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3d Section.
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4th Section.
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toxoneura n. sp., 236.
imbecilla n. sp., 237.
brevifurca n. sp., 237.
areolata n. sp., 237.

6th Section.
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7th Section.
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8th Section.
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9th Section.
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montana n. sp., 240.

10th Section.
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11th Section.
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Fifth group. (Tipulaceanisomeriformes.)
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megacera n. sp., 242.

Ericocera Macq.
fuligiosa n. sp., 243.

Anrhenea nob.
spinosa n. sp., 244.
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Amalopus Halid.
auripennis n. sp., 246.
calcar n. sp., 249.
inconstans n. sp., 247.

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albivitta Walk., 248.

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rivularis n. sp., 249.

* * * *

Ula Halid.
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APPENDIX.

PROTOPLASMA nob.
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BITTACOMORPHA Westw.
clavipes Fab., 252.

Ptychoptera Meig.
rufocincta n. sp., 252.

On the male genital organs of the Tipulidae with short palpi, together with the explanation of Plates III. and IV.

The form of the external male genital organs of the Tipulidae with short palpi is that of a forceps; they are not different in this respect from the majority of the insects of the other orders. This forceps serves to seize the tip of the abdomen of the female. In the cases of copulation which I have observed in the genera Limnobia and Ericoptera, the abdomen of the $\varphi$ was seized from below, a little before the ovipositor, so that this organ was stretched on the tegum of the $\varphi$. But, besides the external forceps, there is, between its two halves, a second internal forceps-like apparatus. After having secured the female in the described manner, the male, with this second apparatus, seizes the orifice of the inner genital organs of the female and adjusts thereon for copulation. This second forceps seems to vary in structure in different species.

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I have been able to see it distinctly in Arrhenica spinosa: it is figured and described below.

My chief attention has been directed to the structure of the external forceps for the purpose of classification; everything remains to be done, as yet, in the study of the more complicated and delicate internal organs. In the description of the figures which follows, I simply relate what I have seen, without attempting any generalization.

Fig. 1, forceps of L. defuncta from below.
Fig. 2, the same, from above; aa, soft, fleshy lobes; bb, horny, falciform appendages, moveable with the lobes, and closely applied although not attached to them; they are fastened only by the base; cc, horny, projecting points of the internal organs.

Fig. 3, forceps of Dicranomyia humidicola from above; aa and bb as in fig. 2; dd, horny, square appendages, bearing each a pair of bristles; e, point of the anal style, visible between the two lobes.

Fig. 4, forceps of Dicranomyia liberta from above; aa and bb, like in fig. 2; dd, horny, rostriform appendages, with bristles; e, anal style.

Fig. 4a, anal style of D. liberta, seen from below.

Fig. 5, one-half of the forceps of Dicranomyia gladiator from above; a and b, as in fig. 2; e, anal style.

Fig. 6, forceps of Limnobia solitaria from above, half closed; aa, moveable, coriaceous halves, with appendages (bb); these appendages consist of two lamels, which are closely applied to each other and never divergent; the outside lamel is horny; the inside one seems to be coriaceous; e, is the anal style; cc, projecting internal organs; ff, are soft ecclesines, (perhaps rudiments of the large soft lobes of Dicranomyia?)

Fig. 7, represents the forceps of Limnobia indigena from above; the lamels bb are also double; in some species, as in L. tristigma, I could not distinguish whether the lamels were double.

Fig. 8, forceps of Rhipidia domestica from above, and open; aa, bb, cc, dd and e, as in the preceding figures.

Fig. 9, the same forceps, from below and closed; e, anal style.

Fig. 10, forceps of Teucholabis complexa from above; 10a, one-half of the same, from below; aa and bb, horny appendages.

Fig. 11, forceps of Antocha saxicola from above; aa, double appendages, consisting of a horny and a soft point, closely joined.

Fig. 12, half of the forceps of Elephantomyia canadensis from below; aa, horny appendages.

Fig. 12a, forceps of Dicranoptyca nigripes from above; y, are short, black bristles; zz, indistinct, horny appendages. In this species I had for the first time a glimpse of the structure of the slender, horny, hook-shaped organ, figured farther below (fig. 27b), but occurring in most species. When D. nigripes opens the forceps this hook comes into a sort of erection and spreads outside of the forceps in the shape of fig. 12, b; aa, are slender and horny; bb, is a small forceps, moving independently of aa, and opening or closing at the point c.

Fig. 13, one-half of the forceps of D. sobrina.

Fig. 14, forceps of Cryptolabis paradoxoza from above; 14a, the same from below; aa, are horny appendages; they are small and indistinct, being closely applied to the fleshy part of the forceps; b, seems to be the rudiment of an anal style.

Fig. 15, tip of the abdomen of Cryptolabis paradoxoza, female, from the side; fig. 15a, the same, from above; there are no visible horny lamels; the tips, aa, are beset with microscopic bristles.

Fig. 16, forceps of Gonomyia blanda from above and open.

Fig. 17, half of the forceps of Gonomyia cognatella, from above.

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Fig. 18, forceps of Gnophomyia tristissima, from above, and half open; 18a, female ovipositor of the same species.

Fig. 19, half of the forceps of Erioptera vespertina, side view.

Fig. 20, forceps of Erioptera armata from above.

Fig. 21, the same, from the side. Its structure is somewhat complicated; besides the coriaceous parts dd, there are two pairs of horny appendages attached to them; they are invisible from above, except the tip of one of them, which projects at f. One of these appendages is seen at h in fig. 21; detached, it looks somewhat like fig. 21a, in which the portion bbb is closely applied to the inside of the lobe d, and the portion c branches off. The other pair of appendages (see on fig. 21) is slender and curved; each of them is attached to one of the lobes dd.

Fig. 22, forceps of Erioptera caloptera Say, from below.

Fig. 23, forceps of Erioptera venusta from above.

Fig. 23a, the same from below; the horny appendages aa, seen from below, appear double, consisting of the horny part bb, and a membranaceous appendage cc; fig. 23b represents it detached; its margin d is horny, the rest is a thin membrane; these two appendages are not closely applied to each other, and have an interval between them, although they move simultaneously.

Fig. 24, forceps of Limnophila luteipennis, from above aa, two pairs of moveable falciform appendages; the outside ones are horny, the inside one seems to be of a softer consistence and are ciliated.

Fig. 25, forceps of Limnophila aprilina from above; structure almost like the preceding; the outside appendages have a longitudinal notch, (fig. 25b.)

Fig. 26, forceps of Limnophila ultima from below; outside, horny appendages are slightly hooked at the tip.

Fig. 27, forceps of Limnophila rufibasis from above, open; the appendages aa are large and strong, serrated inside; bb are also horny, and look like fig. 27a; the point c is directed upwards; 27b is a slender, horny organ, situated inside of the forceps, and concealed when it is closed; its structure is perhaps analogous to a similar organ in Dicanoptycha (fig. 12a); the same organ is more or less distinctly seen in almost all other species.

Fig. 28, forceps of Limnophila montana from above, closed; it is distinguished at once by the position of the appendages, which is peculiar to this species; aa are the tips of internal horny organs; they protrude, together with the soft part f, when the forceps are opened.

Fig. 28a, the same from the side; a is the same as in fig. 28.

Fig. 29, forceps of Synuplecta punctipennis from above; a and b are horny.

Fig. 30, forceps of Arrhenica spinosa from above; a horny, b soft appendage; cc internal forceps, (fig. 30a represents it detached); at d is a joint, by means of which this forceps is opened or closed.

Fig. 31, forceps of Eriocera fuliginosa from above; aa are horny; bb soft; c is curved downwards, like fig. 27b.

Fig. 32, forceps of Analopis inconstans, from above and half open. It is difficult to convey an idea of this organ by a drawing, the points f, g and h being all curved and directed upwards; aa are horny; bb soft; cc coriaceous, hollow inside; h is figured separately, (32b); the point f is bifid, (32a).

Fig. 33, forceps of Bittacomorpha clavipes from below.

Fig. 33a, the same, from above.

Fig. 34, forceps of Cladura flavoferruginea, from the side; a is convex and seems to be hollow inside; the concavity can be seen at b; cc is the forceps. This figure is a very rough sketch, drawn from a dry specimen and may not, for this reason, be quite accurate.
September 6th.

Mr. Lea, President, in the Chair.

Twenty-nine members present.

A paper was presented for publication in the Proceedings entitled "Catalogue of the Invertebrate Fossils of the Cretaceous Formation of the United States, by Wm. M. Gabb," and was referred to a Committee.

Mr. Lesley read the following extracts from a letter he had received from Mr. Edward A. Spring, Eagleswood, N. J., July 26th, 1859:

I was over on the South Amboy shore with a friend, walking in a swampy wood, where a dyke was made, some three feet wide, when we discovered in the middle of this ditch a large black spider making very queer motions for a spider, and on examination it proved that he had caught a fish.

He was biting the fish, just on the forward side of the dorsal fin with a deadly gripe, and the poor fish was swimming round and round slowly, or twisting its body as if in pain. The head of its black enemy was sometimes almost pulled under water, but never entirely, for the fish did not seem to have enough strength, but moved its fins as if exhausted, and often rested. At last it swam under a floating leaf at the shore, and appeared to be trying, by going under that, to scrape off the spider, but without effect. They then got close to the bank, when suddenly the long black legs of the spider came up out of the water where they had possibly been embracing the fish, (I have seen spiders seize flies with all their legs at once) reached out behind and fastened upon the irregularities of the side of the ditch. The spider then commenced tugging to get his prize up the bank. My friend stayed to watch them while I went to the nearest house for a wide mouthed bottle. During the six or eight minutes that I was away, the spider had drawn the fish entirely out of the water, when they had both fallen in again, the bank being nearly perpendicular. There had been a great struggle—and now on my return, the fish was already hoisted head first more than half his length out on the land. The fish was very much exhausted, hardly making any movement, and the spider had evidently gained the victory, and was slowly and steadily tugging him up. He had not once quitted his hold during the quarter to half an hour that we had watched them. He held, with his head toward the fish's tail, and pulled him up at an angle of 45° by stepping backwards. How long they had been there or how far they had come we cannot tell. We saw no web anywhere about.

The time would not permit a longer stay, so we reluctantly bottled the pair. I thought I had missed dipping up the spider, and looked along the bank, but on turning to the bottle he was there. The fish was swimming weakly at the bottom of the water that I had dipped in, and the spider standing sentinel over him on the surface, turning when he turned, and watching every motion. We stopped the mouth of the bottle so that the spider could not escape, and went to see the fine place of the late Mr. Stevens above on the hill. Returning in about three hours, we found, to our disappointment, the spider dead at the bottom, but the fish was alive. He lived for twenty-four hours. The spider was ¾ of an inch long, and weighed 14 grains; the fish was 3½ inches long and weighed 68 grains.

September 20th.

Mr. Lea, President, in the Chair.

Thirty-one members present.

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The following papers were presented for publication in the Proceedings:

"Contributions to American Lepidopterology, by Brackenridge Clemens, M. D."

"Description of a deformed fragmentary Human Skull found in an ancient quarry cave at Jerusalem; with an attempt to determine by its configuration alone the ethnical Type to which it belongs, by J. Aikken Meigs, M. D."

September 27th.

Vice-President Bridges in the Chair.

Thirty-eight members present.

The Report of the Biological Department for the present month was read.

On report of Committees of the Biological Department, the paper entitled "On the seat of the vesicating principle of Lytta vittata, by Joseph Leidy, M. D.," was recommended for publication in a medical journal, and one entitled "Abstract of the most important points of Researches on the Minute Anatomy of the Liver, by H. D. Schmidt," was ordered to be published in the Proceedings.

On report of the Committee, the paper entitled "Catalogue of the Invertebrate Fossils of the Cretaceous formation of the United States, by Wm. M. Gabby," was ordered to be published with the Proceedings.

The following were ordered to be published in the Proceedings:

Contributions to American Lepidopterology.

BY BRACKENRIDGE CLEMENS.

TINEINA.

It is the intention of the writer to confine these contributions to Lepidopterology, to the description of species which are new to entomological history, or which are believed to be new. This plan dispenses with the necessity of general remarks on systematic arrangement, since but few species at a time will be given as the genera to which they belong are determined, or ascertained to be undescribed. Indeed I have nothing of value to add to what has been recently advanced elsewhere, nor has any question arisen in my studies of the present group, that would induce me to retract or doubt the accuracy of the views advocated, respecting the nature of a family. I do not wish, however, to be understood to assert that the group Tineina is synonymous with a family. I do not by any means entertain the belief that it includes only one, and yet I can perceive but little in the majority of the groups collected under this term, other than artificial assemblages of genera, under a family termination.

I find in the pterogostic characters of the perfect insect a similitude of structure which enables the investigator, with but little difficulty, to refer it to the appropriate principal group formed on this basis. The individuals, thus assembled together agree not only in general structure, but in embryonic histories and in larval forms, so far as my own observation and study of other fauna than our own has enabled me to determine the question. The agreement in embryonic form extends into the group Tortricina, and the relationship in the imago, is likewise expressed to a certain degree in the neuration of the wings of this latter group, as compared with that of the Tineina. These characters, however, are sufficiently marked in each, and can scarcely be mistaken in either instance