouldered; inner lip smooth, with an extended, thickened callus; outer lip with an external varix. There are eleven species, the only one of which inhabiting this country is the

10. Nassa (Phrontis) vibex, Say.

Syns:

Nassa fretensis, Perkins.
Buccinum vibex, Adams.
Nassa vibex, Say.

Shell short and thick, solid, ovate-conic; surface reticulated by twelve undulating ribs, crossed by ten elevated lines; color ashy white, olive, chocolate, or nearly black, with a pale reddish zone on the top, middle, and base of the body whorl; spire turreted, shouldered, the border of which is nodulous; outer lip thickened within and without, and dentate within; inner lip concave, overspread with callus; canal short. Length of shell, five to seven-tenths of an inch; breadth, one-third.

This species belongs to the Southern Atlantic Province, and is found in the West Indies. It is rare even in the Middle States, but has been found as far north as Cape Cod. I have found three specimens in Coweset Bay, probably brought here on Virginia oysters.

(To be continued.)

Egg-Laying Seasons of the Genus Fulgur.

Editor of Random Notes.

Dear Sir: In Notes on the Shell-Bearing Mollusca of Rhode Island, by Mr. Carpenter, he says, in reference to *Fulgur carica*, that "the animal lays its eggs in March and April,"— leaving the reader to infer that they are not laid in any other season.

This statement is true so far as it goes, but with all deference to the gentleman, he certainly appears to have accepted the conclusions of previous authors without personal verification.

Now it is a fact, though apparently unnoticed by Professor Verrill and other eminent naturalists, that the eggs of *F. carica* and *F. canaliculata* are deposited not only in the spring and autumn months, but in all of the winter months as well; the writer having demonstrated this in part by exhibiting capsules of both species at regular meetings of the Philadelphia Academy of Natural Sciences for six consecutive months, beginning with December, 1883; showing on each occasion the various stages of growth, from the freshly-laid eggs to the fully developed (embryotic) mollusks.

As a record of these facts may be found in the minutes of the meetings named, there should be no reason hereafter for the repetition of an error caused, in all probability, by the lack of opportunity for continuous investigation. John Ford.

Philadelphia, Penn., June, 1884.

CONCHOLOGICAL CHECK-LIST. VII.

J. RITCHIE, JR.

Family. Cyclostomacea Pfr.
Sub-family. Cyclophorea Pfr.

Leptopoma acuminatum Sow.
acutimarginatum Sow.
apicatum Benson.
aspirans Benson.
atricapillum Sow.
barbatum Pfr.
bicolor Pfr.
caroli Dohrn.
ciliatum Sow.
ciliferum Mouss.
decipiens Pfr.
distinguendum Dohrn.
dohrni Ad. et Ang.
elatum Pfr.
fibula Sow.
goniostomum Sow.
helicoides Grateloup.
ignescens Pfr.
immaculatum Chem.
insigne Sow.
lacteum Lesson.
latelimbatum Pfr.
lowi Pfr.
luteostoma Sow.
massenæ Lesson.
mathildæ Dohrn.
melanostomum Petit.
mouhoti Pfr.
moussoni Martens.
nigricans Pfr.
panayense Sow.
pellucidum Grateloup.
perplexum Sow.
pileus Sow.
polyzonatum Möll.
pulicarium Pfr.
regulare Pfr.
rœpstorffianum Nevill.
semiclausum Pfr.
sericatum Pfr.
strangulatum Benson.
undatum Metcalf.
vitreum Lesson.

Sub-family. Pupinea Pfr.

Megalommastoma altum Sow.
alutaceum Menke.
anostoma Benson.
antillarum Sow.
apertum Poey.
arboreum Cross et F.
auriculatum Orb.
bifasciatum Sow.
bituberculatum Sow.
croceum Sow.
cylindraceum Chemn.
digitale Gundlach.
funiculatum Benson.
guildingianum Pfr.
gundlachi Pfr.
lentilabrie Sow.
leonium Pfr.
mani Poey.
orbignyi Pfr.
pauperculum Sow.
procer Poey.
sectilabrum Gould.
seminudum Poey.
serotinum Adams et Sow.
sumatrense Dohrn.
tanycheilus G. Austen.
tortum Wood.
ventricosum Orb.
verruculosum Shutt.

Tomocyclus geali Cross et Fischer.
guatemalense Pfr.
simulacrum Morel.

Cataulus aurens Pfr.
austenianus Benson.
blanfordi Dohrn.
calcadensis Bedd.
cumingi Pfr.
decorus Benson.
duplicatus Pfr.
eurytrema Pfr.
gregarius H. Nevill.
hæmastomus Pfr.
layardi Gray.
leucocheilus Adams et Sow.
marginatus Pfr.
nietneri Nevill.
pyramidatus Pfr.
recurvatus Pfr.
templemani Pfr.
thwaitesi Pfr.
tortuosus Chem.

Raphaulus bombycinus Pfr.
chrysalis Pfr.
minor A. Adams.
pachysiphon Theob et Stol.

Fresh Water Aquaria.

One of the first things to be learned by the inexperienced person, in attempting to solve some of the mysteries of the rock-pool, or of the populous shades of the "submerged grove" of aquatic plants, is that of reproducing the conditions, as far as possible, under which the animals or plants flourish, that are found there; they may sometimes be found in places ill suited to their best development; observation is the best teacher here.

Some plants, as for example anacharis, or starwort, flourish best in a cool and not too sunny situation; they grow most luxuriantly in, or near, cold springs; while other plants, as milfoil, hornwort, and many other species do well, or best, in warmer situations.

So of the fishes, some species do well in water at as high a temperature as that suited to the gold-fish; while the sand-darter (*Boleosoma olmstedi*) requires, for health, a much lower temperature, and a comparatively shady place. Specimens of this interesting species can be taken at different points on the Ten-mile River; one of the largest specimens I have ever caught was taken near Dagget's Bridge, east of Pawtucket. They are to be found, also, in the other streams and some of the ponds of that vicinity. The darter is one of the queerest little fishes that can be found for the aquarium; it is from two to three inches in length, and dart-shaped; its weak fins barely enabling it to struggle to the surface for the oxygen not always in sufficient quantity at the bottom; ordinarily it rests upon some object. It spends the greater part of the time inspecting carefully the rocky recesses, or climbing over them; glides among the plants, and at every pause makes a careful survey; the flexibility of its body adding much to the effect of its movements: it turns its head to either side, changing its general position only after careful examination of the objects about it; then perhaps takes an upward look, while standing on its bent caudal extremity, mermaid-like. It is only after weeks of fruitless searching in this fashion for the crustaceans, insects, and minute fishes that, sick with long-deferred hope and gaunt with hunger, *Boleosoma olmstedi* finally takes the unaccustomed proffered food from the hand. S.

Providence.

Wild Roses.

Fair June is at her best when the wild roses open their blossoms to the sunlight. When the meadows are bespangled with daisies and buttercups, and the bees hum about the clover tops, we love to wade knee-deep in the billowy grass upon which these beauties seem to float. It is then that the sweet wild roses which gather about the stone walls of New England come quietly into bloom. It is peculiarly inappropriate to say of them that they *burst* into flower. Creatures so gentle have not so demonstrative an evolution. All their movements are like their outlines, graceful. The colors are the highest and most delicate conceivable; an embodied blush, a sunrise glow enshrined. The perfume is as sweet as the memory of the loved and lost. It is not overpowering, but pervasive, subtle, and delicious. In the season of the roses we keep a cluster of these native blossoms, the full-blown flowers and the opening buds, upon our table. They hallow our thoughts and make us at peace with all men. They are as transient as all things that we prize. Hardly can one say, how admirable, when the petals fall upon our paper. With the splendid mountain-laurel, they are commencement flowers, opening into loveliness at the time when the young graduate goes forth into real life. Yet how different are they from the superb shrub that makes glad our highways and smiles over the ashes of the dead! The Kalmia is a type of mature and thoughtful summer; the rose of spring's later days. For our spring is not confined to May. If we possess such a season at all, it is in June.

We do not underrate the roses of the garden when we express our delight in their unpretending field relatives. The undoubled flower, as nature designed it, is dearer to us than the long-prized and modified horticultural favorites. In the early morning when the dew beads its wondrous petals, we seek the rose as a part of our devotion. Surely no sweeter incense rises to the throne of God! W. Whitman Bailey.

Imported Artificial Glass Eyes,

For Taxidermists, Jewelers, Soap Mfrs. and Fancy Work.

TERMS INVARIABLY CASH WITH ORDER.

No.	COLORED EYES. Pr. Pair.	Pr. 10 Pairs.	BLACK EYES. Pr. Pair.	Pr. 10 Pairs.	Pr. 50 Pairs.
1	03	30	01	05	12
2	03	30	01	05	14
3	04	34	01	06	16
4	04	36	01	08	20
5	05	40	02	08	25
6	06	50	02	10	30
7	07	60	02	12	35
8	08	70	03	14	40
9	09	80	03	16	45
10	10	90	03	18	50
11	10	90	04	20	60
12	12	1 00	04	22	70
13	14	1 20	04	25	80
14	17	1 50	05	35	1 00
15	19	1 70	06	45	1 20
16	20	1 90	07	50	1 40
17	23	2 10	08	60	1 60
18	26	2 30	09	70	1 90
19	28	2 50	11	85	
20	32	3 00	14	10	
21	40	3 50	18	1 20	
22	50	4 50	20	1 50	
23	60	5 25	24	1 75	
24	70	6 25	28	2 00	
25	80	7 00	32	2 50	
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If any special eyes are wanted, describe as nearly as possible just what is wanted, and for what.

No.	Diameter.
1	1 3-32 in.
2	4 "
3	5 "
4	6 "
5	7 "
6	8 "
7	9 "
8	10 "
9	11 "
10	13 "
11	14 "
12	15 "
13	16 "
14	17 "
15	18 "
16	20 "
17	22 "
18	24 "
19	26 "

No.	Diameter.
27	44-32 in.
26	42 "
25	40 "
24	38 "
23	36 "
22	32 "
21	30 "
20	28 "

☞ ALL ORDERS OF EYES SENT PREPAID.

ALASKA EGGS.

MR. EDWARD W. NELSON

HAS CONSIGNED TO US

HIS PORTION OF THE COLLECTION MADE BY HIM

DURING THE FOUR YEARS HE WAS IN THE EMPLOYMENT OF THE UNITED STATES GOVERNMENT, IN ALASKA.

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WE WOULD ADVISE THOSE DESIRING TO FORWARD THEIR ORDERS AS SOON AS CONVENIENT.

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178a	White-rumped Redpoll	.75
187	Lapland Longspur	.80
193b	Western Savannah Sparrow	.50
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563	Red Phalarope	2.00
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588	Whistling Swan	4.00
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614	Scaup Duck	.65
623	Long-tailed Duck	.40
626	Spectacled Eider	4.50
660	Glaucous Gull	1.00
677	Sabine's Gull	3.00
687	Arctic Tern	.15
739	Pacific Diver	2.50
748	Crested Auk	4.00
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187	Lapland Longspur, sets of 5, 4, 3, 2, at	1.00
593a	American White-fronted Goose, 4, 3, at	3.00
677	Sabine's Gull, 2, at	3.50
687	Arctic Tern, 2, at	.20

With sets nests *are not* charged extra.

NESTS WITHOUT EGGS.

178a	White-rumped Redpoll	.50
187	Lapland Longspur	.50
193b	Western Savannah Sparrow	.35
474	Willow Ptarmigan	1.00
593a	American White-fronted Goose	1.00
614	Scaup Duck	1.00
623	Long-tailed Duck	1.00

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VOL. I. NO. VIII.

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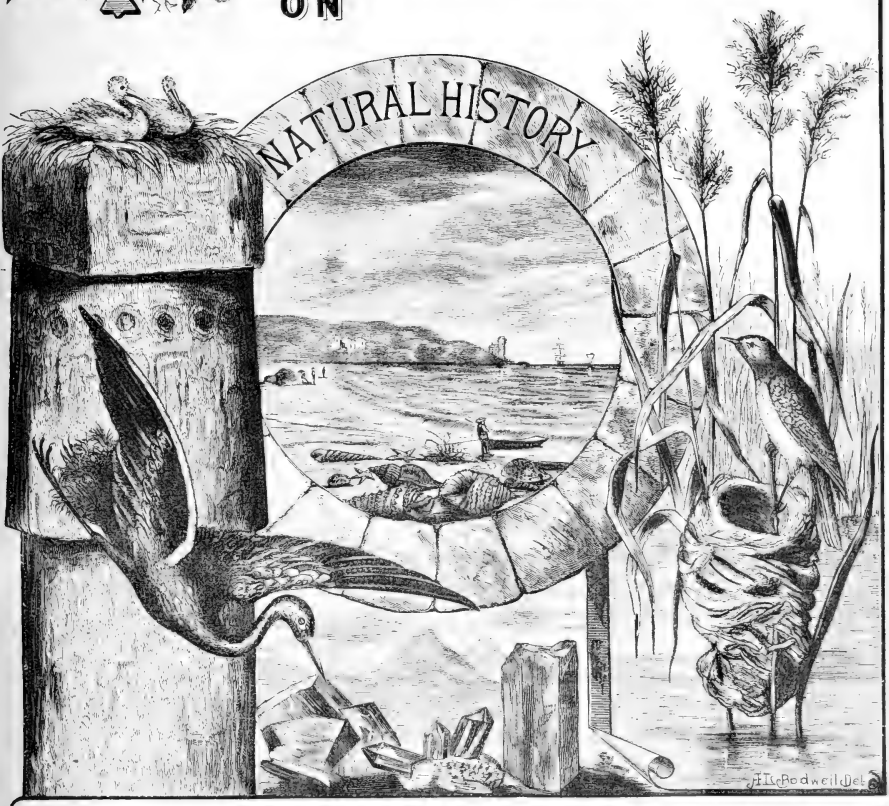

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Random Notes on Natural History.

Vol. 1. PROVIDENCE, AUGUST, 1884. No. VIII.

Entered at the Providence Post-Office as Second-Class Matter.

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SPECIAL NOTICE.

Supscriptions hereafter will begin with the current number, or the March number if desired.

Mr. Frederic A. Lucas, secretary of the Society of American Taxidermists, kindly volunteers his services to aid our taxidermist department. Mr. Lucas has made a specialty of mounting reptiles, the turtles being favorites.

The Handbook of the St. Nicholas Agassiz Association, by Mr. H. H. Ballard has recently appeared. It gives the history of that organization, and full instructions to aid its members in their work. A few statements under "How to collect and preserve birds" will be liable to give the amateur trouble. The author would have done well to have left out where the best places to find birds are, for each bird chooses situations suited to its habits, and to collect a large variety as varied country as possible should be visited.

We would advise not using any hook, as with a little experience it can be readily dispensed with, and a saving of time gained. With its use large birds may be handled more easily, but in the case of small birds the fingers soon learn how to clasp the body so that the feathers will give no trouble by sticking to the meat.

"If the head is too large, . . an incision must be made under the throat which can afterward be sewed." This is all wrong; *never* cut a bird under the throat, but instead *open it on the back of head.*

The further statement after poisoning of, "turn it (the skin) right side out and allow it to become perfectly dry." After this he would have the plumage smoothed out and the bird made into a skin. *This is impossible.* The bird must be made into a skin while moist, when dry nothing can be done with it.

Our bird catalogue gives a much better method for making bird skins, and if any of our statements are not clear, or if there are any points about taxidermy which our readers would like explained we invite them to write for an explanation. We are also willing to assist members of the Agassiz Association on this subject. The editors of Random Notes also wish instructive articles on taxidermy from any who are interested in the art.

The Third Annual Report of the Society of American Taxidermists is now in the binder's hands and will soon be ready for delivery to the members. It forms a book of 128 pages with two heliotype plates, and contains a full account of the New York meeting of 1883, with all the addresses and papers then read. The Society is making steady progress and is continually adding to the number of its members. A meeting will soon be held for the election of new members, and for the purpose of discussing the date for the next exhibition.

Valuable Notes from Vermont.

Several months ago Mr. C. W. Graham mentioned incidentally in a letter to us, the capture of a Scissor-tailed Flycatcher, *Milvulus forficatus.* In response to a query for particulars he writes: "Am sorry I can't give a real nice story about the Scissor-tail. Can't find the memorandum made of it anywhere. All I can tell now is I ran across the fairy while hunting cedar birds, and followed it, thinking it was a partial albino cuckoo. When we took it in, it proved a genuine Scissor-tail, and now reposes in Dartmouth College. Can't tell the date for the life of me. If I had time I'd make a yarn worth reading, but as it is I

give the bare brief facts. Don't think it worth noticing, do you?

"This is a great country for stragglers. A Kittewake Gull was shot here recently, and not long since a Stilt, and a Snow Goose. Why, birds are getting so tame — I've just mounted a Black Eagle, seven and a half feet spread, that was killed with a club by a man, who, riding along the road, saw it on a stump just in the edge of the woods. A Fisher Cat was killed this spring two miles out (St. Johnsbury), by a boy who saw it run across the highway, got out, followed it with a stick and killed it. He brought it to me before it was cold to find out what it was.

"If you wish, in future I'll make note of any thing unusual and forward it promptly. By the way, I've discovered one thing lately I never knew before, though I presume I'm the one in ignorance, viz.: that chipmunks eat grasshoppers. I've set up lots of 'em lately and all have had their pouches full of hoppers."

Ed.: We shall be very glad to have notes of interest not only from Mr. Graham, but from all. If any have records of capture of birds as far from their habitats as the Scissor-tail Flycatcher was when it visited northern Vermont, we hope they will make us their tribunal to judge of the worth of such captures for printing.

NORWICH, CONN., July 11, 1884.

To the Editors of Random Notes:

Your article in the July number of *Random Notes* referring to the fact that the Great Horned Owl appropriates nests other than its own, recalls to mind the taking of a set of eggs from an old nest of the Bald Eagle, on the north fork of the St. Sebastian River, Florida, a year ago last January, at which I was present and assisted. On the day preceding we, that is the male members of our camping party, three in number, started on a fishing excursion, taking a short cut through the pine woods, to a bend in the north fork, where we expected to take some large black bass. Within a half-mile of our camp we discovered the nest referred to, and, looking at us over the edge of the nest was what appeared to be the head of a wild-cat. For some time we stood still and speculated as to whether it was really a cat and whether we should fire at it, for we were armed with both rifle and shot-gun.

After a lengthy consultation, Read, who was well up in wood-craft, decided that it was a Great Horned Owl, and, rapping on the trunk of the tree, disturbed her ladyship and induced her to fly to an adjoining tree. The next morning we went to the tree with a long rope and, after much trouble, two fresh eggs were brought to the ground, and are now in the collection of Mr. John M. Howey, of Canandaigua, N. Y., who was one of the party.

Within a few miles of our camp there were several nests of the Bald Eagle, some of them occupied, from one of which a single egg was taken by Read and Howey. The nest from which the owls' eggs were taken was evidently one deserted by its former occupants and builders, the Bald Eagles.

Yours, FRANK H. ALLEN.

MR. W. W. GRAHAM has returned to England, and reported before the Geographical Society some very daring and extended explorations which he made among the Himalaya Mountains. He reached a point 1,700 feet higher than has ever been attained before. He and his companions were able to climb, and to breathe without discomfort on Dunagiri, at an elevation of 22,700 feet (at which point a terrible storm compelled them to return). An audible beating of the heart was noticed, but none of the effects common to great altitude, such as deafness, blindness, headache, and bleeding at the nose. They had, however, become inured by experience on other peaks as high as 18,000 feet. Later the party ascended Gubona, 21,300 feet high, and then Kabru, reaching the summit, which is 21,015 feet above sea-level.

It has been for some time surmised that north of Mount Everest, were peaks still higher, and a range superior to what is commonly called the Himalayas. Of this, Mr. Graham is now positive, for having penetrated so far into the chain, from his elevated position he could see two peaks, previously hidden, that towered above the second range and showed themselves over and far beyond Everest.

"Is life worth living? Depends on the liver."

The Red Squirrel in the Adirondacks.

BY C. HART MERRIAM, M. D.

[*From advance sheets of Vol. II. Trans. Linn. Soc., N. Y.*]

THE Red Squirrel is one of the commonest and best known of the mammalian inhabitants of the Adirondacks, being found in all parts of the wilderness at all seasons of the year.

His diet is more varied than that of our other squirrels. In addition to nuts and acorns he feeds upon a variety of seeds and roots, the buds and leaf-stems of certain trees, several species of "toad-stools" and other fungi, seeds from the cones of pines and spruces, fruits and berries of many kinds, beetles, birds' eggs, and even young birds. And in winter he does not look with disdain upon scraps of meat or fish that may have been left within his reach.

He is the most hilarious of the preëminently merry and frolicsome family to which he belongs, and his joyous and jubilant nature enables him to triumph over the sense of gloom that pervades the sombre coniferous forests of the North, rendering him cheerful and contented in the darkest and most impenetrable of our evergreen thickets. Indeed, it is this happy faculty of adapting himself and his modes of life to a diversity of surroundings that has permitted his wide dispersion, the present boundaries of his habitat being coëxtensive with those of the wooded portions of the northern part of our continent.*

The Chickaree combines qualities so wholly at variance, so unique, so incomprehensible, and so characteristic withal, that one scarcely knows in what light to regard him. His inquisitiveness, audacity, inordinate assurance, and exasperating insolence, together with his insatiable love of mischief and shameless disregard of all the ordinary customs and civilities of life, would lead one to suppose that he was little entitled to respect; and yet his intelligence, his untiring perseverance, and genuine industry, the cunning cleverness displayed in many of his actions, and the irresistible humor with which he does everything, command for him a certain degree of admiration. He is arrogant, impetuous, and conceited to an extreme degree, his confidence in his own superior capabilities not infrequently costing him his life. In fact, these contradictions in character and idiosyncrasies in disposition render him a psychological problem of no easy solution.

From earliest dawn till the setting sun has disappeared behind the distant hills, the Red Squirrel enlivens the silent solitude of the forest with his merry ways and saucy chatterings; and he may sometimes be discovered in the darkest hours of the night, stealing softly over the ground — bent, doubtless, on some errand of dubious propriety. Moonlight evenings he is often as active, though not so noisy, as during the day, and in early autumn he vies with the flying squirrel in nocturnal nut-husking exploits. Though an expert climber, delighting in long leaps from bough to bough, which he executes with grace and precision, he spends far more time on the ground than the other arboreal squirrels, sometimes even making his home in holes in the earth. Old logs, stumps, wood-piles, and brush-heaps are favorite places of resort, and by excavating burrows beneath, he converts them into the securest of retreats. Our fences serve as highways upon which he travels from wood to wood, and the zig-zag rail-fence in particular is one of the boons of his existence. It is his most frequented path, his playground, his race-course, and when pursued, his readiest means of escape. It is the step-ladder from which he leaps into the branches of neighboring trees, and the place where he meets his friends at all hours of the day. He frequently follows it to the farm-house and takes up his abode in the woodshed or other out-building, placing his nest between the ceiling and roof, or in some other equally out-of-the-way spot, whence he is with great difficulty dislodged.

He is the least wary of the squirrels, rarely taking the trouble to hide himself at the approach of man. In fact, on such occasions he usually assumes an aggressive attitude, chippers, shakes his tail in an impudent and wholly uncalled-for manner, but takes care to keep just out of reach. This daring fearlessness is clearly the result of the fact that he is not worth the powder necessary for his destruction, and he is therefore tolerated, though an acknowledged nuisance. But there are times when his conduct becomes so scandalous that the

* The species and its several geographical races are here spoken of collectively.

shot-gun is brought out for his suppression. He is soon deeply impressed with the range and effect of this weapon, and, though many of his brothers may have perished before the warning was heeded, he now becomes, in this particular locality, the most circumspect of brutes. He scorns the thought of running away, but grows so vigilant, sly, and crafty, that the farmer is put to his wit's end to devise means for his riddance. . . . . .

He is not always to be found in equal numbers, but is influenced in a marked degree by the beechnut crop. In seasons when mast is plentiful there seems to be a squirrel for every tree, bush, stump, and log in the entire wilderness, besides a number left over to fill possible vacancies. When, on the other hand, the nut crop has been a failure, a corresponding dimunition in the numbers of squirrels is observable, and they are sometimes actually scarce. Hence it is clear that while the diet of the Red Squirrel is varied, his staple commodity is the beechnut, the yield of which in any year determines his abundance in the succeeding winter and spring. That he migrates, on a small scale at least, is a fact concerning which there can be no reasonable doubt: on any other hypothesis we are at a loss to account for the suddenness of his increase and decrease over certain areas of large extent, and find it difficult to explain why he is sometimes met with in numbers swimming our lakes and rivers, always in one direction. . . . . .

Plant Collection.

Every season we are asked innumerable questions as to the methods of collecting and preserving plants.

The primal requisite for success is the selection of good specimens, representing, if possible, both flower and fruit, and having attached their roots or other underground parts. In many plants, for instance ferns, these subterranean portions are as important as the upper parts. Fruit in many families is absolutely necessary for the identification of genera or species. Thus, in the parsley family, the mustard family, and in sedges one cannot do without it. Any botanist is justified in declining to name one of these without the proper parts. Here, too, we are led to speak of the careless or ignorant way in which plants, often of interest, are sent to a botanist to name. A bit of the aflorescence, or a single flower, without stem and leaves or roots, is given him to puzzle over. He may determine it, but usually his time is too valuable to be spent in unraveling riddles. We are all ready to answer legitimate questions, but can hardly be expected to occupy ourselves with enigmas. A specimen should be selected also for its symmetry and neatness of appearance. Among a lot of plants growing together, some will be better than others.

If one is collecting by means of the *vasculum* or tin box, he can put his specimens in this as gathered, occasionally moistening with a few drops of water. If, on the other hand, he uses a portfolio, he can put each plant in a folio of bibulous paper, with a drier or so between, and apply pressure by the straps. Much more care is required in the ultimate pressing. When overlying, parts should be straightened out, dead leaves removed, thick portions pared down, etc. A plant should never be removed from the original folio until perfectly dry, but the papers on either side of this folio should be repeatedly changed, new and dry ones being substituted for those which are damp. The wet papers can be exposed to dry either hung up on lines or laid on the attic floor, or exposed to sunlight on a roof. They soon part with their moisture and are again ready for use. Plants vary much as to the time they require in drying. Judgment and experience must here be the guides. Many hints as to processes, too extended to be here mentioned, can be obtained from the writer's "Hand-Book."* A plant is known to be dry by its feeling. It should no longer be cool to the touch. There is also a peculiar dry rattle when it is cured that old hands learn to know.

All plants destined for long preservation must be in some way poisoned to prevent the ravages of insects. Botanists prefer to use a strong alcoholic solution of corrosive sublimate, applied by a brush. After again drying, the specimens are ready to mount. They are then attached to paper of standard size, by means of glue, and are placed in proper cases, labeled and classified for reference.

W. Whitman Bailey.

* *Botanical Collector's Hand-Book.*

The Shell-Bearing Mollusca of Rhode Island.

[BY HORACE F. CARPENTER.]

Chapter VIII.

Sub-genus Tritia, Risso.

Spire elevated, whorls reticulated; inner lip smooth with a moderate callus; outer lip simple.

11. Nassa (Tritia) trivittata, Say.

Shell ovate-conic, turreted, apex acute, color greenish, reddish, or yellowish white, surface reticulated by very elevated decussating lines; whorls seven, flattened above so that they appear shouldered at the suture; aperture oval, a few elevated lines within, not reaching to the margin; outer lip sharp, but scalloped on the edge by the revolving lines; inner lip arched and calluesd; operculum horny, irregularly triangular in shape, with one half its edge sharply serrated. Animal whitish with lilac spots.

The specific name was evidently given by Say on account of the three rufous bands on the body whorl; these bands are not always present, but Say's specimens were from the Southern States, where it reaches its perfection; our shells sometimes have these bands, but not as a rule. It ranges from Georgia to Halifax, and consequently is subject to much variety in form and color. Specimens from Nantucket have the inner margin heavily coated with enamel, while those from Boston have none. In some cases the longitudinal and transverse lines are of equal distance from each other; in others the longitudinal lines are more distant, thus giving the shell a different appearance. Most specimens from our northern shores are covered with a greenish black coating while alive, and on the other hand we occasionally find one with all the revolving lines colored reddish. It is found in sand from low water mark to fifteen fathoms. It is very active and comes out of the sand in a minute or two after the water passes over it. At Nayatt Point is a reef of rocks extending from the light-house out into the bay; there is always more or less surf at this point, and just within the reef, on the side towards Warren, is a low sandy flat, where probably an abundance of this species inhabit, for at low tide can be found quantities of dead shells among the rocks, where they must have been driven in by the surf, from their habitat in the sand. They attain a length of four-fifths of an inch by three-tenths in breadth.

Sub-genus Ilyanassa, Stimpson.

Shell dark olive-brown, reticulated; outer lip without varix, striate within; inner lip covered with a spreading callus. Operculum with entire margin.

12. Nassa (Ilyanassa) obsoleta, Say.

Shell ovate, inelegant, dark reddish to black; whorls six, covered with a net work of lines reticulating the surface; apex obtuse; aperture oval; outer lip simple and sharp; inner lip deeply arched and overspread with enamel; interior of the aperture dark purple; canal, a mere notch; operculum horny. Length one inch, breadth one half inch.

This shell is one of the most common objects which meet the eye of the visitor to the shore. One can hardly help noticing thousands of them in every direction. It inhabits from Maine to Florida; it accommodates itself to all conditions; it lives at Block Island, where the ocean washes over them its saline waters; it thrives equally as well in brackish water, where fresh water streams are met by the inflowing tide; we find it at high-water mark, on the flats left bare between tides, and at the bottom of the bay and ocean.

Although we have at all times millions of specimens to select from, a collector might search all day and not find a dozen worth saving. It is very rare, in Rhode Island at least, to find one of these shells (adult), having the decussating lines, together with a perfect apex; nearly every one is badly eroded, the lines obliterated, and the apex decollated. A greenish, mould-like coating, collects upon them and renders them unsightly objects. I have some specimens, collected near the Charlestown Navy-yard, which are nearer perfect than any I have seen in Rhode Island.

The visitor to the shore in search of health or pleasure, may not be aware that it is due to the presence of these insignificant objects, seen on every side in such

profusion, that the shore is not a place to be avoided rather than sought, but such is the fact. There are vast quantities of decaying vegetable and animal matter lying on the shore and at the bottom of the bay, which, if left to itself, would poison the air and water and render it impossible to live near it; but as among birds we have the vulture, and among beasts the jackall, so in the ocean we have among molluscs the cannibal snail, Ilyanassa obsoleta, which indiscriminately devours every dead object, and even attacks the inoffensive clam as it lies at high tide, with its foot extended, and with one sweep of its tongue, tears off by the denticles with which it is covered, a piece of the living flesh and devours it. The dead shells of this species are the favorite abode of the Hermit Crab, Pagurus longicarpus. Nine-tenths of the shells brought up by the dredge are of this species, each containing a living crab.

The ova capsules are laid in April and May, of a transparent corneous texture, attached to the inside surface of a valve of Venus or Mya, or on the inner face of the vidus of Natica; they are deposited in vast numbers, and completely cover the object to which they are attached.

The three species described above: Vibex, trivittata, and obsoleta, were all described by Say under the generic name of Nassa, in 1822, *Journal Acad. Nat. Sci.*, Vol. 2, pp. 231 and 232.

Family 6. Turbinellidæ, consisting of two genera, Turbinella with four species, and Vasum with seven, is not found nearer than the West Indies.

Family 7. Volutidæ, a large family of showy, fine and conspicuous shells, some of them rare and expensive. There are five genera, sixteen sub-genera, and about one hundred living, and two hundred and fifty or more fossil species, none of which inhabit the United States, excepting Voluta (Aulica) junonia, Chemn., which inhabits the deep water off Florida. This is a rare and highly prized shell, specimens of which have been sold as high as two hundred dollars. Messrs. Southwick & Jencks have specimens on sale which can be bought for ten dollars each.

Family 8. Mitridæ, contains eight genera and over five hundred species, all of which are foreign to our fauna.

Family 9. Marginellidæ: two genera, nine sub-genera, and two hundred and seventeen species, all tropical and subtropical, and seventy-five fossil species.

Family 10. Olividæ, with three subfamilies, four genera, ten sub-genera, and one hundred and twelve species, all absent from our fauna.

Family 11. Columbellidæ, contains four recent genera and two fossil, fourteen subgenera, and about three hundred and fifty species, of which six inhabit New England, descriptions of which will be given in the next chapter.

(To be continued.)

ORGYIA LEUCOSTIGMA

In Providence and vicinity, for the past two years, about July 20, a handsome caterpillar has appeared. Length one-half to one inch and a quarter; back black on the first half with four thick white or yellow tufts, the last half black with two small red tufts, and striped on each side with yellow, sides gray, head red, under parts yellow white, two long loose pencils of black or brown hairs extend forward over its head, and one of loose brown hairs backward from the tail. They infest particularly the elms and lindens. The English Sparrows do not touch them, and they promise to multiply. After a time a white silken cocoon is spun loosely in the crevices of the bark, enclosing a dark brown pupa about one half an inch long, and this should be destroyed, as in a short while, having undergone transformation, a male moth (according to Packard brown with a lunate white spot near the outer angle of the wings), will issue, or else a wingless female, creamy or dirty white in color, and hardly to be noticed as she sits on the old cocoon, where she is quickly sought out by the male. Directly she lays in the same place a mass of white eggs, that to the eye look like a white crust, or the dried and somewhat glistening white of a hen's egg; these in turn hatch out the caterpillar.

The whole affair is so simple, the caterpillar so prominent, and the female moth so defenceless and local in her habits, that a very little time and labor applied to the killing of the handsome caterpillar, and the scraping down the cocoons at any and all seasons, must result in much good.

CONCHOLOGICAL CHECK-LIST. VIII.

J. RITCHIE, JR.

Family. Cyclostomacea Pfr.

Sub-family. Pupinea Pfr.

Streptaulus blanfordi Benson.

Pupinella angasi H. Adams.
borneensis Pfr.
ceramica Martens.
crossei Braz.
grandis Forb.
meridionalis Pfr.
mindoroensis Adams et Reeve.
morrisonia H. Adams.
planilabris Pfr.
pupiniformis Sow.
rufa Sow.
swinhœi H. Adams.

Pupina ambigua Semper.
artata Benson.
aurea Hinds.
bicaniculata Sow.
bilinguis Pfr.
brazieri Cross.
complanata Pease.
cumingiana Pfr.
difficilis O. Semper.
ephippium Grdlr.
fusca Gray.
grandis Gray.
imbricifera Benson.
japonica Martens.
keraudreni Vign.
lubrica Sow.
nicobaria Pfr.
ottonis Dohrn.
pellucida Sow.
pfeifferi Dohrn.
pinctícola Cox.
polita H. Adams.
pulchella Mölldf.
robusta Cox.
similis Sow.
splendens Dohrn.
strangei Pfr.
thomsoni Forb.
ventricosa Dohrn.
vescoi Morel.
vitiensis Garrett.
wilcoxi Cox.

Sub-family. Licinea Gray.

Jamaica anomola C. B. Adams.
moussoniana C. B. Adams.

Licina dubia Gmel.
evolutum Reeve.
labes Müll.
percrassa Wright.
reevianum Pfr.

Choanopoma adolfi Pfr.
alatum Pfr.
arangianum Gundlch.
auricomum Gundlch.
blaini Gundlch.
chittyi C. B. Adams.
daudinoti Gundlch.
decoloratum Gundlch.
decussatum Lam.
echinus Wright.
fimbriatulum Sow.
granosum C. B. Adams.
hillianum C. B. Adams.
humboldtianum Pfr.
hystrix Wright.
interruptum Lam.
jiguanense Pfr.
lachneri Pfr.
lima C. B. Adams.
lincina Linn.
lincinellum Lam.
majusculum Morel.
minium Gundlch.
mite Pfr.
perplicatum Gundlch.
pisum C. B. Adams.
pretrei Orb.
nudicum Orb.
pulchrum Wood.
putre Gundlch.
sauvallei Gundlch.
scabriculum Sow.
senticosum Shutt.
sordidum Gundlch.
spinulosum A. Adams.
storchi Pfr.
tentorium Pfr.
tractum Gundlch.
troscheli Pfr.
wilhelmi Pfr.
yaterasense Pfr.
yunguense Pfr.

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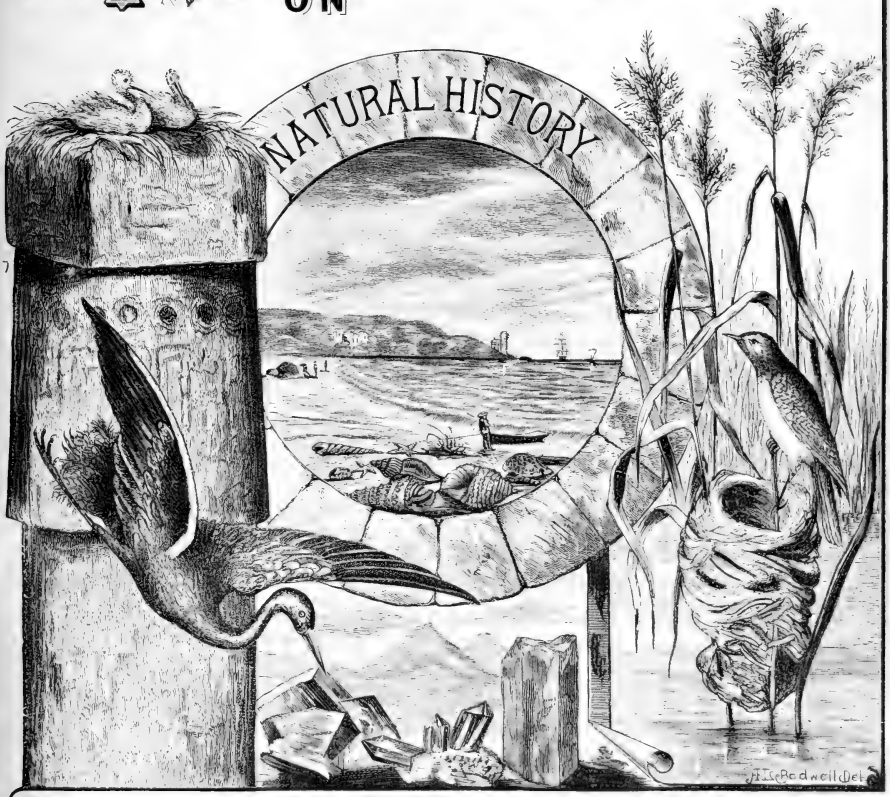
VOL. I. NO. IX.

RANDOM NOTES ON NATURAL HISTORY



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SPECIAL NOTICE.

Subscriptions hereafter will begin with the current number, or the March number if desired.

Those having copies of January or February to spare will confer a favor by returning the same to us. We will accept such copies if in good preservation, and forward for each 10 cents, or they may be used for that amount in the purchase of goods from us. The sender should write "from" and his name and address on the wrapper.

Articles are continually appearing in the newspapers, stating facts pertaining to natural science, but giving no authority for the same. Many times these reported facts are the fruit of some scribe's brain, and very interesting; but what we want to know is, are they true? A New Orleans paper, under the title of "The War on the Condor," gives quite a lengthy account in substance as follows: That the Chilian government has declared a war of extermination against the condor, and offers $5 a head for them, that they are so shy as to render it nearly impossible to kill them, and it is further suggested that the only possible way seems to be by destroying their eggs.

This latter clause seems so improbable as to cause a distrust of the entire article. We would like to know *why* the condor is a nuisance, and if so, why he may not be disposed of in the same manner that has well nigh exterminated our California Vulture?

This was by poisoning the carcasses of animals for the wolves to eat, and the vulture eating also, shared the fate of the wolves.

The author remarks that "birds soon learn to avoid danger, as has been proved since the erection of telegraph wires, few birds now being killed by flying against the wires." We are constantly receiving birds killed in this way, but with few exceptions, they are night-flying birds. Was the mortality greater in the earlier days of telegraphy than now? The cuckoos seem to be most foolish in this respect, even flying against windows and screen doors in broad daylight.

The present is an age for exploding settled theories and statements, so oft repeated as to be accepted by all for facts. The prairie-dog, burrowing owl, and rattlesnake no longer live in harmony, hoop snakes no longer exist, etc. But the bighorn sheep is still allowed to make long leaps and alight on his horns. The editors of Random Notes invite their readers to pick to pieces this modern mythology. Barnum says the American people like to be humbugged. Were it not so it is not likely so many oft-repeated bogus facts would have survived so long unchallenged.

A statement has lately appeared that the prairie-dogs are acquiring new areas eastward, and bid fair to be a serious pest. Will some of our correspondents living on the eastern border of the range of the prairie-dog give us their views?

In reply to our question why he advocates the opening incision being made from *top* of breast-bone, Mr. Lucas replies:

"In every work on taxidermy, we are told that in skinning a bird the cut should commence at the lower part of the breast-bone. After much experience in mounting dried skins, we would say, commence near the *top* of sternum. In the majority of dry skins the opening is too short to permit ready manipulation and has to be prolonged. Now the edges of the original cut will be found shrunken and thickened, and stitches taken therein do not pull out. But in the new cut the edges are thin and weak, and

the thread tears out, greatly to the annoyance of the taxidermist. You may, perhaps, imagine that the skin you are making will never be mounted, but give it — and the taxidermist — the benefit of the doubt. Your skin will look just as neat and will be more satisfactory to mount with a long cut than with a short one."

We cannot entirely agree with Mr. Lucas, at least we should not lengthen the cut until after the skinning was done, for at the top of the sternum the skin is tender and very apt to tear crosswise. Again, a skin with a long cut must of a necessity be sewed in order to fill it out so it will look well, and we venture to say that very few will make the long cut and do the sewing, when it is easier to skin a bird through a short one and do none.

Feathered Engineers.

What a Couple of Baltimore Orioles did by Setting Their Wits to Work.

On the western side of Central Park, very near 103d Street and Eighth Avenue, stands a row of elm trees, difficult to approach on account of a heavy growth of syringa bushes around them. On a branch of one of the trees, about sixteen feet from the ground, a pair of Baltimore orioles set to building a nest a few weeks ago. They chose the extreme end of the bough, with evident intention of making it a hazardous experiment for any bird-nester to attempt to molest them. But in their excess of caution they appeared not to observe what the few persons whose eyes were keen enough to see the first labors of the little architects saw — that the branch was much too slender to support so large a nest as an oriole builds.

When the nest was about two-thirds finished the birds saw their mistake. The branch had bent so low that it was getting perilously near the grass. Work was at once stopped, and the builders sat close together for a long time, and seemed to be discussing the situation. Finally, they flew side by side to a bough about fifteen inches over the one on which their nest was, and, leaning over, inspected the distance. They seemed to be satisfied, and, though it was growing rapidly dusk, the birds flew away in opposite directions. In the morning it was found that they had firmly secured their habitation and prevented the branch from bending lower, by passing a piece of white string, which they had found somewhere in the Park, over the upper bough, and fastening both ends of it securely to the edges of the nest. The building then went rapidly on, and the orioles are now engaged in hatching their eggs. Very few persons have seen the nest, and there is a fair prospect that their skill and ingenuity will be soon rewarded by a brood of young orioles.

The Baltimore oriole is a very intelligent bird, but a New York ornithologist, who saw the nest, said that he had never before seen an achievement quite equal to this one. He says the art of knitting fibres or strings together is well known to many birds. The weaver bird of India builds its nest out of a large, strong leaf, which it stitches together at the edges, making a compact and closely adhering funnel.— *New York Sun.*

St. Johnsbury, Vt., July 12, 1884.

Editor of Random Notes:

To-day I received a specimen which I *think* is worthy of notice in Random Notes. *A Black Vulture*, killed near Montpelier, this state. An adult bird in good feather, twenty-three inches in length, wing sixteen and a half inches, and smells like a water lily.

As far as I can learn, nothing of the kind was ever seen in the state before. Is it rare north or not?

The man who sent it forwarded a brief note as follows: "Shot this in Woodbury, Vt., yesterday. What is it?"

Can you tell me what the so-called "*Black Eagle*" really is? Is it a young Bald, or a distinct variety? I can't satisfy myself regarding them. Cordially yours,

Graham.

According to authority older than you or ourselves, we must pass on every eagle not a Golden, that inhabits this section of the country, the name of Bald.—*Ed.*

There seems to be much confusion regarding the Loggerhead and White-rumped Shrikes. The former is the bird of the South Atlantic and Gulf States. The latter variety is found in New England, the Middle and Western States to the Pacific Ocean.

The Rodentia of Rhode Island.

No. II.

The family *Sciuridæ*, or Squirrels, is represented in Rhode Island by five genera and five species. A general and brief history of the family cannot be better rendered than by Dr. Coues, in the new *Standard Natural History*, published by S. E. Cassino & Co.

"The *Sciuridæ* offer for consideration a wide range of variation, which passes by very gentle gradations from the large, heavy, terrestrial, and fosorial marmots, or ground-hogs, with their short limbs, ears, and tail, through the chipmunks, which stand exactly on the dividing line, to the agile, graceful, and perfectly arboreal squirrels, whose trim limbs and long, shadowy tails present the opposite end of the series, the extreme link of which is furnished by the almost aerial flying-squirrels. Throughout these modifications of outward form, and consequently of habit, one set of technical characters prevails. The skull has large and distinct post-orbital processes, not developed elsewhere in the Sciurine alliance. There are normally two premolars on each side above, and one below; the first of these, however, is always small, and deciduous, so that different individuals of the same species even, may have the back teeth $\frac{1}{1}^{0}$ or $\frac{2}{2}$. The molars are rooted and tuberculate; the palate is broad and flat; the infra-orbital foraman is small, and anterior in position. Cheek-pouches are frequently developed, especially in the ground-squirrels. The tail ranges from a stump to the elegant bushy appendage which may surpass the head and body in length and width, and by the distichous arrangement of the hairs, furnish a kind of awning to cover the animal; whence the pretty name of Shade-tail (*Sciurus*), which the Greeks and Romans gave. There is, perhaps, no more closely and evenly linked chain of animals, of equal extent, than that which has a woodchuck at one end and a flying-squirrel at the other.

The Woodchuck, or Ground-Hog: Arctomys Monax.

(*Arctomys*) a northern mouse (*monax*) alone. Three species of Arctomys are found in North America, but monax is the only one inhabiting Rhode Island, and of these we have plenty of representatives scattered all over the state, and in some towns in the southern part a bounty on their heads is offered, which is not altogether easy to obtain, for the animal is very wary, and when feeding or moving about the fields in the day time, is continually standing up and turning his head about on the lookout for danger, and ready at a sound to start for his hole. He is most likely to be met abroad in early morning or toward the dusk of evening, and does most of his feeding at night, when he will accomplish much damage among the farmers' cabbage, beans, and turnips, or in the clover-field. He is fond of sunning himself, lying on the dirt at the mouth of the hole. Though generally so shy (as among other animals) all caution seems sometimes forgotten, and Mr. N. W. Thatcher tells me that twice he has walked close up to one thus taking a sun-bath. Sometimes there are two holes near together, and in such case the dirt is usually heaped up at one of them which will be quite oblique, while the other, more nearly perpendicular, will be smooth and clean, which indicates somewhat that the holes are connected and the clean one wrought out from below, the dirt being carried out of the other. About the beginning of November he disappears, and hibernates until the first warm days of spring. "His general habitat is from the Carolinas northward to Hudson's Bay, and westward from the Atlantic coast to Western Missouri, Iowa, and Minnesota. There is the greatest variation of color, the extremes being white and brownish black, or very dark brown. I have never heard of either of these being taken in Rhode Island (but of both in Massachusetts), or in fact of any coloring different from the average animal, which may be described as measuring from tip to tip, twenty inches; tail, which is round and small near the body, 6 inches; the ears, nearly round, gray and brown; head a mixed brown and black, chin gray, cheeks and throat yellow white; under parts yellow brown or red brown, with shading of dark gray or black; color above mixed black, white and yellow brown; tail mixed or darker brown; the feet, armed with stout claws, are black above and below; the hairs are rather coarse, and nearly all are dark gray at the base.

Itacolumyte — Flexible Sandstone.

This interesting rock is found in Brazil, the Urals, California, Georgia, and North Carolina. It is of interest from the fact that it frequently accompanies the diamond, as is the case in North Carolina, where several have been found. Its most remarkable feature is, however, its flexibility. From this last-named state we have received fine specimens that when cut in slabs 15 inches long, by $1\frac{1}{2}$ inches wide, and $\frac{3}{4}$ inch thick, will bend in their shortest diameter 3 inches. It is also extensible to a limited extent. These peculiarities are due, according to Prof. J. D. Dana, to hydrous mica in its lamination.

In the *American Journal of Science*, Vol. XLIV., Dr. C. Wetherill published a paper stating that by microscopical examination he had decided that the "flexibility is due to *small and innumerable ball and socket joints* existing very uniformly, each joint permitting a slight movement which is greater in one direction.

In *The Naturalist's Leisure Hour*, No. 11, 1880, Prof. A. M. Edwards states that he has "investigated this point of structure and flexibility with care," and has never been able to observe any ball and socket joints, or in the light gray or white specimens any mica, while the red-tinted specimens contained very little. He states that "the rock is made up of small, broken, irregular masses of sand with sharp edges, which could not have been transported far, and of extremely irregular outline. They settled naturally from suspension in water, distributing themselves for the most part with their greatest axes in the same direction, making a stone that is cleavable into more or less distinctly marked laminæ. In such a rock, if the particles were not strongly held together, they would possess a certain amount of motion, one over the other, and this motion, as is the case, would be most marked in a direction at right angles to the lamination. Professor Edwards also states that grains of the crushed rock put up in Canada balsam, become very beautiful objects for examination by means of the Micro-Polariscope, exhibiting a gorgeous display of colors, when the interposing selenite film is used.

SOCIETY NOTICES.

The members of our various societies are scattered abroad on their summer vacations, and meetings are generally adjourned until the autumn.

The Newport Historical Society

held a meeting Thursday evening, August 7, to consider the building of an aquarium. A design was presented by Mr. Richard Bliss, showing a building sixty-five feet long by thirty wide, with two wings, each about forty feet, forming three sides of a rectangle, a large central tank in the main building, and smaller ones, about five feet long and four deep, arranged about the sides of the building and connected by pipes with the sea. Mr. George Gordon King read a paper upon the subject of providing such an establishment for Newport, and was followed by other gentlemen. A committee will be appointed to collect $10,000 for the construction of the aquarium. The government commission will assist in stocking the tanks, and the creeks and bays of the vicinity offer remarkable resources in the way of fish and vegetation.

The Lonsdale Botanical and Field Naturalist Society

held its regular monthly meeting with a good attendance of members. A very nice collection of plants was laid upon the table, and afterward very ably named by Vice-President James Moss. After the usual business the members interested themselves examining a microscope, which the society has recently imported from England.

TAKE NOTICE.

The eggs of Lawrence's Goldfinch are *not blue*. Various Californian collectors have sent Arkansas Goldfinch eggs broad cast over the country under the name of Lawrence's. We have had numbers of blue ones sent us, but coming from collectors who did not take skins as well as eggs, we always refused them. We lately received white eggs from an esteemed collector, and in reply to a note written by us to Mr William Brewster, he writes, "'The eggs of Lawrence's Goldfinch are *always pure white*, despite what Coues affirms in his new 'Key.'"

The Shell-Bearing Mollusca of Rhode Island.

[BY HORACE F. CARPENTER.]

Chapter IX.

Genus Columbella, Lam.

Shell strombiform, fusiform, or obovate; smooth, or longitudinally or transversely ribbed, or striate; inner lip excavated in the middle, crenulated or denticulated in front; outer lip usually inflected, thickened within, and crenulated in the middle.

This genus is subdivided into eleven sub-genera, two of which are represented in Rhode Island.

Sub-Genus Mitrella, Risso.

Shell mitriform, smooth or longitudinally plicate; spire elevated, sharp; body-whorl suddenly narrowed into a beak or short canal in front. This sub-genus includes Astyris and Amycla (in part) of H. & A. Adams.

Sub-Genus Anachis, H. & A. Adams.

Shell oval-fusiform, longitudinally ribbed, spire elevated; body-whorl not narrowed in front; aperture narrow; columella straight; outer lip nearly straight, crenulated within.

13. Columbella (Mitrella) lunata, Say.

Syns.:

Nassa lunata, Say. 1826.

Buccinum lunatum, Adams. Gould.

Buccinum Wheatley's, DeKay.

Columbella Gouldiana, Agassiz, Mss. Stim.

Astyris lunata, Dall.

Distr., Massachusetts to Florida. Very abundant in Vineyard Sound, from low water to ten fathoms. Their station is on seaweed, and the best method of obtaining them alive is to pass a dredge (having a coarse cloth on each side as a protection to the iron work) through a belt of seaweed, as the boat passes through it; on pulling in the dredge, the cloth will be found covered with these shells, which may be scraped off with a knife, or removed to a small bottle with a tooth-pick, which is my favorite method of collecting small shells. These shells are small, ovate-conic; whorls six, surface smooth, color reddish-brown, with from one to three series of sub-lunate spots on the body-whorl, varying from white to dark yellow in color; on the lower part of the base are several revolving lines; aperture oval, narrow, ending in a very short canal; outer lip simple, dentate within; inner lip smooth and brown. Length $\frac{1}{5}$ inch, breadth $\frac{1}{10}$.

14. Columbella (Mitrella) dissimilis, Stimpson.

Shell very minute, $\frac{23}{100}$ inch in length, $\frac{1}{100}$ inch in breadth; whorls five, flattened; aperture a little less than half the length of the shell; color fuscous, with three white zones; surface longitudinally striate, and destitute of revolving lines on the rostrum. It inhabits the Laminarian zone, and has been found at Eastport and Grand Manan by Stimpson, and in Vineyard Sound by Verrill. It was first discovered at Stonington by Linsley, in 1845, and named by him *Buccinum zonalis*, without description. I have never seen this species. It has not yet been observed in Rhode Island, probably on account of its minute size.

15. Columbella (Anachis) avara, Say.

Shell elongated-ovate, solid, of a light straw color, blotched with various shades of reddish-brown, surface covered with equidistant revolving lines, reticulated by fifteen smooth, obtuse ribs, running from the apex, and terminating at the centre of the body-whorl, leaving the lower portion marked only by the revolving lines; whorls six, forming a pointed spire; aperture narrow, about one-third the length of the shell; outer lip simple, thickened externally and toothed internally; inner lip callused and also dentate in mature specimens. Length $\frac{3}{5}$ inch, breadth $\frac{1}{4}$.

This shell was described by Say, in June, 1822, *Jour. Acad. Sci., Phil., Vol. 2, p. 281*, as *Columbella avara*. He says, "It inhabits the coasts of the Southern States, and occurs as far north as Maryland." It is found at Martha's Vineyard, Nantucket, and New Bedford, but not to the north of Cape Cod. It inhabits deep water at Newport. I have never seen even dead shells above Bristol Ferry, but have found them abundantly on the island of Rhode Island.

16. Columbella (Anachis) rosacea, Gould.

Syns.:

Buccinum rosaceum, Gould. *Am. Jour. Sci., Vol. 38, p. 197, 1840.*

Columbella rosacea, Stimp. *Shells of New England, p. 47, 1851.*

Astyris rosacea, Adams. *Genera of Recent Mollusca, Vol. 1, p. 187, 1858.*

The first specimen was obtained from the stomach of a fish caught off Cohasset. It has been dredged in 29 fathoms off Block Island, and has been found from Long Island Sound to Greenland. It is somewhat larger than *C. lunata*, being $\frac{3}{10}$ inch in length by $\frac{3}{20}$ in breadth. It has six whorls, covered with very minute revolving lines. Its color is white, tinged at the apex with pink.

Authorities have placed this species under the sub-genus *Anachis*. I cannot see why they have done this; there is no resemblance to other species of this subgenus, *avara* for instance, but strongly resemble *C. lunata*, and in my judgment should be classed with it, under the subgenus *mitrella*.

17. Columbella (Anachis) diaphana, Verrill.

Shell thin, delicate, translucent, white, nearly smooth, elongated, with long, tapering, acute spire. Whorls eight, broadly and evenly rounded. Fresh specimens, when wet, are so transparent that the internal form of the columella can be seen through the shell. This is one of the many new species discovered by the U. S. Fish Commission at Martha's Vineyard and vicinity in 1880 and 1881. It was dredged from deep water, 65 to 487 fathoms. A long and full description of it is given in *Tryon's Manual of Conchology, Vol. 5, p. 160, 1883.*

18. Columbella (Anachis) pura, Verrill.

Professor Verrill's description in full is given in *Tryon's Manual, p. 162.* He says, "This shell is very abundant in many of our deeper dredgings on muddy bottoms." I have never seen either of the above new species. They may possibly be found in Rhode Island, as Prof. S. I. Smith, of the New York Central Park Museum, who was with the dredging expedition, told me that the waters between the island of Rhode Island and Little Compton, and below Stone Bridge, were rich in new forms. This part of our State and Mount Hope Bay have never been explored, and a field is open there for new discoveries, which may add many new species to our fauna.

(To be continued.)

Preserving Fungi.

Mr. J. H. Martin, in Hardwick's *Science-Gossip*, says that a good method is to place them in a solution of one part calcium chloride (chloride of lime) and ten parts water. This will change the phosphates of the fungus into phosphate of lime, after which they will be found to keep well.

Preparation of Star-Fish, Etc.

To make "dry specimens" of sea-urchins, star-fish, etc.:

Take *live* specimens and place in flat dishes of warm water (back up) and when soft and pliable, which will be in a few minutes, change to flat dishes of one-third water and two-thirds alcohol and let them stay for twenty-four to forty-eight hours, covered with the liquid. Take them out and place on boards to dry, for a day or two, in the sun, or by artificial heat, as the case may be. From the time the animals are taken from the warm bath, care should be exercised that the arms, etc., are symmetrically arranged; dry them first back up, then when somewhat stiff turn over, and do this until perfectly dry.

Fresh warm water kills and makes them pliable, alcohol hardens, and evaporating, carries out quickly from the body such liquids as remain.

Madame and baby had just returned from a promenade. Monsieur asked for details. "Oh, my dear, good news," said his wife. "Baby can talk. Baby said his first word a little while ago." "Indeed! Tell me all about it." "Well, we were at the Jardin des Plantes, in front of the huge cage of monkeys, when baby suddenly cried out very distinctly, 'Ah, papa!'"

Historical Trees of Rhode Island.

In Rhode Island there have been many trees of an historical interest, and there exist now many that are aged and of large size. A notice of a few that are and have been the most conspicuous in this city and vicinity may be of interest to those interested in arboriculture and forestry.

In July, 1763, the Sons of Liberty were called upon to dedicate the Tree of Liberty, located on the north side of Olney Street, in the city of Providence, in front of a public house, kept by Captain Joseph Olney. A communication from Samuel Thurber, subsequently found, speaks of it as one of the largest elms he ever saw. A flight of steps led up, perhaps twenty feet, to where three or four limbs set out, and there ten or twelve people could sit in comfortable enjoyment in the shade. This tree was dedicated July 25, 1763, and a discourse was delivered by Silas Powner. It was cut down a long time ago.

A specimen of the white oak (*quercus alba*), in North Providence, on land owned by the descendants of Capt. Timothy Olney, is noticeable for its size, the girth of the trunk of this tree one foot from the ground is twenty feet, height about seventy feet, spread of lower limbs, 275 feet in circumference.

The scarlet oak (*quercus coccinea*), and its varieties present some large specimens within the limits of the city of Providence and vicinity, some with a trunk girth of sixteen feet; height, ninety feet or more; spread of branches 100 feet.

In the town of Johnston, on the estate of Judge Zuriel Potter, on the north side of the Hartford turnpike, was one of the largest specimens of the American elm known in New England. This tree is described in Emerson's report on the trees and shrubs of Massachusetts, published in 1846. One of the last measurements of this tree before its destruction is as follows: Circumference, about a foot from the ground, where the bulge of the roots is included, is 40 feet; at a height of 6 feet is 23 feet; at a height of 12 feet, is 28 feet; circumference of the two great branches, 14½ and 14 feet respectively. In 1858, the smallest girth at an average height of 5 feet from the ground was 23 feet, 1 inch. The trunk, viewed from the northeast, is plainly seen to have quite a division, in the fissure on that side steps being fixed for ascending the tree. The two great branches of this trunk separate at the height of about twelve or fourteen feet and then divide into secondary branches, which count ten in number. On mounting the platform where the trunk divides, room is found for several persons to stand or sit together. Only the great southeastern branch, which runs off horizontally about seventy feet from the base of the trunk, remains to show the great amount of ground covered by the foliage of this elm in its best days. Looking from the northeast and knowing that the northern branch once extended nearly as far, one can form some idea of the tree as it then appeared. It had a spread of little less than 140 feet. Its height was about ninety feet. It has been estimated that the amount of lumber which this tree contained was twenty-five cords. It is believed that in the horizontal spread of branches, the Johnston elm, in its best days, was exceeded by none. The age of this tree is entirely unknown. It is only by reading and observation that a conjecture can be obtained; and if there is any value in these results, we must conclude that the Johnston elm, with its 277 inches of circumference, ought to be not more than 275 years old, and probably not less than 250.

In the public highway, in the village of Lonsdale and town of Lincoln, not far from the grave of our earliest founder, William Blackstone, is an oak called the Catholic oak. Standing on the roots and about three feet up, it girths sixteen feet. The roots spread large and high above the ground. The mound formed by them and by overlaying earth is 100 feet in circumference. Spread of branches, about forty feet in every direction. Many place the longevity of this tree at more than 300 years. The acorns have been distributed through many towns in Germany, and the offspring of this "grand" old oak are there growing.

(To be continued.)

A CORRESPONDENT desires to know how to tan ducks', grebes', and other greasy breasts.

This question belongs more especially to the tannery, but still most taxidermists sooner or later desire to prepare skins in this way. Will some of our readers favor us with their methods?

CONCHOLOGICAL CHECK-LIST. IX.

J. RITCHIE, JR.

Family. Cyclostomacea Pfr.
Sub-family. Licinea Gray.
Cyclotopsis conoidea Pfr.
dubia Morel.
nevillei Morel.
semistriata Sow.
subdiscoidea Sow.
Ctenopoma adolfi Pfr.
bahamense Shutt.
bilabiatum Orb.
bryanti Pfr.
campbelli C. B. Adams.
coronatum Gundlach.
deficiens Gundlach.
echinatum Gundlach.
enode Gundlach.
garidojanum Gundlach.
honestum Poey.
jeannereti Pfr.
nigriculum Gundlach.
nobilitatum Gundlach.
orbignyanum Petit.
perspectivum Gundlach.
pulverulentum Wright.
rotundatum Poey.
rugulosum Pfr.
sculptum Gundlach.
semicoronatum Gundlach.
torquatum Gutrz.
undosum Gundlach.
wilkinsoni C. B. Adams.
Diplopoma architectonicum Gundlach.
Adamsiella chordata Pfr.
grayana Pfr.
ignilabris C. B. Adams.
intermedia C. B. Adams.
mirabilis Wood.
miranda C. B. Adams.
monstrosa C. B. Adams.
pearmanæana Chitty.
pinguis Pfr.
pulchrior C. B. Adams.
variabilis C. B. Adams.
xanthostoma Sow.

Sub-family. Cyclostomea Pfr.
Lithidion depressus Sow.
desciscens Pfr.
nivens Petit.
souleytianus Pfr.
sulcatus Gray.
Otopoma albicans Sow.
clathratulum Recluz.
clausum Sow.
comorense Pfr.
coquandianum Petit.
gratum Petit.
guillaini Petit.
haemastomum Ant.
hindüorum Blanford.
listeri Gray.
multilineatum Jay.
naticoides Recluz.
nitidum Robill.
philippianum Pfr.
politus Sow.
pygmaeus Sow.
spurcus Grateloup.
undulatum Sow.
unifasciatum Sow.
vitellinus Pfr.
Cyclostomus albus Sow.
aminensis Pfr.
arbeillei Grateloup.
articulatus Gray.
asper Pat. et M.
balteatus Sow.
banksianus Sow.
barclayanus Pfr.
belairi Petit.
bicarinatus Sow.
boivini Pfr.
bronni C. B. Adams.
buccinulum Bolt.
campanulatus Pfr.
canariensis Orb.
carinatus Born.
cariniferus Sow.
carolinensis Pfr.
caspicus Mouss.
chevalieri C. B. Adams.
citrinus Sow.
concinnus Sow.
conoideus Pfr.
consanguineus Sow.
costulatus Zeigler.
crenulosus C. B. Adams.
creplini Dkr.
cuvierianus Petit.
deliciosus Fer.
deshayesianus Petit.

SKINS AND EGGS

FOR SALE BY

SOUTHWICK & JENCKS,

AND NOT IN THEIR LAST CATALOGUE.

SKINS.

38 Plain Titmouse.....$ .75 to $1.00
59a White-throated Wren..... 2.00
76 Swainson's Warbler..... 13.00
84 Virginia's Warbler..... 2.50 to 3.00
141b Plumbeous Vireo..... 1.00 to 1.25
179a Greater Redpoll..... 1.50 to 2.00
220 Gray-headed Snowbird..... 1 00 to 1.25
225a Sagebrush Sparrow..... 1.50 to 2.00
278a Florida Grackle..... 1.00 to 1.25
297a White-headed Jay, *young*.... 1.50
302 Fork-tailed Flycatcher, two specimens..... 1.50 and 3.00
303 Gray Kingbird..... 2.00 to 2.50
307 Cassin's Kingbird..... 1.50 to 2.00
339 Broad-tailed Hummingbird.. 1.00 to 1.50
350 Black Swift..... 6.00
352 Vaux's Swift..... 3.50
357b Cuban Night Hawk, not first-class..... 1.25
359 Ivory-billed Woodpecker ♂ $14, ♀..... 10.00 to 12.00
368 Banded-backed Woodpecker. 2.50 to 3.00
368a Striped " " 2.50 to 3.00
402a Florida Screech Owl..... 3.00
405a Western Horned Owl (*pale form*)..... 5.00
438 Harlan's Hawk..... 15.00
448 Ferrugineous Rough-legged Hawk..... 6.00
458 White-crowned Pigeon ..... 3.00 to 4.00
471 Dusky Grouse..... 4.00
474 Willow Ptarmigan, partial summer plumage..... 3.50
476 White-tailed Ptarmigan, winter plumage..... 4.00
585 American Flamingo, second-class..... 8.00
654 Yellow-billed Tropic Bird. ... 5.00
Lesser Glaucous-winged Gull, *Larus kumlieni*, new species 20.00
701 Short-tailed Albatross, young 10.00
739 Pacific Diver, *young*..... 5.00

EGGS.

5b Hermit Thrush, nest 4.....$3.00
37 Black-crested Titmouse, set 4 $6, set 6 9.00
106 Golden-cheeked Warbler, set 3..... 6.00
116 Small-billed Water Thrush, nest 4.... 4.00
156 Violet-green Swallow, 4, blown with two holes in side..... 3.00
183 Lawrence's Goldfinch, 4..... 2.40
189 Chestnut-collared Longspur, single $1.25, set 4..... 6.00
207a Intermediate White-crowned Sparrow, single .35, set 4..... 1.60
220 Gray-headed Snowbird, single, two holes in side $1; set 4, one hole..... 6.00
224 Black-throated Sparrow, nest 4..... 6.00
256 Lark Bunting, single .75, set 4..... 3.40
280 American Raven, set 6, one egg slightly imperfect..... 10.50
363 Texan Sapsucker, set 3..... 4.50
396 Short-eared Owl, single..... 1.25
402b Texan Screech Owl, set 3 ..... 7.50
423 Caracara Eagle, set 3..... 9.00
496 White-crowned Night Heron, single.. 1.75
488 European Heron, single .40, set 4..... 2.00
523 Mountain Plover, set 3..... 4.50
543 Marbled Godwit, set 4..... 10.00
552 Willet, single .40, set 4..... 2.00
565 Wilson's Phalarope, set 4..... 6.00
586 European Swan, single..... 3.00
702 Yellow-nosed Albatross 5.00
729 Western Grebe, single $1.75, set 4. ... 8.00
745 Tufted Puffin, single..... 2.50
752 Sea Dove, single..... 1.25

Next month we shall publish a price-list of eggs from Alaska.

ALBINO SKINS.

2 Robins, partial.....$ 50 each.
1 Chipping Sparrow..... .50
1 Black Snowbird, white crescent on breast, a prettily marked specimen..... .75
1 Semipalmated Sandpiper, perfect, but light buff cast in places.... 1.50
1 American Velvet Scoter, entire breast speckled with white, a fine specimen..... 3.50

Choice Eggs, Just Received.

Texan Bewick's Wren, nest 4.....$3.00
Chuck-wills-widow, set 2..... 4.00
Mallard Duck, nest 9..... 3.15
Red-headed Duck, nest 14..... 8.40
Caspian Tern set 2 (from Texas)..... 3.50

RARE MOUNTED BIRDS.

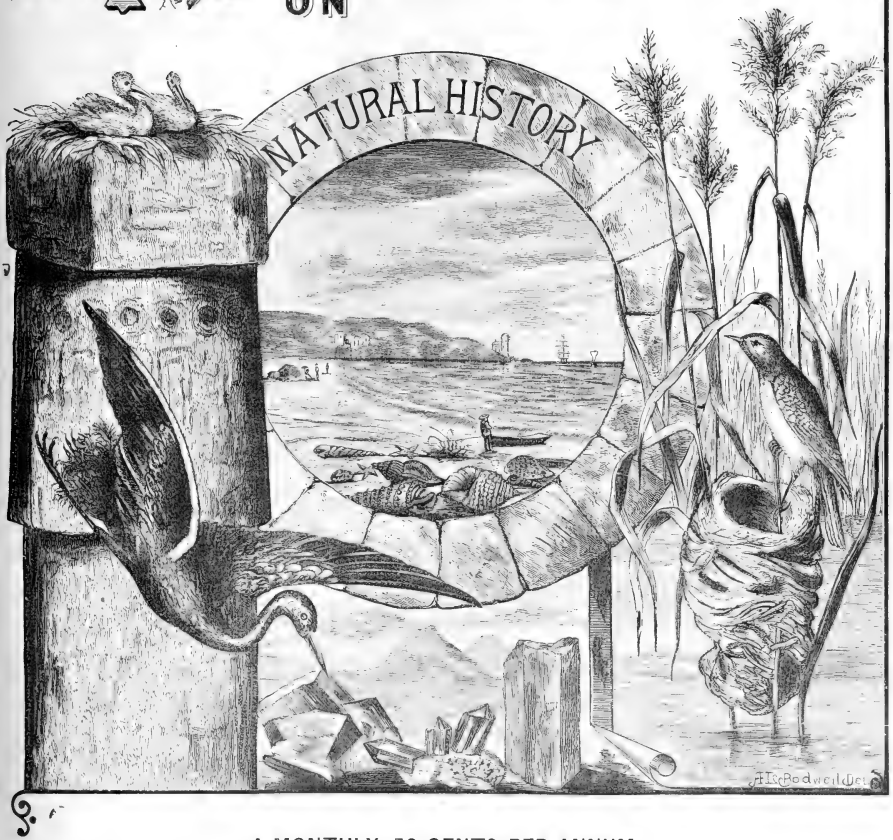
1 Golden-cheeked Warbler.....$4.00
2 Black-headed Vireos ♂ and ♀, each.... 4.00

Rare Plumage of a Common Bird.

1 Long-tailed Duck, in breeding plumage, chestnut and black, price skin.....$4.00

VOL. I. NO. X.

RANDOM NOTES ON NATURAL HISTORY



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SPECIAL NOTICE.

Subscriptions hereafter will begin with the current number, or the March number if desired.

Those having copies of January or February to spare will confer a favor by returning the same to us. We will accept such copies if in good preservation, and forward for each 10 cents, or they may be used for that amount in the purchase of goods from us. The sender should write "from" and his name and address on the wrapper.

Can any of our readers tell us who was the first to use a hard body in mounting birds, or where a hard body is first described? All the French works on taxidermy recommend soft filling, and the use of a hard body is probably of English or German origin. We would very much like an answer to this question.

It really is surprising how much has been written on taxidermy in various languages. The oldest paper quoted was written in 1689, the next in 1742, and from that time onward there have been very few years unrepresented, the books and papers on taxidermy multiplying very rapidly within the last four or five years.

An Unwilling Captive.—On the afternoon of September 6th a gentleman, while walking by the Genesee River, saw a Kingfisher dart down to the water. The next instant there was a lively struggle at the water's edge. The bird had caught a clam, and the clam in turn had caught the Kingfisher securely by closing its shell. Both specimens were easily taken alive by the eye-witness, and placed in my hands for preservation. T. W. Fraine.

Of all our birds I think the Song Sparrow most prolific. A pair of these birds remained through the winter among the evergreens in my yard, and commenced singing with the appearance of spring. By the 15th of May I first noticed nest-building had begun, and on the 22d there were four eggs in the nest; these I took for a friend. In about two weeks they had another nest near by, and when I found the set was six I took that June 3d. In about two weeks more, as I was walking in my yard, the female flew out of the grass, disclosing set number three, which contained four eggs. As these were under my daily observation I watched the progress of incubation with great interest, and saw the young take wing July 4th. Within a week after, nest number four was begun in a little shrub, in which four more eggs were laid and hatched, but a few days later I found the nest pulled down and the young destroyed, probably by some hungry cat. But the birds were not discouraged yet, for on the 10th of August I found nest number five, with four eggs, in a bunch of asparagus, and to-day, September 1st, four young birds are ready plumed for flight. All these nests were in my front yard. J. N. Clark.

We propound a conundrum for the opponents of arsenic in general, and arsenical soap in particular. Why is it that from its first invention by Becœur until the present day arsenical soap has held its own against the scores of dermal preservatives that have from time to time been brought to the front? The older works on taxidermy abound in all sorts of baths and powders, and yet we hear very little of them now-a-days.

Also, since arsenic is said to be so dangerous, we will ask for a little information on the point from any one who has felt any deleterious effects from its use.

The Arctic Fox — Vulpes logopus, Linn.

Occasionally we find among the stocks of the furriers, skins of this beautiful little fox in winter pelage of snowy white. Just at present they are in much esteem, for the making of mats, the head being stuffed to shape, and the skin spread to its full extent. It is also reported that thousands of their skins are imported into China, as trimmings for the dress of the mandarins. The animal does not occur in the United States, but from Labrador northward, inhabiting the Arctic portions of both continents, also Iceland and Greenland. The fur is long and dense (almost downy), covering even the soles of the feet, and the tail is very full and round; the ears are short and erect, and the head short and more dog-like than with other foxes. The summer pelage is said to be a bluish or leaden gray. During the summer they burrow in colonies, some twenty or thirty together, or when quite undisturbed are often satisfied with the shelter of a rock, and develop eight or ten young at a time. Their food is small mammals, birds, and matters thrown upon the shore by the waves, in fact, what they can get, the locality does not offer much variety. *La Nature* says they enter with astonishing boldness the encampments of travelers, and seize not only provisions, but covering, and woolen and skin clothing. The naturalist Stella and his companions were cast by shipwreck upon Behring's Island, and for ten months suffered much from such incursions. They fired at them, set traps, and capturing a few individuals exposed them to the eyes of their companions, but every night the foxes returned, stole provisions, and gnawed gloves, shoes, hats, and even their reindeer-skin bedding. Their capture presents no difficulty, as their instinct for self-preservation is poorly developed; they are a singular mixture of boldness and cowardice, stupidity and cunning.

The Ostiaks Saymoyeds, when the ground is covered with a winding-sheet of snow in winter, start upon a campaign, armed with shovels made from reindeer-antlers. As soon as they discover the mouth of a burrow dug through the snow, they ascertain its direction, open the gallery with their shovels, seize the semi-torpid animal by the tail, and dash its brains out against a rock.

Mr. P. L. Martin estimates the number of skins that annually reach the markets of Europe at 90,000, others come to the United States, and under the existing circumstances, the species is sure to soon become extinct. The Arctic fox when captured young is easily tamed, and two individuals of this species are now confined at the *Jardin des Plantes* in Paris.

Reptiles and Batrachians of Rhode Island.

BY HERMON C. BUMPUS.

Few branches of Rhode Island natural history have received less attention than its herpetology. Whether this arises from the instinctive aversion held by the majority of people for anything that "crawls," or from the numerous difficulties that are met in collecting data, may be a question. The present need, however, of a catalogue, and the fact that our Reptiles and Batrachians are daily becoming fewer, has prompted the writer to at once compile such facts as are or may be known; soliciting special aid from the readers of Random Notes. It seems that by thus bringing together points of interest, either in habit or special distribution, from so considerable a source, the generalizations cannot but be valuable. Such communications, as well as remarkable specimens—the latter will be especially desirable — should be left with the editor. Specimens thus deposited, with full data, will, if of sufficient interest, be preserved and added to the Museum of Brown University, where they will form a permanent, typical state collection.

That all interested may be able to lend an helping hand to advantage, the following articles will include the synonomy, and a description of the several types which are likely to be found inhabiting the state, to which will be appended, with due credit, such notes as have been submitted. Finally, when the several types have been treated, a summary and check-list will conclude the series.

Reptiles, Batrachians, and Fishes were formerly included under the more general term "cold-blooded vertebrates," in distinction from the birds and mammals provided with appreciably warm blood. That the distinction is somewhat erroneous is evident from an insight into the nature of

heat production. No one, but all organs have to do with heat production, which is directly brought about by motion and oxidation; a slow combustion disposing of organic waste. In the "warm-blooded" animals the circulatory system is so constructed as to keep the venous, charged with carbon and other impurities, separate from the pure arterial blood. This impure blood is not only purified in the lungs, but carries with it, to the different tissues, no small amount of oxygen. Considerable heat, brought about by the chemical union of oxygen and carbon, is thus produced not only in the lungs but throughout the body. In the "cold-blooded" vertebrates the heart mixes arterial and venous blood, thus sending to the lungs or gills, or both lungs and gills, as the case may be, blood that is only partially charged with impure matter; the resulting oxidation must hence be slow and the heat produced of a low degree. The amount of heat is further reduced in those forms breathing by means of gills, by the comparatively small amount of oxygen in the water. It must not be thought, however, that the lungs alone are the heat producers; the several organs of the body assist, as well as all physical movement, the sum total resulting in a "warm" or "cold-blooded" animal, as the case may be.

Reptiles, which are represented in Rhode Island by turtles, lizards, and snakes, differ from the Batrachians, toads, frogs, salamanders, and newts, in several particulars. While reptiles are hatched or born in form and structure differing from the adult only in respect to size, the immature Batrachians are strikingly unlike the adult; in their mode of breathing and progression much more resembling fishes, from which they reach the mature form through a succession of metamorphoses. A second, and possibly a more obvious distinction, is in the dermal covering; all our Reptiles being protected by scale-like folds of skin, while the Batrachians are without this means of protection, having the skin moist and pliable.

In members of both classes intelligence is of an extremely low order, one or more of the special sense organs is often atrophied. Growth is slow and often continuous through life, which is often greatly protracted. From an economic standpoint both Reptiles and Batrachians form important checks against the undue increase of destructive vermin, and the flesh of turtles, some lizards, and many Batrachians is an important addition to the table. Confining our attention to such Reptiles as may be found in our locality, we find representatives of three orders: Testudinata, Sauria, and Ophidia.

The first order includes the turtles and tortoises; animals with keen sight, rather acute hearing, but with smell and taste somewhat dull. All turtles are oviparous, depositing the eggs, which are fertilized in the oviducts, in sand to be hatched by solar heat. The males are externally distinguished from the females by having a concave *plastron* (the lower portion of the shell), and some of the sea-turtles are provided with stout hooks on the fore flippers.

The second order, Sauria, including the lizards, is with difficulty separated, because of some of its representatives, from the third. The only form likely to be captured in Rhode Island, however, shows few ophidian tendencies.

The third, and last order of Rhode Island Reptiles, includes the snakes, under the term Ophidia. The snakes have keen sight; except just previous to the time of moulting, when the cleaving epiderm, which covers the eyes, renders them partially blind. The sense of smell is probably well developed, judging from the strong odor given off by many species during the breeding season. Hearing is dull, and no external ears are to be seen. Taste is probably wanting, the tongue being used as a tactile organ. Though some foreign snakes incubate their eggs, our species, if oviparous, leave them to care for themselves much as do the turtles. Some of our forms, however, are viviparous.

The facts do not warrant the popular belief that the young, in time of danger, seek safety by allowing the parent to swallow them. Nor is it true that the snake covers its prey with slime previous to deglutition. Intelligent people need not be cautioned against crediting the oft-heard stories of "charming," and of "hoop-snakes." The ready, but fallacious, method of determining the Rattler's age by adding three to the number of rattles, has became so securely the property of newspaper reporters as to banish all hope for more truthful things.

JET.

The mineral itself is nothing more or less than a species of pitch coal, found in detached masses, grained like wood, splitting horizontally, light, and moderately hard. It is often confounded with "cannel" coal, but it is quite distinct. Cannel coal is much harder than jet, has no grain, and splits in any direction. Jet is not easily fused, and requires a moderately strong heat, burning with a fine, greenish-white flame, and emitting a bituminous smell. The particular value of jet is, of course, its susceptibility for taking on fine polish. Jet abounds more or less all over the world. In England it is found in greatest quantities in the neighborhood of Whitby, in Yorkshire. There it is mixed with bituminized wood, and coniferous trees in the upper lias or alum shale of the district. In Prussia it occurs in association with amber, and is named by the amber-diggers "black amber," a phrase which seems to have traveled to Italy, for the mineral is there sometimes called "amber nera." This term is more applicable from the fact, that jet, like amber, becomes electrical by friction. There is a belief that amber and jet come from one source; that amber is a fossil gum, while jet is the trunks and branches of the trees more completely bituminized, and freer from earthy impurities than cannel or other coal. Indeed, M. Magellan goes so far as to say that jet is a pure amber, differing only in color from the undisputed variety. In France large quantities are found in the department of the Aude, where a large number of artisans find steady employment in fashioning it into rosaries, religious beads, and ornamental trinkets, when fashion demands them.

In Spain jet of a very high quality is found at Villaviciosa, in the province of Asturias, and is manufactured principally at Oviedo. But during the present century jet became a popular ornament, and now, probably in not a few minds, Whitby and jet are inseparably associated. The article acquired considerable value, and some twenty years ago jet ear-rings ranged in value from 5s. to 30s. a pair. Then a lucrative trade was carried on at Whitby, jet miners scooped out pits in the pretty Cleveland Hills, and a large number of men and young women in Whitby found employment in carving the precious coal into articles of feminine ornament. But the success of the English jet trade brought competition into the field, and with it imitation, which latter first demolished the genuine jet trade, and then committed suicide.—*Popular Science Monthly.*

Historical Trees of Rhode Island.

Continued.

Some of the most remarkable elm-trees in the city of Providence are the following: In the northern and oldest part of the city are three grand elms, triangularly situated, one at the junction of North Main Street and Branch Avenue, 12 feet 11 inches in circumference; its exact age is not known. The great gale of September 23, 1815, blew off one of the prominent branches and split the trunk, which subsequently was secured by an iron bolt, which now lies entirely imbedded in the tree. The second elm, 13 feet 6 inches in circumference, is near the Dickey House, on Branch Avenue. The third one, 12 feet 9 inches in circumference, is located in Abbott's lane, on the site of the oldest house in the municipality. These last two are estimated to be 150 years old, and it has been noticed of late years, that these trees annually increase one inch.

On the eastern hillside of the city of Providence in Congdon Street, at the entrance of Prospect Terrace, and near the spot where Roger Williams is credited a burial, is a very ancient elm, well preserved, with large spreading branches. The late venerable William Wilkinson thirty years ago said that when he was a boy this tree was then aged. It is safe to say its age is more than two hundred years.

In the city, at Elm grove, an elm tree south of the pond girths, at four feet from the ground, 14 feet 5 inches; another, west of the pond, 12 feet 5 inches. On Admiral Street, in front of the old residence of Commodore Esek Hopkins, is a fine spreading elm of 11 feet girth, planted by his daughter in 1786. In Pawtucket an elm on Main Street, measuring 17 feet in circumference, has recently been removed. Over the city limits on Plainfield Street, in Johnston, are three elms, girth five feet from the ground, about sixteen feet. These trees were probably set out in 1748. J. H. B.

Providence Journal.

(To be continued.)

Remarks on the Omission of Certain Species of Shells in Previous Papers on the Shell-Bearing Mollusca of Rhode Island.

[BY HORACE F. CARPENTER.]

In a letter to the editors of RANDOM NOTES Prof. A. E. Verrill says: "I judge that the writer on shells in your journal is unacquainted with my paper (1881)," describing new species of shells found in New England waters, and "he also seems to be unaware that the United States Fish Commission spent the summer of 1880 at Newport, and dredged extensively in Narragansett Bay and all the other waters of the State of Rhode Island, and that accounts of these operations have been published." These remarks were probably made on account of the omission of certain new species described in the works referred to, and on this account, and that this charge may not be brought up again by others, I omit the regular paper this month, to explain the reason of the omission of these new species in their proper places in previous papers.

I am not ignorant of the existence of these publications, as I have before me the "Report upon the Invertebrate Animals of Vineyard Sound and Adjacent Waters," by A. E. Verrill and S. I. Smith, published in 1874, the same being extracted from Prof. S. F. Baird's Fish Commissioners' report; also the "Catalogue of Marine Mollusca, added to the fauna of New England during the past ten years," by A. E. Verrill, taken from the "Transactions of the Conn. Acad.," from April to July, 1882; and the "Second Catalogue of Mollusca recently added to the fauna of New England," by A. E. Verrill, also taken from the "Transactions of the Conn. Acad.," April to July, 1884. The first-mentioned volume is just what it represents itself to be by its title and needs no comment; due mention is made in my papers of all species described in it; the second includes within its pages the shells found from Nova Scotia and New Brunswick to the Gulf Stream, off the southern coasts of New England, embracing all depths down to 600 fathoms, while the third mentions but three species belonging to Rhode Island, and extends its range to Cape Hatteras, and in depth to 2,000 fathoms. There have been quite a number of new species added to the fauna of New England, but I have never seen a specimen of one of them, and am not very liable to, for although suites of specimens of these shells have been presented to public museums and societies of natural history, and in some cases to societies dead and fossilized years ago, who have no members who know or care anything about them, and where these specimens are laid away as useless material, private individuals who might be benefited by them, cannot get them for love or money. I have tried many times to obtain specimens of these shells for study, but without success.

The papers on "The Shell-Bearing Mollusca of Rhode Island," were not intended to cover the whole coast of the United States, or even of New England, but simply those forms which have been, or are liable to be, found within the limits of our own little state. I ask the reader if those shells which have been found only to the north, or to the south of us, or those dredged from 500 to 10,000 feet, 50 or 100 miles from shore, belong to the fauna of Rhode Island, or to the deep-sea fauna of the Atlantic Ocean.

I have thus far described the species belonging to the first eleven families of the class Gasteropoda which inhabit our state. I will now notice in their proper order, those species referred to in the above works, which were not mentioned in the previous papers on "The Shell-Bearing Mollusca of Rhode Island," and in future will take care not to leave any loop-hole of this kind open for comment. I give the species and the distribution geographically, but without description, as that would occupy too much space, and refer the reader to the original works.

FAMILY 1. MURICIDÆ.

See RANDOM NOTES, No. 5, p. 9.

Sub-family 1. Muricinæ.

Genus Trophon, Montfort.

Trophon clathratus, var. Gunneri. (Loven.)

Dist., Greenland, Iceland, Nova Zembla, etc., etc.

Trophon Fabricii, Möller.

Dist., Gulf of St. Lawrence, Davis Straits.

Trophon Lintonii, Verrill & Smith, Mss.

One specimen only was dredged off Martha's Vineyard in 70 fathoms in 1882. It

was named for Prof. E. Linton, a member of the Fish Commission parties of 1882 and 1883. A description of this shell will be found in Am. Jour. Sci., Vol. xxiv, p. 365, 1882. No other specimen has ever been discovered, to my knowledge, at least. Is it entitled to a place among the shell-bearing mollusca of R. I.?

FAMILY 4. BUCCINIDÆ.

See RANDOM NOTES, No. 6, p. 8.

Sub-family 2. Neptuninæ.

Genus Neptunea, Bolten.

Sub-genus Volutopsis, Mörch.

Volutopsis Norvegicus, Chem.

Dist., Newfoundland, Greenland, Iceland, Norway, Alaska, etc., etc.

GENUS SIPHO, KLEIN.

Sipho pubescens, Verrill, sp. nov. Cat. Mar. Moll., 1882, p. 501. Described by Verrill as Neptunea propinqua, Am. Jour. Sci., xvi, 210, 1878. Also, ib. xx., 391, 1880. Proc. U. S. Mus., iii., 370, 1880. Inhabits deep water off Cape Sable to Chesapeake Bay. A number of specimens were dredged off Martha's Vineyard in 86 to 410 fathoms.

SIPHO SABINII, GRAY, 1824.

Two specimens from Cashe's Ledge, Maine.

Sipho parvus, Verrill & Smith, sp. nov. Cat. Mar. Moll., 1882, p. 504. Fourteen specimens dredged off Martha's Vineyard in 312 to 506 fathoms.

Sipho glyptus, Verrill, sp. nov. Cat. Mar. Moll., 1882, p. 505. Off Martha's Vineyard in 219 to 458 fathoms.

Sipho caelatus, Verrill & Smith, Proc. U. S. Mus., iii., 369, 1880. Off Martha's Vineyard and Newport, R. I., in 238 to 500 fathoms.

Still other species of Sipho are described in the second Cat. of Moll., 1884, from deep-sea dredging as deep as 2000 fathoms, viz.: obesus, profundicola and var. dispar, caelatus, var. hebes, caelatulus, simplex and leptalæus, the latter off Martha's Vineyard. *One* specimen only was found in soft mud in 452 fathoms. Do these shells belong to our fauna?

SUB-FAMILY 4. BUCCININÆ.

GENUS BUCCINUM, LINN.

Buccinum Sandersonii, Verrill, sp. nov. Cat. Mar. Moll., 1882, p. 490. Named for Mr. Sanderson Smith, of the U. S. Fish Commission. Three specimens were dredged off Martha's Vineyard in 258 fathoms. The other species described are Buccinum cyaneum, var. perdix., Cape Sable, Halifax, Gulf of St. Lawrence. Buccinum tenue, Gray, same localities. Tottenii, Stimpson, Newfoundland, Spitzbergen; and a few others from similar localities.

FAMILY 5. NASSIDÆ.

See RANDOM NOTES, No. 7, p. 8.

Genus Nassa, Lamarck.

Nassa nigrolabra, Verrill. Proc. U. S. Mus., iii., p. 371, 1880.

One specimen dredged off Martha's Vineyard in 155 fathoms, and referred to Nassa provisionally. The animal is not known.

FAMILY 9. MARGINELLIDÆ.

See RANDOM NOTES, No. 8, p. 8.

Genus Marginella, Lam.

Marginella borealis, Verrill, sp. nov. Second Cat. Moll., 165, 1884.

A few *dead* specimens were dredged off Martha's Vineyard in 65 to 100 fathoms. It inhabits the warm waters of the Gulf Stream, and is a strictly tropical or subtropical genus. Why should we call these Rhode Island shells?

FAMILY 11. COLUMBELLIDÆ.

Genus Columbella, Lam.

Sub-genus Anachis, H. and A. Adams.

Anachis costulata, Cantraine.

Dist., Norway, England, Nova Scotia, Chesapeake Bay, etc. Dredged off Newport in 1880 and 1881 in 146 to 506 fathoms, (3,000 feet deep).

Anachis similis, Verrill. Rep. Invert. An., 1874.

Syns.:

Columbella similis, Ravenel. Proc. Ac. Nat. Sci., Phila. 41, 1861.

Columbella avara (in part) Gould. Invert. Mass.

This species (avara) is described in RANDOM NOTES, No. 9, p. 7. It varies very much in form, sculpture, and color. Verrill called the long and narrow varieties, similis, and the others, avara. Other authorities, having large quantities of specimens from Massachusetts to Florida, have decided that they are all one species, and that one avara. I leave the subject here without further remarks.

CONCHOLOGICAL CHECK-LIST. X.

J. RITCHIE, JR.

Family. Cyclostomacea Pfr.
Sub-family. Cyclostomea Pfr.
Cyclostomus dissectus Sow.
dominicensis Pfr.
elegans Müll.
encausticus Reeve.
enchilus Pfr.
fasicularis Pfr.
filostratus Sow.
fimbriatus Lam.
formosus Sow.
fulvescens Sow.
fusculus Pfr.
glaucus Sow.
goudotianus Sow.
griseus Pfr.
habichi Weinl.
hartwigianus Pfr.
heynemanni Pfr.
humphreysianus Pfr.
hydeii Weinl.
ictericus Sow.
insularis Pfr.
interruptus Robill.
jayanus C. B. Adams.
kraussianus Pfr.
lævigatus Webb.
lamellosus C. B. Adams.
lave Pfr.
levis Pfr.
lienardi Morel.
ligatulus Grateloup.
ligatus Müll.
lineatus Pfr.
macareæ Petit.
madagascariensis Gray.
mauritianus H. Adams.
melitensis Sow.
michaudi Grateloup.
modestus Petit.
moniliatus Morel.
moulinsii Grateloup.
multifasciatus Grateloup.
nov-hiberniæ Quoy.
obsoletus Lam.
occlusus Mörch.
Cyclostomus olivieri Sow.
parvispirus Pfr.
pulchellus Sow.
pulcher Gray.
pyrostomus Sow.
rangelinus Poey.
rectus Gundlach.
redfieldianus C. B. Adams.
reticulatus Adams et Reeve.
retrorsus C. B. Adams.
rollei Weinl.
rugosus Lam.
rugulosus C. B. Adams.
saccatus Pfr.
salebrosus Morel.
sarcodes Pfr.
saxorum Weinl.
sericinum C. B. Adams.
seychellense Nevill.
solidus Menke.
sowerbyi Pfr.
striatulus Pfr.
subliratus Pfr.
suffusus Sow.
sulcatus Lam.
tectilabris C. B. Adams.
tenuis Sow.
tersus Benson.
thysanoraphe Sow.
tricarinatus Müll.
trochlea Benson.
undulatus Sow.
undulosus Sow.
unicarinatus Lam.
unicolor Pfr.
vesconis Morel.
vexillum Sow.
virgatus Sow.
vittatus Sow.
voltzianum Mich.
wilkinsoni C. B. Adams.
xanthocheilus Sow.
yallahensis C. B. Adams.
zanguebaricus Petit.
zonatus Petit.
zonulatus Petit.

The Beginning of Autumn.

In these first days of autumn the woods are peculiarly attractive. Especially is this so if, as has occurred this summer, the season has been a wet one. Then do we see the foliage in all its maturity of perfection, and the gorgeous flowers of the month with added beauty. These flowers, indeed, are the choicest of the year. Most glorious of all is the cardinal flower. This can still be found within our city limits; there are few large towns of which this can be said. This truly regal, or should we say ecclesiastical, plant is best seen along some shady forest brook. Long lines of scarlet spikes then stand like British soldiers disputing passage. They wear the real cardinal red, and that much-abused adjective splendid, is to them perfectly applicable. How the original discoverer must have jumped for joy, for such a manifestation is not incompatible with true scientific sobriety.

Now is the time when the amber pendants of the barberry are transmuted into coral necklaces. Nothing can be more beautiful than the barberry from its flowering to its fruition. It is one of those natural objects that we can never pass without a tribute of praise.

Asters, those stars of the West, are now beginning to open, and they are infinite in variety and size. Their colors are blue and white with shades between. With them come golden-rods, all of them but one yellow, and like the asters, of numberless species and choice habit. When people speak of "*the* golden-rod" as if there was but one, it makes the old student smile. Let those interested in asters and golden-rods consult the new part, just out, of Gray's masterly *Synoptical Flora of North America*. In it these difficult genera have been reëlaborated with utmost skill and care. Other striking wild flowers of the season are the turtle head (*Chelone*), and the indigo-blue gentian, its blossoms closed upon some secret. As a matter of fact, however, it is visited by insects. The monkey-flower (*Mimulus*) growing in moist grounds, is a very pretty, graceful plant, well worthy of garden cultivation. So are many of the *Gerardios*, did not their partially parasitic habit exclude them. The copses still show the white rareness of clethra, and the sumacs are reddening their pompons of fruit. Tinges of color, here and there, on trees or shrubs, the purpling foliage of Elodes, and the yellowing of milk-weeds, show the approach of autumn. So do the rich, ink-filled berries of the poke or garget, a most elegant plant.

One who saunters with his eyes open can at all seasons perceive and comment. The exuberance of the perfected year now especially tempts the wood-lover. Beauty lies all around him. There is lavish display of color and form. Let us enjoy to the full what will soon be withdrawn.

W. W. B.

August 30, 1884.

An Enterprising Janitor: — A gentleman recently gave the janitor of ——— Building in this city, a quantity of ammunition, a large portion of which was loaded paper shells. The brass ends of the cartridges looked so valuable to this janitor, that he carefully cut away the paper, emptying the powder into one receptacle and the shot into another, for the sake of the ends to sell for old brass. His idea of the value of the contents may be gathered from the fact that at the end of the tedious operation he sold three pounds of powder and nine pounds of shot for thirty cents, and asked his customer if he thought that price too much.

CHANGE OF PRICES.

A SUPPLEMENT TO THE REGULAR CATALOGUE OF

SOUTHWICK & JENCKS,

PROVIDENCE, R. I.

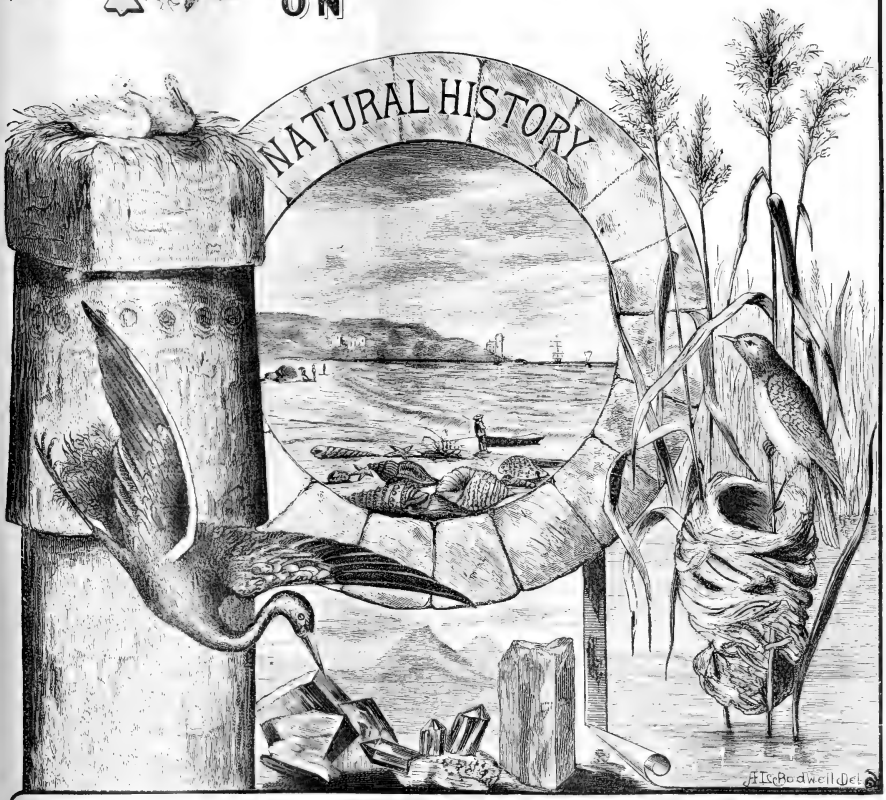
		SKINS.		EGGS. Sets per Egg.	Single.
4.	Russet-backed Thrush. *Hylocichla ustulata.* [152.]	$0 50 to	65	$0 20	$0 15
7*a*.	Western Robin. *Merula migratoria propinqua*	35	50	30	25
16.	Californian Thrasher. *Harporhynchus redivivus.* [256.]	75	1 00	30	25
19.	American Water Ouzel. *Cinclus mexicanus.* [164.]	75	1 00	1 00	1 00
23.	Californian Bluebird. *Sialia mexicana.* [159.]	45	60	25	20
24.	Rocky Mountain Bluebird. *Sialia arctica.* [160.]	♂ 60	85	60	50
		♀ 50	65		
25.	Townsend's Solitaire. *Myiadestes townsendi.* [235.]	1 00	1 25		
26.	Black-crested Flycatcher. *Phainopepla nitens.* [234.]	1 00	1 25	1 00	90
35.	Ground Tit. *Chamæa fasciata.* [274.]	75	1 00	1 00	90
38.	Plain Titmouse. *Lophophanes inornatus.* [287.]	75	1 00		
50.	Yellow-headed Tit. *Auriparus flaviceps.* [300.]	1 25	1 50		
51*a*.	Slender-billed Nuthatch. *Sitta carolinensis aculeata.* [278.]	45	60		
54.	Pigmy Nuthatch. *Sitta pygmæa.* [281.]	60	85		
56.	Cactus Wren. *Campylorhynchus brunneicapillus.* [262.]	75	1 00	30	25
63*a*.	Western House Wren. *Troglodytes aedon parkmanni.* [271.]	45	60	15	10
105.	Black-throated Gray Warbler. *Dendræca nigrescens.* [192.]	1 25	1 50		
141*b*.	Plumbeous Vireo. *Lanivireo solitarius plumbeus*	1 00	1 25		
182.	Green-backed Goldfinch. *Astragalinus psaltria.* [314.]	40	60	30	25
204*a*.	Western Lark Finch. *Chondestes grammica strigata*	60	75	30	25
207*a*.	Intermediate White-crowned Sparrow. *Zonotrichia gambeli intermedia*	45	60	30	25
208.	Golden-crowned Sparrow. *Zonotrichia coronata.* [347.]	50	75		
211*a*.	Western Chipping Sparrow. *Spizella domestica arizonæ*	50	75	30	25
216.	White-winged Snowbird. *Junco aikeni*	75	1 00		
219.	Pink-sided Snowbird. *Junco annectens*	75	1 00		
220.	Gray-headed Snowbird. *Junco caniceps.* [353.]	1 00	1 25		
225*a*.	Sagebrush Sparrow. *Amphispiza belli nevadensis*	1 50	2 00		
231*c*.	Californian Song Sparrow. *Melospiza fasciata samuelis.* [343, 365.]	45	60	15	10
238*a*.	Spurred Towhee. *Pipilo maculatus megalonyx.* [394.]	60	75	40	35
245.	Black-headed Grosbeak. *Zamelodia melanocephala.* [381.]	50	75	25	20
260.	Yellow-headed Blackbird. *Xanthocephalus icterocephalus.* [404.]	♂ 50	65	20	15
		♀ 40	50		
261*a*.	Red-and-black-shouldered Blackbird. *Agelæus phœniceus gubernator.* [402.]	45	65	15	10
262.	Red-and-white-shouldered Blackbird. *Agelæus tricolor.* [403.]	1 00	1 25		
264.	Western Meadow Lark. *Sturnella neglecta.* [407.]	50	65	20	15
269.	Hooded Oriole. *Icterus cucullatus.* [413.]	1 00	1 25	1 00	90
272.	Bullock's Oriole. *Icterus bullocki.* [416.]	50	75	25	20

293.	California Jay. *Aphelocoma californica.* [437.]	65	85	30	25
307.	Cassin's Kingbird. *Tyrannus vociferans.* [127.]	1 50	2 00		
338.	Anna's Hummingbird. *Calypte annæ.* [105.]	75	1 00	60*	60
339.	Broad-tailed Hummingbird. *Selasphorus platycercus...* [104.]	1 00	1 25		
350.	Black Swift. *Cypseloides niger borealis.* [108.]		6 00		
355.	Poor-will. *Phalænoptilus nuttalli.* [113.]	1 50	2 00		
368*a*.	Striped-backed Three-toed Woodpecker. *Picoides tridactylus dorsalis.* [84.]	2 50	3 00		
378*b*.	Red-shafted Flicker. *Colaptes auratus mexicanus.* [98.]	60	85	20	15
394.	American Barn Owl. *Aluco flammeus americanus.* [47.]	2 50	3 50	75	65
408.	Burrowing Owl. *Speotyto cunicularia hypogæa.* [58, 59.]	1 00	1 50	60	50
448.	Ferruginous Rough-leg. *Archibuteo ferrugineus.* [32.]	5 00	6 00		
471.	Dusky Grouse. *Canace obscura.* [459.]	3 50	4 50		
482.	Californian Quail. *Lophortyx californica.* [474.]	75	1 00	20	15
729.	Western Grebe. *Æchmophorus occidentalis.* [704.]			2 00	1 75
745.	Tufted Puffin. *Lunda cirrhata.* [712.]	2 50	3 50		
761.	Pigeon Guillemot. *Uria columba.* [727.]	2 00	2 50	50	40
763*a*.	California Guillemot. *Lomvia troile californica.*	2 00	3 00	40	35

*Hummingbirds' nests, 50 cents to $1 each, according to beauty.

VOL. I. NO. XI.

RANDOM NOTES ON NATURAL HISTORY



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SPECIAL NOTICE.

Subscriptions hereafter will begin with the current number, or the March number if desired.

Those having copies of January or February to spare will confer a favor by returning the same to us. We will accept such copies if in good preservation, and forward for each 10 cents, or they may be used for that amount in the purchase of goods from us. The sender should write "from" and his name and address on the wrapper.

What Is the Buffalo Moth?

Many articles have appeared in the columns of the daily newspapers, and in magazines devoted wholly or in part to science, and still there is a constant inquiry as to "What is the Buffalo Moth, or Buffalo Bug?"

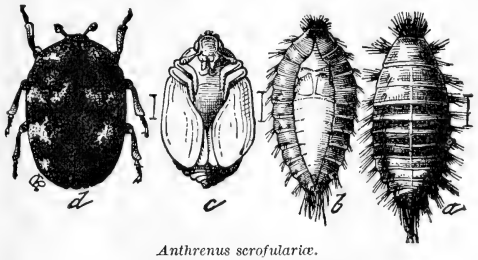
The name carries dismay into the heart of the good housewife, who, having heard that such a creature exists among us, is tormented by reasonable fears and visions of carpets and drapery destroyed.

It is not a moth at all; the larvæ (commonly and incorrectly called worms) of certain small moths, *Tinea tapetzella*, *Linn.*, do eat carpets, but the creature now under consideration does not have soft and feathery wings like a moth or butterfly, but is a beetle about 0.08 of an inch in length, and two-thirds as broad, hard to the touch, and in color a mixture of rusty black, dull red and white; running rapidly or drawing up his legs snugly and feigning death. Crush him whenever found, but look out still more carefully for the larva, which is 0.25 of an inch long, oval in shape, and covered with long, brown hairs. The insect works much more destruction in this state than when perfected to the beetle. These larvæ are said to moult very frequently, and the cast-off skins, split open on the back, are to be found lying about the fields of their depredations.

Benzine is in general, if applied in liberal quantity and for a considerable length of time, fatal to them, but its proper application to our heavy carpets and large rooms is hardly possible, its inflammability being an objection. If carpets were not tacked down, and the edges were frequently turned over and swept, it would do some good, as these pests, like all others of similar habits, are best pleased to work in quietness and in the dark. Therefore shake often, and give to the light, woolen clothing, fur rugs, feather dusters, and the bunches of peacock feathers now so much in vogue for home decoration.

Waxed or oiled floors may be covered with rugs that can be frequently taken up, and that fashion has been forced upon our European brethren by this and other carpet-destroying insects.

The name is *Anthrenus scrofulariæ*, and they belong with the same group of *cole-*



Anthrenus scrofulariæ.

a, *b*, larvæ; *c*, pupa; *d*, imago.

optera as the bacon-beetle and several others, all well known with sorrow by most collectors of botanical and zoölogical specimens.

Mr. George Dimmock states, *Standard Natural History, Part 25, page 379,* that this buffalo-bug or carpet-beetle, like other species of *Anthrenus*, is found out-of-doors, upon the pollen of plants, and often in swarms upon flowers of the different kinds of *Spiræa*, and upon those of the shad bush, *Amelanchier canadensis.*

Historical Trees of Rhode Island.

CONCLUDED.

IN the town of Warwick, on the place known as the Moses Lippitt farm, south of the head of Conimicut Point, is a linden tree of noble proportions. Its place of subdivision is about nine feet from the ground. The girth at three and one-half feet up is 21 feet; spread of branches, about thirty feet.

The white ash which grew at Apponaug, in the town of Warwick, behind the town hall, was one of the largest known. Its circumference did not vary much in the columnar trunk, which was nearly as large horizontally as vertically. Girth at two feet up, 14 feet; three feet up, 13 feet 8 inches; four feet up, 13 feet 9 inches. At five feet up it abruptly diverges into a very spreading head, making at first three main divisions with considerable space between them, these divisions speedily breaking up into numerous small branches. Its spread toward the SSE. is 35 feet; less in the other direction. The tree is, say 60 feet high. There has been much decay from water oozing down into the trunk. The bark is ashy gray, less fissured in the trunk than that of an elm equally large; on medium-sized branches smooth with longitudinal splits, as in a chestnut; it was often thickly laden with samara.

There is a sassafras tree in this town whose circumference near the ground is 14 feet 3 inches, two and one half feet up 12 feet, and it is about eleven feet up to the branches.

On the ancient homestead of the late Lemuel Angell, of North Providence, stand Rhode Island greening apple trees 137 years old, still bearing edible fruit.

In the state are found chestnut trees which measure 15 feet around the trunk. A specimen of the ash tree (*Fraxinus americanus*) is found 16 feet in girth. Some large specimens of the butternut tree (*Plantanus occidentalis*) are found near the Lonsdale station, and along the banks of the Moshassuck. Some of these trees measure around their trunk 15 feet. Fine examples of this tree and the shell-bark hickory are seen in the town of Smithfield. Trunks of the maples (*Acer rubrum and Acer sacharinum*) are found that girth 10 feet. Of the pine family *Pinus strobus* presents the largest trees in this group, measuring 9 and 10 feet in circumference. Some in the swamps at South Kingstown measure around the trunk 12 feet. A magnolia (cucumber tree) is found growing in the garden of the late Mrs. Moses B. Ives, in Providence. It was planted more than half a century ago, and said to be the finest specimen in New England; and here also grows the bladder nut tree, a solitary specimen in this climate. In the front yard of Mr. Henry G. Russell, on Brown Street, may be seen a tree of the horse chestnut, of rare beauty, its spreading branches extending nearly to the ground, whose graceful cone stands alone almost motionless. When in verdure and flower it is the perfection of a tree. In front of the residence of Mr. Frederick G. King, overhanging the sidewalk on Waterman Street, is a Chinese tree whose fruit is now hanging on its naked branches. How it came to live these fifty years no one can tell, and its blossoms in purple clusters late in the spring are a rare curiosity. J. H. B.

PROVIDENCE JOURNAL, April 17, 1884.

THE following, written by Mayor Prince, of Boston, when a Harvard student, and addressed "To Pupils in Elocution," has had considerable circulation, but is well worth repeating:

"The human lungs reverberate sometimes with great velocity
When windy individuals indulge in much verbosity,
They have to twirl the glottis sixty thousand times a minute,
And push and punch the diaphragm as though the deuce were in it.
Chorus.— The pharynx now goes up;
The larynx, with a slam,
Ejects a note
From out the throat,
Pushed by the diaphragm."

Sciurus Carolinensis—Gray Squirrel.

This species is very common throughout the state. We have chestnuts, hickory nuts, and sweet acorns in plenty, and conditions in general are favorable to its existence. The gray squirrels produce on the average four young to the litter, born about the last of April or first of May, and they would multiply profusely were it not for the persistent war waged upon them by gunners, old and young.

The nest is frequently placed in some tall tree at the junction of a limb, bulky and looking like a crow's nest, except that few or no sticks are visible, the mass is roofed over and composed of leaves and moss. We have also seen them at the top of slender birch trees, a sort of round bunch, usually of birch leaves, from which, in the autumn, a smart shake will dislodge the occupants. Within ten miles of Providence, much of the old timber grown in very ledgy localities has been cut off, the squirrels remain, and very probably find homes and protection among the rocks. In April, 1877, Mr. G. M. Gray climbed to the nest of a Red-shouldered Hawk, in the woods near Bristol. The nest was old and large, and might have been used for several years. On his approach, away went the hawk, and out from the mass below ran a gray squirrel. There were no young in the squirrel's nest, but three eggs in that of the hawk. The squirrel was started from the same place several times afterward, while the hawk built again about an eighth of a mile distant.

The young are born blind and without hair, and are frequently taken and reared in captivity. When allowed their freedom they are prone to try their sharp teeth upon furniture and household goods in general. And my experience is, that they are also liable to bite persons, with whom they are not well acquainted, making an unpleasant wound. However, their sleek coat, beautiful tail, large eyes, and agile ways make them general favorites.

In the woods they move rapidly by a series of jumps, and frequently make tremendous leaps from tree to tree, or branch to branch, when chasing each other in play or escaping from impending danger.

Any one who has observed them knows of their habit of lying close to the bark of a tree trunk, always keeping upon the side opposite to the anxious gunner. Patient waiting in such a case will after a time reveal the tip of a nose, or the wind will play *treacherously* with the bushy *appendage*. During the summer they are found in all sorts of situations, and having never examined the stomachs, I cannot say what they may eat, but as the nuts begin to ripen they commence to congregate, and to gnaw off the green chestnut burrs, which they do not open at the time, but probably wait for time and perhaps the frosts to assist. They do not lay up a winter store, but bury nuts here and there in the ground and are to be found about all winter, frequently tunneling under the snow.

No specimens of the black variety have ever been reported for Rhode Island, but for several years past pure white ones have been taken, all, so far as can be determined, in the woods of old Warwick.

Squirrel Incidents.

While passing through a field covered with stumps, my attention was attracted to a very large gray squirrel, sitting on a stump about ten feet high. It was evidently very much excited about something, so I paused to investigate. A very large mink soon ran up the stump, with the intention of seizing the squirrel, but was met by the teeth of the latter, and forced to drop back. The squirrel had the advantage, for the mink was a poor climber, and was repelled time after time before he was able to gain a footing on the top of the stump. So interested were they in the deadly combat that I walked to within twenty feet and shot the mink with a squib of small shot. When I picked it up the squirrel did not move, but seemed dazed at the turn matters had taken.

A. W. Anthony.

While seated beneath a hickory, I noticed a red squirrel busily engaged inspecting a large leaf-nest, at first cautiously smelling the trunk and limbs about it, but gradually getting bolder, it began a lively chattering and barking, and at times jumping like a cat on to the nest, first on the top, and then on the sides or bottom. This had been going on for perhaps ten minutes, when it was joined by two others of its

kind. The three now seemed bent on destroying the large leaf-nest, and attacked it on all sides, but at first with a certain degree of caution, doing more reconnoitering than damage, and after about fifteen minutes, as if by common consent, they abandoned it. All three ran up the trunk, and out on to a limb about four feet above the nest, where they sat as if holding a council of war. There seemed to be no disagreement, for they returned to the attack; one took the top, another the bottom, and the third one side, and the leaves began to fall quite fast, when all of a sudden a large gray squirrel jumped out and away, as if for dear life, closely pursued by its determined enemies. I settled the difficulty by dropping the gray, and afterwards the three red ones. E. T. MACK.

A LARGE amount of brush was burned one night in the vicinity of Providence, which attracted birds from a swampy piece of woods near by. The birds are reported as flying into the flames in considerable numbers. Some were also attracted by the lights in the houses close by, and flew at the windows, and some being open, a few birds entered and were caught. Five were brought to us the next day, four of which were alive, viz.: one scarlet tanager and three Connecticut warblers, one of the latter having the adult plumage. The dead bird was a Maryland yellow-throat.

Reptiles and Batrachians of Rhode Island.

BY HERMON C. BUMPUS.

NUMBER II.

CLASS — REPTILIA.

I. ORDER — TESTUDINATA. The members of this order are recognized by the following characters. Body protected above and below by a bony armor, leaving the head, neck, tail, and limbs free. Jaws are unprovided with teeth, and resemble those of birds. Limbs always four.

1. *Sphargis coriacea Linn.* (*Dermatochelys coriacea* (VANDELLI) STRAUCH YARROW'S CHECK-LIST.)

The Leather-back, or Trunk Turtle, is both the largest and the most strange in form of the Rhode Island Testudinata. A specimen in the Brown University Museum, captured at Wood's Holl, measures six feet in length, and weighed, when alive, over one thousand pounds. It is at once distinguished by the seven longitudinal ridges along the back, and by the absence of scales; the body as well as the limbs lacking this protection. The toes are further unprovided with claws. Though there is, to my knowledge, no Rhode Island example of this comparatively rare species on exhibition, yet, from the fact that it has been taken in neighboring waters, and is occasionally seen by fishermen in our own, it is only proper that it be included in the Rhode Island fauna. The same is the case with the two following forms:

2. *Thalassochelys caretta* (LINN.) TRUE. (*T. caouana* LINN.) The Loggerhead Turtle, though a southern form, has been captured at Wood's Holl, and, it is hoped, will soon be found in Rhode Island waters.

3. *Chelonia mydas* (LINN.) SCHWEIGGER. The Green Turtle is occasionally captured while asleep, its head resting on a lobster-buoy, by the fishermen along the southern shores of our state. This is the turtle which is most used for food, and commands a high price at the markets. A specimen, selected by Prof. J. W. P. Jenks, as the largest of a number corraled in Florida, weighed upwards of one hundred and twenty-five pounds. This species is distinguished from the Loggerhead by its green color and small head. It is especially desirable that specimens of our sea-turtles be preserved for study. I know of no permanent examples in the state; yet specimens of the three above-mentioned species must often be taken by fishermen.

4. *Chelydra serpentina* (LINN.) SCHWEIGGER. The Snapping Turtle is often captured along roadsides, while it is making its journey from pond to pond. This form grows to be the largest of our fresh-water turtles, often reaching a length of three feet. A specimen in the Brown Museum measures three feet and two inches. The Snapping differs from our other turtles not only in respect to size, but in general form and structure. Generally elongated, with small and comparatively soft shell (this is notably the case with young specimens), tail provided with a dorsal row of horny tubercles, and the plastron reduced to a mere cross, this

form well merits its specific title of *serpentina*. At the time of oviposition, which is between the 10th and 20th of June, the *serpentina* leaves the water during the early morning, and, crawling to a sand-bank, digs a small *cavity* (not with its tail, as is commonly believed, but with its hind foot), into which the spherical eggs are dropped, sometimes to the number of twenty-five, or even more. The hole is then covered over, and the sand leveled off, the turtle finally wending its way back to the water, the whole operation taking not over twenty minutes. The eggs thus deposited, will, at the end of about three months, unless found by some marauding skunk—a misfortune which comes to fully half the eggs laid — give rise to as many young. This description is more fully entered into, because of its difference from that of the oviposition of all our other turtles. While the *serpentina* is satisfied with nothing but sand, the Painted and Speckled Turtles put up with any soil in which they can scrape, not a *cavity*, but a *hollow;* the *serpentina* adopts the morning, while other turtles choose the evening. All our turtles, however, are alike in that they take equal care in covering the eggs by clawing the sand, dirt, grass, or moss, as the case may be, over them, and leveling it by repeatedly drawing the body over the place of deposition.

The Snapping Turtles are most retired and solitary in their habits. Spending most of their time at the bottom of some sluggish river or muddy pond, they live on such fish and reptiles as may come within the reach of their jaws. In confinement they are especially vicious, striking at anything held towards them, and having such a tenacious hold as to allow themselves to be lifted from the ground rather than relax their jaws. They are often used as food, and take a hook baited with fish readily, though strong tackle is necessary to successfully land them.

Among the more recent reports of minerals is one of a petroleum well, at Bakon, Russia, which for several days after opening threw a stream of oil about forty feet into the air, and this valuable product from the Caucasian wells is appearing in the German markets.

The Shell-Bearing Mollusca of Rhode Island.

BY HORACE F. CARPENTER.

Chapter X.

Family 12. Cancellariidæ consists of two genera, Cancellaria and Admete; Cancellaria containing seventy species of tropical and sub-tropical shells, and Admete one species, inhabiting from Massachusetts Bay to the Arctic Ocean. This species, Admete viridula, Fabricus, has not yet been found in Rhode Island waters, but I see no reason why it should not be, as it is often taken from the stomachs of fishes caught in Massachusetts Bay, and inhabits waters from ten to forty fathoms in depth. I will not occupy space in describing any species of shells not actually found in Rhode Island, but call attention to them for future reference, and for reasons given in Random Notes, No. 10. A description of it may be found in *Gould's Invert. Mass., 391, 1870.*

Family 13. Terebridæ contains but one genus, six sub-genera, and about two hundred living and twenty-five fossil species, all foreign to our fauna.

Family 14. Pleurotomidæ consists of three sub-families, sixteen genera and numerous sub-genera, with over five hundred species, distributed world-wide. I am not aware that any species of this family have ever been found in Rhode Island, but several species have been found off Martha's Vineyard and vicinity in deep water, and described by Prof. A. E. Verrill, to whose works I refer the reader, simply mentioning the names, localities, etc.

Pleurotoma Dalli, Verrill and Smith. sp. nov. *Cat. Mar. Moll., 451, 1882.*

Distr., off Martha's Vineyard, 94 to 146 fathoms. Off Delaware Bay, 104 fathoms.

Bela bicarinata, Couthouy. *Bost. J. Nat. Hist., II. 104, 1839.*

Distr., Cape Cod to Greenland; Iceland, Norway, Spitzbergen. Off Martha's Vineyard, 28 fathoms.

Bela decussata, Couth. *Bost. J. Nat. Hist., II. 183, 1839.*

Distr., New England to Labrador; Greenland, Nova Zembla. Off Martha's Vineyard, 34 fathoms.

Bela cancellata, Mighels *Proc. Bost. Soc. Nat. Hist., I. 50, 1841.*

Distr., Martha's Vineyard, 126 fathoms, to Greenland, etc.

Bela harpularia, Couth. *Bost. Journ. Nat. Hist., II. 106, 1839.*

Distr., Long Island Sound to Nova Scotia. Off Block Island, 20 to 28 fathoms.

Bela concinnula, Verrill. sp. nov. *Cat. Mar. Moll., 468, 1882.*

Distr., off Newport and Martha's Vineyard, 252 to 487 fathoms, to Nova Scotia.

Bela hebes, Verrill. *Proc. U. S. Mus. Nat., III. 367, 1880.*

Distr., five specimens off Newport, 282 to 500 fathoms.

Bela pygmæa, Verrill. sp. nov. *Cat. Mar. Moll., 460, 1882.*

Distr., off Martha's Vineyard, 365 fathms.

Bela incisula, Verrill. sp. nov. *Cat. Mar. Moll., 461, 1882.*

Distr., off Newport, 500 fathoms, to Nova Scotia.

Bela tenuilirata, Dall. *Am. J. Conch., VII. 98, 1871.*

Distr., one dead specimen off Martha's Vineyard.

Bela pleurotomaria, Couth. *Bost. Journ. Nat. Hist., II. 107, 1839.*

Distr., off Martha's Vineyard, 255 fathoms, to Labrador.

Daphnella cerina, Kurtz and Stimpson. *Proc. Bost. Soc. Nat. Hist., IV. 115, 1851.*

Distr., Buzzard's Bay, at Quisset, 3 to 5 fathoms. Long Island Sound to Tampa Bay, Florida.

Daphnella Carpenteri, Verrill and Smith. *Am. J. Sc., XX. 391, 395, 1880.*

Daphnella comatotropis, Dall. *Bull. Mus. Comp. Zoöl., IX. 58, 1881.*

Distr., off Martha's Vineyard, 100 fathoms. One dead specimen.

Daphnella limacina, Dall. *Bull. Mus. Comp. Zoöl., IX. 55, 1851.*

Distr., four specimens, Martha's Vineyard, 368 fathoms.

Taranis Mörchii, (Malm.) Jeffreys.

Distr., off Newport, 365 fathoms, two specimens. Gulf of Mexico, 805 fathoms. (Dall.)

Taranis pulchella, Verrill. *Proc. U. S. Nat. Mus., III. 368, 1880.*

Distr., off Martha's Vineyard, 487 fathoms. One specimen.

Pleurotomella Agassizii, Verrill and Smith. *Am. J. Sc., XX. 394, 1880.*

Distr., off Newport and Martha's Vineyard, 65 to 252 fathoms. Off Delaware Bay, 435 fathoms.

Pleurotomella pandionis, Verrill. *Proc. U. S. Nat. Mus., III. 368, 1880.*

Distr., off Martha's Vineyard, 310 fathoms.

Family 15. Conidæ, with about three hundred living and nearly one hundred fossil species, all foreign to our fauna.

Family 16. Strombidæ, eighteen genera and more than one hundred species, all absent from our waters.

Family 17. Cypræidæ.

Family 18. Ovulidæ.

Family 19. Cassididæ.

Family 20. Doliidæ, all foreign to our shores, excepting one species of Dolium, dredged off Martha's Vineyard in 202 fathoms; this is the

Dolium Bairdii, Verrill and Smith. *Am. Jour. Sci., XXII. 296, 1881.*

Family 21. Naticidæ contains about three hundred or more species, a few of which inhabit our shores. The naticidæ are a family of carnivorous gasteropods, which inhabit all parts of the world, and are found on sandy shores from high-water mark to 100 fathoms. They are exceedingly voracious, feeding upon dead fish, and upon all animal substances thrown up by the tide, and are in turn devoured in large numbers by the codfish and haddock. The small round holes, seen in dead bivalves, are bored by species of this family. How they accomplish this is not certain; some authors suppose that they secrete an acid which dissolves the shell of its victim. I do not believe this theory, but can offer no satisfactory one. If any of the readers of Random Notes can explain how they do it, I would be happy to be informed. They certainly do drill these holes in the bivalve shells, and suck out the contents through the hole thus made. They have an enormous foot, capable of enveloping completely the object on which they prey; when extended on the sand it is four times the size of its shell, and can be reflected back so as to cover and hide the shell from sight; it is also doubled up in front so as to form a wedge-shaped digger, with which it plows up the wet sand in search of bivalves, as soon as the tide begins to uncover it. Its head is hidden behind the plow, and as its

eyes would also be hidden and of no use to it, these animals are blind.

We have all noticed, in summer, curious, sandy, saucer-shaped objects, lying on the shore, between tides. They have been objects of much speculation, and have been considered by naturalists as zoöphites, and have been given a dozen or more erroneous names. They are now known to be the nidus or nest, which is made by the natica for the protection of its eggs. This nidus is composed of small grains of sand, glued together and filled with little cells; each cell contains an egg, having a yellow nucleus, which is the embryo shell; while wet, these cases are elastic, but when dry are very friable, and fall to pieces on touching them. The two largest species of this family inhabit the United States, one in New England and the other in Oregon. Descriptions of the species inhabiting Rhode Island will be given in the next paper.

(To be continued.)

The Fern Flora of Southern California.

[From advance sheets of *Santa Barbara As It Is*, now in process of publication by the Independent Publishing Co., Santa Barbara, Cal.]

BY LORENZO G. YATES.

FERNS.

The remarks on the peculiarities of the climate of this county as regard the molluscan fauna, will apply also to the flora of this region so far as the Felices or Ferns are concerned. While some of our species are found in the northern part of the state, and are not found south of us, others begin here and extend south, Santa Barbara being the southern limit of species found in northern California and Oregon, and the northern boundary of others found south, into Arizona and Mexico; others again are peculiar to this and the counties immediately adjacent, and one species at least, is peculiar to Santa Barbara County on the Pacific coast, and found elsewhere only in Florida and Texas. We find the following species in this county: The Adiantums, or "Maiden-hair Ferns," are remarkably well represented, all the species known in the United States, with perhaps one exception, being found here.

Adiantum pedatum, in the northern portion of the county. A. capillus veneris, A. emarginatum, in the wooded cañons in the neighborhood of living water; hanging in immense masses from the boulders under the spray of falling water.

Aspidium patens, a remarkably fine and pretty fern; the only localities where it is found in the United States being Bartlett Cañon in this county, and in Florida and western Texas.

Aspidium rigidum, variety argutum, found throughout the country in abundance.

Cheilanthes Californica, commonly called lace fern, a very delicate and pretty species, found only in the Coast Range of California, and much sought after by collectors.

Cheilanthes Cooperæ, first discovered in Santa Barbara County and named for Mrs. Ellwood Cooper, a lady who takes great interest in the collection of ferns.

Gymnogramme triangularis, the golden back or gold fern, and under certain conditions of growth taking the form of the so-called silver fern, common everywhere.

Pellæa andromedæfolia, P. ornithopus and brachyptera; all the pellæas improve under cultivation.

Peteris aquilina, var. lanuginosus, brake fern, common.

Woodwardia radicans, variety Americana, is found growing in and near mountain streams. Magnificent specimens of this fern are used for decoration.

A Daring Red-shouldered Hawk.—A well-known taxidermist sends us the following, which was related to him by the hero of the adventure: Having been out to his pasture to salt his cattle, he was returning when he ran across a Partridge which he killed with a stone. Securing his game he continued his homeward walk, and while passing through a small piece of pine woods a Hawk swooped down and attempted to take the dead bird from him. In his disengaged hand he carried a bull-ring, and, recovering from his surprise, brought it to bear upon the Hawk's head, striking a blow which killed it at once.

This seems rather a strange story, but the taxidermist affirms that the man appeared at his store with the Partridge, bull-ring, and Hawk in his hands, the latter looking as though killed with such an instrument.

CONCHOLOGICAL CHECK-LIST. XI.

J. RITCHIE, JR.

Family. Cyclostomacea Pfr.
Sub-family. Cyclostomea Pfr.

Tudora abtiana Pfr.
adamsi Pfr.
armata C. B. Adams.
augustæ C. B. Adams.
avena C. B. Adams.
chemnitzii Wood.
columna Wood.
costata Menke.
dislocata Baird.
dulieri Pfr.
excurrens Gundlach.
fascia Wood.
fecunda C. B. Adams.
ferruginea Lam.
griffithiana C. B. Adams.
lurida Gundlach.
maritima C. B. Adams.
megacheila Pot. et Mich.
moreletiana Petit.
mutica C. B. Adams.
nobilis Pfr.
ovata Pfr.
papyracea C. B. Adams.
pupiformis Sow.
pupoides Morel.
quaterna Lam.
shepardiana C. B. Adams.
simulans C. B. Adams.
tappaniana C. B. Adams.
umbricola Weinl.
versicolor Pfr.
wrighti Pfr.

Leonia mamillaris Lam.
scrobiculata Mouss.

Sub-family Cistulea Pfr.

Cistula agassizi Charp.
agrestis Gundlach.
aguadillensis Pfr.
antiguensis Pfr.
arctistria Pfr.
aripentis Gupp.
bilabris Menke.
catenata Gould.
cinclidodes Pfr.
confusa Pfr.
cumulata Pfr.
fallax Pfr.
grateloupi Pfr.
gruneri Pfr.
inculta Poey.

Cistula illustris Poey.
interstitialis Gundlach.
jimenoi Arango.
küsteri Pfr.
l'argillierti Pfr.
limbifera Menke.
lineolata Lam.
livida Reeve.
lugubris Pfr.
mackinlayi Gundlach.
mordax C. B. Adams.
orbignyana Petit.
pallida Pfr.
pauperata C. B. Adams.
platychila Pfr.
pleurophora Pfr.
radiosa Morel.
radula Pfr.
rigidula Morel.
riisei Pfr.
rostrata Pfr.
rufilabris Beck.
sauliæ Sow.
scabrosa Humphrey.
tamsiana Pfr.
thoreyana Phil.
trochlearis Pfr.

Chondropoma abnatum Gundlach.
angustatum Pfr.
assimile Gundlach.
basicarinatum Reeve.
biforme Pfr.
blandum Pfr.
blauneri Shutt.
caniculatum Gundlach.
candeanum Orb.
canescens Pfr.
caricæ Pfr.
chordiferum Pfr.
cirratum Wright.
claudicans Poey.
cordovanum Pfr.
crenulatum Fer.
cumanense Pfr.
delatreanum Orb.
dentatum Say.
dilatatum Gundlach.
discolorans Wright.
dissolutum Poey.
echinulatum Wright.
egregrium Gundlach.
emilianum Weinl.
erectum Gundlach.

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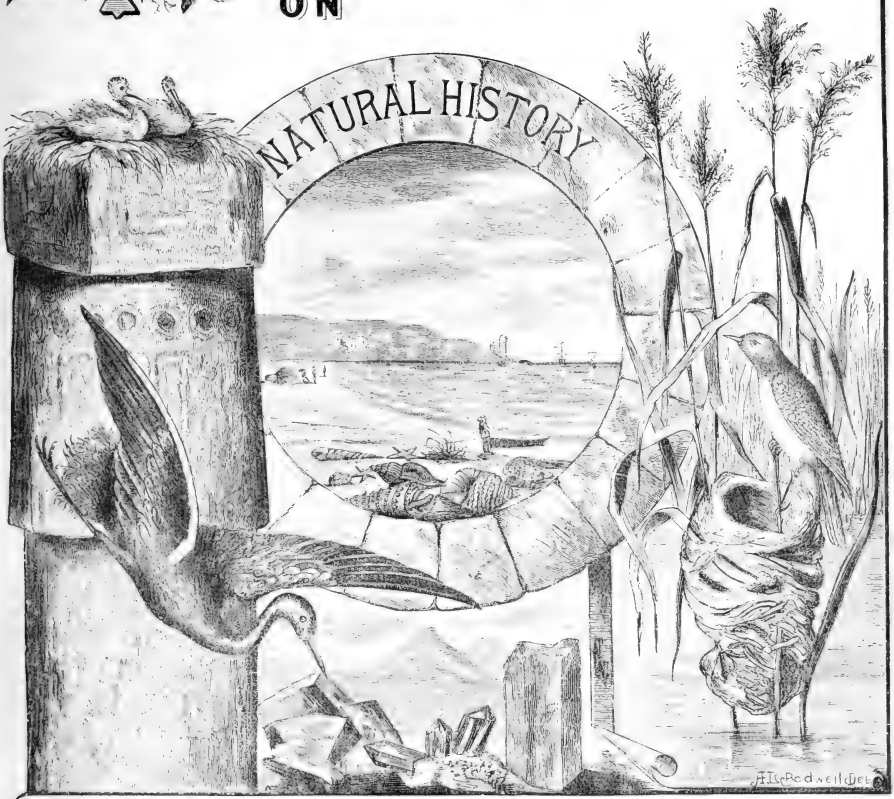

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SPECIAL NOTICE.

We have secured several copies each of Nos. 1 and 2, Vol. 1, which those who desire them may have for 10 cents each.

Remarks on the Migration of Birds in North America.*

By C. Hart Merriam, M. D.

The subject of the migration of birds is one of such magnitude and importance, that the American Ornithologists' Union at its first congress (held in September, 1883), appointed a special committee for its investigation. This committee prepared a circular, setting forth the objects in view and the methods by which they were to be attained, specifying the division of the territory of the United States and British North America into thirteen districts, and supplying instructions to observers, concerning the character and extent of the data desired, which were classed under the heads of Ornithological, Meteorological, and Contemporary and Correlative phenomena. Six thousand of these circulars were distributed.

Through the co-operation of the Department of Marine, of Canada, and of the Light-house Boards of the United States and Newfoundland, blank schedules were also supplied to the keepers of light houses, light ships, and beacons, throughout the whole of North America.

It is gratifying to know that, as a result of the enormous amount of labor attending the distribution of these circulars and schedules, the committee has already received returns from nearly one thousand observers, which may be considered an excellent showing for the first season's work. The stations from which returns have come are scattered over the whole country, extending in the East from Sombrero Key, Florida, to Newfoundland; and in the West from Arizona and Southern California to British Columbia. They are most numerous in New England, the Atlantic district, and the Mississippi Valley.

Comparatively few of the observers are ornithologists, or even bird-collectors, the great bulk being intelligent farmers and tradesmen. Those who know only the commonest birds, such as the robin, bluebird, bobolink, martin, and chimney swift, can furnish important data to the committee, and their services are eagerly sought.

The material now in hand is of great value, and is so voluminous that the committee cannot properly arrange, systematize, and publish it, without government aid. Its value does not consist wholly in its scientific interest, for it has direct bearings upon many of the problems with which the agriculturist is directly concerned.

The committee has undertaken to ascertain the whereabouts of all our birds during the winter season, and the times of leaving their winter-homes; to determine, if possible, the number and extent of the chief avenues of migration in North America, and the average rate of speed at which the different species travel; to find out the dates of their appearance at and disappearance from at least a thousand localities, both in spring and fall, for a period of years; and to map out the *breeding areas* of every species which rears its young in North America, north of Mexico.

Birds are known to migrate with great regularity. Still, the exact date of the arrival of a given species at a given locality varies somewhat from year to year, according to the advancement of the season, and the state of the weather. For example, severe storms, gales of wind, and protracted periods of unusually high or low temperature (for the locality and time of year) are

* Published by permission of the council of the A. O. U.

among the atmospheric conditions that are known to exert marked effects upon their movements, The opening of the leaves and the flowering of certain plants, with the correlative appearance of a multitude of insects, are also among the factors that have to do with the abundance of many species.

The time of a bird's appearance at a certain place does not depend so much upon the weather *at that place*, as upon the weather *at some distant point* (perhaps several hundred miles away) in the direction *from* which it comes. It is probable that all North American birds, excepting a few of the grouse family, are migrants to a greater or less degree. Many resident species are migrants as individuals. their summer and winter ranges overlapping. Most birds migrate chiefly by night. In clear weather they fly high, often from one to two miles above the country over which they are passing, thus obtaining an unobstructed view of a large extent of territory, which enables them to lay out their course by definite landmarks. During dark nights, particularly in foggy weather, they often lose their way, become confused, and fly directly toward any light that may chance to lie within the field of vision. Thus, every year, many thousands dash themselves to death against light-houses and light-ships.

The great majority of birds migrate by definite routes, following the same course year after year. These "avenues of migration" are most strongly marked in aquatic, marsh, and river-dwelling species. It is also well known that, in nearly all birds, the same individuals return to the same identical locality, year after year.

In the short space allotted to this article it is impossible to give credit to the multitude of individuals who have contributed the material on which it is based. Suffice it, then, to return thanks collectively to the thirteen superintendents who have spared neither pains nor expense to make their reports as full and valuable as possible; and to the observers, nearly one thousand in number, without whose industry and zeal the committee would have nothing to report.

The southernmost station from which the committee has received returns is the light-house at Sombrero Key (near Key West), off southern Florida. It is, from its geographical position, a very important station, and, fortunately, is in charge of a most excellent keeper, Mr. M. E. Spencer, who has already sent the chairman several packages of birds for identification — among them one of the rarest of all North American species. From this point northward to Cape Breton, Prince Edward Island, the Magdalens, Newfoundland, Belle Isle, and Greenly Island, off Labrador, numerous and valuable returns have been sent in by intelligent light-keepers, and are now in the hands of the committee.

Following are the dates at which a few common and well-known birds were recorded from various localities in North America, during the spring of 1884.*

* The data here given constitute but a small portion of the material in hand concerning the species mentioned, and have been selected merely to show in a general way the movement of the van during the past season.

CATBIRD (*Mimus carolinensis*).

Statesville, N. C.	April 16
Tree Hill, Tenn	" 15
Buffalo, W. Va.	" 27
Camden, Ind.	" 27
Columbus, O.	" 26
Petersburg, Mich	" 29
Cleveland, O.	May 1
Battle Creek, Mich	" 1
New Lexington, Penn.	April 29
Philadelphia, Penn.	May 1
Atglen, Penn	" 4
Brooklyn, Penn	" 8
Sing Sing, N. Y.	" 2
Albany, N. Y.	" 3
Tully, N. Y.	" 5
Lockport, N. Y.	" 6
Painted Post, N. Y.	" 8
Locust Grove, N. Y.	" 12
Lowville, N. Y.	" 13
Watertown, N. Y.	" 23
Lake George, N. Y.	" 12
Hammondville, N. Y.	" 18
Montreal, Canada	" 20
Quebec, Canada	June 1
Saybrook, Conn	May 3
East Hartford, Conn.	" 5
Holyoke, Mass.	" 11
Greenfield, Mass.	" 12
Wing's Neck, Mass.	" 17
Thetford, Vt	" 19
Burlington, Iowa	April 20
Pierre City, Mo	" 26
Manhattan, Kansas	" 28
Des Moines, Iowa	" 30
Ames, Iowa	May 8
Vermillion, Dakota	" 8
Minneapolis, Minn.	" 9
Frazee City, Minn.	" 17
Alda, Neb.	" 14
London, Ont.	" 1
Hamilton, Ont.	" 3
Port Colborne, Ont.	" 1
Listowel, Ont.	" 8
Leamington, Ont.	" 15
Presque Island, Ont.	" 15
Wolf Island, Ont	June 1
Ile à la Pierre	May 15
Farther Point, P. Que., Canada	" 12

The Baltimore Oriole (*Icterus galbula*) is rather a late comer, usually waiting for

settled weather before venturing northward. Hence its progress, being subject to comparatively few interruptions, is much more regular than in those species which migrate earlier. In the spring of 1884, orioles were reported from Jessamine Co., Ky., April 18; Camden, Ind., April 24; College Hill, O., April 27; Columbus, O., April 28; Petersburg, Mich., April 30; Cleveland, O., and Battle Creek, Mich., May 1; New Lexington, Penn., April 28; Brooklyn, Penn., May 6; Long Island City, and Sing Sing, N. Y., May 2; Lockport, N. Y., May 4; Painted Post, N. Y., May 5; Locust Grove, N. Y., May 6; Auburn, N. Y., May 6; Watertown, N. Y., May 11; Lake George, and Hammondville, N. Y., May 13; London, Ont., May 8; Hamilton, Ont., May 9; Ottawa, and Listowel, Ont., May 13; Portland, Conn., May 2; East Hartford, Conn., May 4; Holyoke, Mass., May 6; Greenfield, Mass., and Hanover, N. H., May 15; Thetford, Vt., May 10; Weterboro, Fryeburg, and Brewer, Me., May 16; Moosehead Lake, Me., and Montreal, Canada, May 24.

The Bobolink (*Dolichonyx oryzivorus*) was reported, by the keepers of light-stations, from North East Harbor, Me., May 1; Windmill Point (near Prescott), Ont., May 8; Cherry Island, Ont., May 30; Leamington, Lake Erie, May 20; Long Point, Lake Erie, May 22; Robertson's and McMann's Points, N. B., June 1; Presque Isle, Lake Ontario, June 15.

The Chimney Swift (*Chætura pelasgica*), according to the same observers (light-keepers), was seen at Egg Island, N. J., April 30; Wing's Neck, Mass., May 3; North East Harbor, Me., June 2; Drew's Head, N. B., May 20; Cape Spencer, N. B., May 28; McMann's Point, N. B., June 1; Prince Edward Island, May 15; Sand Point (Canso), N. S., May 24; Plateau Rock (Gaspé Co.), June 1; Cherry Island, Ont., May 1; Prescott, Ont., May 5; Wolf Island (where the St. Lawrence leaves Lake Ontario), May 20; Port Maitland, Lake Erie, May 4; Leamington, Lake Erie, May 25; McGulpin's Point, Mich., May 24.

NIGHTHAWK (*Chordeiles popetue*).

Augusta, Ga.	April 25
Jessamine Co., Ky.	" 30
Camden, Ind.	May 4
Cleveland, O.	" 10
Battle Creek, Mich.	May 11
McGulpin's Point, Mich.	" 25
Frogmore, S. C.	April 12
Statesville, N. C.	" 25
New Market, Va.	May 1
Philadelphia, Penn.	" 1
Lancaster, Penn.	" 1
Brooklyn, Penn.	" 3
New Lexington, Penn.	" 15
Atglen, Penn.	" 15
Cape May City, N. J.	" 18
Sing Sing, N. Y.	" 20
Locust Grove, N. Y.	" 24
Hammondville, N. Y.	" 22
Tully, N. Y.	" 17
Lockport, N. Y.	" 17
Watertown, N. Y.	" 23
Saybrook, Conn.	" 10
Greenfield, Mass.	" 16
Wing's Neck, Mass.	" 17
Thetford, Vt.	" 20
Negro Island, Me.	" 20
Owl's Head, Me.	" 21
Blue Hill Bay, Me.	" 23
Calais, Me.	" 23
North East Harbor, Me.	" 24
St. John, N. B.	" 14
Yarmouth, N. S.	" 18
Cape Spencer, N. S.	" 21
Quaco, N. S.	" 26
Baccaro, N. S.	" 30
Prince Edward Island.	June 1
Batchewana Bay, Lake Superior.	May 10
Killarney, Lake Huron	" 15
Windmill Point (Prescott), Ont.	" 20
Cherry Island (L. St. Francis).	" 25
Montreal, Canada	" 21
Quebec, Canada	" 25

Feldspars.

THE different minerals belonging to the feldspar group are composed of silica, alumina, and soda, lime, or potash. They are distinguished from other minerals by their perfect cleavage in two directions, leaving faces that are smooth and reflect the light with a peculiar flash. They are harder than limestone and softer than quartz, which two they most resemble, and are not decomposed rapidly by hydrochloric acid, and with effervescence like limestone.

The more common white varieties are mined and used extensively in the arts, and the decomposition of feldspathic rocks results in clay used from time immemorial in the manufacture of pottery.

The Boston *Journal of Commerce*, mentioning some of the more precious kinds, says:

"Amazon stone is a bluish green variety of the common kind of feldspar called orthoclase. In composition it is a silicate of alumina and potash. It is an opaque stone with a somewhat pearly lustre and a hardness of 6, or 6.5, just below quartz. It is quite brittle, but takes a good polish. It was first discovered on the banks of the Amazon, from which circumstance it takes

its name. It is found at Lake Baikal, in Siberia, and Pike's Peak, Colorado; also in North Carolina, Pennsylvania, and Mt. Desert, Me.

"Moonstone, or adularia, agrees in composition and hardness with Amazon stone. It has a pearly or silvery reflection not unlike that of the moon, from which it takes its name. It belongs to the cheaper grade of gems, though in some parts of Europe it has at times been much esteemed. The finest specimens come from Ceylon. It is found in this country at Media, Penn., and in Virginia.

"Sunstone is like moonstone in composition and hardness. It is of a yellowish color, reflecting sparkles of light in various directions, owing to minute particles of iron oxide which are disseminated through it. It is found in Siberia, Norway, and Ceylon, and in the United States in the same localities as moonstone. It is also called aventurine feldspar.

"Labradorite, or Labrador spar, is a variety of feldspar of various shades, the kind used in jewelry having a rich blue color. In composition it is a silicate of alumina, lime, and soda, with a hardness of 6. It is remarkable for its beautiful play of colors, and its sparkling reflections, like aventurine feldspar. Though generally blue, green, yellow and red kinds are not uncommon, sometimes pearly gray. Labradorite was first found on the coast of Labrador toward the latter part of the last century, but has since been discovered in Norway, Sweden, Russia, Canada, and in this country in New York, Pennsylvania, and various other places."

Reptiles and Batrachians of Rhode Island.

BY HERMON C. BUMPUS.

NUMBER III.

5. *Aromochelys odorata* (LATR.) GRAY. (*Ozotheca odorata* AGASSIZ, *Sternothœrus odoratus* STORER'S REPORT.) The Musk or Mud Turtle is uncommonly but not rarely found. Its small size, the total length being less than six inches, the shell about four; convex carapace, with the dorsal row of plates generally slightly keeled; small plastron, resembling that of *serpentina* as much as that of either the Painted or Speckled Tortoises; and the pointed head, together with the strong odor, render it almost impossible to confound this form with any other.

6. *Malacoclemmys palustris*, (GMEL.) AGASSIZ. The Marsh or Salt-water Terrapin is the only representative of our smaller TESTUDINATA which is found away from fresh water. Its long and well developed limbs, which enable it to progress with remarkable speed, both through the water and on land; its large solid shell, the scales of which are beautifully marked with concentric striæ, the dorsal row being keeled; and the ivory-like jaws serve to distinguish this form at a glance from all other turtles. The dimensions are as follows: Length of shell 8 inches, length of sternum 7 inches, tail $1\frac{3}{4}$ inches. The Marsh Terrapin was first brought to the notice of naturalists by a German army surgeon during the Revolutionary War, being by him called the *Testudo terrapin*. A widely extended animal, being found from Massachusetts to Mexico, it is, along the shores of the Southern States, collected in large numbers during the breeding season for food. From its exceedingly cautious and timid nature, as well as from its swimming powers, it is not as often captured as turtles equally abundant but of less active habits.

7. *Chrysemys picta* (HERM.) GRAY. The Painted Tortoise is one of our most beautiful reptiles, its bright colors distinguishing it from the other members of its order. General color above, dark brown, a longitudinal yellow line dividing the vertebral plates which are further bordered by similar, though broader, bands. The lateral plates are also similarly marked along their anterior edge, while the marginal plates are concentrically painted with yellow and red. Below, the sternum usually presents an unspotted uniform bright yellow color, though a specimen captured in Cranston, by the writer, was of a beautiful purple. This is one of our most common turtles, hundreds, sunning themselves, being seen during a short ride on the cars through the more swampy portions of the state. J. A. Allen, in his "Catalogue of the Reptiles and Batrachians of Massachusetts," speaks of this species as the one whose shrill, piping note is heard, especially on rainy days, during May and June. It is quite pos-

sible that the so-called Western Painted Tortoise, the *Chrysemys marginata* Agassiz, is found in Rhode Island waters. The difference between the two is very slight. While *C. picta* has the anterior yellow bands of the second lateral plates continuous with the band of the second vertebral plate, *C. marginata* has the bands considerably separated. Specimens of both varieties have been taken in Middleboro', Mass., though in the few Rhode Island specimens I have examined, no marked variation could be found.

8. *Chelopus guttatus* (Schweigger) Cope. (*Nanemys guttata* Ag., *Emys guttata* Schneider.) The Spotted or Speckled Turtle is found as abundantly as the Painted, and inhabits similar localities. Its distinguishing features are its black, yellow spotted back, and yellow, striated, and black blotched sternum. In size it is considerably less than *picta*.

These turtles are especially fond of warm mud-ponds, from which they crawl during the day and crowd together on such floating logs and partially protruding roots as are always found in such situations; the slightest alarm, however, is sufficient to set the colony in confusion, and, in a moment, all have, with a splash, disappeared.

As a result of several dissections, I wish to correct a statement made in the first number of this series. The concavity or convexity of the plastron is no indication of the sex.

The Shell-Bearing Mollusca of Rhode Island.

BY HORACE F. CARPENTER.

Chapter XI.

Genus Natica, (Adamson, 1757.) Lam.

Shell sub-globose or oval, spire slightly elevated, aperture semi-lunar, a spiral columella callus entering the umbilicus. Operculum horny, with a calcareous outer layer.

19. Natica pusilla, Say.

Shell thin, sub-oval, cinerous or rufous, sometimes with one or two obsolete, dilated, revolving bands; columella with a white callus pressed into the umbilicus, almost filling it, leaving only an arcuated, linear, vertical aperture. Length, ¼ inch.

Described by Say, *Jour. Ac. Nat. Sc., II. 257, 1822.*

Distr., Vineyard Sound to Northern Florida. Georgia (Couper). Fort Macon, N. C. (Coues). Gardiner's Bay, L. I. (S. Smith). Vineyard Sound and Buzzard's Bay, 2 to 10 fathoms (Verrill).

Genus Lunatia, Gray, 1847 (Globularia, Sw.).

Shell sombre-colored, covered with a thin, dark epidermis; sub-globose; spire elevated; aperture semi-lunar; umbilicus wide; operculum corneous. Inhabits the cold and temperate zone.

20. Lunatia heros, Say.

Syns.:

Natica heros, Say, Gould, DeKay, etc.

Ampullaria borealis, Valenc.

Lunatia heros, Stimp., Dall., Tryon, Perkins, etc.

Shell sub-globose; ash-colored or brownish, shining when divested of its thin, yellowish epidermis; whorls five, very convex, slightly flattened near the suture; lip sharp above, becoming rounded and thicker as it descends, and at the umbilicus slightly expanded; a thin layer of enamel completes the rim of the aperture; the interior of the mouth of the shell is of a delicate, sometimes iridescent chestnut color, with a yellow margin; umbilicus large, round; operculum corneous. Length 3 to 5 inches, breadth about 3½ inches. It is the largest species known, and inhabits from New England to Nova Scotia. It is very abundant and of large size on the coast of Maine, and is collected and sold for food in the markets in Portland. It is not common south of Cape Cod, and when found is smaller than those found north of it. Its northern limit in Rhode Island is the sandy shore between Warren and Nayatt Lighthouse. Described by Say, *Journ. Ac. Nat. Sc. Phila., II. 228, 1822.*

21. Lunatia triseriata, Say.

Syns.:

Natica triseriata, Say, Gould, DeKay, Philippi.

Lunatia heros, var. Verrill.

Shell ovate-globose, of a yellowish-white or ashy color; whorls five, convex, covered with lines of growth; spire elevated; aperture ovate; lip sharp and white within;

inner lip with a thick white callus slightly modifying the umbilicus, which is nearly free; aperture dark chestnut, showing the exterior markings, of which there are *three* revolving series of twelve or fifteen dark chestnut or red, oblong or square, oblique spots on the body-whorl, and *one* on the upper whorls. "Found on the New England coast north of Cape Cod, on flats left bare by the tide, but it is as yet doubtful whether it passes to the south of this limit" (Gould). We find it in Rhode Island more abundantly than the preceding species, but its limit in our bay is below Bristol. It is found living on the shore of the Island of Rhode Island, and dead shells on the opposite shore at Bristol Neck. It is quoted from Fire Island, L. I. (S. S. Smith), coast of New Jersey (A. E. Verrill).

Professor Verrill, in the April number of *Silliman's Journal* for 1872, p. 282, argues that triseriata and heros are only varieties of the same species. He gives an instance of a large and characteristic specimen of L. heros, from Eastport, Me., which was broken up, and the inner whorls showed the colored spots of triseriata. He says, "This specimen was a well-marked triseriata until half grown, when it changed into a heros." I have found, in our bay, young specimens of heros of the same size as those supposed to be adult triseriata, without the markings or any apparent similarity. Will some person posted in this matter decide the question? Two other species of Lunatia are given in Verrill's *Cat. Mar. Moll., 516, 1882*, as occurring near Rhode Island, which I have never seen.

Lunatia nana, (Möller) Sars. Off Martha's Vineyard and Block Island, 22 to 29 fathoms.

Lunatia levicula, Verrill. Same localities.

Genus Neverita, Risso, 1826. (Naticaria, H. & A. Adams)

Shell orbicular, depressed; spire flattened; aperture wide, semi-lunar; umbilicus nearly filled by a lump of callus. Operculum horny. Animal capable of retraction within the shell.

22. Neverita duplicata, Say.

Syns.:

Natica duplicata, Say, Gould, DeKay, Philippi, von Reeve.

Natica recluziana, Desh., Reeve.

Neverita duplicata, Stimp., Dall., Tryon, Perkins, etc.

Shell conical-ovate, solid; surface marked with revolving lines and more conspicuous lines of growth; color light chestnut-brown on the upper half of the shell, and ashy below; whorls five, with a dark band revolving on the spire, just above the suture; spire depressed; aperture ovate-oblique; outer lip sharp and thin; inner lip covered with callus which almost fills up the umbilicus; operculum horny, thin, semi-transparent. Length 2 inches, breadth $2\frac{1}{4}$. Very abundant in Rhode Island, on sandy beaches between tides. Inhabits from Massachusetts to Florida. Rare north of Cape Cod. Abundant at Nantucket, Long Island, New Jersey, and southward. The animal is large, of a dirty white color, with a foot capable of enveloping the whole shell, perforate with minute openings, from which, when disturbed, the animal squirts water. The large ribbon-shaped egg-masses, resembling a saucer with the bottom knocked out, composed of ova and agglutinated sand, are found in April and May, in great numbers, on all our sandy shores, especially near Nayatt.

Genus Mamma, Klein, 1753. (Polinices, Montf., Naticella, Guild.)

Shell ovate, solid, smooth; spire short, acute; aperture semicircular; inner lip thickened; umbilicus funiculate; operculum simple, horny; animal retractile.

23. Mamma immaculata, Totten.

Shell sub-ovate, solid, milk-white, glossy; whorls five, spire short and pointed; outer lip oval, curved at the base; inner lip covered with ivory-white callus; umbilicus free, open and round; operculum corneous. Length $\frac{13}{40}$ inch, breadth $\frac{9}{40}$.

This species was first discovered by Colonel Totten, of the U. S. Navy, in Newport harbor, and described by him in *Silliman's Journal, XXVIII. 351.* It is often taken from the stomachs of fish caught in Massachusetts Bay. It is probably not found in our bay this side of Newport. Stimpson says it is found on the whole coast of New England.

The only remaining species of the Naticidæ inhabiting near Rhode Island are:

Lamellaria pellucida, Verrill. *Am. J. Sc., XX. 391, 395, 1880. Proc. U. S. Nat. Mus., III. 372, 1880.*

Distr., off Martha's Vineyard, 86 to 155 fathoms. Off Delaware Bay, 130 to 155 fathoms.

Lamellaria pellucida, var. Gouldii, Verrill. *Cat. Mar. Moll., 518, 1882.*

Distr., off Martha's Vineyard, 224 to 458 fathoms. Off Chesapeake Bay.

(To be continued.)

On the Admission of Certain New Species of Mollusks into the Fauna of Rhode Island.

The answer given to Professor Verrill in the October number of Random Notes, regarding the omission of certain new species of Mollusks, said to belong to Rhode Island, most assuredly proves the correctness of Mr. Carpenter's judgment.

By Professor Verrill's own showing, the habitat of several of the species referred to appears to have been almost exclusively arctic in character, while the remainder, with one or two exceptions, found their most congenial conditions in the profound depths of the gulf stream, or at an equally low horizon near its borders.

It is undoubtedly true that certain well-known causes have changed the natural abodes of very many littoral species, but there is probably no evidence whatever to show that species accustomed to the semi-tropical conditions of the gulf stream ever venture into the shallow and colder waters of the coast; and it does not appear that either of those in question were found at a less depth than sixty fathoms, nor, perchance, within fifty miles of the Rhode Island shore.

Could a stronger reason than this be offered for excluding them from "Papers on the Shell-bearing Mollusca of that little state?" Perhaps not. It is impossible, therefore, to understand why Professor Verrill should insist upon numbering them with the fauna of its coast, where, so far as is known, they have never been seen alive.

Indeed, without the dredge, and the skill to control it in depths hitherto deemed unattainable, it is safe to assume that the Professor's new species would have forever remained absolutely unknown; a probability that cannot be truthfully applied to *any* littoral species.

Other reasons might be adduced in support of Mr. Carpenter's decision, but I will only add that the view given of the subject has been indorsed by the several conchologists with whom I have conferred, and by one of the ablest biologists of the U. S. Fish Commission as well.

Very truly,

John Ford.

Philadelphia, Penn., Oct. 16, 1884.

Mistletoe.

The curious plant called mistletoe is peculiarly associated with Christmas. It is the *viscum album* of science, and is remarkable in many ways. Contrary to the general tradition, it is found most commonly on the apple-tree, not on the oak; but it may occur on that tree as well as a number of others. It has a very wide range in Europe, being found in Norway on the one hand and Sicily on the other. It is well known in England, says Schouw, in his *Earth, Plants, and Man:*

"Let us imagine that on a winter's day we see upon the branches of an apple-tree a bunch of intercrossing, yellowish-green twigs, bearing leaves of the same color. The unusual character of this sight arrests our attention Perhaps we at first suppose it to be a climber like the ivy, which, although fixed in the ground by its root, has wound itself up the trunk and become attached to this and the branches by means of its sucker roots; but this idea must be abandoned, for we see nothing of it on the lower part of the trunk, only at the top. We then cut off the apple branch to examine the yellowish-green plant more closely. We see that it is wood, just as the apple-tree is; that annual rings occur in its wood, as in other trees; and when we trace its numerous crossing shoots to their origin, we find that the main stem springs from the branch of the apple-tree; we discover, moreover, that the union is not confined to the barks, but that the wood of this plant is connected with that of the apple, somewhat as a graft is connected with the wild stock upon which it has been grafted. But the matter only

becomes more strange from this, for it is very readily perceived that the apple-tree cannot have become so changed as to be able to send out yellowish-green forked shoots, and to bear leaves, thick, feathery leaves, too, in winter. As little can the apple-tree bear little leathery flowers with a four-parted envelope, or a berry filled with tenacious glue, instead of an apple. And we are equally unable to suppose it to be a graft, for not only do we know that only nearly allied plants can be grafted on one another, while the mistletoe is extremely different from the apple, but we seek in vain for the mistletoe upon the ground. It is met only upon trees which all differ in the highest degree from it. Consequently there is nothing left for us but to suppose that the mistletoe is propagated by seed upon the tree itself, and obtains its nourishment from this." In short, it is a parasite, making another plant do its work, and thriving at its expense. The seed is peculiar in often containing two or more embryos; but, for that matter, so do many orange seeds commonly, and a long list of plants occasionally. We have found it the case in some acorns, for instance. The radicle, instead of seeking the earth, strikes for the stem of its host. "If it is the upper side of a branch, it has a tendency downwards, while if the enveloping glue fixes it to the under side, it grows upwards." Dutrochet proved that this was in response to an impulse to seek darkness, perhaps because its deeds are evil. Mistletoes may even become parasitic on each other — certainly a profound depth of degradation!

In this country we do not possess the *Viscum*, but the related *Phoradendron* and *Arceuthobium* are found in various sections, and are often very distinctive. The former grows on various deciduous-leaved trees, while the latter occurs on coniferous plants. The *Loranthus* is still another genus found in Europe.

Every one remembers the ceremonies of the Druids in connection with the cutting of the mistletoe. A good account of this and other ceremonies and traditions connected with the past, can be found in a book called *The Botanical Looker Out*.

W. W. Bailey.

A boy says, salt is the stuff that makes potatoes taste bad when you don't put any on.

I was interested in your article in May relating to the toes of birds, for I have often noticed that the Sharp Shinned Hawk, upon seizing his prey, always repairs to the ground to secure leverage, even if the victim be a young bird from the nest. My attention was especially attracted to the subject by an incident occurring about that time. A pair of Phebes had built a nest on the post-cap to my piazza, and two eggs were already deposited therein when this affair occurred.

Like their relatives, the King Birds, Phebes have a habit in the breeding season of rising high in the air, and with many tortuous winding flights and loud outcries announcing the approach of any hawk that appears in their vicinity; busy in my yard one day, I heard the Phebe's warning notes as she manœuvred upward; the old hen cackled, and the Blackbirds joined their notes of warning with hers, which ceased so suddenly as to attract my attention, and looking up I saw her struggling in the clutches of a Sharp Shinned Hawk, which immediately descended with her to the ground, and held her there in a death struggle so long a time that I went into the house, loaded my gun, and came out just in time to see the victim borne away by her triumphant captor. I had no idea before that any hawk could capture any Fly-catcher on the wing. The male Phebe, the mate of the Hawk's victim, remained in the vicinity over a week, piping his loudest notes, and occasionally going on the nest by the hour, but discouraged at last, he disappeared from the vicinity.

The Cooper's Hawk often invades my poultry yard and bears off the luckless chick straying too far from protection, but he always seizes it without pausing in his flight, and bears it away still struggling.

J. N. Clark.

WANTED.

A bright large specimen of the *Voluta vexillum*, without cracks or breaks, for which a liberal price will be paid.

Address C. B.,

Care Random Notes.

CONCHOLOGICAL CHECK-LIST. XII.

J. RITCHIE, JR.

Family. Cyclostomacea Pfr.
Sub-family. Cistulea Pfr.
Chondropoma ernesti Pfr.
cusarcum Pfr.
excisum Gundlach.
foveatum Gundlach.
fumatum Wright.
gundlachi Arango.
gutierrezi Gundlach.
harpa Pfr.
hemiotum Pfr.
hialmarsoni Pfr.
igneum Reeve.
incrassatum Wright.
integrum Pfr.
irradians Shutt.
julieni Pfr.
lactum Pfr.
latilabre Orb.
latum Gundlach.
litteratum Pfr.
loweanum Pfr.
magnificum Sallé.
marginalbum Gundlach.
moestum Shutt.
newcombianum C. B. Adams.
obesum Menke.
ottonis Pfr.
oxytremum Gundlach.
papyraceum C. B. Adams.
perlatum Gundlach.
petitianum Pfr.
pfeifferianum Poey.
pictum Pfr.
plicatulum Pfr.
poeyanum Orb.
presasianum Gundlach.
pudicum Orb.
rawsoni Pfr.
revinctum Poey.
revocatum Gundlach.
rubicundum Morel.
rufopictum Gundlach.
salleanum Pfr.
santacruzense Pfr.
scobina Gundlach.
semicanum Morel.
semilabre Lam.
Chondropoma shuttleworthi Pfr.
simplex Pfr.
sinuosum Wright.
solidulum Gundlach.
swifti Shutt.
tamsianum Pfr.
tenebrosum Morel.
ternatum Gould.
tortolense Pfr.
turritum Pfr.
unilabiatum Gundlach.
venezuelense Pfr.
vignalense Wright.
violaceum Pfr.
weinlandi Pfr.
yucayum Presas.
Sub-family. Pomatiatea Pfr.
Pomatias adamsi Paulucc.
apricus Mouss.
auritus Zeigler.
canestrinii A. Adams.
cinerascens Rossm.
crassilabrum Dupont.
croaticus Zeleb.
crosseanus Paulucc.
dalmatinus Parreyss.
gracilis Küst.
grandis G-Austen.
gredleri Westl.
henricæ Strobel.
hidalgoi Cross.
himalayæ Benson.
lapurdensis Fagot.
lederi Bttg.
nanus Westl.
nouleti Dupont.
obscurus Drap.
partioti Moq.
patulus Drap.
penguensis Theobald.
philippianus Grdlr.
pinianus Bourg.
porroi Strobel.
protractus Parreyss.
scalarinus Villa.
septemspiralis Raz.
striolatus Parro.
tessellatus Wgm.

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