

FIRST BIENNIAL REPORT  
OF THE  
PROGRESS  
OF THE  
GEOLOGICAL SURVEY  
OF MICHIGAN,  
EMBRACING OBSERVATIONS ON THE  
GEOLOGY, ZOÖLOGY, AND BOTANY  
OF THE  
LOWER PENINSULA

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MADE TO THE GOVERNOR, DECEMBER 31, 1860.

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BY AUTHORITY.

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REPORT OF THE STATE GEOLOGIST.

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**PART II.**  
**ZOÖLOGY.**

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**CHAPTER VIII.**  
**REPORT OF THE STATE ZOOLOGIST.**

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LANSING, Mich., Dec. 20th, 1860.

TO PROF. A. WINCHELL, *State Geologist*:

SIR—I have the honor to transmit the following report of progress made in the Zoological department of the Natural History Survey of the State, during the past two years.

Owing to the limited appropriation made by the Legislature for the purpose of recommencing the Geological Survey of the State, and the desirableness of prosecuting the explorations in the Geological department with as effective a force as possible, I have been unable, as you are well aware, to devote but a part of my time to investigations in the department assigned me in the organization of the Geological corps.

The Zoological collections already made comprise such specimens as could be readily obtained without the sacrifice of much time, or detracting materially from the efficient progress of the Geological reconnoissance.

Very much remains to be done before an approximation to a complete knowledge of our fauna can be obtained.

From the nature of the subjects of investigation in this department, it is difficult, in a limited space, to give a

satisfactory account of the exact progress of the work, or even to embody the results accomplished when so much remains unfinished.

The subjoined catalogue of the species known to inhabit our State, will, perhaps, best present an outline of the labor already performed, and at the same time furnish desirable information in regard to the geographical range of species.

In addition to the list here presented there are large numbers of specimens that remain to be identified and described, which will materially increase the number of known species in the State.

The fishes, insects, and crustaceans have not been worked up and for that reason have been omitted from the catalogue.

It may not be out of place in this connection to make a brief statement of the aims to be kept in view, and the results which may be expected to follow from the earnest prosecution of the study of the Zoology of our State.

From the intimate and important relations existing between man and the various branches of the Animal kingdom, he is particularly interested in becoming acquainted with the forms, structure, metamorphoses, habits, and dispositions of the animate beings which surround him. He would thus be better fitted to act intelligently in availing himself of the benefits to be derived from those species that are capable of improvement by domestication, and at the same time be enabled to successfully maintain that influence and control over the economy of inferior organizations which his superior physical and mental developement, as well as interests, require of him. Dependent upon the animal kingdom, as he is to a great extent, for many of the comforts and luxuries of life, it would seem that the importance of a thorough investigation of the laws which govern this magnificent creation of living beings, and their relations to man's well-being and interests cannot be too highly estimated.

In the present advanced state of the abstract sciences, every branch of inquiry or investigation, no matter how trivial or unimportant it may in itself appear, tends directly to develop results that are of practical application in the varied pursuits of life.

Many illustrations of this fact might be adduced, and will undoubtedly present themselves to the minds of those who are familiar with the history of the useful arts. I will, however, cite but a single instance:

When it became known that sealing-wax, amber, and other resinous bodies, on being rubbed would attract pith-balls and other light substances, the discovery was looked upon as unimportant and trifling, and no one thought the knowledge capable of being made available for any practical purpose; yet from this small beginning the science of electricity has been developed, which, in its practical applications in the arts, no one in the present age would venture to set a limit. From the application of the principles of this science we are indebted for the

increased facilities in the art of printing, by the process of electrotyping, improvements in the art of gilding, as well as for that wonder of the age, the magnetic telegraph, that brings by its network of wires the most remote places into almost instantaneous communication,

The so-called trifling experiments of philosophers, considered by many as beneath, the attention of intelligent beings, have brought forth fruit abundantly, the influence of which on the world's progress can hardly be estimated.

Thus, in every department of knowledge, practical results are constantly presenting themselves as the inevitable consequence of progress in the purely abstract investigations of science.

An accurate scientific knowledge of the appearance, food, development, and mode of existence, of the various animal forms we are brought in contact with in our every day pursuits, as well as their varied relations to the vegetable and inorganic kingdoms of nature, is indispensable if we would derive practical benefit from the different classes of the animal kingdom and render them subservient to our prosperity and happiness.

Such knowledge to the agriculturalist would indeed be found of incalculable advantage; it would enable him to protect, as far as possible, the many species that confer direct benefits by furnishing various useful products, and to encourage the development of those that assist in protecting his crops, by preying on noxious forms, and thus preventing their inordinate increase, and at the same time he would be better prepared to adopt suitable measures for destroying and keeping in check those that by their depredations on his forest trees and grasses become most formidable enemies and the pests of civilization.

The army of weevils, Hessian flies, midges, chinch bugs, and cut worms attacking his wheat and other cereals, the numerous species of borers, curculios, locusts, and moths so destructive to his fruit and forest trees, all point to his interest in becoming better acquainted with the economy of nature, and studying more closely the varied phenomena presented by organic beings.

The intimate relations of Zoology to the other departments of science, might be cited as an incentive to a more general dissemination and increase of the knowledge of organic beings.

Geology derives important aid in its investigations from the application of the principles of Zoology; indeed, the rapid progress of the science of Geology at the present time is owing to the accurate investigations of the relations existing between the organic forms at present inhabiting our globe, and those fossil remains that are the index of the faunas and floras of past ages.

It is in fact in consequence of the aid furnished by the kindred sciences of Botany and Zoology that modern Geology has attained her proudest achievements.

In the State of New York alone hundreds of thousand of dollars have been expended in explorations for coal, when an examination of a few shells that abound in her rocks, would have shown that the entire geological formations of the State were below the coal bearing series of rocks, and that explorations for that mineral would consequently be fruitless.

In an educational point of view, a systematic knowledge of the animals inhabiting our State, their habits and relations to man and the surrounding world, would furnish a fund of materials for reflection and study, which, as a means of mental culture and development, is capable of attaining a high rank among the studies considered essential in our institutions of learning, to a successful training of the intellectual powers.

At the present time, when a knowledge of the principles of Natural History is considered indispensable to a finished education, the want of Museums in our State where the materials for the prosecution of this most interesting branch of study may be accessible to every one, is severely felt.

To supply this want, complete collections of the plants and animals of our State should be made so as fully to illustrate their systematic relations and affinities of structure, due prominence being given in their arrangement to the exhibition in a suitable manner of those species that are of benefit to the agriculturalist, as well as those that from their habits are continually warring against his interests by committing ravages that it is an object to keep within due bounds.

Aside from all this, the study of nature has a still higher significance than can be measured by any merely practical or pecuniary advantages accruing from its prosecution.

As the material expressions of the ideas of the Creator, the Supreme Intelligence of the Universe, the world of organic beings which he has created for man's contemplation and improvement, is certainly worthy the careful consideration of the highest faculties of the human mind.

In conclusion, I would make this public acknowledgment of my indebtedness to a number of scientific gentlemen for their disinterested assistance and encouragement, and to the public generally for the many acts of kindness shown to myself and party, during the progress of the survey.

M. MILES,  
*State Zoologist.*

**A CATALOGUE  
OF THE  
MAMMALS, BIRDS, REPTILES AND  
MOLLUSKS,  
OF MICHIGAN,  
BY M. MILES, M. D., STATE ZOÖLOGIST.**

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CLASS MAMMALIA.

UNGUICULATA.

ORDER CHEIROPTERA.

FAMILY VESPERTILIONIDAE.

1. *Vespertilio Noveboracensis*, *Linn*—New York Bat.
2. " *fuscus*, *P. de B.*
3. " *subulatus*, *Say*.—Brown Bat.
4. " *phaiops*, *Temm.*
5. " *Caroli*, "

ORDER RAPACIA.

SUB ORDER INSECTIVORA.

FAMILY SORICIDAE.

*Su Family Soricinæ.*

6. *Blarina talpoides*, *Gray*.—Shrew.
- FAMILY TALPIDAE.
7. *Scalops aquaticus*, *Fisch.*—Common Mole.
  8. " *argentatus*, *Aud. & Bach.*—Silvery Mole.
  - \*9. *Condylura cristata*, *Illiger*—Star-Nosed Mole.

SUB-ORDER CARNIVORA.

FAMILY FELIDAE.

10. *Lynx rufus*, *Raf*—Wild Cat.
  11. " *Canadeneis*, *Raf.*—Lynx.
- FAMILY CANIDAE.
- Sub Family Lupinae.*
12. *Canis occidentalis*, var. *griseo-albus*, *Bd.*—Wolf.
  13. " *latrans*, *Say*.—Prairie Wolf.
- Sub Family Vulpinae.*

14. *Vulpes fulvus*, *Rich*—Red Fox.
15. " *Virginianus*, *DeKay*.—Gray Fox.

FAMILY MUSTELIDAE.

*Sub-Family Martinae.*

- \*16. *Mustela Penantii*, *Erxl*—Fisher.
- \*17. " *Americana*, *Turton*.—Pine Marten.
18. *Putorius cicognanii*, *Bd.*—Brown Weasel.

19. " *Noveboracensis*, *DeKay*.—White Weasel.
  20. " *vison*, *Rich.*—Mink.
  - \*21. *Gulo luscus*, *Sabine*.—Wolverine.
- Sub-Family Lutrinæ.*

22. *Lutra Canadensis*, *Sab.*—Otter.
- Sub Family Melinae.*

23. *Mephitis mephitica*, *Bd.*—Skunk.
  24. *Taxidea Americana*, *Bd.*—Badger.
- FAMILY URSIDAE.

25. *Procyon lotor*, *Storr.*—Raccoon.
26. *Ursus Americanus*, *Pallas.*—Black Bear.

ORDER MARSUPIATA.

FAMILY DIDELPHIDAE.

- \*27. *Didelphys Virginiana*, *Shaw.*—Opossum.

ORDER RODENTIA.

FAMILY SCIURIDAE.

*Sub-Family Sciurinae.*

28. *Sciurus Ludovicianus*, *Custis.*—Fox Squirrel.
  29. " *Carolinensis*, *Gm.*—Gray and Black Squirrels.
  30. *Sciurus Hudsonius*, *Pallas.*—Red Squirrel.
  31. *Pteromys volucella*, *Des*—Flying Squirrel.
  32. *Tamias striatus*, *Baird.*—Chipmunk.
  - \*33. *Spermophilus tridecem-lineatus*, *Aud. & Bach.*—*Striped Prairie Squirrel.*
  34. *Arctomys monax*, *Gm.*—Woodchuck.
- Sub-Family Castorinae.*

- \*35. *Castor Canadensis*, *Kuhl.*—Beaver.

FAMILY MURIDAE.

*Sub-Family Dipodinae.*

36. *Jaculus Hudsonius*, *Bd.*—Jumping Mouse.
- Sub-Family Murinae.*

37. *Mus musculus*, *Linn.*—Common Mouse.
38. *Hesperomys leucopus*, *Wag.*—Deer Mouse.
39. " *Michiganensis*, *Wagner.*—Prairie Mouse.

*Sub-Family Arvicolinae.*

40. *Arvicola riparia*, *Ord.*—Meadow Mouse.
41. *Fiber zibethicus*, *Cuv.*—Muskrat.

FAMILY HYSTRICIDAE.

42. *Erethizon dorsatus*, *F. Cuv.*—Porcupine.

\*9. *C. cristata*. The star nosed mole appears to be a very rare species within the limits of this State. I have seen but a single specimen.

\*10 and \*17. *N. Pennantii*, and *M. Americana*. The Fisher and Pine Martin undoubtedly have a place in our fauna, but I have not had an opportunity of examining specimens other than hunter's skins as found in market.

\*21. *G. luscus*. The Wolverine is seldom found in the Lower Peninsula, having been nearly exterminated.

\*27. *D. Virginiana*. A single specimen of the Opossum was killed in Genesee county last season. The species is, however, frequently seen in the southern part of the State.

\*33. *S. tridecem-lineatus*. The striped Prairie Squirrel is very common in the southern counties, but has not been known in the central parts of the State until within a few years past. It is gradually extending its range northward, where the timber has been removed and the land brought under cultivation.

\*35. *C. Canadensis*. At no very remote period the Beaver was found throughout the State as, is shown by the numerous remains of their dams in localities that are now deserted by them. At present their range is confined to the northern part of the Lower Peninsula, where they are found in abundance on the head waters of nearly every stream running into Lake Huron. At Alpena several hundred skins are annually brought in from Thunder Bay river and its tributaries.

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## ORDER RUMINANTIA.

### FAMILY CERVIDAE.

\*45. *Alce Americanus*, *Jardine*.—Moose.

\*46. *Rangifer caribou*, *Aud. & Bach*.—Caribou.

\*47. *Cervus Canadensis*, *Erxl*.—Elk.

48. " *Virginianus*, *Bodd*.—Deer.

### FAMILY LEPORIDAE.

43. *Lepus Americanus*, *Erxl*.—Northern Hare.

44. " *sylvaticus*, *Bach*.—Gray Rabbit.

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## CLASS AVES.

### ORDER RAPTORES.

#### FAMILY VULTURIDAE.

1. *Cathartes aura*, *Illiger*.—Turkey Buzzard.

#### FAMILY FALCONIDAE.

##### *Sub-Family Falconinae.*

2. *Falco anatum*, *Bon*.—Duck Hawk.

3. " *columbarius*, *Linn*.—Pigeon Hawk.

4. " *sparverius*, *Linn*.—Sparrow Hawk.

##### *Sub-Family Accipitrinae.*

5. *Accipiter Cooperii*, *Bon*.—Cooper's Hawk.

6. " *fuscus*, *Gmel*.—Sharp-shinned Hawk.

##### *Sub-Family Buteoninae.*

7. *Buteo borealis*, *Gmel*.—Red-tailed Hawk.

8. " *lineatus*, *Gmel*.—Red-shouldered Hawk.

\*45. *A. Americanus*. The Moose is seldom seen within the limits of the State. Hunters inform me that it is still occasionally taken, but it is rapidly disappearing from its former haunts.

\*46. *R. Caribou*. The Caribou extends its southern range to the Upper Peninsula, where is occasionally taken by hunters.

\*47. *C. Canadensis*. The Elk is found in abundance in the counties of Huron and Sanilac about the head waters of the Cass River. The unrelenting pursuit of hunters by means of the rifle and trap pens will soon exterminate it, unless means are taken to prevent an indiscriminate slaughter at all seasons of the year.

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### 9. *Buteo Pennsylvanicus*, *Wilson*.

\*10. " *Swainsoni*, *Bonap*.—Swainson's Buzzard.

11. *Archibuteo lagopus*, *Geml*.—Rough-legged Hawk.

12. " *Sancti-Johannis*, *Gmel*.—Black Hawk.

#### *Sub-Family Milvinae.*

13. *Circus Hudsonius*, *Linn*.—Marsh Hawk.

#### *Sub Family Aquilinae.*

14. *Haliaeetus Washingtonii*, *Aud*.—Washington Eagle.

15. " *leucocephalus*, *Linn*.—Bald Eagle.

16. *Pandion Carolinensis*, *Gmel*.—Fish Hawk.

#### FAMILY STRIGIDAE.

##### *Sub-Family Buboninae.*

17. *Bubo Virginianus*, *Gmel*.—Great Horned Owl.

18. *Scops asio*, *Linn*.—Mottled Owl.

19. *Otus Wilsonianus*, *Lesson*.—Long-eared Owl.

20. *Brachyotus Cassinii*, *Brewer*.—Short-eared Owl.

##### *Sub-Family Syrninae.*

21. *Syrnium nebulosum*, *Feder*.—Barred Owl.

22. *Nyctale Acadica*.—Screech Owl.

##### *Sub-Family Nycteininae.*

23. *Nyctea nivea*, *Daudin*.—Snowy Owl.

24. *Surnia ulula*, *Linn*.—Hawk Owl.

#### ORDER SCANSORES.

#### FAMILY CUCULIDAE.

25. *Coccygus Americanus*, *Bonap*.—Yellow-billed Cuckoo.

26. " *erythrophthalmus*, *Bonap*.—Black-billed "

#### FAMILY PICIDAE.

##### *Sub-Family Picinae.*

27. *Picus villosus*, *Linn*.—Hairy Wood-pecker.

28. " *pubescens*, *Linn*.—Downy Wood-pecker.

29. *Sphyrapicus varius*, *Bd*.—Yellow-bellied Wood-pecker.

30. *Hylatomus pileatus*, *Bd*.—Log Cock.

31. *Centurus Carolinus*, *Bon.*—Red-bellied Wood-pecker.

32. *Melanerpes erythrocephalus*, *Sw.*—Redheaded Wood-pecker.

33. *Colaptes auratus*, *Sw.*—Flicker.

ORDER INSESSORES.

SUB-ORDER STRISORES.

FAMILY TROCHILIDAE.

34. *Trochilus colubris*, *Linn.*—Humming Bird,

FAMILY CYPSELIDAE.

35. *Chaetura pelasgia*, *Steph.*—Chimney Swallow.

FAMILY CAPRIMULGIDAE.

*Sub-Family Caprimulginae.*

36. *Antrostomus vociferus*, *Bon.*—Whippoorwill.

36. *Chordeiles popetue*, *Bd.*—Night Hawk.

SUB ORDER CLAMATORES.

FAMILY ALCEDINIDAE.

38. *Ceryle alcyon*, *Boie.*—Kingfisher.

FAMILY COLOPTERIDAE.

*Sub-Family Tyranninae.*

39. *Tyrannus Carolinensis*, *Bd.*—King Bird.

40. *Myiarchus crinitus*, *Cab.*—Great crested Flycatcher.

41. *Sayornis fuscus*, *Bd.*—Pewee Fly-catcher.

\*41. " *Sayus*, *Baird*—Says Fly-catcher.'

42. *Contopus borealis*, *Bd.*—Olive-sided Fly catcher.

43. " *virens*, *Cab.*—Wood Pewee.

44. *Empidonax Traillii*, *Bd.*—Traill's Fly-catcher.

45. " *academicus*, *Bd.*—Little Pewee.

\*45. " *flaviventris*, *Bd.*—Yellow-bellied Fly-catcher.

SUB-ORDER OSCINES.

FAMILY TURDIDAE.

*Sub-Family Turdinae.*

46. *Turdus mustelinus*, *Gmel.*—Wood Thrush.

\*46. *Turdus Pallasii*, *Cab.*—Hermit Thrush.

47. " *migratorius*, *Linn.*—Robin.

48. *Sialia sialis*, *Bd.*—Blue Bird.

*Sub-Family Begulinae.*

49. *Regulus calendula*, *Licht.*—Ruby-crowned Wren.

50. " *satrapa*, *Licht.*—Golden-crested "

FAMILY SYLVICOLIDAE.

*Sub-Family Motacillinae.*

51. *Anthus Ludovicianus*, *Licht.*—Tit Lark.

*Sub-Family Sylvicolinae.*

52. *Mniotilta varia*, *Vieill.*—Black and White Creeper.

53. *Parula Americana*, *Bon.*—Blue Yellow-backed Warbler.

54. *Geothlypis trichas*, *Cab.*—Maryland Yellow-throat.

55. *Helminthophaga chrysoptera*, *Cab.*—Golden-winged Warbler.

56. *Helminthophaga ruficapilla*, *Bd.*—Nashville Warbler.

57. *Seiurus aurocapillus*, *Sw.*—Golden crowned Thrush.

58. " *Noveboracensis*, *Nuttall.*—Water Thrush.

59. " *Ludovicianus*, *Bon.*

60. *Dendroica virens*, *Bd.*—Black-throated Green Warbler.

61. " *Canadensis*, *Bd.*—Black-throated Blue "

62. " *coronata*, *Gray.*—Yellow-rumped "

63. " *Blackburniae*, *Bd.*—Blackburnian "

64. " *castanea*, *Bd.*—Bay-breasted "

65. " *pinus*, *Bd.*—Pine-creeping, "

66. " *Pennsylvanica*, *Bd.*—Chestnut-sided "

67. " *aestiva*, *Bd.*—Summer Yellow Bird.

68. " *maculosa*, *Bd.*—Black and Yellow Warbler.

69. " *tigrina*, *Bd.*—Cape May Warbler.

70. " *discolor*, *Bd.*—Prairie "

71. *Myiodiodes mitratus*, *Aud.*—Hooded Warbler.

72. " *pusillus*, *Bonap.*—Green Black cap Fly-catcher.

73. " *Canadensis*, *Aud.*—Canada Ply-catcher.

74. *Setophaga ruticilla*, *Sw.*—Red Start.

*Sub-Family Tanagrinae.*

\*75. *Pyrrhula rubra*, *Vieill.*—Scarlet Tanager.

FAMILY HIRUNDINIDAE.

*Sub Family Hirundininae.*

76. *Hirundo Horreorum*, *Barton.*—Barn Swallow.

77. " *lunifrons*, *Say.*—Cliff Swallow.

78. " *bicolor*, *Vieill.*—White-bellied Swallow.

79. *Cotyle riparia*, *Boie.*—Bank Swallow.

80. " *serripennis*, *Bonap.*—Rough-winged Swallow.

81. *Progne purpurea*, *Boie.*—Purple Martin.

FAMILY BOMBYCILLIDAE.

82. *Ampelis garrulus*, *Linn.*—Bohemian Wax-wing.

83. " *cedrorum*, *Bd.*—Cedar Bird.

FAMILY LANIIDAE.

*Sub-Family Laniinae.*

84. *Collyrio borealis*, *Bd.*—Butcher Bird.

85. " *excubitoroides*, *Bd.*—White-rumped Shrike.

*Sub Family Vireoninae.*

86. *Vireo olivaceus*, *Vieill.*—Red-eyed Vireo.

87. " *Noveboracensis*, *Bonap.*—White-eyed Vireo.

88. " *flavifrons*, *Vieill.*—Yellow-throated Vireo.

FAMILY LIOTRICHIDAE.

*Sub-Family Miminae*

89. *Mimus Carolinensis*, *Gray.*—Cat Bird.

90. *Harporhynchus rufus*, *Cab.*—Brown Thrush.

*Sub-Family Troglodytinae.*

90.\* *Thriothonus Ludovicianus*, *Bonap.*—Great Carolina Wren.

91. *Cistothorus palustris*, *Cab.*—Long-billed Marsh Wren.

92. *Troglodytes aedon*, *Vieill.*—House Wren.

93. " *hyemalis*, *Vieill.*—Winter Wren.

93.\* " *Americanus*, *Aud.*—Wood Wren.

FAMILY CERTHIADAE.

94. *Certhia Americana*, *Bonap.*—American Creeper.

95. *Sitta Carolinensis*, *Gmel.*—White-bellied Nuthatch.

96. " *Canadensis*, *Linn.*—Red-bellied Nuthatch.

FAMILY PARIDAE.

*Sub-Family Polioptilinae.*

97. *Polioptila caerulea*, *Scl.*—Blue-Gray Flycatcher.

*Sub-Family Parinae.*

98. *Parus atricapillus*, *Linn.*—Black cap Titmouse.

\*98<sup>a</sup>. " *Carolinensis*, *Aud.*—Carolina "

FAMILY ALAUDIDAE.

99. *Eremophila cornuta*, *Boie.*—Shore Lark.

FAMILY FRINGILLIDAE.

*Sub-Family Coccothraustinae.*

\*69<sup>a</sup>. *Carpodacus purpureus*, *Gray.*—Purple Finch.

100. *Chrysomitris tristis*, *Bon.*—Yellow Bird.

\*100<sup>a</sup> " *pinus*, *Bon.*—Pine Finch

101. *Curvirostra Americana*, *Wilson.*—Red Cross bill.

102. " *leucoptera*, *Wilson.*—White-winged Crossbill.

103. *Aegiothus linaria*, *Cab.*—Lesser Red Poll.

104. " *canescens*, *Cab.*—Mealy Red Poll.

105. *Pietrophanes nivalis*, *Meyer.*—Snow Bunting.

*Sub-Family Spizellinae.*

106. *Passerculus Savanna*, *Bonap.*—Savannah Sparrow.

107. *Pooecætes gramineus*, *Bd.*—Grass Finch.

108. *Chondestes grammaca*, *Bonap.*—Lark Finch.

109. *Zonotrichia leucophrys*, *Sw.*—White-crowned Sparrow.

110. " *albicollis*, *Bonop.*—White-throated "

\*110.<sup>a</sup> *Junco Oregonus*, *Scl.*—Oregon Snow Bird.

111. " *hyemalis*, *Sclater.*—Snow Bird.

112. *Spizella monticola*, *Bd.*—Tree Sparrow.

113. " *pusilla*, *Bonap.*—Field "

114. *Spizella socialis*, *Bonap.*—Chipping Sparrow.

115. *Melospiza melodia*, *Bd.*—Song "

116. " *palustris*, *Bd.*—Swamp "

*Sub Family Spizinae.*

117. *Euspiza Americana*, *Bonap.*—Black-throated Bunting.

118. *Guiraca Ludoviciana*, *Sw.*—Rose-breasted Grosbeak.

\*118.<sup>a</sup> " *melanocephala*, *Sw.*—Black-headed "

119. *Cyanospiza cyanea*, *Bd.*—Indigo Bird.

120. *Pipilo erythrophthalmus*, *Vieill.*—Chewink.

FAMILY ICTERIDAE.

*Sub-Family Agelainae.*

121. *Dolichonyx oryzivorus*, *Sw.*—Boblink.

122. *Molothrus pecoris*, *Sw.*—Cow Blackbird.

123. *Agelaius phœniceus*, *Vieill.*—Red-winged Blackbird.

124. *Sturnella magna*, *Sw.*—Meadow Lark.

*Sub-Family Icterinae.*

125. *Icterus spurius*, *Bonap.*—Orchard Oriole.

126. " *Baltimore*, *Daud.*—Baltimore Oriole.

*Sub-Family Quiscalinae.*

127. *Scolecophagus ferrugineus*, *Sw.*—Rusty Grackle.

128. *Quiscalus versicolor*, *Vieill.*—Crow Blackbird.

FAMILY CORVIDAE.

*Sub Family Corvinae.*

129. *Corvus carnivorus*, *Bart.*—Raven.  
130. " *Americanus*, *Aud.*—Crow.

*Sub-Family Garrulinae.*

131. *Cyanura cristatus*, *Sw.*—Blue Jay.  
132. *Perisoreus Canadensis*, *Bonap.*—Canada Jay.

ORDER RASORES.

SUB-ORDER COLUMBAE.

FAMILY COLUMBIDAE.

*Sub-Family Columbinae.*

133. *Ectopistes migratoria*, *Sw.*—Wild Pigeon.  
*Sub-Family Zenaidinae.*  
134. *Zenaidura Carolinensis*, *Bonap.*—Mourning Dove.

SUB-ORDER GALLINAE.

FAMILY PHASIANIDAE.

*Sub-Family Meleagrinae.*

135. *Meleagris gallopavo*, *Linn.*—Wild Turkey.

FAMILY TETRAONIDAE.

136. *Tetrao Canadensis*, *Linn.*—Canada Grouse.  
137. *Cupidonia cupido*, *Bd.*—Prairie Chicken.  
138. *Bonasa umbellus*, *Steph.*—Ruffed Grouse,  
Partridge.

FAMILY PERDICIDAE.

139. *Ortyx Virginianus*, *Bonap.*—Quail.

ORDER GRALLATORES.

SUB-ORDER HERODIONES.

FAMILY GRUIDAE.

- \*139.<sup>a</sup> *Grus Canadensis*, *Temm.*—Sand-hill Crane.

FAMILY ARDEIDAE.

140. *Ardea Herodias*, *Linn.*—Blue Heron.  
144. *Ardetta exilis*, *Gray.*—Least Bittern.  
142. *Botaurus lentiginosus*, *Steph.*—Bittern.  
143. *Butorides virescens*, *Bonap.*—Green Heron.  
144. *Nyctiardea gardeni*, *Bd.*—Night Heron.

SUB-ORDER GRALLAE

FAMILY CHARADRIDAE.

145. *Charadrius Virginicus*, *Borck.*—Golden Plover.  
146. *Aegialitis vociferus*, *Cassin.*—Kill-deer.  
147. " *semipalmatus*, *Bon.*—King Plover.

148. *Squatarola Helvetica*, *Cuv.*—Black-bellied Plover.

FAMILY HAEMATOPODIDAE.

149. *Streptilas interpres*, *Ill.*—Turnstone.

FAMILY SCOLOPACIDAE.

150. *Philohela minor*, *Gray.*—Woodcock.  
151. *Gallinago Wilsonii*, *Bonap.*—Wilson's Snipe.  
152. *Macrorbambus griseus*, *Leach.*—Red-breasted Snipe.  
153. *Tringa canutus*, *Linn.*—Robin Snipe.  
154. " *maculata*, *Vieill.*—Jack Snipe.  
155. " *Wilsonii*, *Nuttall.*—Least Sandpiper.  
\*155.<sup>a</sup> " *Bonapartii*, *Sch.*  
156. *Ereunetes petrificatus*, *Ill.*—Semipalmated Sandpiper.

- \*156.<sup>a</sup> *Micropalama bimantopus*, *Bd.*—Stilt " "

*Sub-Family Totaninae.*

157. *Gambetta melanoleuca*, *Bon.*—Tell Tale.  
158. " *flavipes*, *Bon.*—Yellow Legs.  
159. *Rhyacophilus solilarius*, *Bonap.*—Solitary Sandpiper.  
160. *Tringoides macularius*, *Gray.*—Spotted " "  
161. *Actiturus Bartramius*, *Bonap.*—Field Plover.  
162. *Limosa fedoa*, *Ord.*—Marbled Godwit.

*Sub-Family Rallinae.*

163. *Rallus Virginianus*, *Linn.*—Virginia Rail  
164. *Porzana Carolina*, *Vieill.*—Sora Rail.  
165. " *Noveboracensis*, *Bd.*—Yellow Rail.  
166. *Fulica Americana*. *Gm.*—Coot.  
\*167. *Gallinula galeata*, *Ronap.*—Florida Gallinule.

ORDER NATATORES.

SUB-ORDER ANSERES.

FAMILY ANATIDAE.

*Sub-Family Cygninae.*

168. *Cygnus Americanus*, *Sharpless.*—Swan.  
*Sub Family Anserinae.*  
169. *Anser hyperboreus*, *Pallas*—Snow Goose.  
170. *Bernicla Canadensis*, *Boie* —Canada " "

*Sub-Family Anatinae.*

171. *Anas boschas*, *Linn.*—Mallard.  
172. " *obscura*, *Gm.*—Dusky Duck.  
173. *Dafila acuta*, *Jenyns.*—Pintail Duck.

174. *Nettion Carolinensis*, *Bd*—Green-winged Teal.  
 175. *Querquedula discors*, *Steph.*—Blue-winged “  
 176. *Spatula clypeata*, *Boie.*—Spoonbill.  
 177. *Chaulelasmus streperus*, *Gray*—Gadwall; Gray Duck.  
 178. *Mareca Americana*, *Steph.*—Baldpate; Widgeon.  
 179. *Aix sponsa*, *Boie.*—Wood Duck.

*Sub Family Fuligulinae.*

180. *Fulix marila*, *Bd.*—Scaup Duck  
 181. “ *collaris*, *Bd.*—Ring-necked Duck.  
 182. *Aythya Americana*, *Bon.*—Red head.  
 183. “ *vallisneria*, *Bon.*—Canvas-back.  
 184. *Bucephala Americana*, *Bd.*—Golden Eye; Whistle Wing.

185. “ *albeola*, *Bd*—Butter Ball.  
 186. *Harelda glacialis*, *Leach.*—Old Wife.  
 187. *Oidemia bimaculata*, *Bd.*—Huron Scoter.

*Sub Family Erismaturinae.*

188. *Erismatura rubida*, *Bonap* —Ruddy Duck.  
*Sub-Family Merginae.*  
 189. *Mergus Americanus*, *Cassin.*—Sheldrake.  
 190. “ *serrator*, *Linn.*—Red-breasted Merganser.  
 191. *Lophodytes cucullatus*, *Reich.*—Hooded “

SUB-ORDER GAVIAE.

FAMILY LARIDAE.

Sub-Family Larinae.

192. *Larus glaucus*, *Brunn.*—Glaucous Gull.  
 193. “ *argentatus*, *Brunn.*—Herring “

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\*10. *B. Swainsoni*. I am indebted to my friend Dr. Daniel Clark, of Flint, for an opportunity of examining a specimen of this rare buzzard, which was shot in Genesee county last summer, and is now preserved in the museum of the Flint Scientific Institute.

\*41.<sup>a</sup> *Sayornis Sayus*, *Bd.* On the authority of Rev. Charles Fox, who shot a specimen at Owosso, Shiawassee county, July, 1853. The species in the catalogue marked ‘a’ were obtained at Gross Isle, Wayne Co., by Prof. Fox, and are given on his authority.

\*167. *G. galeata*. This gallinule is frequently seen in the southern parts of the State. I have seen several specimens as far north as Saginaw Bay, and am informed by Mr. John Sharp, at the Saginaw Light-house, that it breeds in the marshes at the mouth of Saginaw River.

194. *Larus Delawarensis*, *Ord.*—Ring-billed Gull.  
 195. *Chroicocephalus atricilla*, *Linn.*—Laughing Gull.  
 196. “ *Philadelphia*, *Lawrence.*—Bonaparte's Gull.

*Sub-Family Sterninae.*

197. *Sterna Wilsoni*, *Bonop.*—Wilson's Tern.  
 \*197<sup>a</sup>. “ *frenata*, *Gambel*—Least “  
 \*198. *Hydrochelidon plumbea*, *Lawrence*—Black Tern.

FAMILY COLYMBIDAE.

*Sub-Family Colymbinae.*

199. *Colymbus torquatus*, *Brunn.*—Loon.  
*Sub Family Podicipinae.*  
 200. *Podiceps griseigena*, *Gray.*—Red-necked Grebe.  
 201. “ *cristatus*, *Lath.*—Crested “  
 202. “ *cornutus*, *Lath.*—Horned “  
 203. *Podilymbus podiceps*, *Lawrence.*—Pied-bill “

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CLASS REPTILIA.

ORDER TESTUDINATA.

SUB-ORDER AMYDAE.

FAMILY TRIONYCHIDAE.

- \*1. *Amyda mutica*, *Filz*,  
 \*2. *Aspidonectes spinifer*, *Ag* —Soft-shelled Turtle.

FAMILY CHELYDROIDAE.

3. *Chelydra serpentina*, *Schw.*—Snapping Turtle.

FAMILY CINOSTERNOIDAE.

- \*4. *Ozotheca odorata*, *Ag.*  
 5. *Thyrosternum Pennsylvanicum*, *Ag.*—Musk Turtle,

FAMILY EMYDOIDAE.

6. *Graptemys geographica*, *Ag.*

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\*198. *H. plumbea*. I shot several specimens of this beautiful tern last June, on the shore of Saginaw Bay. From then umber of individuals in that vicinity I supposed it to be breeding there.

7. *Graptemys LeSueurii*, *Ag.*

- \*8. *Chrysemys marginata*, *Ag.*

9. *Emys Meleagris*, *Ag.*

- \*10. *Nanemys guttata*, *Ag.*

ORDER OPHIDIA.

FAMILY CROTALIDAE.

11. *Crotalophorus tergeminus*, *Holb.*—Massasauga.

FAMILY COLUBRIDAE.

- \*12. *Eutaenia saurita*, *B. & G.*—Striped Snake.

13. “ *sirtalis*, *B. & G.*—Garter Snake.

14. *Nerodia sipedon*, *B. & G.*—Water Snake.

15. " Agassizii, *B. & G.*
16. *Regina leberis*, *B. & G.*—Striped Water Snake.
- \*17. *Heterodon platyrhinos*, *Latr.*—Blowing Viper.
- \*18. *Scotophis vulpinus*, *B. & G.*
19. *Ophibolus eximius*, *B. & G.*—Milk Snake.
20. *Bascanion constrictor*, *B. & G.*—Black Snake.
21. " *Foxii*, *B. & G.*
22. *Chlorosoma vernalis*, *B. & G.*—Green Snake.
23. *Diadophis punctatus*, *B. & G.*—Ring-necked Snake.
24. *Storeria Dekayi*, *B. & G.*
25. " *occipito maculata*, *B. & G.*

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\*1. *A. mutica*. This species seems to be comparatively rare. I have seen but a few specimens which would indicate that its range is confined to the southern parts of the State.

\*2. *A. spinifer*. The common soft shell turtle is found throughout the southern half of the Lower Peninsula. It is frequently met with as far north as Genesee county, and in the streams of the eastern, as well to the western slope of the State.

\*4. *O. odorata*. The carapace of a small turtle obtained in Oakland county I have referred to this species, but as the specimen is imperfect I may be incorrect in including the species in our fauna.

\*8. *C. marginata*. This is the most abundant species of the Testudinata in our State. It was formerly confounded with *C. picta*, but was separated by Prof. Agassiz in his contributions to the Natural History of the United States. I am not aware that the latter species is found in Michigan.

\*10. *N. guttata*. Four specimens of this beautiful species have been collected within the two years. One in Genesee county, one from Saginaw Bay, and the others from Oakland county. On comparison with a specimen from Massachusetts, they appear to be identical, the only difference noticed being the darker color of the plastron in the Michigan specimens.

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## CLASS BATRACHIA.

### ORDER ANURA.

#### FAMILY BUFONIDAE.

26. *Bufo Americanus*, *LeConte*.

#### FAMILY HYLADAE.

27. *Acris crepitans*, *Bd.*
28. *Hyla versicolor*, *LeConte*.
29. " *Pickeringii*, *Holl.*
- \*30. *Helocætes triseriatus*, *Bd.*

#### FAMILY RANIDAE.

31. *Rana Catesbiana*, *Shaw.*—Bull Frog.
32. " *fontinalis*, *LeConte.*—Spring Frog.
33. " *pipiens*, *Gmel.*—Shad Frog.
34. " *palustris*, *LeConte.*—Pickerel Frog.
35. " *sylvatica*, *LeConte.*—Wood Frog.

## ORDER URODELA.

### ATRETODERA.

#### FAMILY AMBYSTOMIDAE.

36. *Ambystoma punctatum*, *Bd.*
37. " *luridum*, *Bd.*
- \*38. " *laterale*, *Hall*

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\*12. *E. saurita*. This well-marked species is comparatively rare. I have seen but three or four specimens that have been collected within the limits of the State.

\*17. *H. platyrhinos*. I have not seen this species, but give it a place in our fauna on the authority of Prof. A. Sager, the able Zoologist of the former Geological corps, to whom I am indebted for many acts of kindness and encouragement.

\*18. *S. vulpinus*. The only specimens of this species collected are from the vicinity of Saginaw Bay, where it is found in abundance. Although perfectly harmless it has the unfounded reputation, in that locality, of being venomous and is therefore much dreaded.

\*30. *H. triseriatus*. I am not acquainted with this species, but give it a place in the catalogue on the authority of Prof. Baird.

\*38. *A. laterale*. An immature specimen from Saginaw Bay, I have referred to this species.

\*41. *P. erythronota*. This is a common and widely distributed species, being found throughout the State as far north as Lake Superior.

\*43. I have several undetermined specimens of *Necturus*, some of which will probably prove to be *N. maculatus*.

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#### FAMILY TRITONIDAE.

39. *Diemyctylus miniatus*, *Raf.*
40. " *viridescens*, *Raf.*

#### FAMILY PLETHODONTIDAE.

- \*41. *Plethodon erythronota*, *Bd.*
42. " *cinereus*, *Tsch.*

#### *Tremadotera.*

- \*43. *Necturus lateralis*, *Bd.*
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## CLASS GASTEROPODA.

### MOLLUSCA.

#### FAMILY HELICIDAE.

1. *Helix albolabris*, *Say.*
- \*2. " *alternata*, *Say.*
3. " *arborea*, *Say.*
4. " *chersina*, *Say.*
5. " *concava*, *Say.*
6. " *clausa*, *Say.*
7. " *exoleta*, *Binney.*
8. " *electrina*, *Gould.*
9. " *elevata*, *Say.*

10. " fallax, Say.
11. " fraterna, Say.
12. " fuliginosa, Griffith.
13. " hirsuta, Say.
- \*14. " hydrophyla, Ing.
15. " inflecta, Say.
17. " identata, Say.
18. " inornata, Say.
19. " ligera, Say.
20. " labyrinthica, Say.
21. " limatula, Ward.
22. " lineata, Say.
23. *Helix minuscula*, Binney.
24. " monodon, Rack.
25. " multilineata, Say.
26. " palliata, Say.
27. " perspectiva, Say.
28. " profunda, Say.
- \*29. " pulchella, Miller.
30. " Sayii, Binney.
31. " solitaria, Say.
32. " striatella, Anth.
33. " thyroides, Say.
34. " tridentata, Say.
35. *Balimus marginatus*, Say.
36. *Achatina lubrica*, Mull.
37. *Succinea campestris*, Say.
38. " avara, Say.
39. " ovalis, Say.
40. " vermetus, Say.
41. " obliqua, Say.
42. *Pupa pentodon*, Say.
43. " armifera, Say.
44. " contracta, Say.
45. *Vertigo Gouldii*, Binn.
46. " ovata, Say.
47. " simplex, Gld.

FAMILY AURICULIDAE.

48. *Carychium exiguum*, Say.

FAMILY LIMNEIDAE.

49. *Planorbis armifera*, Say.
50. " bicarinatus, Say.
51. " campanulatus, Say.
- \*52. " deflectus, Say.
53. " exacutus, Say.
54. " lentus, Say.
55. " parvus, Say.
56. *Planorbis trivolvis*, Say.
- \*57. " truncatus, Nobis.
58. *Physa heterostropha*, Say.
59. " elongata, Say.
60. " Hildiethiana, Lea.
61. " vinosa, Old.
62. *Limnea appressa*, Say.
63. " columella, Say.
64. " caperata, Say.
65. " desidiosa, Say.
66. " elodes, Say.
67. " gracilis, Say.
68. " jugularis, Say.
69. " modicellus, Say.
70. " reflexa, Hald.
71. " ombilicata, Adams.
72. " umbrosa, Say.
73. " pallida, Adams.
74. *Ancylus fuscus*, Adams.
75. " paralellus, Hald.
76. " tardus, Say.

FAMILY MELANIADAE.

77. *Melania Virginica*, Say.
78. " depygis, Say.
79. " Niagarensis, Lea.
80. " neglecta, Anth.
81. " livescens, Menka.
82. " pulchella, Anth.

FAMILY PALUDINIDAE.

83. *Valvata sincera*, Say.
84. " tricarinata, Say.
- \*85. " humeralis, Say.

86. *Paludina decisa*, Say.  
 87. " *integra*, Say.  
 88. " *isogona*, Say.  
 \*89. *Paludina obesa*, Lewes.  
 90. " *ponderosa*, Say.  
 91. " *rufa*, Hald.  
 92. *Amnicola grana*, Gould.  
 93. " *lapidaria*, Say.  
 94. " *pallida*, Hald.

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CLASS ACEPHALA.

SIPHONIDA.

FAMILY CYCLADIDAE.

95. *Sphrorium occidentale*, Prime.  
 96. " *partumeia*, Say.  
 97. " *solidulum*, Prime.

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\*2. *H. alternate*. This seems to be the most widely distributed mollusk in the State, being found everywhere as far north as Lake Superior.

\*14. *H. hydrophyla*. I am indebted for this species to Mr. O. A. Currier, of Grand Rapids, who has made extensive collections in the Grand River Valley, and has a valuable cabinet of native shells to which he has given me free access, thus materially facilitating my labors in this department.

\*29. *H. pulchella*. Mr. Albert D. White, who has rendered me valuable assistance in collecting Zoological specimens, has furnished a suite of the *Helicidae* from Ann Arbor, containing this species. It is found there in abundance.

\*52. *P. deflectus*. This species is added to the catalogue on the authority of Mr. Currier.

\*57. *P. truncatus, nobis*. Shell sub-orbicular, color light chestnut; the right side deeply umbilicated, the concavity bordered by an obtuse carina; the volutions seen from this side are scarcely more than two; left side truncated, presenting a flat surface extending across all the whorls, the suture being marked by a minute raised line, which likewise extends around the edge of the truncation; the space between the volutions of this raised line, as well as the entire body of the shell, is beautifully marked with delicate longitudinal lines, which are crossed by the minute, raised, transverse lines of growth; the longitudinal lines are scarcely distinguishable without the aid of a microscope; whorls on left side four or five; aperture ovate, widest on the right side, which extends beyond the general plane of that side of the shell; the lip on the left side is straight for a short distance from the body whorl, and in a line with the truncated plane, at the outer edge of which it forms an angle, marked on the inner surface by a slight groove, corresponding to the raised line separating the whorls on the outside; lip thin, slightly thickened by a bluish-white callus, bordered on the inner edge by a purplish band; the longitudinal lines, as well as the transverse lines of growth, are distinctly seen within the aperture. Measurements, .6— .25. Hab. Saginaw Bay. In a few specimens the growth of the whorls has not been in the same plane, leaving a slightly projecting turreted spire on the left side.

\*85. *V. humeralis*. Grand River. Mr. Currier's cabinet.

\*88. *P. obesa*. Grand River Valley. Cabinet of Mr. Currier.

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98. *Sphærium striatinum*, Lam.  
 99. " *sulcatum*, Lam.

100. *Pisidium abditum*, Hold.  
 101. " *compressum*, Prime.  
 102. " *ventricosum*, Prime.  
 103. " *Virginicum*, Bgt.

ASIPHONIDA.

FAMILY UNIONIDAE.

104. *Unio alatus*, Say.  
 105. " *asperrimus*, Lea.  
 106. " *bullatus*, Raf.  
 107. " *coccineus*, Hild.  
 108. " *complanatus*, Lea.  
 109. " *coelatus*, Con.  
 \*110. " *cariosus*, Say.  
 111. " *circulus*, Lea.  
 112. " *ellipsis*, Lea.  
 113. " *elegans*, Lea.  
 114. " *gibbosus*, Bar.  
 115. " *gracilis*, Bar.  
 \*116. " *glans*, Lea.  
 117. " *Hildrethianus*, Lea.  
 118. " *iris*, Lea.  
 119. " *lapillus*, Say.  
 120. " *lævissimus*, Lea.  
 \*121. " *luteolus*, Lam.  
 122. " *ligamentinus*, Lam.  
 123. " *multiradiatus*, Lea.  
 124. " *Novi-Eboraci*, Lea.  
 125. " *nasutus*, Say.  
 126. " *occidens*, Lea.  
 127. " *plicatus*, Say.  
 128. " *perplexus*, Lea.  
 129. " *penitus*, Con.  
 130. " *pressus*, Lea.  
 131. *Unio phaseolus*, Hild.  
 132. " *rectus*, Lam.  
 133. " *rubiginosus*, Lea.  
 \*134. " *leprosus*, Nobis.  
 135. " *subrotundus*, Lea.  
 136. " *Schoolcraftensis*, Lea.  
 137. " *spatulata*, Lea.

138. " subovatus, *Lea*.  
 139. " tennissimus, *Lea*.  
 140. " trigonus, *Lea*.  
 141. " triangularis, *Bar*.  
 142. " undulatus, *Bar*.  
 143. " verrucosus, *Bar*.  
 144. " ventricosus, *Bar*.  
 145. *Alasmodon rugosa*, *Bar*.  
 146. " marginata, *Say*.  
 147. " deltoides, *Lea*.  
 \*148. *Anodonta Benedictii*, *Lea*.  
 149. " cataracta, *Say*.  
 150. " edentula, *Lea*.

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\*110. *U. cariosus*. I give this species on the authority of Prof. Sager.

\*116. *U. glans*. This shell was found in the Clinton River, at Pontiac, Oakland county, try Mr. John A. McNeil, an enthusiastic and indefatigable collector of shells, residing at Grand Rapids.

\*121. *U. luteolus*. This bivalve presents a great variety in form and appearance, and is found in every part of the State. Among the collections are several well marked varieties that may prove to be distinct species on further examination.

\*134. *U. leprosus*, nobis. Shell, thick, oblong, transverse, very inequilateral, compressed towards the basal margin; posterior extremity rounded, nearer the basal than the dorsal margin; anterior extremity sub-truncate; beaks slightly elevated; anterior lunole distinct, extending between the beaks; umbonal slope rounded, prominent; basal and hinge margins nearly parallel; epidermis reddish brown, somewhat roughened by the lines of growth; cardinal teeth massive, prominent; lateral teeth long, elevated, slightly curved; nacre white iridescent, with dark blotches towards the beaks, roughened by numerous pearly tubercles; anterior cicatrices large, deep; posterior cicatrices large, confluent, slightly impressed; dorsal cicatrices deeply impressed, situated in the shallow cavity of the beaks. Diam. 1.56. Length, 2.65. Breadth, 6, Hab. Huron River Livingston county.

\*148. There are undoubtedly several additional species of the genus *Anodonta*, in the collections already made, which have not been determined, some of which may prove to be undescribed. I am indebted to Mr. Currier's cabinet for several species in the catalogue of this genus.

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151. *Anodonta fluviatilis*, *Lea*.  
 152. " *Ferrussaciana*, *Lea*.  
 153. " *Footiana*, *Lea*.  
 154. " *imbecilis*, *Say*.  
 155. " *modesta*, *Lea*.  
 156. " *ovata*, *Lea*.  
 157. " *plana*, *Lea*.  
 158. " *pallida*, *Anth*.  
 159. " *Pepiniana*, *Lea*.  
 160. " *Shafferiana*, *Lea*.  
 161. " *subcylindracea*, *Lea*.