

Now, why is it that in three such forms as *Podiceps*, *Colymbus*, and *Hesperornis*, all undoubtedly powerful divers, in the first we should have retained a patella fully as large as the extensive rotular process; that in the second it has been reduced to a mere flake of bone and an immense rotular process retained; and finally, in their ancient ancestor we again find an enormously developed patella with a very considerable process on the tibia?

Such questions will probably only be arrived at, if they are ever answered at all, by the most searching investigations into the anatomy, and more particularly the physiology, in such instances as these, of living birds. Palæontology in such matters simply offers us the nuts to crack, as of course every vestige of the muscular system has disappeared in our fossil birds.

OBSERVATIONS UPON A COLLECTION OF INSECTS MADE IN THE VICINITY OF NEW ORLEANS, LOUISIANA, DURING THE YEARS 1882 AND 1883.

By DR. R. W. SHUFELDT, U. S. A.

While stationed in New Orleans during the autumn of 1882 and spring and the greater part of the summer of the ensuing year, all the time that could possibly be spared from other duties I devoted to making a collection of the vertebrates and invertebrates of the region. This collection when brought all together consisted of some 2,500 to 3,000 specimens; circumstances existed, however, that prevented me from bestowing the attention upon it that it deserved, or systematically disposing of the material so hurriedly brought together.

The major part of the insects that were taken were sent unassorted in alcohol to the Agricultural Department of Washington. They numbered some five or six hundred, and were collected during the times specified over a limited tract of country lying south of, and just beyond, the city limits.

Through the kindness of Prof. C. V. Riley, I am enabled to present a tolerably complete list of these insects. All of the diagnoses were made under the direction of this gentleman, and I am further under great obligations to him for the interest he has taken in the matter, and other assistance so cheerfully given in connection with the collection.

The first installment was forwarded on the 27th of November, 1882, the specimens in it having been captured between the middle of the preceding month and that time.

On the 5th of December I received from Professor Riley the following determinations of this part of the collection:

I. COLEOPTERA.

Laxandrus rectangulus Lec. 1 specimen.

Diplochila laticollis Lec. 1 specimen.

- Insecta carolina* Lec. 2 specimens
Parnassia parca Lec. 1 specimen.
Passalus cornutus Fabr. 6 specimens.
Dicera obscura Fabr. 1 specimen.
Psychoda nitida Say 1 specimen
Opatria n. nov. Say 1 specimen

II. HYMENOPTERA.

- Polybia* sp. ? 1 specimen.
Polistes sp. ? 1 specimen.
Monobus quadricornis Linn. 1 specimen.
Ichneumon insolens Cress. 1 specimen.

III. LEPIDOPTERA.

- Heliothis armigera* Linn. 1 specimen.
Lichate collaris Guen. 2 specimens.

IV. HEMIPTERA.

- Procon punctulatus* Beatty. 1 specimen.
Largus suecicus Linn. 1 specimen.
Proconus crinitus Linn. 1 specimen.
Stenopoda cubiformis Stal. 1 specimen.
Zucius fumiger Say (n. sp.) 1 specimen.

V. ORTHOPTERA.

- Temnoba rufata* ? 1 specimen.
Gryllus sp. parva 2 specimens.
Gryllus sp. parva 2 specimens.
Gryllotalpa sp. 2 specimens.
Crotosephalus crenatus. 1 specimen.
Chrysothrix 6 specimens No. 2.
Amblyant parva 2 specimens.
Stenobothrus maculipennis 1 specimen.
Pezomachus marginatus Serv. 2 specimens.
Pezomachus punctipennis Fabr. 2 specimens.
Trigosephalus socius Say 10 specimens.
Amblyant obscurus Serv. 2 specimens.
Tetriga sp. 2 specimens.
Tetrigia acicula 2 specimens.
Amblyantoides subquadrata Serv. 2 specimens.
Tetrigianis (?). 2 specimens.
Tetrigia sp. 2 specimens.

VI. ARACHNIDÆ.

<i>Tetragnatha marginata</i> Keys.	<i>Pholeus atlanticus</i> .
<i>Epeira Hentzii</i> Keys.	<i>Tegenaria medicinalis</i> .
<i>Epeira septima</i> .	<i>Filistata capitata</i> .
<i>Nephila plumipes</i> .	<i>Dolomedes sexpunctatus</i> .
<i>Miranda bombycinaria</i> .	<i>Lycosa scutulata</i> .
<i>Zilla hortorum</i> .	<i>Lycosa venustula</i> .
<i>Theridium vulgare</i> .	<i>Tarantula riparia</i> .

From November, 1882, to the latter part of February, 1883, the following additional forms were added to the above list. Several other spiders were also taken, but at the present writing these have not yet been determined.

I. LEPIDOPTERA.

<i>Saturnia io</i> Tab. 3 larvæ.
<i>Aeronyeta ablinita</i> Sur. & Abb. 1 larva.
<i>Epantheria scribonia</i> Stoll. 1 larva.

II. COLEOPTERA.

<i>Passalus cornutus</i> Fabr. 3 specimens.
<i>Harpalus pennsylvanicus</i> De G. 1 specimen.
<i>Chalepus trachypygus</i> Barm. 2 specimens.
<i>Tropisternus nimbatus</i> Say. 2 specimens.
<i>Chilocorus birulnerus</i> Muls. 1 specimen.

III. ORTHOPTERA.

<i>Nemobius vittatus?</i> sp. 1 specimen.
<i>Gryllus</i> sp. 1 specimen (larva).
<i>Blatta</i> (?) sp. 1 specimen (larva).

Unfortunately, during the most important part of the year, the spring of 1883, other matters engaged my attention, which made an unnecessary and unsatisfactory drain upon my time. During the greater part of the month of May I was obliged to be absent in New York City, and lost in consequence all those observations so interesting and important to the zoologist and entomologist at this season. From June to August of this summer, however, my collecting was resumed, and the following insects were added to my previous collections. This list completes all that I was enabled to do in this direction up to the present writing. Several forms and odd lots still remain in the hands of the Museum, which have not as yet been fully determined. If any new species remain to be described among these, such descriptions will now have to be postponed until some future time. Should the remaining material upon examination develop facts of sufficient interest, they will be embodied in a short report to supplement the above lists, and the following diagnoses, which were made up to August 7, 1883.

COLEOPTERA.

Orig. No.		Orig. No.	
81.	<i>Tetracha carolina.</i>	—	<i>Aspidoglossa subangulata.</i>
89.	<i>Tetracha virginica.</i>	—	<i>Anisodactylus harpaloides.</i>
110.	<i>Tetracha virginica.</i>	—	<i>Saprinus assimilis.</i>
77.	<i>Tetracha carolina.</i>	—	<i>Sphenophorus placidus.</i>
59.	<i>Plectrodera scalator.</i>		March 1–20, 1883:
60.	<i>Plectrodera scalator.</i>	—	<i>Copris carolina.</i>
90.	<i>Plectrodera scalator.</i>	—	<i>Dicaelus splendidus.</i>
49.	<i>Plectrodera scalator.</i>	—	<i>Chlænienus erythropus.</i>
72.	<i>Dynastes tityus.</i>	—	<i>Chlænienus rufipes.</i>
104.	<i>Dynastes tityus.</i>	—	<i>Pterostichus acutangulus.</i>
78.	<i>Alaus oculatus.</i>	—	<i>Amara impuncticollis.</i>
105.	<i>Alaus oculatus.</i>	—	<i>Chauliognathus marginatus.</i>
106.	<i>Alaus oculatus.</i>	—	<i>Nyctobates pennsylvanica.</i>
14.	<i>Strategus julianus.</i>		June 20, 1883:
91.	<i>Strategus julianus.</i>	—	<i>Cycloneda sanguinea.</i>
79.	<i>Malldon dasystemus.</i>	—	<i>Aphodius stercorosus.</i>
76.	<i>Phanæus carmifex.</i>	—	<i>Chauliognathus marginatus.</i>
38.	<i>Euphoria melancholica.</i>	—	<i>Onthophagus pennsylvanicus.</i>
61.	<i>Euphoria melancholica.</i>	—	<i>Ischyryus quadripunctatus.</i>
137.	<i>Euphoria melancholica.</i>	—	<i>Stenolophus ochropezus.</i>
82.	<i>Scarites subterraneus.</i>	—	<i>Disonycha pennsylvanica.</i>
138.	<i>Scarites subterraneus.</i>	—	<i>Heterocerus collaris.</i>
32.	<i>Monocrepidius lividus.</i>	—	<i>Hylesinus aculeatus.</i>
27.	<i>Harpalus pennsylvanicus.</i>		July 18, 1883:
107.	<i>Ptychodes vittatus.</i>	—	<i>Onthophagus hecate.</i>
133.	<i>Acanthoderes quadrigibbus.</i>	—	<i>Platynus punctiformis.</i>
100.	<i>Cybister olivieri.</i>	—	<i>Brachinus</i> sp.
138.	<i>Epicanta lemniscata.</i>	—	<i>Neoclytus erythrocephalus.</i>
138.	<i>Cyclocephala immaculata.</i>	—	<i>Eupsalis minuta.</i>
109.	<i>Ligyryus rugiceps.</i>	—	<i>Philhydrus ochraceus.</i>
—	<i>Chalepush trachypygus.</i>	—	<i>Callida punctata.</i>
134.	<i>Onthophagus hecate.</i>	—	<i>Buprestis rufipes.</i>
40.	<i>Anisotarsus maculicornis.</i>	—	<i>Lebia analis.</i>
141.	<i>Goes pulchar.</i>	—	<i>Orthostethus infuscatus.</i>
97.	<i>Strategus julianus.</i>	—	<i>Rhyssomatus lineaticollis.</i>
92.	<i>Malldon dasystemus.</i>	—	<i>Æme rigida.</i>
138.	<i>Cyclocephala immaculata.</i>		February and March, 1883:
155.	<i>Tropistenuas nimbatus.</i>		July and August, 1883:
—	<i>Chlænienus nemorætis.</i>	—	<i>Phileurus truncatus.</i>
—	<i>Poecilus chalcites.</i>	—	<i>Calosoma scrutator.</i>
—	<i>Platynus decorus.</i>	—	<i>Creophilus villosus.</i>

Orig. No.		Orig. No.	
—	<i>Allorhina nitida.</i>	—	<i>Loxandrus rectus.</i>
—	<i>Photuris pennsylvanica</i> (date lost).	—	<i>Platynus mæreus</i> (?).
—	<i>Diabrotica duodecimpunctata.</i>	—	<i>Pinophilus latipes.</i>
		—	<i>Cryptobium latebricola.</i>

LEPIDOPTERA.

54.	<i>Danais archippus.</i>	51.	<i>Philampelus vitis.</i>
52.	<i>Actias luna.</i>	139.	<i>Chrerocampa tersa.</i>
55.	<i>Hyperchiria io.</i>	140.	<i>Eudamus proteus.</i>
53.	<i>Samia cecropiu.</i>	47.	<i>Psychomorpha epimerus.</i>

HYMENOPTERA.

85.	<i>Xyocopa virginica.</i>	44.	<i>Camponotus pennsylvanicus.</i>
93.	<i>Pelopæus cementarius.</i>	46.	<i>Camponotus melleus.</i>
35.	<i>Pelopæus cementarius.</i>	—	<i>Scolia nobilitata.</i>
136.	<i>Pelopæus cementarius.</i>	—	<i>Pompilus americanus.</i>
135.	<i>Pompilus ferrugineus.</i>	—	<i>Polistes americanus.</i>
64.	<i>Pompilus ferrugineus.</i>	—	<i>Polistes</i> sp.
88.	<i>Polistes bellicosus.</i>	—	<i>Labena grallator.</i>
112.	<i>Sphex tibialis</i> ?	—	<i>Mutilla castor.</i>
115.	<i>Polistes</i> sp.	—	<i>Bombus pennsylvanicus.</i>
113.	<i>Monobia quadridens.</i>	—	<i>Xylocopa virginica.</i>
129.	<i>Melissodes</i> sp.	—	<i>Mutilla occidentalis.</i>
116.	<i>Pelopæus caruleus.</i>	—	<i>Sphex ichneumonea.</i>
111.	<i>Polistes annularis.</i>	—	<i>Pompilus ferrugineus.</i>
128.	<i>Apis mellifica.</i>	—	<i>Polistes metricus.</i>
114.	<i>Scolia nobilitata.</i>	—	<i>Polistes bellicosa.</i>
125.	<i>Cerceris bicornuta.</i>	—	<i>Stizus grandis.</i>

ORTHOPTERA.

67.	<i>Gryllotalpa borealis.</i>	83.	<i>Tettigidea lateralis.</i>
99.	<i>Gryllotalpa borealis.</i>	20.	<i>Acridium americanum.</i>
29.	<i>Xiphidium</i> sp.	95.	<i>Acridium americanum.</i>
19.	<i>Amblycorypha oblongifolia.</i>	65.	<i>Periplaneta americana.</i>
96.	<i>Conocephalus ensiger</i> ?	138.	<i>Periplaneta americana</i> (larva).
138.	<i>Conocephalus ensiger</i> (larva).	—	<i>Orchclinum glaberrimum.</i>
123.	<i>Tragocephala viridifasciata.</i>		
—	<i>Calopterus bivittatus</i> (1 pupa).		July, 1883 :
—	<i>Calopterus femur-rubrum.</i>	—	<i>Æcanthus latipennis.</i>
131.	<i>Mesops chlorizans.</i>	24.	<i>Paroxya floridana.</i>
123.	<i>Stenobothrus maculipennis</i> sp.	—	<i>Platyphyllum concavum.</i>
24.	<i>Calopterus floridanus</i> Thos. sp.	—	<i>Romalea microptera.</i>

DIPTERA.

Orig. No.	Orig. No.
31. <i>Tabanus atratus</i> .	132. <i>Stratiomys</i> sp.
37. <i>Tabanus abdominalis</i> .	— <i>Erax striola</i> Lw.
— <i>Tabanus ruficornis</i> .	— <i>Anthrax</i> sp.
130. <i>Tabanus</i> sp.	— <i>Chrysops</i> sp.
— <i>Tabanus</i> sp.	— <i>Lucilia caesar</i> .
22. <i>Erax striola</i> .	

HEMIPTERA.

75. <i>Proxys punctulatus</i> .	68. <i>Cicada pruina</i> .
138. <i>Proxys punctulatus</i> .	126. <i>Stonopoda cinerea</i> .
98. <i>Cicada pruina</i> .	— <i>Perthostoma aurantiaca</i> .
103. <i>Cicada pruina</i> (pupa).	— <i>Aulacizes irroratus</i> .
102. <i>Cicada pruina</i> .	

NEUROPTERA.

62. <i>Agrion</i> sp.	— <i>Anax</i> sp.
138. <i>Agrion</i> sp.	— <i>Libellula</i> , 2 spp.
— <i>Mesothemus longipennis</i> .	— <i>Agrion</i> , 2 spp.
— <i>Anax heros</i> .	

MYRIOPODA.

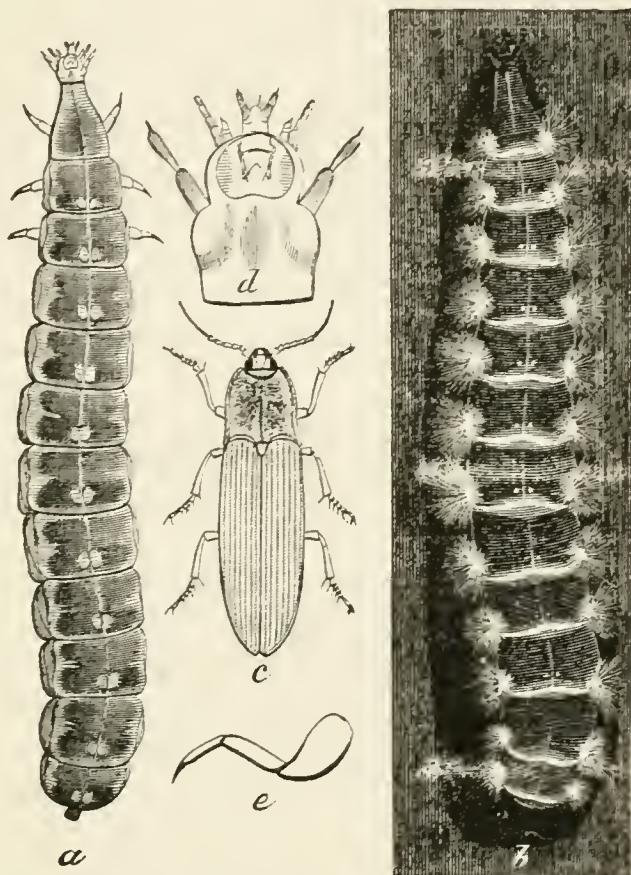
70. *Cermatia foreceps*.

ARACHNIDA.

87. *Filistata capitata*. 138. *Nephila plumipes*.

During the month of August several people, observing the interest I took in the insects of the country, brought me many specimens collected from the same range frequented by myself. On the 10th of that month a young man brought me a single living specimen of a luminous elaterid larva. His captive appeared so curious and rare in his eyes that he demanded the price of five dollars for it. This I was hardly able to afford, and the collector allowed his specimen to perish before he would accept anything less for it. Strange to say, his first demand was three times this amount. The specimen was taken at Covington, La., in the eastern part of the State, and nearly due east of New Orleans. My examination of it was quite limited and in the evening, but sufficient to satisfy me that it answered very closely to the description given of a specimen by Samuel F. Clarke, of Baltimore, Md., in a letter published in an article upon the subject by Professor Riley in the third volume of the *American Entomologist*, page 201. This figure represents the appearance of this interesting larva so well that I take the liberty of reproducing it. From the article just referred to, I quote the following information. The author states that, "We have

on several occasions found this luminous larva in Missouri, usually in cellars, and have in vain endeavored to rear it to the perfect state. The accompanying figure, made some years ago for an article on luminous larvæ, not yet published, will serve to indicate its character, and



LUMINOUS LARVA: *a*, dorsal view; *b*, do., in dark; *c*, probable parent—nat. size; *d*, head of larva; *e*, leg of same—enlarged (after Riley).

the beautiful appearance it presents in the dark. We think Baron Osten-Sacken right in conjecturing this larva to be that of *Melanactes*; yet, when Packard, in his "Guide," speaks of his figure 426 as that of *Melanactes* without qualification, he conveys a wrong impression, since no one has ever decided the matter positively by breeding.

"There is another larva occurring in the more northern States, which has very much the same appearance and the same phosphorescent peculiarities, but which is seldom half as large as that which you send, and which we figure. Both Mr. E. P. Austin and Mr. B. P. Mann, who have studied this northern form, believe that it belongs to *Asaphes*, and probably *A. memnonius*, being led to this conjecture by the presence of *Melanactes* in New England."*

* Prof. C. V. Riley tells me that since writing what I have here quoted from him his opinion has changed, and he now believes that this larva is not elaterid but lampyrid, belonging probably to *Dendrodes*.—R. W. S.

During the year I made many observations upon the habits of that very interesting form, the *Rhomalea microptera*. The results of these I have already published with a plate giving figures of the male and female insect, in *Science*, vol. 2, December 28, 1883. I have nothing further to add here connected with the life-history of this insect from my own observations.

In the early spring months I collected many of the larvæ of that great brown beetle, the *Strategus julianus*, so abundant in and about the city. The larvæ are of a very large size, of a pale cream color, with coffee-colored heads. They are usually taken under old logs and boards, in dry places. Many of these I kept during the summer, and in numerous instances succeeded in rearing them through the various stages to the perfect insect. This requires several months, but no special care beyond imitating their surroundings in nature. A good history of *Strategus julianus* is given in the Mexican "Naturaliza" by Eugène Dugés, rendering it unnecessary for me to dwell further upon it here.

Tiger beetles made their appearance about the 10th of June, and the two forms of this beautiful genus (*Tetracha*) that I captured were not uncommon after that date, in the open pathways through the fields and parks.

About the same time my collectors commenced bringing in specimens of *Plectrodera sealator*, that large black and white beetle which forms such a striking object in the entomological fauna of the State, more so, even, than *Dynastes tityus*, which is not so common, but far exceeds it in point of size. During the day time specimens of *Mallodon dasysotomus* were rarely taken, but after dark, when lights were lit in the houses, this insect very often entered through the open windows. I have frequently at such times taken three or four on the same evening.

Either from their rarity or my ill-fortune in not coming across them, I found *Acanthoderes quadrigibbus*, *Onthophagus hecate*, and *Goes pulcher* to be among the rarest of the *Coleoptera*. Indeed, of the latter two I found but one of each during the entire summer.

One of the most numerous insects is *Euphoria melancholica*, and numbers of them are sure to be captured on every excursion. Mud-daubers are particularly abundant and a great nuisance, as they construct nests in many places, both in the houses and under eaves and porches on the outside. These nests, when broken up, are often good places to find the dead spiders that have been stowed away in them by the owners.

Among the *Diptera*, the undetermined species marked 132 of the genus *Stratiomys* was apparently of very rare occurrence. My entire collection contains but one specimen.

A good representative collection of the dragon-flies of the region, and the species are numerous, were destroyed by ants during my temporary absence from the city for a few days, and I was unable to replace them, as the time had gone by.