



3 = 18 H 13 = 1000

HARVARD UNIVERSITY.



LIBRARY

OF THE

MUSEUM OF COMPARATIVE ZOOLOGY.

7963.

Richard Hayward Library.

Substituted for H. A. Hagen copy.

Roland Hayman

ERRATA.

- Page 2 hords should read hordes.
" 2. sub istance should read subsis-
tence.
" 4 polygottus should read polyglot-
tus
" 5. Helmithrus should read Helmin-
thohrus.
" 8 Cicindelæ should read Cicindeli-
dæ.

THE JOURNAL
OF THE
BOSTON ZOOLOGICAL SOCIETY:

Edited by

ARTHUR P. CHADBOURNE AND A. C. ANTHONY.

VOLUME I.

BOSTON, MASS. :
PUBLISHED BY THE SOCIETY.
1882.

W. H. Wheeler, Printer,
15 & 17 Brighton Street, Cambridge, Mass.
1882.

CONTENTS OF VOLUME I.

LIST OF PAPERS.

	PAGE.
ANTHONY, A. C.	
A few Remarks on <i>Cicindelidæ</i>	7
Where Frogs go in Winter	9
A Plant Destructive to Bees	9
New England <i>Philampeli</i>	18
<i>Hydrophilus triangularis</i> at Swampscott, Mass.	26
AUSTIN, E. P.	
Collecting <i>Stylopidæ</i>	12
Notes on Collecting Certain <i>Buprestidæ</i>	45
BOWDITCH, F. C.	
Notes on Certain <i>Coleoptera</i>	27
CHADBOURNE, A. P.	
The Rarer Birds of Massachusetts	4, 20, 30
Red Squirrel Swimming	25
<i>Eutænia sirtalis</i> Swallowing its Young	26
COLEMAN, REV. N.	
Notes on the Larvæ of Certain Heterocerous <i>Lepidoptera</i>	28
Notes on the Changes in the Larvæ of <i>Orygia leucostigma</i>	39
<i>Papilio cresphontes</i> at Berlin, Conn.	53
Another strangely marked larva of <i>Arctia isabella</i>	54
HAYWARD, R.	
The Migrations of Insects	2
The Red Fox at Randolph, Mass.	9
A Note on the Whip-poor-will	9
<i>Selenophorus ellipticus</i> at Nantucket	10
Notes on the Habits and Distribution of the Massachusetts <i>Rodentia</i>	13
Another Spotted Egg of <i>Empidonax minimus</i>	26
Habits and Transformations of <i>Bolitotherus bifurcus</i>	35
Two Rare <i>Carabidæ</i> from Eastern Massachusetts	37
<i>Cicindela ancocisconensis</i> Harr. in Vermont	38

HOGG, R. W.	
<i>Dendroica pinus</i> in Winter	25
LAMB, C. R.	
Baird's Sandpiper at Marblehead, Mass.	37
MAYNARD, C. J.	
A Third Specimen of the Swallow-tailed Gull (<i>Nema furcatum</i>)	37
On the Distribution of the Ivory-billed Woodpecker (<i>Campophilus</i> <i>principalis</i>)	42
Ornithological Notes from the Magdalen Islands	52
NOBLE, J. H.	
Late date for <i>Parula americana</i>	9
SAVAGE, H.	
Habits of Three Species of New England <i>Colubridæ</i>	6
<i>Ophibolus doliatus</i> var. <i>triangulus</i> taking Refuge under Water	9
The Black form of <i>Cicindela purpurea</i> in New Hampshire	10
General Habits of the New England <i>Dytiscidæ</i>	24
Abnormal Egg of the Song Sparrow	26
TUELON, T. A.	
A list of the Birds observed near Bradford, Penn.	47

THE
Quarterly Journal
OF THE
BOSTON ZOOLOGICAL SOCIETY.

Vol. 1.—JANUARY, 1881.—No. 1.

CONTENTS.

	Page.
THE HISTORY OF THE SOCIETY.	1.
THE MIGRATIONS OF INSECTS. By <i>Roland Hayward.</i>	2.
THE RARER BIRDS OF MASSACHUSETTS. By <i>Arthur P. Chadbourne.</i>	4.
HABITS OF THREE SPECIES OF NEW ENGLAND COLUBRIDÆ. By <i>Henry Savage.</i>	6.
A FEW REMARKS ON CICINDELIDÆ. By <i>A. C. Anthony.</i>	7.
GENERAL NOTES.	9.
The Red Fox at Randolph, Mass.; Caribou at Range'ey, Me.; Late date for <i>Parula Americana</i> ; A note on the whip-poor-will; <i>Ophibolus triangulus</i> taking refuge under water; Where frogs go in winter; <i>Selenophorus ellipticus</i> at Nantucket; A plant destructive to bees; The black form of <i>Cicindela purpurea</i> in N.H.	

—◆—
BOSTON, MASS. :
PUBLISHED BY THE SOCIETY.

THE QUARTERLY JOURNAL
OF THE
BOSTON ZOOLOGICAL SOCIETY.

A MAGAZINE DEVOTED TO THE STUDY OF ZOOLOGY, ES-
PECIALLY THE VERTEBRATA AND INSECTA.

TERMS:

For one year,	(postage paid)	\$.50, in advance.
“ “ copy,	“ “	.15.

All subscriptions and contributions should be sent to the treasurer.

All communications should reach the editor at least two months before the publication of the number in which they are intended to appear.

Address:
Boston Zoological Society,
285 Marlboro' Street,
Boston, Mass.

The Journal
of the
BOSTON ZOOLOGICAL SOCIETY.

Vol. 1.

Jan. 1882.

No. 1.

THE HISTORY OF THE SOCIETY.

In November of 1880 the idea of founding a society for the advancement of the knowledge of Zoology among a few friends residing in the city was formed. During the first meetings which were held towards the end of the month, a name and constitution were decided upon, and three officers were elected viz. a PRESIDENT, SECRETARY and TREASURER.

It was thought well to have a meeting once a week, so Saturday evening was decided upon as being the most convenient. At first the meetings were irregular, and the articles, for the most part, short; but gradually they grew more regular and the articles increased in length and interest.

Early in January the meetings began to assume a more scientific character, and the papers, which previously had been taken from the works of other authors, became, for the most part, original; being mainly based on the observations of the writers.

At the meeting held Feb. 12, it was decided to have a library. From that time to this it has been steadily increasing, and it now contains about fifty volumes.

At the meeting held April 2, 1881, the society decided to have a collection and a custodian was accordingly elected. The collection was afterwards given up and the office of custodian abolished.

The annual meeting was held April 22, 1881, at which the reports of the SECRETARY and TREASURER were presented. These reports showed the society to be in a flourishing condition. After the annual meeting the society adjourned until October 29, 1881.

At the meeting held on that date it was decided to issue a small quarterly journal, which, if the funds of the society increase, as we hope they may, will grow larger.

On Nov. 19, 1881, the society celebrated the anniversary of its foundation, at the house of its president. After speeches by several officers the meeting adjourned and a collation was served. Thus has one year rolled by, and it is to be sincerely hoped that many more will pass with still more satisfactory results.

THE MIGRATIONS OF INSECTS.

There is perhaps no subject which could be studied with more advantage than the one that I shall briefly treat. It is a subject which closely affects the interests nay even the lives of thousands even millions of people, for it is by the sudden appearance of hords of insects that famines are caused, attended by great loss of life. Apparently no one knows what causes such sudden and unexpected migrations of these winged creatures from place to place. Of course such fundamental reasons as scarcity of food, change in temperature, or excessive increase of numbers may partially explain such movements; but even these do not entirely account for the huge hords which, especially in the tropics, are constantly migrating.

There is one cause, which of late years has been more thoroughly considered, and which, I think, has much to do with these migrations. It is the clearing away of timber, and the cultivation of the soil. At first sight this reason would appear ridiculous, but nevertheless it is well grounded. When the natural food of a species of insect is exterminated, it is only natural for that species to seek another as near as possible to the one from which it formerly derived its subsistence. This may not be found in the immediate vicinity and consequently the species is obliged to migrate to another place in order to procure it.

An excellent example of this theory is afforded by the common and well-known Colorado potato-beetle (*CHRYSOMELA 10-LINEATA*). The natural food-plant of this destructive species was originally not the potato but a common weed (*SOLANUM ROSTRATUM*) indigenous to Colorado and belonging to

the same group of plants as the potato. When on account of the cultivation of the land, the potato began to take the place of the weed, the beetle was obliged to change its food-plant and consequently chose the potato as being closely allied to its former one. There is another interesting fact which is likewise proved by this familiar, alas too familiar insect.

It is a noticeable fact that man both in historic and pre-historic ages has always had the tendency to migrate west. We know that the Huns, Scythians and most of the other barbarians that overthrew the Roman empire were of Oriental origin, and, according to history, started their migrations from what is now Tartary in Asia. In yet more modern times, it was west that our fore-fathers sailed and it is still west that the tide of emigration flows. This, however, is exactly the reverse in insects and the lower animals in general.

With them the general tendency is to migrate east. It is east that our former fiend the Colorado potato-beetle has been migrating.* It is east that the chinch-bug (*BLISSUS LEUCOPTERUS*) is now moving and probably it always will be east that insects will migrate.

Of course there are exceptions to the general rule, both in man and insects. However it is these exceptions which add strength to the rule. As an example, in man, we find that the North American Indians have moved east; since according to the present theory, their race originated in North-eastern Asia. There are likewise exceptions among insects; as European species† being found in this country and New England species being taken on the Pacific coast. But such occurrences are rare and must be considered only as exceptions.

I could fill several pages with remarks on the migration of insects, but I have neither time nor space and consequently must close these brief remarks with the hope of having the pleasure, at some future date, of contributing to the *Journal* another article on the same subject.

* The species moved east at the rate of seventy miles a year, and is now found even in Europe.

† *Aphodius fessor*, *A. funetarius*, *Anthrenus serophulariæ*, etc.

THE RARER BIRDS OF MASSACHUSETTS.

In the following list I have endeavored to collect, in convenient form for reference, the authorities for the occurrences of our more uncommon birds. Owing to lack of space only the original authority is given, except in one or two instances where there is some confusion.

HESPEROCICHLA NÆVIA: IPSWICH. DECEMBER, 1864.

Coues, Pr. Essex Inst., V. (1868) p. 312.

NOTE: The only Massachusetts record. See N. E. Bird Life, I. (1881) p. 53.

[*MIMUS POLYGOTTUS*: Has frequently been taken, but, owing to many being escaped cage-birds, it is almost impossible to determine its true position.]

PHOENIXIA CARULEA: CHATHAM. NOVEMBER 18,

1877. Deane, Bull. Nuttall Club III. (1878.) p. 45. FALMOUTH DECEMBER 18, 1877.

Swift Bull. Nuttall Club III. (1878) p. 140.

CSTERTVILLE, CAPE COD. SEPTEMBER 26,

1879. Brewer, Pr. East Soc. Nat. Hist., XX.

(1879) p. 264. MAGNOLIA AUGUST 27,

1879. Deane, Bull. Nuttall Club V. p. 47.

PARUS HUDSONICUS: [“NEAR PROOF LINE.” (?) Peabody

Rep. Orn. Mass., (1839) p. 402.]

CONCORD. OCTOBER 30, 1870. Brewster.

Am. Nat., VI. (1872) p. 306.

CONCORD. OCTOBER 7, 1880. Brewster, Bull.

Nuttall Club, VI. page 54.

CAMBRIDGE. DECEMBER 31, 1880. Spelman.

Bulletin Nuttall Club, VI. page 114.

THRYOTHORUS LUDOVICIANUS: [“NEAR BOSTON.” SUM

MER OF 1875 (?) Mil. or, Bull. Nuttall Club, I.

(1876) page 76.]*

*The birds were not shot, but were only seen.

LYNN. JULY 6, 1878. Brewer, Bull. Nuttall Club, III, page 193.

HELMITHERUS VERMICORUS: EAST HAMPTON. NO DATE. Stearns, New England Bird Life, I, (1881) page 111.
CAMBRIDGE. SEPTEMBER 19, 1881. Spelman, Bull. Nuttall Club, VI, page 246.

HELMINTHOPLAGA LEUCOBRONCHIALIS: NEWTONVILLE. MAY 18, 1870. Brewster, American Sportsman, V, page 33.
HUDSON. MAY OR JUNE 1858. Purdie, Bull. Nuttall Club, IV, page 184.

HELMINTHOPLAGA CELATA: SPRINGFIELD. MAY 15, 1863. Allen, Bull. Essex Inst., IV, page 60.
LYNN. JANUARY 1, 1875. Brewer, Pro. Bost. Soc. Nat. Hist., XVII, page 439.
CONCORD. OCTOBER 2, 1876. Brewster, Bull. Nuttall Club, I, page 94.

DENDRECA AUDUBONI: CAMBRIDGE. NOVEMBER 15, 1876. A. M. Frazer, Bull. Nuttall Club II, page 27.

[PERISSOGLOSSA TRIGINA: A rare species, but has been taken too frequently for mention here.]

DENDRECA DOMINICA: "On the banks of Charles River" Date unknown. Purdie, Bull. Nuttall Club, III, page 146.

SIURUS MOTACILLA: MOUNT TOM. APRIL 28, 1869. Allen, American Naturalist, III, page 577.

[OPORORNIS AGILIS: Though frequently common in autumn, it has never been taken here in spring.]

MYIODIOCTES MITRATUS: BROOKLINE. JUNE 25, 1879. Deane, Bull. Nuttall Club, V, page 117.

(To be continued.)

HABITS OF THREE SPECIES OF NEW ENGLAND COLUBRIDÆ.

STORERIA DEKAYI. (*Little Brown Snake*)

Above, grayish-brown, with a dorsal band of a lighter color, bordered by small dots. Head, small; eyes prominent. Two brown spots on the occiput. Below, light gray. Length of body, 6.60 inches. Tail, 1.75. Number of scales, 17. Gastroteges, 125-130.

HABITS. I have taken this species in all kinds of places from bogs to sandbanks, in the early spring. Late in October I observed several specimens, on a roadside near Boston Mass.. It is chiefly insectivorous, although it may very probably feed on young toads. This species is found throughout New England although it is rare in the northern portions.

REMARKS. Although I have opened the stomachs of several specimens of this species, I have been unable to detect traces of anything but insects.

EULEXIA SIRTALIS. (*Garter or Striped Snake*.)

Upper parts, dark under brown, with a dorsal and lateral stripe of gray. Under parts, slate-color, lighter on the throat. Length, 20 inches. Tail, 5.65 inches. Scales, 21. Gastroteges, 130-160

HABITS. The habits of this abundant and everywhere well-known. Its principal food is toads, frogs, and some of the smaller quadrupeds, such as field mice, moles, etc.. It also preys on young birds and bird's eggs. When cornered it defends itself bravely, and although it is not furnished with poisonous fangs, its teeth are sharp enough to draw blood. It occurs throughout North America.

REMARKS. I have taken a striped snake with a large toad in its mouth, which although nearly swallowed was still alive. I have also found one with a live frog in its stomach.

CARPHOPHOPS AMENUS. (*Red Snake.*)

Glossy chestnut brown above. A grayish lateral stripe, spotted with a darker shade, extends from the head to the anus. Head small; three light spots on the occiput. Below, salmon red, becoming darker toward the tail. Length of body, 7.50 inches. Tail, 1.85 inches. Scales, 13. Gasterites, 120-130.

HABITS. This species frequents places where the soil is light and sandy. Its food consists of young toads and insects. It is usually found under sticks and stones. At Underhill Vt. it was exceedingly abundant along the rail-road track, and at other places was taken near sandy roads. It is perfectly harmless and when taken in the hand it makes no effort to defend itself, but only seeks to escape. The smallest specimen I have ever examined measured about 1.75 inches in length. The species is rare in Southern New England, but in Maine, Northern New Hampshire and Vermont it is abundant.

REMARKS. I have found numbers of small Carabidæ in their stomachs, but have been able to detect no other insects. I have taken one specimen whose under side was yellowish pink.

A FEW REMARKS ON CICINDELIDÆ.

The family of insects ranking first in the classification of the Order Coleoptera is called Cicindelidæ, a word originally derived from the Greek ΚΑΙΟ meaning to burn or to glow. This name is given them probably because of their brilliant metallic lustre which reflects the sun's rays when seen in certain positions. They are also known by several common names such as sparklers, and tiger-beetles from the habit of leaping suddenly upon their prey.

The Cicindelidæ have the antennæ filiform; the legs long and slender, formed for running very fast; the jaws prominent and sickle-shaped; the labrum generally white. The under side of the body, and the legs are of a bronze or met

allic lustre of several shades, which is also the color of the upper side of many species. The legs and sides of the body are somewhat hairy.

These insects are partial to dry, sandy plains or roads, and are engaged throughout the day capturing and devouring other insects. Their movements are so quick that nothing can elude them, and therefore they are difficult to capture. It is their habit to suddenly start up and alight a few yards in advance, immediately facing the approaching object, and when it comes too near, to dart off again. In cloudy weather they are very seldom seen, but a little sunshine will attract them in numbers.

The larvæ that are generated from them are quite singular in their habits. They live in cylindrical holes, which they burrow perpendicularly into the earth to a depth of several inches. Stationed at the mouth of these excavations, which are entirely filled with their horny heads, they remain until some insect approaches, which they suddenly seize and carry to the bottom to eat at leisure.

The imago also has this habit of seizing its prey unawares.

I have seen them capture and convey to the bottom of the hole insects much larger and apparently stronger than themselves, though not armed with such sharp mandibles as the tiger-beetle possesses.

A large spider is often found where Cicinids abound, which I have frequently observed descend out of sight into the holes of the beetles, in their absence. To all appearances this spider waits until a tiger-beetle enters the hole, and then seizing it, devours it and deposits the shell at the entrance. The spider also attacks the beetle on open ground, and, being quicker in its movements than the tiger beetle, I have seen one wholly enveloped by the legs of the spider, struggling to get free.

GENERAL NOTES.

THE RED FOX IN RANDOLPH, MASS. Last July, while I was walking in the Randolph woods, I noticed a red fox (*VULPES VULGARIS*). When it perceived me it took flight, and soon disappeared. It is the first specimen of this species I have ever observed near Boston, although it has been known to occur. *R. Hayward.*

CARIBOU AT RANGELEY, ME. Numbers of caribou have been seen in Rangeley (Me) neighborhood lately. One was shot near the Cupsuptuc River a short time since. The horns measured some three feet apart, and branched out wonderfully in many points. The meat weighed nearly four hundred pounds. *A. S.*

LATE DATE FOR PARULA AMERICANA. On November 19, 1881 I shot a Blue Yellow-backed Warbler (*PARULA AMERICANA*) on an apple tree near my house in Cambridge, it was crawling about the trunk like the Brown Creeper (*CERTHIA FAMILIARIS*). *J. H. Nohl.*

A NOTE ON THE WHIP-POOR-WILL. The fifteenth of last May, about dusk, I observed a specimen of the Whip-poor-will (*ANTROSTOMUS VOCLERUS*) alight upon the dead limb of an oak tree. After remaining there for a few seconds, it stretched itself out to its full length, ruffled up the feathers of its neck, and uttered its familiar note. Occasionally it stopped, and in a quick and nervous manner darted after some insect which it had detected, caught it with a loud click of its bill and returned to the branch which it had left. *R. Hayward.*

OPHIBOLUS TRIANGULUS TAKING REFUGE UNDER WATER. Early in May while walking around Heard's Pond at Weymouth Mass., I observed a small Checkered Adder (*OPHIBOLUS TRIANGULUS*) in about one foot of water. I had some difficulty in capturing it, as it swam along near the bottom.

Whenever I disturbed the water, it swam into the muddy water that I had roiled. *H. Savage.*

WHERE FROGS GO IN WINTER. Upon bailing out the springs frogs are found under stones close to the fountain head; they come out bright and lively and of a natural color. The several species of frogs as well as different kinds of snakes are often found to the number of one hundred in the same spring. *A. C. Anthony.*

SELENOPHORUS ELLIPTICUS AT NANTUCKET. In July 1880, while passing a short time at Nantucket Mass., I captured under a stone on the commons, four specimens of SELENOPHORUS ELLIPTICUS. This species I understand is rare in Massachusetts. *R. Hayward.*

A PLANT DESTRUCTIVE TO BEES. The large podded milk weed (ASCLEPIAS) almost invariably causes death to every bee alighting upon it. The bee either adheres to the plant, or else bears away a small scale sticking to its feet, and cripples itself fatally in attempting to remove the annoyance. *A. C. Anthony.*

THE BLACK FORM OF CICINDELA PURPUREA IN NEW HAMPSHIRE. While at Wilton, N.H., during the summer of 1880, I took two specimens of the black form of CICINDELA PURPUREA. This form though rare in New England is common in the West. *H. Savage.*

OFFICERS OF THE SOCIETY. 1881-82.

President

HENRY SAVAGE.

Secretary

ROLAND HAYWARD.

Treasurer

ARTHUR C. ANTHONY.

No. 1, 1882.

THE
Quarterly Journal
OF THE
BOSTON ZOÖLOGICAL SOCIETY.

Vol. 1.—APRIL, 1882.—No. 2.

CONTENTS.

	Page
THE ANNUAL MEETING.	11
COLLECTING STYLOPIDÆ. By <i>E. P. Austin.</i>	12
NOTES ON THE HABITS AND DISTRIBUTION OF THE MASSACHUSETTS RODENTIA. By <i>Roland Hayward.</i>	13
NEW ENGLAND PHILAMPELI. By <i>Arthur C. Anthony.</i>	18
THE RARER BIRDS OF MASSACHUSETTS. (<i>Continued.</i>) By <i>Arthur P. Chadbourne.</i>	20
GENERAL HABITS OF THE NEW ENGLAND DYTISCIDÆ. By <i>Henry Savaye.</i>	24
GENERAL NOTES.	

Red Squirrel Swimming; *Dendroica pinus* in Winter; Abnormal Egg of the Song Sparrow; Another Spotted Egg of *Empidonax minimus*; *Eutenia sirtalis* Swallowing its Young; *Hydrophilus triangulus* at Swampscott, Mass.

BOSTON, MASS. :

PUBLISHED BY THE SOCIETY.

3m

THE QUARTERLY JOURNAL
OF THE
BOSTON ZOÖLOGICAL SOCIETY.

A MAGAZINE DEVOTED TO THE STUDY OF AMERICAN ZOOLOGY,
ESPECIALLY THE VERTEBRATA AND INSECTA.

EDITED BY ARTHUR P. CHADBOURNE and A. C. ANTHONY.

TERMS.

For one year,	(postage paid,)	50 cts. in advance.
“ “ copy,	“ “	15 “

All remittances should be sent to the Treasurer, A. C. Anthony.

All communications should reach the Editors at least two months before the publication of the number in which they are intended to appear.

Address :

BOSTON ZOÖLOGICAL SOCIETY,
285 Marlboro' Street,
Boston, Mass.

ADVERTISING RATES.—*First insertion, 20 cents a line (Pica); \$5.00 per page; \$3.00 per half page. A discount of twenty per cent for each subsequent insertion.*

The Journal
OF THE
BOSTON ZOÖLOGICAL SOCIETY.

Vol. 1.

April, 1882.

No. 2.

THE ANNUAL MEETING.

From the Secretary's Record Book.

The Second Annual Meeting of the Society was held at 431 Beacon Street, on Saturday evening, January 14, 1882. After the minutes of the last meeting had been read and approved, several by-laws were passed and the constitution was revised, various articles being added and others omitted.

The Society then listened to the reports of the Secretary and Treasurer. The report of the former showed that eleven meetings had been held and one new member elected since the last Annual Meeting. "During the past year the Society has been advancing with rapid strides. When we compare the first meeting, held but a little over a year ago, with the last one, we can readily perceive the difference; and when we look at what the Society has attained, and compare what it was with what it is, we feel that our progress has been indeed encouraging."

The report of the Treasurer showed that the finances of the Society were increasing, although in this department there is room for improvement.

The next business of the evening was the election of officers for the ensuing year. The Secretary was authorized to collect and count the ballots, and announced the election of the following officers:

PRESIDENT: Henry Savage.

SECRETARY: Roland Hayward.

TREASURER: Arthur C. Anthony.

As there was no other business to come before the Society, the meeting adjourned until January 21, 1882.

COLLECTING *STYLOPIDÆ*.

By *E. P. Austin*.

There are certain degraded forms of *Coleoptera* which are found as parasites on other insects, and which are therefore very rarely found in collections, although they are, no doubt, not rare in certain localities, and it only requires a little careful collecting to secure them. The *Stylopidæ* are found in the bodies of *Hymenoptera*. Two genera occur in the United States, one of which (*Xenos*) is sometimes quite abundant in the common paper wasp (*Polistes metrica*.)

On August 20, 1879, while collecting in the vicinity of Readville, Mass., my attention was called to a wasp which had a distorted abdomen. When I captured it, it proved to be "stylopized," and contained no less than seven specimens, although several had made their escape.

It may be of some interest to give the result of my captures that day. Of fourteen male wasps, two were "stylopized," and of thirty-six females seven were "stylopized." Besides these I caught about twenty additional specimens which I released, after examining them. It will be seen that a considerably larger percentage of the females than of the males were infested. But when we come to the number of the specimens of *Xenos* the disproportion is very much greater. Of the seven female wasps taken, three escaped from the box in which I had them; of the four remaining, one contained a single female *Xenos*, the second a male only, the third two males, and the fourth no less than seven males. It will be seen by this that the number of male *Xenos* is very much greater than that of the females, there being eleven of the former but only two of the latter.

The female, which never leaves the body of the wasp, has a very thin flat head and does not cause as much distortion as the male, so it is possible that one or more females may have been overlooked in a cursory examina-

tion, but the actual number of males is no doubt much greater than that of the females.

The other genus of *Stylopidae* (*Stylops*) is found in bees of the family *Andrenidae*, which are similar in appearance to the Common Honey Bee (*Apis mellifica*), but are smaller and make burrows in the sand. They may be found in the spring, but from the middle of April to the first or middle of May is the best time to look for them. The bees, if taken, can be kept for some time alive, thus giving time for the *Stylops* to develop.

NOTES ON THE HABITS AND DISTRIBUTION OF THE MASSACHUSETTS *RODENTIA*.

By Roland Hayward.

In the following article on the *Rodentia* of Massachusetts, I have endeavored to give, as fully as my space will permit, the habits of this interesting order of *Mammalia*. As the name of the article implies, no description of the animals is given, but it is entirely confined to their habits and distribution.

The *Rodentia* of this state number eighteen species, and are embraced in five families and eleven genera.

SCIURIDÆ. (Squirrels.)

1. *SCIUROPTERUS VOLUCELLA* Geoff. Common Flying Squirrel. A common species, but on account of its nocturnal habits it is seldom seen. It is very generally distributed, being found throughout the greater part of North America. Its nest is a very interesting structure, being usually placed in some hollow stump, and is formed of grasses, hair, pliable bark and other soft materials, the whole rather carelessly and loosely put together.

2. *SCIURUS CAROLINENSIS* Auct. Gray Squirrel. Rather common, but locally so. It is found in the less cultivated portions of the state, and inhabits thickly wooded

districts in preference to more settled places. It seems to have a decided fondness for oak woods.

The Gray Squirrel is the largest and handsomest of our Squirrels and is much sought after as a pet. It seldom constructs its own nest, but selects the deserted one of some hawk or crow, which it adapts to its own use. When, however, this species makes a nest for itself, it does so in a rough and careless manner, employing in the construction sticks, pliable bark, etc. The young are reared in May. The Red-tailed Hawk (*Buteo borealis*) is said to prey on this species to a considerable extent.

3. *SCIURUS HUDSONIUS* Pallas. Red Squirrel. This species is rather more abundant than the preceding, and is more northerly in its distribution. It is more familiar and not so solitary in its habits, being found frequently in the immediate neighborhood of the dwellings of man, and sometimes making its habitations and rearing its young in barns and other outbuildings.

4. *SCIURUS CINEREUS* Linn. Fox Squirrel. A very rare species, of irregular occurrence, being nothing more than a straggler here. It is said to occur abundantly in the hickory woods of Western Pennsylvania, and is usually found farther South than Massachusetts.

5. *TAMIAS STRIATUS* Linn. Striped Squirrel or Chipmunk. Our commonest Squirrel. It is likewise our smallest and most familiar species, generally occurring in the vicinity of cultivated estates, and seldom seeking the solitude of the deep woods. The nest is made in or under loose stone walls, in holes in trees, and other similar situations.

6. *ARCTOMYS MONAX* Gmelin. Woodchuck. A very abundant and well known species, occurring in great numbers throughout all our pasture land. It is somewhat nocturnal in its habits. It makes its burrows, to which there are generally two entrances, at the foot of trees and at the base of stone walls. When cornered the Woodchuck fights desperately, and often becomes troublesome by carrying off young chickens.

ZAPODIDÆ (*Jumping Mice.*)

7. *JACULUS HUDSONIUS* Coues. Jumping Mouse. This species, though far from rare, is by no means numerous in this state. It makes its nest, in which to rear its young, under logs and in like situations; the burrow not exceeding six inches in depth. In winter, however, it probably makes a much deeper one.

MURIDÆ (*Mice.*)

8. *MUS RATTUS* Linn. Black Rat. A locally abundant species, which, though generally rare near the seaboard, is more common inland. It is an imported species, and was introduced into this country from the Old World before the Norway Rat (*Mus decumanus*,) which is its mortal enemy.

9. *MUS DECUMANUS* Pallas. Norway Rat. A very common and well known species. More abundant in the Eastern than in the Western portion of the state. In many of the cities on the sea-coast it is supplanting the Black Rat (*Mus rattus*.) It is our largest and most injurious species of *Mus*, and not only commits havoc in our larders and granaries, but also does a great deal of damage in poultry yards, carrying off numbers of young chickens and sucking their blood.

10. *MUS MUSCULUS* Linn. Common House Mouse. This species is so well known that many remarks on either its habits or distribution would be superfluous. It will be sufficient to state, that like the two preceding, it is an imported species and has introduced itself into almost every town and village.

11. *HESPEROMYS LEUCOPUS* Le C. White-footed Mouse. An abundant species. Found throughout the fields and woods. On the approach of winter it retires into holes in stumps, and there having constructed its nest, hibernates in a half torpid state.

12. *EVOTOMYS GAPPERI* Vigors. Red-backed Mouse.

Generally rare, although said to occur not unfrequently in certain localities in Eastern Massachusetts. Mr. J. W. P. Jenks of Middleboro has taken quite a number in that place,* and Mr. J. A. Allen states that there are several specimens from the neighborhood of Cambridge, Mass., in the Museum of Comparative Zoology.†

13. *ARVICOLA RIPARIA* Ord. Field Mouse. An abundant species; at times exceedingly so. It often proves itself very injurious by girdling apple and other fruit trees, as well as young pitch pines (*Pinus rigida* Linn.)

This species is generally more abundant after a winter in which there has been a great deal of snow, as they are kept warm thereby and few consequently perish from the cold. After an open winter they generally decrease, as the burrows are too shallow to protect them from being frozen. They occur almost everywhere from the most sandy fields to swampy meadows. In hay-fields the Field Mouse forms burrows extending for a considerable distance under the roots of the grass. Its habits however vary with circumstances. In grain fields it extends its burrows beneath the surface.

There are said to be at least three litters raised in a season, and nests are often found with young mice in them from May until October or November. The light variety of this species, described by Prof. S. F. Baird, under the name of *Arvicola breweri*, ‡ has been found by Mr. Allen at Muskeget Island and at the Ipswich Sand-hills.

14. *ARVICOLA PINETORUM* Aud. and Bach. Pine Mouse. The occurrence of this rare species in this state, is based on two specimens taken in May, 1868, at Springfield, Mass., by Messrs. E. and J. A. Allen. It is more abundant farther south.

* Baird: N. Am. Mam. p. 521.

† Bull. Mus. Comp. Zool. Vol. 1, No. 8, p. 231.

‡ N. Am. Mam. pp. 525-526.

15. FIBER ZIBETHICUS. Cuv. Muskrat. This is an abundant and well known species occurring throughout the state. It is a peculiar looking animal, and the largest of our *Muridæ*. On the approach of cold weather it has the interesting habit of building large dams, in the same manner as the beaver, in the rivers which it inhabits. These structures are always conical in shape, and invariably protrude a little distance from the water. Great numbers of them can often be seen in the same stream. By many the appearance of these "dams" is thought to indicate a cold winter. Nearly black individuals of this species are occasionally taken, although such variations from the usual color are of rare occurrence.

SPALACOPODIDÆ. (American Porcupines.)

16. ERETHIZON DORSATUS F. Cuvier. White-haired Porcupine. This species is now probably nearly extinct in Massachusetts. Mr. Allen gives it as "occasional on the Hoosac ranges." I have never seen it in this state.

In various parts of Northern New England the Porcupine occurs abundantly, and in the less settled districts appears to supplant the rat. It frequently infests old and deserted houses, and, as its teeth are very powerful, does considerable damage by gnawing. The sound it makes when so doing is very loud. It is nocturnal in its habits, and during the day lies concealed in hollow logs or in holes in trees, not leaving its hiding place until well into the evening, generally not until nine or ten o'clock, and ceasing its depredations some time before daybreak. In Northern Vermont I have seen houses where the steps have been entirely gnawed away by these animals.

The quills which cover their backs have always been celebrated. They vary in color from black to different shades of gray and even white, are very sharp, more or less barbed at the point, and so resisting that I have known a bullet to glance from the backs of the animals.

LEPORIDÆ. (Hares.)

17. *LEPUS SYLVATICUS* Bach. Gray Rabbit. An abundant species in most parts of the state. I have noticed that it is growing less common in the neighborhood of Boston; probably on account of its persecution by sportsmen. During the past five or six years, I have seen about twice that number of specimens in this vicinity, but during the past year I have observed but one. The fur of this species is never white in winter.

18. *LEPUS AMERICANUS* Erxl. White Rabbit. This species is less abundant than the preceding in most parts of the state. Mr. Allen states that it is "rare in the immediate vicinity of Springfield, though numerous at localities less than ten miles distant, in several directions." I have never observed it near Boston. The fur is white in winter.

NEW ENGLAND *PHILAMPELI.*

By A. C. Anthony.

The body of the species of this genus is large and thick. The head and eyes rather large and prominent; the tongue as long as the body. The abdomen is more than twice the length of the thorax which is thick. The legs are long and thick. The chrysalis is brown, has no tongue case, and measures about an inch and a half in length. The pupa which is inclosed is of a creamy color, and all the parts are distinctly visible; in the latter stages of this state the wings are colored as in the mature insect.

In *P. satellitia* Linn. (*pandorus* Hubn.) the head and middle of the thorax are pale green, the abdomen pale brown tinged with green, and a dark patch on each side. It expands from four to five inches; anterior wings shaded with pale green and deep olive, with a nearly square patch on the inner margin shaded to the base. Posterior wings pale green, with a large, round, black patch near the mid-

dle. The mature larva or caterpillar has the head and body pale green, deeper on the sides, variegated with dark green spots.

In *P. achemon* the body is fawn-color, with the hinder parts of the segments white. The anterior wings are about the same color as the body, with a number of dark brown spots near the edges; the posterior are pink with several reddish brown streaks; the under surface is roseate. The mature larva is light green, varying to pale reddish brown, with six cream colored spots on each side, and has a tubercle in place of a caudal horn, which is gradually dropped as the insect moults. It measures from two to four inches.

While at rest, the head and first three segments of the caterpillars of both species are withdrawn within the fourth segment, which gives them a very peculiar appearance. When they have attained the full size they consume great quantities of the leaves of the woodbine, grape, and other vines. Crawling from the vines in August, they enter the earth to transform, and appear in the mature or moth state during the last of June and the first of July. I have known them, when confined, to pupate and come to maturity on the surface of the ground. The name hawk-moth is given them in the mature state, from their habit of hovering in the air while taking their food. They may be seen during the twilight flying with great swiftness from flower to flower, the honey of which they extract. In this operation they much resemble humming birds, for which they are often mistaken.

I have been informed, by one who has raised a number of specimens, that a certain species of *Tachina* is parasitic upon these moths in the immature state, but am unable with the given data to arrive at any conclusion as to the specific name.

THE RARER BIRDS OF MASSACHUSETTS.

*(Continued.)**By Arthur P. Chadbourne.*

- VIREOSYLVA PHILADELPHICA: CAMBRIDGE, SEPTEMBER 7, 1875. Brewster, Bull. Nuttall Club, I, (1876) p. 19.
MAGNOLIA, SEPTEMBER 18, 1879. C. W. Townsend, Bull. Nuttall Club, V, (1880) p. 53.
BROOKLINE, SEPTEMBER, 1880 (?) Brewster, Bull. Nuttall Club, VI, (1881) p. 56.
- LANIUS LUDOVICIANUS: W. NEWTON, OCTOBER 21, 1872. Purdie, Am. Nat., VII, (1874) p. 115.
NEWTONVILLE, 1874. Maynard, Am. Sportsman, V, (Feb. 13, 1875) p. 313.
LYNN, NOVEMBER, 1877. Allen, Bull. Essex Inst., X, (1878) p. 15.
BROOKLINE, FEBRUARY, 1879. Brewster, Bull. Nuttall Club, VI, (1881) p. 55.
- PYRANGA LUDOVICIANA: SALEM, JANUARY 20, 1878. Brewer, Forest & Stream, (Mar. 14, 1878) p. 95.
NOTE: Its only Massachusetts record.
- PYRANGA ÆSTIVA: LYNN, APRIL 21, 1852. Putnam, Pro. Essex Inst., I, (1856) p. 224. (*Two specimens.*)
FRAMINGHAM, MAY. Allen, Am. Nat., III, (1870) p. 578.
SWAMPSCOTT, JUNE, 1866. Allen, Bull. Essex Inst., X, (1878) p. 15.
- ÆGIOTHUS CANESCENS EXILIPES: SWAMPSCOTT, NOVEMBER 16, 1878. Jeffries, Bull. Nuttall Club, IV, (1879) p. 121.
[Dr. Brewer mentions another specimen "undoubtedly referable to Massachusetts,"

Pro. Bost. Soc. Nat. Hist., XX, (1879)
p. 270.]

ÆGIOTHUS BREWSTERI: WALTHAM, NOVEMBER 1, 1870.
Ridgway, Am. Nat., VI, (1873) p. 433.

CRITHAGRA BUTYRACEA: SOUTH SCITUATE, FEBRUARY, 1879. Brewer, Pro. Bost. Soc., XX, (1879) p. 271.

NOTE: All references refer to this specimen which was probably once a cage-bird.

[*CARDUELIS ELEGANS*: Many instances of its capture, but probably all escaped cage-birds, though it may have become naturalized.]

SERINUS MERIDIONALIS: SPRINGFIELD, NOVEMBER. Allen, Am. Nat., III, (1870) p. 635.

NOTE: "It may have been a cage-bird that had escaped."

CENTROPHANES ORNATUS: MAGNOLIA, NEAR GLOUCESTER, JULY 28, 1876. Brewer, Bull. Nuttall Club, II, (1877) p. 78.

AMMODROMUS MARITIMUS: NAHANT, AUGUST, 1877. Brewer, Bull. Nuttall Club, III, (1878) p. 48.

CHONDESTES GRAMMICA: GLOUCESTER, ABOUT 1845. Putnam, Pro. Essex Inst., I, (1856) p. 224.
NEWTONVILLE, NOVEMBER 25, 1877. Purdie, Bull. Nuttall Club, III, (1878) p. 44.
MAGNOLIA, AUGUST 27, 1879. Townsend, Bull. Nuttall Club, V, (1880) p. 53.

SPIZELLA BREWERI: WATERTOWN, DECEMBER 15, 1873. Brewster, Am. Nat., VIII, (1875) p. 366.

JUNCO OREGONUS: WATERTOWN, MARCH 25, 1874. Brewster, Bull. Nuttall Club, I, (1876) p. 19.

[*CARDINALIS VIRGINIANUS*: This species has been often captured here, but all were probably once cage-birds.]

- GUIRACA CÆRULEA: BROOKLINE, MAY 29, 1880. Allen, Bull. Nuttall Club, V, (1880) p. 184.
- CALAMOSPIZA BICOLOR: LYNN, DECEMBER 5, 1877. Allen, Bull. Nuttall Club, III, (1878) p. 48.
- XANTHROCEPHALUS ICTEROCEPHALUS: WATERTOWN, OCTOBER 15, 1869. Allen, Am. Nat., III, (1870) p. 636.
EASTHAM, SEPTEMBER 10, 1877. Allen, Bull. Essex Inst., X, (1878) p. 18. (*Two specimens, making three in all.*)
- [QUISCALUS MAJOR: No fully authenticated instance of its capture. See: N. E. Bird Life, I, (1881) p. 311; and Allen, Am. Nat., III, (1870) p. 636.]
- CORVUS CORAX CARNIVORUS: It undoubtedly occurred formerly, but the only recent captures are: TYNGSBORO', AUGUST, 1875. Maynard, Rod and Gun, VII, (Oct. 30, 1875) p. 65. WILLIAMSTOWN, 1876. Tenney, Am. Nat., XI, (1878) p. 243.
- [CORVUS OSSIFRAGUS: Seen by Mr. Brewster at CAMBRIDGE, MARCH 16, 1875. (Bull. Nuttall Club, I, (1876) p. 19) It has not yet been actually taken here.]
- [PERISOREUS CANADENSIS. NEWTONVILLE, "EARLY IN SUMMER." Maynard, Birds Eastern N. A. Part 7, (1878) p. 168. The bird though only seen, was undoubtedly of this species.]
- TYRANNUS DOMINICENSIS: LYNN, EARLY IN OCTOBER, 1869. Allen, Am. Nat., III, (1870) p. 645.
- [THAUMATIAS LINNÆI: CAMBRIDGE, AUGUST, 1864. Maynard, Guide, (1877) p. 128. Not given in the recent lists. See: B. B. & R., N. Am. Birds, II, (1874) p. 468.]
- PICOIDES TRIDACTYLUS AMERICANUS: LYNN, DATE UNKNOWN. Allen, Am. Nat., III, (1870) p. 572. (*Two specimens, male and female.*)

dle. The mature larva or caterpillar has the head and body pale green, deeper on the sides, variegated with dark green spots.

In *P. achemon* the body is fawn-color, with the hinder parts of the segments white. The anterior wings are about the same color as the body, with a number of dark brown spots near the edges; the posterior are pink with several reddish brown streaks; the under surface is roseate. The mature larva is light green, varying to pale reddish brown, with six cream colored spots on each side, and has a tubercle in place of a caudal horn, which is gradually dropped as the insect moults. It measures from two to four inches.

While at rest, the head and first three segments of the caterpillars of both species are withdrawn within the fourth segment, which gives them a very peculiar appearance. When they have attained the full size they consume great quantities of the leaves of the woodbine, grape, and other vines. Crawling from the vines in August, they enter the earth to transform, and appear in the mature or moth state during the last of June and the first of July. I have known them, when confined, to pupate and come to maturity on the surface of the ground. The name hawk-moth is given them in the mature state, from their habit of hovering in the air while taking their food. They may be seen during the twilight flying with great swiftness from flower to flower, the honey of which they extract. In this operation they much resemble humming birds, for which they are often mistaken.

I have been informed, by one who has raised a number of specimens, that a certain species of *Tachina* is parasitic upon these moths in the immature state, but am unable with the given data to arrive at any conclusion as to the specific name.

THE RARER BIRDS OF MASSACHUSETTS.

*(Continued.)**By Arthur P. Chadbourne.*

VIREOSYLVA PHILADELPHICA: CAMBRIDGE, SEPTEMBER 7, 1875. Brewster, Bull. Nuttall Club, I, (1876) p. 19.

MAGNOLIA, SEPTEMBER 18, 1879. C. W. Townsend, Bull. Nuttall Club, V, (1880) p. 53.

BROOKLINE, SEPTEMBER, 1880 (?) Brewster, Bull. Nuttall Club, VI, (1881) p. 56.

LANIUS LUDOVICIANUS: W. NEWTON, OCTOBER 21, 1872. Purdie, Am. Nat., VII, (1874) p. 115. NEWTONVILLE, 1874. Maynard, Am. Sportsman, V, (Feb. 13, 1875) p. 313.

LYNN, NOVEMBER, 1877. Allen, Bull. Essex Inst., X, (1878) p. 15.

BROOKLINE, FEBRUARY, 1879. Brewster, Bull. Nuttall Club, VI, (1881) p. 55.

PYRANGA LUDOVICIANA: SALEM, JANUARY 20, 1878. Brewer, Forest & Stream, (Mar. 14, 1878) p. 95.

NOTE: Its only Massachusetts record.

PYRANGA ÆSTIVA: LYNN, APRIL 21, 1852. Putnam, Pro. Essex Inst., I, (1856) p. 224. (*Two specimens.*)

FRAMINGHAM, MAY. Allen, Am. Nat., III, (1870) p. 578.

SWAMPSCOTT, JUNE, 1866. Allen, Bull. Essex Inst., X, (1878) p. 15.

ÆGIOTHUS CANESCENS EXILIPES: SWAMPSCOTT, NOVEMBER 16, 1878. Jeffries, Bull. Nuttall Club, IV, (1879) p. 121.

[Dr. Brewer mentions another specimen "undoubtedly referable to Massachusetts,"

Pro. Bost. Soc. Nat. Hist., XX, (1879)
p. 270.]

ÆGIOTHUS BREWSTERI: WALTHAM, NOVEMBER 1, 1870.
Ridgway, Am. Nat., VI, (1873) p. 433.

CRITHAGRA BUTYRACEA: SOUTH SCITUATE, FEBRUARY, 1879. Brewer, Pro. Bost. Soc., XX, (1879) p. 271.

NOTE: All references refer to this specimen which was probably once a cage-bird.

[*CARDUELIS ELEGANS*: Many instances of its capture, but probably all escaped cage-birds, though it may have become naturalized.]

SERINUS MERIDIONALIS: SPRINGFIELD, NOVEMBER. Allen, Am. Nat., III, (1870) p. 635.

NOTE: "It may have been a cage-bird that had escaped."

CENTROPHANES ORNATUS: MAGNOLIA, NEAR GLOUCESTER, JULY 28, 1876. Brewer, Bull. Nuttall Club, II, (1877) p. 78.

AMMODROMUS MARITIMUS: NAHANT, AUGUST, 1877. Brewer, Bull. Nuttall Club, III, (1878) p. 48.

CHONDESTES GRAMMICA: GLOUCESTER, ABOUT 1845. Putnam, Pro. Essex Inst., I, (1856) p. 224.
NEWTONVILLE, NOVEMBER 25, 1877. Purdie, Bull. Nuttall Club, III, (1878) p. 44.
MAGNOLIA, AUGUST 27, 1879. Townsend, Bull. Nuttall Club, V, (1880) p. 53.

SPIZELLA BREWERI: WATERTOWN, DECEMBER 15, 1873. Brewster, Am. Nat., VIII, (1875) p. 366.

JUNCO OREGONUS: WATERTOWN, MARCH 25, 1874. Brewster, Bull. Nuttall Club, I, (1876) p. 19.

[*CARDINALIS VIRGINIANUS*: This species has been often captured here, but all were probably once cage-birds.]

- GUIRACA CÆRULEA: BROOKLINE, MAY 29, 1880. Allen, Bull. Nuttall Club, V, (1880) p. 184.
- CALAMOSPIZA BICOLOR: LYNN, DECEMBER 5, 1877. Allen, Bull. Nuttall Club, III, (1878) p. 48.
- XANTHROCEPHALUS ICTEROCEPHALUS: WATERTOWN, OCTOBER 15, 1869. Allen, Am. Nat., III, (1870) p. 636.
- EASTHAM, SEPTEMBER 10, 1877. Allen, Bull. Essex Inst., X, (1878) p. 18. (*Two specimens, making three in all.*)
- [QUISCALUS MAJOR: No fully authenticated instance of its capture. See: N. E. Bird Life, I, (1881) p. 311; and Allen, Am. Nat., III, (1870) p. 636.]
- CORVUS CORAX CARNIVORUS: It undoubtedly occurred formerly, but the only recent captures are: TYNGSBORO', AUGUST, 1875. Maynard, Rod and Gun, VII, (Oct. 30, 1875) p. 65. WILLIAMSTOWN, 1876. Tenney, Am. Nat., XI, (1878) p. 243.
- [CORVUS OSSIFRAGUS: Seen by Mr. Brewster at CAMBRIDGE, MARCH 16, 1875. (Bull. Nuttall Club, I, (1876) p. 19) It has not yet been actually taken here.]
- [PERISOREUS CANADENSIS. NEWTONVILLE, "EARLY IN SUMMER." Maynard, Birds Eastern N. A. Part 7, (1878) p. 168. The bird though only seen, was undoubtedly of this species.]
- TYRANNUS DOMINICENSIS: LYNN, EARLY IN OCTOBER, 1869. Allen, Am. Nat., III, (1870) p. 645.
- [THAUMATIAS LINNÆI: CAMBRIDGE, AUGUST, 1864. Maynard, Guide, (1877) p. 128. Not given in the recent lists. See: B. B. & R., N. Am. Birds, II, (1874) p. 468.]
- PICOIDES TRIDACTYLUS AMERICANUS: LYNN, DATE UNKNOWN. Allen, Am. Nat., III, (1870) p. 572. (*Two specimens, male and female.*)

[BOSTON MARKET, WINTER OF 1836. B. B. & R., N. Am. Birds, II, (1874) p. 534.]

SPHYROPICUS VARIUS NUHALIS: CAMBRIDGE, DATE UNKNOWN. B. B. & R., N. Am. Birds, II, (1874) p. 543.

CENTURUS CAROLINUS: [SPRINGFIELD, MAY 13, 1863. Allen, Pro. Essex Inst., IV, (1864) p. 53. (*Only seen.*)]

NEWTON, NOVEMBER 25, 1880. Plummer, Bull. Nuttall Club, VI, (1881) p. 120.

NOTE: A pair were seen but only the male secured.

COHASSET, MAY 28, 1881. Brewster, Bull. Nuttall Club, VI, (1881) p. 183.

ALUCO FLAMMEUS AMERICANUS: LYNN, ABOUT 1864. Allen, Am. Nat., III, (1870) p. 646.

SPRINGFIELD, MAY, 1868. Allen, Pro. Essex Inst., VI, (1868) p. 312.

NYCTALE TENGMALMI RICHARDSONI: SPRINGFIELD, DECEMBER, 1859. Allen, Pro. Essex Inst., IV, (1864) p. 52.

LYNN, 1863. Allen, Am. Nat., III, (1870) p. 646.

NEWTONVILLE, FEBRUARY 26, 1879. Brewer, Pro. Bost. Soc., XX, (1879) p. 272.

SPEOTYTO CUNICULARIA HYPOGÆA: NEWBURYPORT, MAY 5, 1875. Deane, Rod and Gun, VI, (May 15, 1875) p. 97.

HIEROFALCO GYRFALCO OBSOLETUS: BREED'S ISLAND, OCTOBER, 1876. Cory, Bull. Nuttall Club, II, (1877) p. 27.

[ELANOIDES FORFICATUS: Seen near Whately. Allen, Am. Nat., III, (1870) p. 645.]

BUTEO SWAINSONI: SALEM, WINTER OF 1871-2. Allen, Pro. Essex Inst., X, (1878) p. 22.

WAYLAND, SEPTEMBER 12, 1876. Brewster,
Bull. Nuttall Club, III, (1878) p. 39.

AQUILA CHRYSÆTUS CANADENSIS: Once common, the
latest instance of its occurrence is, I believe:
FAIRHAVEN, NOVEMBER 21, 1873. Allen,
Bull. Essex Inst., X, (1878) p. 32.

[CATHARTES AURA: "Two in 1863." Samuels, Agr. Mass.
Secretary's Report (1863) p. XVIII.]

(To be continued.)

GENERAL HABITS OF THE NEW ENGLAND DYTISCIDÆ.

By Henry Savage.

There are eighty-six species of *Dytiscidæ* in New England. The largest species, *Dytiscus confluens*, is 1.6 inches in length, while the smallest species, *Hydroporus convexus*, measures only .1 of an inch in length.

The *Dytiscidæ* are very much like the *Carabidæ* in habits and formation. At least nine tenths of their life is spent under water.

The larvæ are long and cylindrical, with large flat heads and powerful jaws. Their food consists of tadpoles, young fish and aquatic insects, which they attack with great ferocity. The smaller species feed principally on the larvæ of mosquitos and other aquatic *Diptera*. When ready to transform, the larva creeps upon the shore and forms an oval cell; in six days it becomes a pupa, and in about three weeks it emerges a perfect insect, unless in the autumn, in which case it hibernates. The *Dytiscidæ* are a very beneficial family, as they destroy many noxious insects.

The imago is oval and adapted for swimming. The hind legs, which are used for that purpose, are long and thickly covered with hairs. In certain species of this

family the elytra of the females are grooved, while those of the males are smooth.

Although these insects kill their prey, they do not devour it, but obtain their nourishment by suction.

The *Dytiscidæ* may be found at any season of the year. They fly, both by day and night, from one pond to another. Were it not for this, certain ponds might become overstocked and the race degenerate.

Sometimes in winter the ice is speckled with these insects which emerge through the cracks to fly, but falling on the ice become benumbed.

When on the land the movements of the *Dytiscidæ* are clumsy on account of the shortness of their fore legs. Their motions in the water are very graceful, swimming along near the surface and at times diving. Most of the *Dytiscidæ*, and particularly the larger species, are gregarious.

GENERAL NOTES.

RED SQUIRREL SWIMMING. The following note may be of interest: On March 3, 1878, when walking near a small pond, I saw a Red Squirrel (*Sciurus hudsonius*) come to the opposite bank. It entered the water and swam some ten or fifteen feet to an old elm tree, up which it climbed, and after a few moments came down and swam ashore.

I have never heard of a squirrel taking *voluntarily* to the water. *Arthur P. Chadbourne, Cambridge, Mass.*

DENDRÆCA PINUS IN WINTER. Mr. Brown of Framingham saw four or five Pine Warblers (*Dendræca pinus*) in that place on December 5, 1881, and shot one. They were in company with Chickadees (*Parus atricapillus*) etc. On January 1, 1882, I saw one or two in the same place, they were also with Chickadees and were very tame. The locality was west of Framingham, on rather high ground, not very far from pine trees.

The birds seen by Mr. Brown were among alders, but those I saw were in apple trees and in their habits greatly resembled the Chickadee. *Robert W. Hogg, Boston, Mass.*

ABNORMAL EGG OF THE SONG SPARROW. While collecting at Roxbury, Mass., I found a nest of the Song Sparrow (*Melospiza meloda*) with six eggs, one of which was pale bluish white, without markings, and of the usual dimensions while the others were perfectly normal. *Henry Savage, Boston, Mass.*

ANOTHER SPOTTED EGG OF EMPIDONAX MINIMUS. In the Bulletin of the Nuttall Ornithological Club for April, 1879, I mentioned a spotted egg of this species, which I had collected at Milton, Mass. In the following July I found at Marblehead, Mass., a nest of this species containing three eggs, one of which had a ring of light brown spots at the larger end. The egg was of natural size and the rest of the set were normal in every respect. *R. Hayward, Boston, Mass.*

EUTÆNIA SIRTALIS SWALLOWING ITS YOUNG. A few years ago I surprised a female Striped Snake (*Eutænia sirtalis*) with her young around her. When she saw me she opened her mouth and the young ones quickly disappeared down her throat. I killed her and on cutting her open found the young, of which I think there were five or six.

At the time I did not know that this was anything unusual, and I believe that there is still some doubt on this subject. *Arthur P. Chadbourne, Cambridge, Mass.*

HIDROPHILUS TRIANGULUS AT SWAMPSCOTT, MASS. In the summer of 1879 I took a specimen of this species on the beach at Swampscott, Mass. It is rare in this state, though common farther to the north. *A. C. Anthony, Boston, Mass.*

NEW ENGLAND BIRD LIFE,

Being a MANUAL OF NEW ENGLAND ORNITHOLOGY. Revised and edited from the manuscript of Winfrid A. Stearns, member of the Nuttall Ornithological Club, etc. By Dr. ELLIOTT COUES, U. S. A., Member of the Academy, etc. Part I. Oscines (Singing-Birds), illustrated, \$2.50.

.. This work is valuable to the ornithologist, containing as it does the researches and accurate notes thereon of two such close observers of the habits of birds as Professor Stearns and Dr. Coues; while to the general reader it is interesting from its descriptions of the songsters whose carols have so often charmed his idle hours. This volume is completed with an index of the common and scientific names of the birds treated upon."—*The Field, Chicago.*

IN PRESS,

By the same Authors,

NEW ENGLAND BIRD LIFE.

PART II.

The First Part of this work has been devoted to the Singing Birds, technically known as *Oscine* (or melodious) *Passeres*.

Part Second continues directly with the *Clamatorial* (or non-melodious) *Passeres*, represented in New England, as they are elsewhere in North America, by the single family *Tyrannidae*.

Fully Illustrated. \$2.50.

FIELD BOTANY,

A HAND-BOOK FOR THE COLLECTOR, containing

INSTRUCTIONS FOR GATHERING AND PRESERVING PLANTS AND THE FORMATION OF AN HERBARIUM, by Walter P. Manton. Illustrated. 50 cts.

Botanical writers, as a rule, appear to take it for granted that the student has an intuitive knowledge of how specimens should be prepared and preserved, for they dismiss the subject of Collecting and the Herbarium in as few words as possible. This little work, like its predecessors in the series, is to render assistance to the beginner.

By the same Author.

INSECTS:

HOW TO CATCH AND HOW TO PREPARE THEM FOR THE CABINET.

By Walter P. Manton.

Illustrated. 50 cents.

TAXIDERMY

WITHOUT A TEACHER.

A COMPLETE MANUAL OF INSTRUCTION FOR PREPARING AND PRESERVING BIRDS AND ANIMALS.

By Walter P. Manton.

A new edition. Illustrated. 50 cents.

Sold by all Booksellers, and sent by mail, post-paid, on receipt of price. Our Illustrated Catalogue mailed free to any address.

LEE AND SHEPARD,

PUBLISHERS, BOSTON.

STANDARD READING.

Louis Agassiz.

Geological Sketches. *First Series.* Illustrations and Portrait. 1 vol. 16mo. \$1.50.

Geological Sketches. *Second Series.* 1 vol. 16mo. \$1.50.

Methods of Study in Natural History. Illustrated. 1 vol. 16mo. \$1.50.

A Journey in Brazil. By Professor and Mrs. LOUIS AGASSIZ. Illustrated. 1 vol. 8vo, cloth, \$5.00; half calf, \$8.00.

These books embody, in popular form, the remarkable researches of Professor Agassiz in the domain of Natural Science.

John Dean Caton.

THE ANTELOPE AND DEER OF AMERICA. A Comprehensive Scientific Treatise upon the Natural History, including the Characteristics, Habits, Affinities, and Capacity for Domestication, of the Antilocapra and Cervidæ of North America. Revised edition. 8vo. Illustrated. \$4.00.

* * * For sale by all booksellers. Sent post-paid on receipt of price, by the Publishers,

HOUGHTON, MIFFLIN & CO., Boston.

STUDER'S POPULAR ORNITHOLOGY.

THE BIRDS OF NORTH AMERICA, DRAWN AND COLORED FROM LIFE.

By THEODORE JASPER, A.M., M. D.

The work contains ONE HUNDRED AND NINETEEN COLORED PLATES, giving upwards of seven hundred life-like representations of North American species, with a copious text, giving a popular account of their habits and characteristics.

The drawings are made by THEODORE JASPER, A.M., M. D., *an artist of superior capabilities.* They are derived from *life and personal observations in the fields and forests,* thus insuring correctness in all the details. It is an original work, in design and execution. No similar one containing so many beautiful and faithful pictures of living birds, and so much descriptive matter at so reasonable a rate, has ever been published.

It makes one magnificent royal quarto volume, and is now for sale, bound in full russia leather at \$45; full turkey morocco at \$40; and in half turkey morocco at \$36.50.

A. WILLIAMS & CO., Publishers,

283 Washington Street,

BOSTON, Mass.

THE
Quarterly Journal
OF THE
BOSTON ZOÖLOGICAL SOCIETY.

Vol. 1.—JULY, 1882.—No. 3.

CONTENTS.

	Page.
NOTES ON CERTAIN COLEOPTERA. By <i>Fred C. Bowditch.</i>	27
NOTES ON THE LARVAE OF CERTAIN HETEROCEROUS LEPIDOPTERA. By <i>Rev. N. Coleman.</i>	28
THE RARER BIRDS OF MASSACHUSETTS. By <i>Arthur C. Chadbourne.</i>	30
NOTES ON THE HABITS AND DISTRIBUTION OF <i>BOLITOTHERUS BIFURCUS.</i> By <i>R. Hayward.</i>	35
GENERAL NOTES.	—

Baird's Sandpiper at Marblehead, Mass.; A third Specimen of the Swallow-tailed Gull (*Xema furcatum*); Two Rare *Carabidae* from Eastern Massachusetts; *Cicindela ancocisconensis* (Harr.) in Vermont.

BOSTON, MASS.

PUBLISHED BY THE SOCIETY.

THE QUARTERLY JOURNAL
OF THE
BOSTON ZOOLOGICAL SOCIETY.

A MAGAZINE DEVOTED TO THE STUDY OF AMERICAN ZOOLOGY ESPECIALLY THE VERTEBRATA AND INSECTA.

EDITED BY ARTHUR P. CHADBOURNE and A. C. ANTHONY.

TERMS.

For one year,	(postage paid)	50 cts. in advance.
“ “ copy,	“ “	15 “

All remittances should be sent to the Treasurer, A. C. Anthony.

All communications should reach the Editors at least two months before the publication of the number in which they are intended to appear.

Address,

BOSTON ZOOLOGICAL SOCIETY.

285 Marlboro' Street,

Boston. Mass.

ADVERTISING RATES.—*First insertion, 20 cents a line (Pica); \$5.00 per page; \$3.00 per half page. A discount of twenty per cent for each subsequent insertion.*

The Journal
OF THE
BOSTON ZOÖLOGICAL SOCIETY.

Vol. 1.

July, 1882.

No. 3.

NOTES ON CERTAIN *COLEOPTERA*.

By Fred. C. Bowditch.

The pretty little *Eucrada humeralis* Mels. inhabits the bark of our common red and black oaks and beeches, it spins a small, oval, tough silken cocoon or pod, in which it passes the winter, and emerges in the latter part of May. In beech bark (which is very thin) it is easy to find the cocoons, their white ends showing up plainly on the reverse side of the bark when the latter is stripped off.

During the past winter I have found *Dicerca punctulata* Schon. quite common among the debris and chips of bark around the bases of yellow pines in which the larva bores; with it I also took a specimen of *Dicerca asperata* Lep., and one example of *Chalcophora virginiensis* Dr. Under hickory and walnut trees I have in like manner found *Dicerca lurida* Fab. and *Dicerca divaricata* Sax. I am strongly of the opinion that a large number of our *Buprestida* hibernate in this manner; and finding them may also give a clue to the trees they infest as exemplified by the five species cited.

Several years ago I sugared extensively for moths. In the middle of a hot day in July happening to pass one of the trees on which the sugar had been spread on the previous night, I saw feeding, a specimen of *Purpuricentus humeralis* Fab. var. *axillaris* Hald., making the rounds of

all the sugared trees. I captured about a dozen specimens. I saw several fly down from overhead or from the tops of the trees; and this coupled with the fact that other than the above I have seen but one specimen near the ground, and that one flying upwards, leads me to infer that the species though comparatively common, lives among the tops of the trees (hickories and walnuts) and rarely comes near enough to the ground to be captured unless allured by some bait.

One of my correspondents in Ohio to whom I mentioned the fact told me he had captured hundreds of *Purpuricenus humeralis* Fab. var. *humeralis* on sugar-cane stumps. The excessive love for sugar thus shown in widely separated localities by the type and variety strikes me as quite a curious incident. I propose to further investigate this matter during the coming season.

NOTES ON THE LARVÆ OF CERTAIN HETERO- CEROUS LEPIDOPTERA.

By Rev. N. Coleman.

As is well known, the early brood of the Codling-moth, *Carpocapsa pomonella*, pass through all their changes in a comparatively short period, while the late brood do not produce the imago till the next spring. It is not so well known, probably, that the late brood remain in the larval state till spring. From some observations made the past season it seems certain that this is the case. While looking after Canker-worm moths, November 29, 1881, I found a cocoon of a Codling-moth under a piece of bark on an apple tree; and on opening it the larva was found to be unchanged. Another cocoon was found April 25, 1882, and on examination the larva in this was still unchanged. Just how

much longer it would have continued in the larval state is a question I cannot now answer.

The finding of the Codling-moth larva in November led me to make an examination of some pupa cases of the Squash-vine *Ægeria*, *Ægeria cucurbitæ*, and I found the larvæ unchanged. I opened some cases from time to time in December, January and February. In April I opened the last case I had to use and no change had occurred up to that time. Of course it would be impossible to tell when the larvæ become pupæ unless one had a large number and could make the examinations often up to the time of the change.

As far as I have been able to determine there is but one brood of these caterpillars in a season, but the eggs are laid upon the vines at different times, as might be inferred from finding larvæ in all stages of growth at the same time in the same vine. This would indicate either that the imago appears at different periods or that the time in which the moth works is quite extended.

The larvæ of *Arctia isabella* are black in their early stages, but after the second moulting one red ring appears—the middle one—and one more at each successive moult, first forward, then back of that earliest appearing, until the normal number is reached when no more moultings take place.

Sometimes the mature larvæ have but two red rings; sometimes but two red tufts in each of the two middle rings, or even only three red tufts in all. Again they appear wholly red except a black tuft at each extremity, or one at the head, and two at the caudal segment. As nearly as I am able to determine now, these very different forms produce moths differing in their markings.

THE RARER BIRDS OF MASSACHUSETTS.

*(Concluded.)**By Arthur P. Chadbourne.*

- CATHARTES ATRATA: SWAMPSCOTT, NOVEMBER, 1850. S. JILLSON, *Pro. Essex Inst.*, I, (1856) p. 223.
GLOUCESTER, SEPTEMBER 28. Allen, *Pro. Essex Inst.*, IV, (1864) p. 81.
HUDSON, 1868. Allen, *Am. Nat.*, III, (1870) p. 646.
- CANACE CANADENSIS: GLOUCESTER, 1851. Putnam, *Pro. Essex Inst.*, I, (1856) p. 224.
ROXBURY, ABOUT 1865. Allen, *Am. Nat.*, III, (1870) p. 636.
- LAGOPUS ALBUS: MANCHESTER, MAY, 1859. Putnam, *Pro. Essex Inst.*, II (1859) p. 378.
NOTE: May have been an escaped cage-bird.
See Coues, *Pro. Essex Inst.*, V, (1868) p. 289.
- FLORIDA CÆRULEA: COHASSET, ABOUT 1870. Brewer, *Pro. Bost. Soc.*, XX, (1879) p. 272. (The only recent instance.)
- NYCTHERODIUS VIOLACEUS: LYNN, OCTOBER, 1862. Allen, *Am. Nat.*, III, (1870) p. 637.
SOMERVILLE, JULY 30, 1878. Brewster, *Bull. Nuttall Club*, IV, (1879) p. 125.
- PLEGADIS FALCINELLUS: The recent instances are: NANTUCKET, SEPTEMBER, 1869. Allen, *Am. Nat.*, III, (1870) p. 637.
EASTHAM, CAPE COD, MAY 4, 1878. Cory, *Bull. Nuttall Club*, III, (1878) p. 152.
ORLEANS, CAPE COD, MAY 5, 1878. Brewer, *Bull. Nuttall Club*, III, (1878) p. 151.

EAST ORLEANS. CAPE COD. MAY 5, 1878.
Allen, Bull. Nuttall Club, III, (1878) p. 152.

MICRORHAMPHIUS GRISEUS SCOLOPACEUS: EASTHAM. NOVEMBER 2, 1878. Brewer, Bull. Nuttall Club, IV, (1879) p. 64.

NOTE. THE only recorded capture of the western variety is, I believe, that given above, but it probably occurs sparingly in the flocks of *M. griseus*.

ACTODROMUS BAIRDI: LONG ISLAND. BOSTON HARBOR. AUGUST 27, 1870. Brewster, Am. Nat., VI, (1872) p. 306.

SWAMPSCOTT. AUGUST 27, 1876. Brewer, Bull. Nuttall Club, III, (1878) p. 140.

[This species probably occurs much oftener than is supposed or recorded.]

PELIDNA SUBARQUATA: NAHANT. DATE UNKNOWN. DEANE, Bull. Nuttall Club, IV, (1879) p. 124.

CAPE ANN. 1865. Samuel's, Orn. and Oöl. N. E. (1875) p. 444. (*The specimen was found in the market.*)

IPSWICH. ABOUT 1875. Brewer, Pro. Bost. Soc., XVI, (1875) p. 445.

EAST BOSTON. EARLY IN MAY, 1876. Brewster, Bull. Nuttall Club, I, (1876) p. 51.

CAPE COD. MAY 10, 1878. Deane, Bull. Nuttall Club, IV, (1879) p. 124.

MACHETES PUGNAX: NEWBURYPORT MARSHES, MAY 20, 1871. Brewster, Am. Nat., VI, (1872) p. 306.

CHATHAM. SEPTEMBER 11, 1880. Forest and Stream, XV, (1881) p. 186. (*Editorial.*)

RECURVIROSTRA AMERICANA. LAKE COCHITUATE. NATICK, OCTOBER 19, 1880. Purdie, Bull. Nuttall Club, VI, (1881) p. 123.

[HIMANTOPUS MEXICANUS: Mr. Maynard says in his "Guide" (p. 143) that it is occasionally seen by gunners, and Mr. Allen (Am. Nat., III, (1870) p. 638) speaks of two specimens seen in Boston Market which were said to have been killed in the State.]

RALLUS ELEGANS: SUDBURY MEADOWS, DATE UNKNOWN. Purdie, Bull. Nuttall Club, III, (1878) p. 146. NAHANT, NOVEMBER 21, 1875. Purdie, Bull. Nuttall Club, II, (1877) p. 22

NAHANT, SPRING OF 1876. Brewer, Pro. Bost. Soc., XIX, (1878) p. 307.

NOTE: The last two references are probably identical. See Brewster, Bull. Nuttall Club, VI, (1881) p. 62.

RALLUS LONGIROSTRIS CREPITANS: BOSTON HARBOR, MAY 4, 1875. Purdie, Bull. Nuttall Club, II, (1877) p. 22.

NOTE: The specimen taken in "Boston Harbor, May 1876" (Brewer, Pro. Bost. Soc., XIX, (1878) p. 307) is identical with the above. See Brewster, Bull. Nuttall Club, VI, (1881) p. 62.

GURNET POINT, PLYMOUTH, OCTOBER, 1879. Brewster, Bull. Nuttall Club, VI, (1881) p. 62.

PORZANA JAMAICENSIS: CLARK'S ISLAND, PLYMOUTH HARBOR, AUGUST, 1869. Purdie, Bull. Nuttall Club, II, (1877) p. 22.

[STREETS OF BOSTON, ABOUT SEPTEMBER 20, 1874. Curtis, Forest and Stream, VIII, (1876) 129. "*Probably this Species.*"]

- IONORNIS MARTINICA: STONEHAM, NOVEMBER 27, 1837.
Peabody, Report Orn. Mass. (1839) p. 258.
ROCKPORT, APRIL 12, 1875. Whiteman,
Am. Nat., IX. (1875) p. 573.
- [NETTICN CRECCA: Has been wrongly stated to occur in
Massachusetts. See Brewer, Bull. Nuttall
Club, II, (1877) p. 46.]
- PELECANUS ERYTHORHYNCHUS: NORTH SCITUATE, OCTOBER,
6, 1876. Purdie, Bull. Nuttall Club, II,
(1877) p. 22.
- PELECANUS FUSCUS: [IPSWICH, DATE UNKNOWN. Allen,
Am. Nat., III. (1870) p. 640. *Two were
seen.*]
NANTUCKET, DATE UNKNOWN. Allen, Am.
Nat. III, (1870) p. 641. (*One killed from
flock of thirteen.*)
NOTE. Wrongly given as *erythrorhynchus*.
- SULA LEUCOGASTRA: CAPE COD, ABOUT SEPTEMBER 17, 1878,
Brewer, Pro. Bost. Soc., XX, (1879) p. 277.
[The specimen mentioned by Mr. Putnam
[Pro. Essex Inst., I, (1856) p. 221) was an
immature *S. bassana*.]
- RHYNCHOPS NIGRA: [CAPE COD, JULY 1605!! Voyages
of Samuel Champlain. Vol. II, (1604-1610)
p. 87.]
WOOD'S HOLL, DATE UNKNOWN. Brewer,
Pro. Bost. Soc., XX, (1879) p. 277.
SANDWICH, CAPE COD, AUGUST 19, 1879.
Deane, Bull. Nuttall Club, IV, (1879) p. 243.
(*Three specimens.*)
BOSTON HARBOR, AUGUST 20, 1879 Deane,
Bull. Nuttall Club, IV, (1879) p. 243.

- XEMA SABINEI: BOSTON HARBOR, SEPTEMBER 27, 1874.
Brewster, Am. Sportsman, V, (Mar. 13, 1875)
p. 370.
- STERNA ANGLICA: IPSWICH, SEPTEMBER, 1871. Brewster,
Am. Nat., VI, (1872) p. 306.
- STERNA REGIA: NANTUCKET, JULY 1, 1874. Brewster, Am.
Sportsman, V, (1875) p. 249.
(*A male and female shot. They were prob-
ably breeding.*)
- STERNA CANTIAKA ACUFLAVIDA: CHATHAM, AUGUST, 1865.
Allen, Am. Nat. III. (1870) p. 644.
- STERNA FULIGINOSA: WILLIAMSTOWN, SEPTEMBER, 1876.
Tenney, Am. Nat., XI. (1877) p. 243.
LAWRENCE, OCTOBER 29, 1876. Deane, Bull.
Nuttall Club, II, (1877) p. 27.
[CHATHAM, SEPTEMBER, 1877. Brewer, Pro.
Bost. Soc., XIX, (1878) p. 308. "*Several
seen.*"]
- MEGALESTRIS SKUA: GEORGES BANK, JULY 18, 1878.
Brewer, Bull. Nuttall Club, III, (1878) p.
188.
- FULMAREUS GLACIALIS: GEORGES BANK, OCTOBER 28, 1878.
Brewer, Bull. Nuttall Club, IV, (1879) p.
64.
- PUFFINUS BOREALIS: CHATHAM ISLAND, CAPE COD, OCTO-
BER 11, 1880. Cory, Bull. Nuttall Club, VI,
(1881) p. 84.
NOTE. The type specimen and a number of
others.

ADDENDA.

- HELMINTHOPHAGA PINUS: DEDHAM. DATE UNKNOWN.
Cabot, Pro. Bost. Soc., VI, (1858) p. 386.

WEST ROXBURY, MAY 17, 1878. Deane, Bull. Nuttall Club, III, (1878) p. 188.

DENDRGECA PALMARUM PALMARUM: BROOKLINE, MIDDLE OF OCTOBER, 1878. Deane, Bull. Nuttall Club, IV, (1879) p. 60.

NOTE: Wrongly given as *hypochrysea*.

CAMBRIDGE, SEPTEMBER 13, 1880. Spelman, Bull. Nuttall Club, VII, (1882) p. 54.

BELMONT, SEPTEMBER 7, 1881. Spelman, Bull. Nuttall Club, VII, (1882) p. 54.

HABITS AND TRANSFORMATIONS OF *BOLITOTHERUS BIFURCUS* FAB.

By R. Hayward.

During the past summer (1881) I had an excellent opportunity to study the habits of this interesting species. I was passing a few weeks at Underhill, Chittenden County, Vt., where most of my observations were made.

Bolitotherus bifurcus is far more abundant in the northern than in the southern portions of New England. It feeds almost if not exclusively upon the fungus of the birch, which in most cases, I believe, proves fatal to the tree. I have never seen the eggs, but have good reason to suppose that they are deposited by the females on the outside of the fungus and that the young larvæ hatched from the eggs thus laid, immediately eat their way into the heart of the fungus. The hole made by their inward progress is black, looking much as though it had been burnt, and is generally partially filled with the insects' castings. The full grown

larva is of a dull flesh-color, cylindrical in shape and measures about .87 of an inch in length. The mandibles are broad, triangular and appear capable of doing good service. The head is yellow and free from the body. There are three pairs of thoracic and no abdominal legs, and the abdomen is divided into nine segments, the last one being square, with a sharp spine on each side.

The pupa measures .58 of an inch in length and is also of a dull flesh color. The head is large and prominent. The legs and elytra are free. There is a tubercle on the edge of each abdominal segment. The male and female pupæ are easily distinguishable, there being upon the thorax of the female two prominent tubercles, which, in the male, are prolonged into horns.

The imago is dark brown or black, measuring about .75 of an inch in length. The elytra and thorax are very rough, being covered with a large number of prominent tubercles. There are two prominent horns upon the thorax of the males which are wanting, however, in the females. Newly hatched specimens are generally light-brown, but become darker with age.

The full-grown larvæ, pupæ, and imagos were all taken late in July, which seems to lead to the inference that the time passed in the pupa state is short, probably not exceeding a week or ten days. As soon as the insects have completed these transformations they work their way out by the same holes through which they entered.

GENERAL NOTES.

BAIRD'S SANDPIPER AT MARBLEHEAD, MASS. On Aug. 15, 1881, while shooting at Marblehead, Mass., after an easterly storm, I secured a specimen of Baird's Sandpiper (*Actodromus bairdi*). It was alone when I shot it and was, I believe, the only one taken during the season. *Charles R. Lamb, Cambridge, Mass.*

[This is the third *recorded* instance of its capture in Massachusetts, though it probably occurs regularly during the migrations.—EDD.]

A THIRD SPECIMEN OF THE SWALLOW-TAILED GULL (*Xema furcatum*).—I learn from my correspondent, Mr. Howard Saunders of London, that he has just received a young of the year specimen of the above named rare Gull. This is the third specimen in collections, two others, both of which are also in Europe, one in the British Museum and the other, I think, at St. Petersburg, were taken in the Pacific ocean off the coast of California. It is extremely probable, however, that the usual habitat of this very rare bird, is the Arctic Regions.

The more deeply forked tail and large size at once distinguish it from *X. sabinei*. Length of wing of *sabinei* 10.75, of *furcatum* 16.50.—*C. J. Maynard, Boston, Mass.*

TWO RARE CARABIDÆ FROM EASTERN MASSACHUSETTS.—The occurrence of the two following rare species of *Carabidæ* in the eastern part of the state seems to be of sufficient importance to merit publication in the Journal.

Calosoma wilcoxi, Lec. On July 3, 1880, while collecting at Nantucket, I procured a specimen of this species on the beach, which extends along the south shore of the

island. It was dead and in a perfect condition when I found it, and had it not been at considerable distance from high-water mark I should have supposed that it had been thrown on shore by the waves. This is the seventh instance of its occurrence in this state.

Badister notiatus, Hald. In the spring of 1879 I captured one of this species in Milton, under a stone in a rather high field. The species is very rare in this state and I know of but one other instance of its capture here.—*R. Hayward*, Boston. Mass.

CICINDELA ANCOCISCONENSIS (HARR.) IN VERMONT.

It may be of interest to the entomological readers of the Journal to know that I secured an example of *Cicindela ancocisconensis* at Underhill, Chittenden County, Vermont, on July 28, 1881. This is, I believe, the first recorded instance of its capture in the state, although there appears to be no good reason why it should not be found there, as it is very abundant in the White Mountains only about eighty miles distant. This is still more probable since the habitat of *Cicindela ancocisconensis* is quite extended, it having been already recorded from New Hampshire, Maine, Western Pennsylvania and Northern Illinois.—*R. Hayward*, Boston. Mass.

THE COUES' CHECK LIST
— OF —
NORTH AMERICAN BIRDS,

With a dictionary of the Etymology, Orthography, and Orthoëpy of the Scientific names.

BY ELLIOTT COUES, M. D.

THIS is indispensable to every ornithologist and amateur. It gives a complete list of all birds known to inhabit North America, Northern Mexico and Greenland, systematically classified. It explains the derivation of each word in technical usage; gives its significance, application, and correct spelling.

ONE VOL. ROYAL OCTAVO CLOTH, - - - \$3.00.

THE BIRD COLLECTOR'S MANUAL.

BY ELLIOTT COUES, M. D.

Author of "Key to North American Birds," "The Coues' Check List and Ornithological Lexicon," "Birds of the Colorado Valley," "Birds of the Northwest," etc.

This forms a complete guide for ORNITHOLOGISTS, SPORTSMEN AND AMATEURS in *procuring, preparing, and preserving birds.*

ONE VOL. 12 MO. CLOTH, - - - \$1.50

Any of our publications sent postpaid on receipt of price.

ESTES & LAURIAT,
PUBLISHERS AND BOOKSELLERS,
301-305 WASHINGTON STREET,
BOSTON.

"FOREST & STREAM"

IS a weekly 24-page journal, containing the best current literature of legitimate out-door recreation and study. It is able, high in tone and progressive. The departments are:

The Sportsman Tourist, Natural History, Answers to Correspondents,
Game Bag and Gun, The Kennel, Rifle Shooting,
Sea and River Fishing, Canoeing, Yachting,

FOREST & STREAM BIRD NOTES

IS a valuable book of 105 pages, containing a summary of all the Ornithological matter contained in the first twelve volumes of the paper. Price postpaid \$1.50.

FOREST AND STREAM to any address one year, \$4.00. Single copies (sold everywhere), 10 cents. Sample copy by mail, 6 cents.

FOREST & STREAM PUBLISHING CO.
39 PARK ROW, NEW YORK CITY.

BRADFORD & ANTHONY,

IMPORTERS AND DEALERS IN

CUTLERY,

FANCY HARDWARE,

FISHING TACKLE.

SKATES.

374 WASHINGTON ST.

BOSTON.

C. J. MAYNARD & CO.

PUBLISHERS AND DEALERS IN

Specimens of Natural History And Naturalist's Supplies.

Established in 1864.

36 WINTER ST., BOSTON, MASS.

We now have on hand the largest stock of Birds' Eggs in the country and are constantly adding to it. Thus we are able to offer them at remarkably low prices. We have also on hand a large number of extremely fine Native Birds' Skins, and are constantly receiving supplies of rare species from the South and other sections. Especial attention is given to furnishing Naturalist's supplies. Mounting of all kinds done in a superior manner. Call or send for Catalogue.

THE NATURALIST'S GUIDE.

BY C. J. MAYNARD.

A new and revised edition of this standard work, containing many new pages of original matter and plates of the Pallid Sparrow (*Passerculus princeps*) and White-throated Warbler (*Helminthophaga leucobronchialis*) has just been published.

Price, \$1.50.

A New Work on Birds, Nests, and Eggs.

THE

BIRDS OF EASTERN NORTH AMERICA.

With original descriptions of all the species which occur east of the Mississippi River, between the Arctic Circle and the Gulf of Mexico, with full notes upon their habits, etc., by C. J. Maynard; containing thirty-two plates drawn on stone by the author.

REVISED EDITION OF 1881.

This important work, which has been issued in parts during the last three years, is now completed, and is offered for sale in bound volumes. It is a large quarto in size, and contains 532 pages and 32 plates containing 332 figures.

PRICE OF BOUND VOLUME.

Cloth, Bevelled Edges, Marked in Gilt on Cover and Back,	\$18.00
Half Turkey Morocco, Gilt Edges,	\$23.00
Full " " " " " " " "	\$25.00

NATURAL HISTORY STORE.

168 TREMONT STREET, BOSTON, MASS.

W. J. KNOWLTON.

A specialty made of supplies for Naturalists and Taxidermists.

A Case of Instruments for Taxidermists put up in best manner and with superior quality of Tools. Price - - - - \$12.

Ordinary dissecting case. - - - - \$ 4.

Also mounted Birds. Birds' Skins, Eggs, Minerals and Shells. and Natural History specimens.

THE
 Quarterly Journal
 OF THE
 BOSTON ZOÖLOGICAL SOCIETY.

Vol. I.—OCTOBER, 1882.—No. 4.

CONTENTS.

	Page.
NOTES ON THE CHANGES IN THE LARVÆ OF <i>ORGYIA LEUCOSTIGMA</i> . By <i>Rev. N. Coleman</i>	39
THE DISTRIBUTION OF THE IVORY-BILLED WOOD- PECKER (<i>CAMPEPHILUS PRINCIPALIS</i>). By <i>C. J. Maynard</i>	42
NOTES ON COLLECTING CERTAIN <i>BUPRESTIDÆ</i> . By <i>E. P. Austin</i>	45
A LIST OF BIRDS OBSERVED NEAR BRADFORD, PENN. By <i>James A. Tuelon</i> .	47
GENERAL NOTES	52
<small>Ornithological Notes from the Magdalen Islands; <i>Papilio cresphontes</i> at Berlin, Conn.; Another Strangely Marked Larva of <i>Arctia isabella</i>.</small>	
ERRATA	54
INDEX	55

BOSTON, MASS.

PUBLISHED BY THE SOCIETY.

THE QUARTERLY JOURNAL

OF THE

BOSTON ZOÖLOGICAL SOCIETY,

A MAGAZINE DEVOTED TO THE STUDY OF AMERICAN ZOÖLOGY,
ESPECIALLY THE VERTEBRATA AND INSECTA.

In order to establish the Journal as a permanent Zoölogical publication, its patrons, it is hoped, will not only renew their own subscriptions, but will also use their influence to extend its circulation. The public in general are also notified that some of the most eminent American authorities in various branches of Zoölogy have promised their support and occasional contributions.

The Journal is the only magazine in the country which, while it does not restrict itself to but one branch of the science, is confined to the general study of American Zoölogy. Hence it appears that if sufficient pecuniary aid be obtained its final success is ensured.

TERMS.

FOR ONE YEAR . . (postage paid) . . 50 CTS. IN ADVANCE.

FOR ONE COPY 15 CTS.

All Remittances should be made to

**A. C. ANTHONY, 285 Marlborough Street,
Boston, Mass.,**

And should be sent by Registered Letter or P. O. Order on Boston; otherwise at the risk of the sender.

Communications intended for publication should be received at least one month before the publication of the number in which they are intended to appear.

The editorial supervision is in charge of

Messrs. A. P. Chadbourne and A. C. Anthony,

to whom all articles should be sent.

Advertising Rates.—\$5.00 per page; \$3.00 per half-page; 20 cents per line (*pica*); a discount of 20 per cent for each subsequent insertion.

The Journal
OF THE
BOSTON ZOÖLOGICAL SOCIETY.

Vol. I. October, 1882. No. 4.

NOTES ON THE CHANGES IN THE LARVÆ OF
ORGYIA LEUCOSTIGMA.

By Rev. N. Coleman.

My attention was first directed to these changes, in the summer of 1877, by finding some caterpillars of *Orgyia leucostigma* which differed from the description given by Dr. Harris in his work on "Insects Injurious to Vegetation."

Finding some eggs of this species in the winter of 1878 on the branch of an apple tree, I put them in a box for the purpose of rearing the larvæ. The eggs hatched on May 10. The caterpillars were dark-colored and had the head almost black, but showed some of the distinguishing characteristics belonging to this species. They became lighter after moulting, but, owing to want of time, I was unable to ascertain how many times they moulted before pupating. On June 14 a number of them appeared after moulting with white tufts on the back. Some pupated on June 28 and others on June 29.

Supposing that sex had something to do with these changes in color, I watched carefully for the appearance of the moth. On July 3 some of these cocoons hatched, producing both male and female moths, and as I wished to obtain some eggs for further experiment I left them in the box. These eggs hatched on July 16. By August 7 all

the larvæ had white instead of yellow tufts, with the exception of one, which I put in a box by itself the better to observe it. On August 15 this one moulted, appearing with white tufts, and pupated August 20. The others pupated from time to time between August 14 and August 27. On September 2, I found some larvæ with yellow tufts on a rose-bush, and put them in a box by themselves. By the next morning one of them had pupated, another moulted during the next day and appeared with white tufts.

In the course of my experiments I observed larvæ in the act of moulting on several occasions. They fastened their tails to the box and soon the skin which covers the head separated, and was then easily pushed off. The remaining portion split for a part of the way along the back, and the caterpillar by working its body from side to side, and apparently rubbing it against the box, gradually pushed the old skin back till freed from it. In some instances the caterpillar would bend its head under its body and rub it on the box to get off the old skin. Once the old skin split on the under side. In all cases the larvæ seemed exceedingly exhausted by the process, but after resting commenced feeding again.

Some of the larvæ hatched from eggs laid in the box, changed back from the white to the yellow tufts before pupating. Some that pupated about August 14 produced moths September 5. The one referred to as pupating August 20 produced a female. From the eggs laid in the box about one male to five females hatched, but in the earlier broods the proportion of males was greater. It would seem that sex had nothing to do with the changes in color.

I noticed that the yellow stripes along the sides became whitish with a slight tinge of green before pupating. On

September 10 I found some larvæ on a pear tree, some with white and others with yellow tufts. September 13 I found some more on an apple tree which varied in the same manner. In all these the stripes along the sides were greenish-white.

The larvæ found on the rose-bush September 2 all produced females. On September 20 and September 29, moths hatched in the box some males and some females. Several of the males reared, as well as those caught, were much lighter colored than the others and lacked the white spot on the wings. October 4 I found the pupa of a female, full of eggs, on an apple tree, showing that the eggs were developed very soon after pupating. October 4 some larvæ were still feeding on apple trees.

On May 19, 1879, the eggs, which I had kept over winter, hatched. The larvæ were not so dark colored as those observed in 1878. The eggs which were waited for with the greatest interest did not hatch.

June 3 some larvæ had yellow and others white tufts. Those with white tufts had darker colored bodies and the pencils of hair over their heads were shorter. I separated the white tufted ones from the others, but on June 5 some among the yellow tufted ones were found to have white tufts, and their heads as well as the warts on their backs were orange-color. On June 6 one of them moulted and appeared with black tufts which presented a velvety appearance. On June 7 some of the yellow-tufted ones moulted and appeared with white tufts, and *vice versa*. On June 17 some of those first hatched pupated. On June 22 the larva with black tufts after moulting appeared with white tufts and pupated June 30. On July 6 and 7 some of the white tufted larvæ produced both male and female moths. There are differences in the size and markings of moths of the same brood.

On June 6, 1879, I found some fawn-colored larvæ on the hazel-bush with dark-colored tufts, but did not succeed in raising them.

In the summer of 1880 I experimented still further with results similar to those above cited, with the exception that the proportion of males was greater.

While I have not been able in this article to prove any connection between the changes in color and sex in these larvæ, the experiments have been full of interest to me, at least, and I have shown that they are general feeders, eating almost all kinds of vegetation, cabbage included. I think I have also shown that *Orgyia leucostigma* and *O. antiqua* of Harris are forms of the same species. Possibly, however, that requires some further experiment.

THE DISTRIBUTION OF THE IVORY-BILLED WOOD-PECKER (*CAMPEPHILUS PRINCIPALIS*)

By C. J. Maynard.

As this "Prince of Woodpeckers" is becoming very rare, being now restricted, as far as I can learn, to a very limited area, a few notes on its former distribution, as compared to its present range, may prove acceptable.

William Bartram in 1792 says that it is resident in Florida and the Carolinas. Wilson, writing in 1811, states that it occurs from New Jersey to Mexico, but adds that it is rare north of Virginia. Nuttall, evidently with this information in mind, says that it occurs in the Southern States, but is seldom found north of Virginia. He also states that it is found in Mexico and Brazil, but in these latter instances he evidently had another species, the Imperial Woodpecker (*Campephilus imperialis*) in mind.

It remained, however, for Audubon in 1831 to fix its range with certainty. He says most emphatically that it has never occurred in the Middle States "within the memory of man," but gives it as being found near the mouth of the Ohio River, up the Mississippi as far as the mouth of the Missouri, "west of this great river in all the dense forests which border its tributary streams, even to the very declivities of the Rocky Mountains," and so on down to the Gulf of Mexico. On the Atlantic it occurred as far north as Maryland but was rare in that state. It was most abundant in the lower part of the Carolinas, in Georgia, Alabama, Louisiana, and Mississippi, where it was a constant resident.

It is fortunate for those of us who wish to know the former range of this bird that Audubon was so particular in defining it. For the Ivory-billed Woodpecker must have disappeared very rapidly, since Professor Baird in 1854 says that it was then restricted to the Southern Atlantic and Gulf States.

I have good authority for saying that it occurred in the heavily wooded portions of the State of Mississippi twenty years ago, and it is quite possible that a few still linger there. If such be the case, however, it will be well worthy of record.

During my various visits to Florida I have been enabled, by giving especial attention to this question, to ascertain its range in that state with tolerable certainty. There is a belt of heavily wooded country, either "hummock" or "cypress," extending from a few miles to the eastward of the Swanee River, bordering the Gulf of Mexico, and stretching out to the northward about twenty miles, but widening to the eastward until it reaches the Withlococchie River on the south. On the St. Johns this belt of timber reaches its maximum width, extending from within a few miles of Palat-

ka quite to Enterprise, far up the "Great River." To the eastward, between the St. Johns and the sea, the continuous belt is more broken, as it is so encroached upon by the pine woods in the rougher sections that the denser woodland is represented only by detached bits of "hummock," each containing but a few acres of trees; or by cabbage flats, sections covered with a dense growth of palmettos. On Indian River and about its head the country once again becomes a continuous "hummock," and is known as "Turnbull's Swamp," which extends from Sand Point quite to New Smyrna.

The whole of this woodland is the resort of the Ivory-billed Woodpecker and I have seen specimens from nearly every portion of it, all of them taken during the last twelve or fifteen years. Yet how restricted is the range of this noble Woodpecker compared to what it was in former years! For unless it still occurs in the State of Mississippi, which is doubtful, an area of one hundred miles long by say fifty broad will enclose its present residence.

To crown all this the bird is nowhere common in this section; indeed it is quite rare in many places and is gradually growing less and less common. Why this is so I am unable to conjecture. At one time I was inclined to consider that constant persecution of man was the cause of its extinction, and while this may have been indirectly the reason in other sections I hardly think it true in regard to Florida.

Last winter while visiting a portion of the woodland of which I have spoken, known as the "Gulf Hummocks," I found that the hunters seldom if ever shot one; indeed I could only learn of a single pair having been killed during several years. I had at one time as many as ten men searching for them, and then I only secured five pairs in a

month's time. So it can readily be judged how rare they are even in their own stronghold, and I am confident that their final extinction is a mere matter of time.

In October and November while the "Ivory-bills" are moulting they retreat to the densest portions of the forest, but later in the season they wander more. Their cries, which differ from those of the Pileated Woodpecker, are loud and clear and may be easily recognized.

The eggs of the Ivory-billed, which I have seen, are enough larger than those of any other species to be at once recognized.

NOTES ON COLLECTING CERTAIN *BUPRESTIDÆ*.

By E. P. Austin.

The species of *Buprestidæ* are great favorites with collectors owing to the bright colors of many species. All, or nearly all, the species are wood-borers and many are injurious to timber and fruit trees.

The Buprestids as a rule are found most abundantly in hot weather and are very active fliers. If surprised too suddenly to enable them to escape by flight, they drop to the ground and frequently escape in that manner. Among the smaller the species *Agrii* are worthy of especial attention, as the species are numerous and individuals abound. They may be taken in numbers after the middle of June, feeding or resting on the leaves of various shrubs and trees. The smaller species resemble each other very closely, and have not yet been satisfactorily studied. Each species of plant is likely to have a different species of *Agribus*. Oaks,

poplars, hazel, shad-berry, etc., are the species of plants which are most infested. By carefully examining the leaves, specimens may be found feeding and should be kept separately with a note giving the plant on which they were found as well as the date. Care should also be taken to secure both males and females if possible.

The males have generally brighter colored heads and often the whole body is brighter and more shining than that of the female, they are also more slender, the under side flatter, and in many species with tufts of hair, or with a groove under the thorax and abdomen which is wanting in the female. In mounting the specimens care should be taken to place them in such a position that these characters may be readily seen, also, so that the claws of the tarsi can be examined with a magnifier, as there are differences in the position of the tooth with which each claw is furnished which separates species otherwise almost exactly alike. The males of certain species also have white hairs on the antennæ which are easily removed but which are probably of importance in separating closely allied species.

A carefully collected series, stating the food-plant and time of capture, would be of great importance in determining the limits of species. Other species which are found in similar situations are *Brachys*, which is abundant on oaks. *Taphrocerus* and *Pachyseelus* are more common on herbaceous plants, particularly *Lguminosa*.

A LIST OF BIRDS OBSERVED NEAR BRADFORD.
PENN.

By James A. Tuelou.

Before beginning to give a list of the birds found in this immediate vicinity it may be well to give a short description of the country. The principal stream is the Tunangwant, a tributary of the Alleghany River, which divides just below the city into the east and west branches. The Erie Railroad (Bradford Branch) follows the east branch of the river for a considerable distance, but, as it is farther away and more thickly settled, my collecting has been done mostly along the western branch and one or two of its tributaries.

The west branch flows for the most part through a heavily wooded country. On the eastern side for several miles are numerous well cleared tracts, which before the oil excitement were farms. On the western, however, there are but few houses after leaving the city limits and these are mostly farm houses. There is a "tram-road" — surveyed years ago for a railroad — which follows the stream for seven or eight miles. The road is not much travelled and along its sides between it and the "creek," as it is called, are numerous small patches of woods, in which I have found a few birds, though not as many as one would expect from the appearance of the land. Flowing into the west branch from the west side are four streams, whose general directions are nearly parallel with each other but which are separated by high hills. The most northerly of these is Bolivar Brook, then Bennett Brook, next Wagoner's Run, and last Marilla Run. I went once into Bolivar Brook but saw nothing

worth mentioning. On the top of a hill between Bolivar Brook and Bennett Brook I have found Red-headed and Yellow-bellied Woodpeckers very abundant.

Bennett Brook flows through a narrow valley bounded by hills of medium height and for the most part heavily wooded. This part of the country, being in oil country language, "off the belt," has not been materially changed by any operations for oil, consequently it has remained in possession of the original owners who are farmers. It was along this stream that I did most of my collecting. Wagoner's Run is a small stream of which I know but little having visited it but a few times. Marilla Run is quite a large stream and near the upper end presents a very favorable location for investigation; but on account of the distance I have only been to the upper end twice, though often to the lower, and there found one of the best locations I have seen.

There is no large body of water here, neither have I found any extensive swamps. In places along the several streams are small tracts of marshy land, but nothing that can be compared with the fresh water marshes which border some of our rivers in Massachusetts.

The land lies at an elevation of from 1440 feet, at the Erie Depot, to 2500 feet, the highest point in McKean Co. The hills around Bradford vary from 200 to 500 feet in height. "The forests consist principally of Hemlock, Spruce, White Pine, Beech, Cucumber, Wild Cherry, Maple, Poplar and Oak trees (White and Scrub). Occasionally Chestnut Birch, Ash, and Willow. The undergrowth is made up mostly of Laurel, Rhododendron, and Hazel." (Report P.—Second Geo. Survey.)

1. *TURDUS MIGRATORIUS*.—About as abundant as at home, though not seen as plentifully in the city proper, on account of the scarcity of trees. I have never seen this species

in winter. On February 8, 1881, one was seen near the office. I saw none again until March 18th. Nests as in Massachusetts though one or two exceptional instances may be mentioned. A pair built their nest on what is termed the "sand line block" to an oil well near the centre of the city. The "sand line block" is suspended near the top of the derrick which is 72 feet high. I have also seen a nest built on the upper side of the "bull wheel" of an oil well, and have been informed by a reliable person that this situation is frequently selected, owing perhaps to the fact that a rough shed is built over the wheels, thus affording the birds ample protection from the weather.

2. *TURDUS MUSTELINUS*.—Probably common though I have seen but comparatively few. April 30, '82 saw the first one. May 27, '82, found a nest containing four fresh eggs, and on June 4, another nest containing three fresh eggs.

3. *TURDUS PALLASI*.—Quite common, more so in spring than fall or perhaps more commonly observed. Seen in spring from April 9 to June 7. No fall quotations.

4. *TURDUS FUSCESCENS*.—Common but less plenty than the preceding (May 21).

5. *SIURUS AURICAPILLUS*.—A very common species, but although I am confident it breeds plentifully have found but few nests. Earliest May 8, '81, latest June 19, '81 and June 19, '82, both with fresh eggs.

6. *HARPORHYNCHUS RUFUS*.—Have seen it but once, May 21.

7. *MIMUS CAROLINENSIS*.—Abundant, breeds along the roads and in the bushes on the side hills. First seen May 19, but it must have been here some time, for on May 22 I found a nest containing four fresh eggs.

8. *SIALIA SIALIS*.—On the hill north of the city this species is very abundant. It is not very common in the

lowlands but wherever there has been a fire, which has left numerous dead stumps standing, the birds appear to congregate. On March 16, 1881 I saw the first bird of the season.

9. *REGULUS CALENDULUS*.—Quite common during the spring. First seen April 24, 1881, April 16 1882.

10. *REGULUS SATRAPUS*.—Rather more common than the preceding. (November 4.)

11. *PARUS ATRICAPILLUS*.—Abundant everywhere.

12. *CEKTHIA FAMILIARIS*.—Quite common during the spring of '82. First seen April 9.

13. *SITTA CAROLINENSIS*.—Common resident. I have yet to meet with *Sitta canadensis*.

14. *TROGLODYTES AEDON*.—Have seen a few on the side hills away from the houses. On May 24, I found a nest with six eggs, incubation commenced. Later I found another nest with young. This species does not seem to be very common as I have found none this season.

15. *MYIOTILTA VARIA*.—Rather regularly though not abundantly distributed. (April 28 and 30th.)

16. *PARULA AMERICANA*.—Last season, although I was in the woods every chance I had, I did not meet with this species. This year about May 5 it was quite common near my house, where a few remained for several days. Seen May 5, 6, and 12.

17. *GEOTHILYPIS TRICIAS*.—Not so common I think as in Massachusetts. I have seen but one or two. First seen May 27.

18. *GEOTHILYPIS PHILADELPHIA*.—On May 30, 1882, I shot a male in a clearing on rather high land near the head of Manilla Creek. I shot a female on July 16 which acted as though she had a nest, I could find none however. This bird was shot on a side hill covered with bushes and small trees.

19. *DENDRÆCA VIRENS*.—Noticed in the spring on both high and low land. Shot one May 26 and another July 24, also September 25, 1881.

20. *DENDRÆCA CERULESCENS*.—Shot a specimen May 6, 1882. Think I have seen another.

21. *DENDRÆCA BLACKBURNIÆ*.—Common this spring, but I am positive that it did not occur, at least in the same locality, last year. First seen May 2, but common until May 11, occurring all over the city. After the 11th they left as suddenly as they came and I have not seen one since.

22. *DENDRÆCA PENNSYLVANICA*.—Abundant (May 11 and 20).

23. *DENDRÆCA LÆSTIVA*.—Common. On May 2 I found a nest with five fresh eggs, also one June 7.

24. *DENDRÆCA MACULOSA*.—Have seen but few, shot one July 17 and another May 30.

25. *DENDRÆCA CORONATA*.—Common in spring. First seen April 24.

26. *MYIODIOCTES CANADENSIS*.—On July 3, 1881, I saw a number of this species in a small grove in low land. On July 4th revisited the same grove but could not find one. I have also seen it several times this spring.

27. *SETOPHAGA RUTICILLA*.—Common, but not as much so as in Massachusetts. Seen about the same time as *Dendræca blackburniæ*, and like it, more common apparently this season than last. A nest found June 7th contained three eggs.

28. *HIRUNDO HORREORUM*.—Apparently not very common (Apr. 24th).

29. *PETROCHILEDOX LUNIFRONS*.—Abundant, but nesting only in certain localities. I noticed some birds of this species apparently building on July 16, 1882.

30. *TACHYGINETA BICOLOR*.—Common. First seen April 25.

31. *PROGNE SUBIS*.—One colony inhabits some martin-boxes in the city.

32. *VIREO OLIVACEUS*.—The only vireo I can indentify. Very common last season.

33. *AMPELIS CEDRORUM*.—Very common. I have never seen them in winter. Have taken fresh eggs July 12, 26, and August 20.

34. *PYRANGA RUBRA*.—Common summer resident. It was unusually plentiful about the middle of May 1882.

35. *CARPODACUS PURPUREUS*.—I have seen but two of this species. The first was found dead on a nest in the spring of 1882 and the second on a tall tree up Marilla Run.

(To be Continued.)

GENERAL NOTES.

ORNITHOLOGICAL NOTES FROM THE MAGDALEN ISLANDS.—The following birds were obtained in the Magdalen Islands by my collector, Mr. A. M. Frazer, during a short stay in that locality. The first two are, I believe, new to the published lists of the ornithological fauna of that section.

Geothlypis philadelphia (*Wils.*) *Baird*. MOURNING WARBLER.—One specimen taken.

Chrysomitris pinus (*Wils.*) *Bonap.* PINE FINCH.—One specimen, a young female, was shot June 26, 1882. It was evidently hatched this season.

Aegiothus linaria *Cab.* RED-POLL LINNET.—Birds in nesting plumage occurred in flocks. A specimen obtained on June 29 were changing into the second plumage.

Curvirostra leucoptera *Wils.* WHITE-WINGED CROSS-BILL.—Birds in the nestling plumage were taken from June 18 to 26. In this connection it may be well to state that when I was in the Magdalen Islands some years ago I found no nestlings, but the males were in full song, evidently about to breed, as late as the middle of July.

Pinicola enucleator (*Linm.*) *Vieill.* PINE GROSBEEK.—Four specimens were obtained by Mr. Frazer on June 29, which were about to breed.

Scolecophagus ferrungineus (*Gm.*) *Swains.* RUSTY BLACKBIRD.—Nestlings of this species were taken nearly fully fledged on June 29.

A nest of the Black-poll Warbler (*Dendroica striata*) containing three fresh eggs was taken June 23. A full set of four eggs of the Pigeon Hawk (*Falco colubarius*) were obtained from a nest built in a low spruce on June 9.—*C. J. Maynard, Boston Mass.*

PAPILIO CRESPHONTES AT BERLIN, CONN.—*Papilio crespontes* has been found in Berlin, Conn., for several years past. The first I caught was in September, 1877, and another was captured by a friend earlier in the same season. I took one in 1878, and in 1881 I also captured a very good specimen. This season I have taken eight, most of them in my door-yard. Five others have been caught in this town, and one at New Britain, a town adjoining. I have also seen several others, one of them ten miles from Berlin. It may be of interest to state that while two of the specimens were taken early in the season, the others were captured the last of August.

It would be interesting to know what is their food-plant here, and also if there be two broods in a season. Some of the specimens taken recently were bright and fresh.—*N. Coleman, Berlin, Conn.*

ANOTHER STRANGELY MARKED LARVA OF ARCTIA ISABELLA.—It may be interesting to notice still another variation in the color of the larva of *Arctia isabella*, in addition to those mentioned by me in the last number of the Journal.

Sometime since I found a caterpillar of this species entirely red. After a few days it moulted and came out black with three red rings and two red tufts on one of the black rings. — *N. Coleman, Berlin, Conn.*

ERRATA.

Page	2.	lines	12 and 19, for hords read hordes.
"	2.	"	24, for subsistance read subsistence.
"	4.	"	11, for <i>polyglotus</i> read <i>polyglottus</i> .
"	5.	"	13, for <i>Helmitherus</i> read <i>Helmiathotherus</i> .
"	8.	"	25, for <i>Cicindelæ</i> read <i>Cicindelidæ</i> .
"	9.	"	29, for took flight read took to flight.
"	9.	"	27, and 29 for <i>ophibolus triangulus</i> read <i>ophibolus doliatus</i> var. <i>triangulus</i> .
"	22.	"	5, for <i>Xanthrocephalus</i> read <i>Xanthocephalus</i> .
"	26.	"	30, for <i>Hidrophilus triangulus</i> read <i>Hydrophilus triangularis</i> .
"	27.	"	13, for Lep read Lec.
"	2.	"	16, for <i>dicericata</i> , Sax read <i>dicaricata</i> . Say.
"	37.	"	28, for <i>wilcoxi</i> read <i>willcoxi</i> .
"	38.	"	6, for <i>notiatus</i> read <i>notatus</i> .

INDEX TO VOLUME I.

A.

- ABNORMAL egg of the Song Sparrow, 26.
- Actodromus bairdi*, 31, 37.
- Adder, Checkered, 9.
- Ægeria cucurbitæ*, 29.
- Ægiothus brewsteri*, 21.
canescens exilipes, 20
linaria, 52.
- Aluco flammeus americanus*, 23.
- Ammodromus maritimus*, 21.
- Ampelis cedrorum*, 52.
- Andrenidæ, 13.
- Annual Meeting, the, 11.
- Another spotted egg of *Empidonax minimus*, 26.
- Anthrenus scrophulariæ*, 3.
- Antrostomus vociferus*, 9.
- Aphodius fimetarius*, 3.
fossor, 3.
- Apis mellifica*, 13.
- Aquila chrysaëtus canadensis*, 24.
- Arctia isabella*, 29, 54.
- Arctomys monax*, 14.
- Arvicola breweri*, 16.
pinetorum, 16.
riparia, 16.

B.

- Badister notatus*, 38.
- Baird's Sandpiper at Marblehead, Mass. 37.
- Bee, Honey, 10, 13.
- Beetle, Tiger, 7.
- Blackbird, Rusty, 53.
- Black form of *Cicindela purpurea* in New Hampshire, the, 10.
- Blissus leucopterus*, 3.
- Bolitotherus bifurcus*, 35.
- Buprestidæ, 27.
- Buteo borealis*, 14.
swainsoni, 23.

C.

- Calamospiza bicolor*, 22.
- Calosoma willcoxi*, 37.
- Campephilus imperialis*, 42.
principalis, 42.

- Canace canadensis*, 30.
- Carabidæ, 7, 24, 37.
- Cardinalis virginianus*, 21.
- Carduelis elegans*, 21.
- Caribou, 9.
- Carphophiops amœnus*, 7.
- Carpocapsa pomonella*, 28.
- Carpodacus purpureus*, 52.
- Cathartes atrata*, 30.
aura, 24.
- Centrophanes ornatus*, 21.
- Centurus carolinus*, 23.
- Certhia familiaris*, 9, 50.
- Chalcophora virginiensis*, 27.
- Chickadee, 25.
- Chinch-bug, 3.
- Chipmunk, 14.
- Chondestes grammica*, 21.
- Chrysomela 10 lineata*, 2.
- Chrysomitris pinus*, 28.
- Cicindela ancociscenensis*, 38.
purpurea, 10.
- Cicindelidæ, 7.
- Codling-moth, 28.
- Collecting Stylopidæ, 12.
- Colorado Potato-Beetle, 2.
- Colubridæ, 6.
- Corvus corax carnivorus*, 22.
ossifragus, 22.
- Crithagra butyracea*, 21.
- Crossbill, White-winged 53.
- Curvirostra leucoptera*, 53.

D.

- Dendræca æstiva* 51.
auduboni, 5.
blackburniæ 51.
cærulescens, 51.
coronata, 51.
dominica 5.
maculosa, 51.
palmarum hypochrysea, 35.
palmarum palmarum, 35.
pennsylvanica 51.
pinus, 25.
striata, 53.
virens, 51.
- Dendræca pinus* in winter, 25.

- Dicerca asperata*, 27.
 divaricata, 27.
 lurida, 27.
 punctulata, 27.
Dytiscidae, 24.
Dytiscus confluens, 24.
- E.
- Elanoides forficatus*, 23.
Empidonax minimus, 26.
Erethizon dorsatus, 17.
Eucrada humeralis, 27.
Euspiza americana, 26.
Eutænia sirtalis, 6, 26.
Eutænia sirtalis swallowing its young,
 26.
Evotomys gapperi, 15.
- F.
- Falco columbarius*, 53.
 Few remarks on *Cicindelidae*, a, 7.
Fiber zibethicus, 17.
 Finch, Pine, 52.
Florida cærulea, 30.
 Fox, Red, 9.
 Frogs, 10.
Fulmarus glacialis, 34.
- G.
- General habits of the New England
 Dytiscidae, 24.
 General Notes, 9, 25, 37, 52.
Geothlypis philadelphica, 50.
 trichas, 50.
 Grosbeak, Pine, 53.
Guiraca ludoviciana, 22.
 Gull, Swallow-tailed, 37.
- H.
- Habits and transformations of *Bolito-*
 therus bifurcus, 35.
 Habits of three species of New England
 Colubridæ, 6.
 Hares, 18.
Harporhynchus rufus, 46.
 Hawk, Pigeon, 53.
 Red-tailed, 14.
 Hawk-moth, 19.
Helminthophaga celata, 5.
 leucobronchialis, 5.
 pinus, 35.
Helminthotherus vermivorus, 5.
Hesperocichla nævia, 4.
Hesperomys leucopus, 15.
Hierofalco gyrfalco obsoletus, 23.
Himantopus mexicanus, 32.
Hirundo horreorum, 51.
- History of the Society, the, 1.
Hydrophilus triangularis at Swamp-
 scott, Mass., 26,
Hydroporus convexus, 24.
Hylotomus pileatus, 45.
- I.
- Ionornis martinica*, 32.
- J.
- Jaculus hudsonius*, 15.
Junco oregonus, 21
 Jumping Mouse, 15.
- L.
- Lagopus albus*, 30.
Lanius ludovicianus, 20.
 Late date for *Parula americana*, 9.
Leporidae, 18.
Lepus americanus, 18.
 sylvaticus, 18.
 Linnet, Red-poll, 52.
- M.
- Machetes pugnax*, 31.
Megalestris skua, 34.
Melospiza meloda, 26.
Microrhamphus griseus, 31.
 griseus scolopaceus, 31.
 Migrations of insects, the, 2.
Mimus carolinensis, 49.
 polyglottus, 4.
Mniotilta varia, 50.
 Moth, Canker-worm, 28.
 Mouse, Field, 16.
 House, 15
 Jumping, 15.
 Pine, 16.
 Red-backed, 15.
 White-footed, 15.
- Muridae*, 15.
Mus decumanus, 15.
 musculus, 15.
 rattus, 15.
- Muskrat*, 17.
Myiodiocytes canadensis, 51.
 mitratus, 5.
- N.
- Nettion crecca*, 33.
 New England *Philampeli*, 18.
 Note on the Whip-poor-will, a, 9.
 Notes on certain *Coleoptera*, 27.
 Notes on collecting certain *Buprestidæ*.
 Notes on the changes in the larvae of
 Orgyia leucostigma, 39.

Notes on the habits and distribution of the Massachusetts Rodentia, 13.
Notes on the larvae of certain Heterocerous Lepidoptera, 28.
Nyctale tengmalmi richardsoni, 23.
Nyctherodius violaceus, 30.

O.

On the distribution of the Ivory-billed Woodpecker (*Campyphilus principalis*), 42.
Ophilolus doliatus var. *triangulus*, 9.
Oporornis agilis, 5.
Orgyia antiqua, 42.
 leucostigma, 39.
Ornithological notes from the Magdalen Islands, 52.

P.

Papilio cresphontes at Berlin, Conn. 53.
Parula americana, 9, 50.
Parus atricapillus, 25, 50.
 hudsonius, 4.
Pelecanus erythrorhincus, 33.
 fuscus, 33.
Pelidna subarquata, 31.
Perisoreus canadensis, 22.
Perissoglossa tigrina, 5.
Petrochelidon lunifrons, 51.
Philampelus achemon, 19.
 pandorus, 18.
 satellitica, 18.
Picoides tridactylus americanus, 22.
Pinicola enucleator, 53.
Plant destructive to Bees, a, 10.
Plegadis falcinellus, 30.
Ploptila cærulea, 4.
Polistes metrica, 12.
Porcupines, American, 17.
 White-haired, 17.
Porzana jamaicensis, 32.
Progne subis, 52.
Puffinus borealis, 34.
Purpuricenus humeralis var. *axillaris*, 27.
 humeralis var. *humeralis*, 28.
Pyrranga æstiva, 20.
 ludoviciana, 20.
 rubra, 52.

Q.

Quiscalus major, 22.

R.

Rabbit, Gray, 18.
 White, 18.

Rallus elegans, 32.
 longirostris crepitans, 32.
Rarer birds of Massachusetts, the, 4.
 20, 30.
Rat, Black, 15.
 Norway, 15.
Rectivirostra americana, 31.
Red Fox at Randolph, Mass., the, 9.
Red Squirrel swimming, 25.
Regulus calendulus, 50.
 satrapus, 50.
Rhynchops nigra, 33.

S.

Sandpiper, Baird's, 37.
Sciuridae, 13.
Sciuropterus volucella, 13.
Sciurus carolinensis, 13.
 cinereus, 14.
 hudsonius, 14, 25.
Selenophorus ellipticus at Nantucket, 51.
Serinus meridionalis, 21.
Setophaga ruticilla, 51.
Sialia sialis, 49.
Sitta canadensis, 50.
 carolinensis, 50.
Siurus auricapillus, 49.
 motacilla, 5.
Snake, Garter, 6.
 Little brown, 6.
 Red, 7.
 Striped, 6, 25.
Spalacopodidae, 17.
Sparrow, Song, 26.
Speotyto cunicularia hypogea, 23.
Sphyrapicus varius nuchalis, 23.
 23.
Squirrel, Flying, 13.
 Fox, 14.
 Gray, 13.
 Red, 14.
 Striped, 14.
Sterna anglica, 34.
 cautiaca acutiflvida, 34.
 fuliginosa, 34.
 regia, 34.
Storeria dekayi, 6.
Stylopidae, 12.
Stylops, 13.
Sula leucogastra, 33.

T.

Tachina, 19.
Tachycineta bicolor, 51.
Tamias striatus, 14.
Thaumatias linnæi, 22.
Third specimen of the Swallow-tailed Gull (*Nema furcatum*), 37.

- Tiger Beetle, 7.
 Thryothorus ludovicianus, 4.
 Troglodytes ædon, 50.
 Turdus fuscens, 49.
 migratorius, 48.
 mustelinus, 49.
 pallasi, 49.
 Two rare Carabidæ from Eastern Massachusetts, 37.
 Tyrannus dominicensis, 22.

 V.
 Vireo olivaceus, 53.
 Vireosylva philadelphica, 20.
 Vulpes vulgaris, 9.

 W.
 Warbler, Blue Yellow-back, 9.
 Mourning.

 Warbler, Pine, 25.
 Wasp, Paper, 12.
 Where Frogs go in winter, 10.
 Whip-poor-will, 9.
 Woodchuck, 14.
 Woodpecker, Imperial, 42.
 Ivory-billed, 42.
 Pileated, 45.

 X.
 Xanthocephalus icterocephalus, 22.
 Xema furcatum, 37.
 sabinei, 34, 37.
 Xenos, 12.

 Z.
 Zapodidæ, 15.

END OF VOLUME I.

BOSTON SHOOTING SUITS,

MADE ONLY

BY G. W. SIMMONS & SON,
OAK HALL, BOSTON, MASS.

WATER-PROOF DUCK.

SUITS, \$11.—Coat, \$5.00; Pants, \$3.00; Vest, \$2.00; Cap or Hat, \$1.00.

CORDUROY. Black or Brown.

SUITS, \$22.—Coat, \$12.00; Pants, \$5.00; Vest, \$3.00; Cap, \$2.00.

MOLE SKIN.

SUITS, \$25.—Coat, \$14.00; Pants, \$6.00; Vest, \$3.00; Cap, \$2.00.

TAN LEATHER.

SUITS, \$60.—Coat, \$22.00; Breeches, \$15.00; Vest, \$12.00; Cap, \$5.00;
Leggings, \$6.00.

G. W. SIMMONS & SON,
Oak Hall, Boston, Mass.

HELIOTYPE.

PERMANENT PHOTOGRAPHIC BOOK ILLUSTRATIONS.

The Heliotype Printing Company

ARE PRODUCERS OF ILLUSTRATIONS BY THE

Most approved Photo-Mechanical, Photo-Lithographic and Photo-Engraving Processes.

Employed by the United States Government in illustrating Scientific and Medical reports;
by Scientific, Historical, and other learned Societies; by the leading Pub-
lishers, and for illustrating Town and Family Histories,
Trade Catalogues, Show Cards, &c.

Facsimiles of Medals and Coins, Ancient Manuscripts, Paintings, Drawings,
Sketches, and Autograph Circulars, Views and Portraits from Nature,
Medical and Scientific Objects, Antiquities, etc.

*Special attention paid to the reproduction of Architects', Engineers', and
Surveyors' Drawings.*

Estimates and Specimens furnished on application.

THE HELIOTYPE PRINTING COMPANY,
211 Tremont Street, Boston.

NEAR BOYLSTON STREET.

C. J. MAYNARD & CO.

PUBLISHERS AND DEALERS IN

BIRDS' SKINS AND EGGS,

And Naturalists' Supplies,

(Established in 1864)

304 WASHINGTON STREET, BOSTON, MASS.

We would especially call attention to our large Stock of Birds' Eggs and Naturalists' Supplies. Send for Catalogue, addressing as above.

NATURAL HISTORY STORE.

168 TREMONT STREET, BOSTON, MASS.

W. J. KNOWLTON.

A specialty made of supplies for Naturalists and Taxidermists.

A Case of Instruments for Taxidermists, put up in best manner and with superior quality of Tools, for - - - - - \$12.

Ordinary dissecting case, - - - - - \$ 4

Also mounted Birds, Birds' Skins, Eggs, Minerals, and Shells, and Natural History specimens.

W. B. CLARK & CARRUTH,

BOOKSELLERS,

NO. 340 WASHINGTON STREET,

BOSTON.

SECOND-HAND BOOKS PURCHASED.

Subscriptions to Leading Periodicals received at Club Rates.



3 2044 103 126 223

