

2. PTEROSTIGMA NIGRUM.

Only the body, somewhat distorted, and one fore wing are preserved, which do not permit so complete a description as of the preceding species. The wing appears to be about three times as long as broad, and with the same symmetrical form seen in the preceding species. The postcostal vein is thick and straight, blending into the considerably thickened stigma. The oblique veins are each very gently arcuate with the opening toward the stigma, unusually oblique and little divergent, the general course of the first being scarcely more than forty-five degrees with the postcostal, that of the second not above forty degrees; the second is more sinuous and terminates fully as far out as opposite the base of the stigmatic vein, the first opposite the base of the cubital, so that the cell is at least four times as wide on the hind margin as at the base. The cubital vein is very faint, especially toward the base, but arises four or five times as far from the second oblique as the latter from the first oblique vein, and scarcely less than half-way from the first oblique to the stigmatic vein; it has an exceedingly longitudinal course and forks very narrowly far before the base of the stigmatic vein, but just how far the single specimen does not permit deciding. The stigmatic vein parts rather rapidly from the stigma and is strongly arcuate at base, but the form of the stigmatic cell can not be made out. The body is very black and uniform throughout, the abdomen short ovate, and well rounded, with no sign of cauda or cornicles.

Length of body, 3.5^{mm}; of wings, 5^{mm}.

Florissant. One specimen, No. 6090.

Family PSYLLIDÆ Latreille.

This little family of leaf fleas, closely allied to the Aphides, but always winged at maturity and showing some curious resemblances in neuration to the Psocidæ among Neuroptera, seems to be best represented, like the Aphides, in temperate regions. Hitherto it has not been found fossil, but the shales of Florissant have now yielded remains of two species belonging to two different groups and representing extinct genera allied to *Psylla*, *Pachypsylla*, and *Psyllopsis*.

Table of the genera of Psyllidæ.

Stem of the cubital vein before its fork as long as the stem of the subcostal vein.....1. *Neeropsylla*.
Stem of the cubital vein before its fork distinctly shorter than that of the subcostal vein.....2. *Catopsylla*.

1. NECROPSYLLA gen. nov. (*νεκρψς*, Psylla).

This name is proposed for a species belonging to the subfamily Apha-
larinae, which shows a close resemblance to *Psyllopsis*. As there, the wing
is membranous. The petiolus cubiti is of the same length as the discoidal
part of the subcosta, and the general relation of the principal nervures is
the same; it is only in minor details that it differs here, such as the excep-
tional length of the upper branch of the subcosta and the transverse course
of the lowest branch of the cubital. But the most striking difference is in
the form of the wing, which in *Psyllopsis* is pretty regularly obovate, the
widest part of the wing in the middle, the apex well rounded. In *Necro-
psylla*, on the other hand, it is subtriangular, the broadest part just before
the apex, which is very broadly rounded; both upper and lower margins
are nearly straight. Little is preserved besides the wings.

When first noticed it was thought to belong to the *Psocidae*, near *Pso-
quilla* and *Sphaeropsocus*, and was accordingly figured among the *Neurop-
tera*.

A single species is known.

NECROPSYLLA RIGIDA.

Pl. 12, Figs. 11, 21.

Head broad, fully twice as broad as long, rounded, the nasus strongly
pronounced, orbicular, very large. Whole body stout, the prothorax appar-
ently at least three times as broad as long, the abdomen tapering a little
only, and furnished at the tip with a short, slender, conical, bluntly tipped
style. Wings two and a half times longer than broad, wedge-shaped, being
largest near the tip and narrowing pretty regularly toward the base, though
more rapidly on the basal third than beyond, the costal margin arched, the
tip very fully rounded, the inner margin perfectly straight. A principal
vein runs through the middle of the wing; at the end of the first third it
divides into two forked stems, the cubital and subcostal, each of them
forked for the first time opposite each other at about the middle of the
wing; the subcostal forks only this time, its upper offshoot curving at once
up toward and then following close to the costal margin, where it descends
into the apical margin; the cubital runs in a straight course midway
between the former and the veins below. The lower branch, on dividing,

sends one offshoot along the middle of the wing, which forks at a little more than half-way to the tip, the forks curving a little downward; the other offshoot parts widely from the upper, but when it nears the inner margin, at a little beyond the middle of the wing, it is connected by a cross-vein with the margin, while it itself passes with a strong curve to the apical margin just beyond the limits of the straight inner margin. Besides these veins there are two others, which are obscure and may originate independently or from this central vein near the base; the upper strikes the upper margin a little before the middle of the wing and runs parallel to the upper offshoot of the principal vein; the other, the anal vein, which is more uncertain, strikes the inner margin a little nearer the base, reaching it with a similar but reverse obliquity.

Length of body, 3^{mm}; breadth, 0.75^{mm}; length of wing, 2^{mm}; breadth, 0.78^{mm}.

Florissant. Four specimens, Nos. 310, 349, 7598, 12017.

2. CATOPSYLLA gen. nov. (κατα, Psylla).

Belongs to the subfamily Psyllinæ, in which the petiole of the cubital vein is distinctly shorter than the discoidal portion of the subcostal. It is most nearly related to Psylla itself, and indeed differs from it only in the excessive length of the cubital cells, which are more than a third the length of the wing, and besides are of very simple and similar structure, in which respect it agrees better with Pachypsylla, recently described by Riley, though the cells are not so long as there and the two sides of the wing are more symmetrical in form, the apex of the wing falling exactly in the middle line; the upper cubital branch falls barely below the middle of the apex of the wing. The wing was pretty evidently membranous, and its broadest portion is in the middle of the outer half, before which it decreases regularly and gently in size, both front and hind margins being nearly straight.

A single species is known.

CATOPSYLLA PRIMA.

Wings fully twice as long as broad, largest in the strongly rounded apical half, decreasing regularly in size toward the base. Lower fork of subcostal vein forming with its stem a regular, very gently arcuate curve and terminating considerably above the apex of the wing, its upper branch

diverging from it angularly toward the costal margin just before the end of the proximal third of the wing, and just before reaching the margin bending abruptly outward parallel to the lower branch, not really reaching the margin until toward the apex of the wing. In the cubital vein the lowermost fork makes a continuous, regular and rather strongly arcuate curve with the discoidal portion, striking the margin just before the middle of the wing; the upper branch of the lower fork parts from this just about opposite the forking of the subcostal, while the upper fork, not so wide as the lower, arises at three-fifths the distance from the base of the wing, making the inclosed cell of unusual length for Psyllidae; the upper branch of this fork falls scarcely below the apex of the wing, and the tips of the cubital forks fall at subequidistant intervals along the margin, the lower cell the wider.

Length of body, 3^{mm}; wing, 2.5^{mm}; breadth of latter, 1.2^{mm}.

Florissant. One specimen, No. 6712.

Family FULGORINA Burmeister.

This family is fairly well represented in Tertiary deposits and by a considerable variety of forms, all the subfamilies being represented except the Tropiduchida, Derbida, and Lophopoda; and, what is curious, each of the subfamilies is represented both in European and American strata, excepting only the Issida, confined to Europe, and the Achilida, found only in America, each by a single species, the one in Radoboj, the other at Florissant. In Europe the Fulgorina are represented by Psocera in amber, the Dictyopharida by Pseudophana both in amber and at Oeningen, the Cixiida by Cixius in amber, the Delphacida by Asiraca at Aix, the Ricaniida by Ricania in amber, and the Flatida by Flata, also in amber. The only one of these genera recognized in America is Cixius, and that doubtfully; but these subfamilies are far better represented, and in some instances by new and peculiar types. Thus of Fulgorida we have Nyctophylax, Aphana, Lystra, and Fulgora, all with more than one species, from various localities; of Dictyopharida, a Dictyophara from Florissant; of Cixiida, not only Cixius but Ollarius, Diaplegma, Ollarites, and Florissantia, all but the first peculiar types and Diaplegma with no less than seven species—all these from Green River and Florissant; of Delphacida, Delphax, and Planophlebia, the latter a remarkable extinct type from British Columbia; of Ricaniida

PLATE XII.

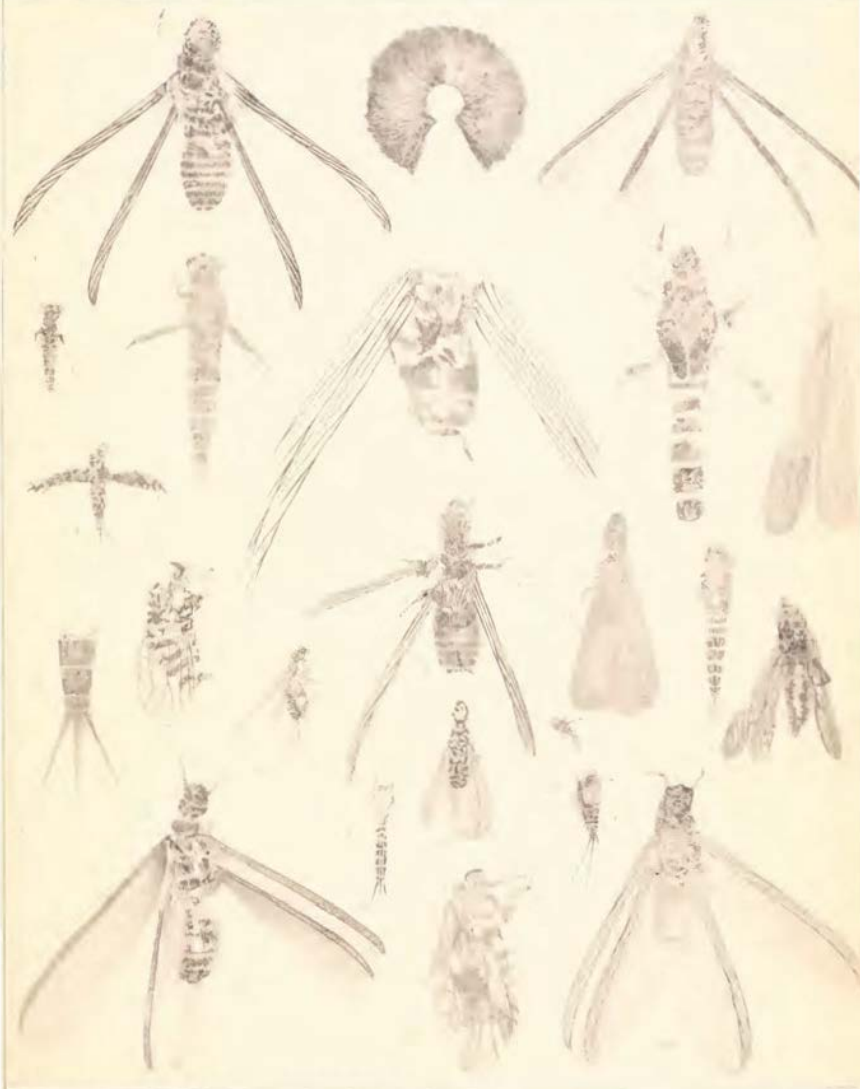
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EXPLANATION OF PLATE XII.

All the drawings were made by J. Henry Blake.

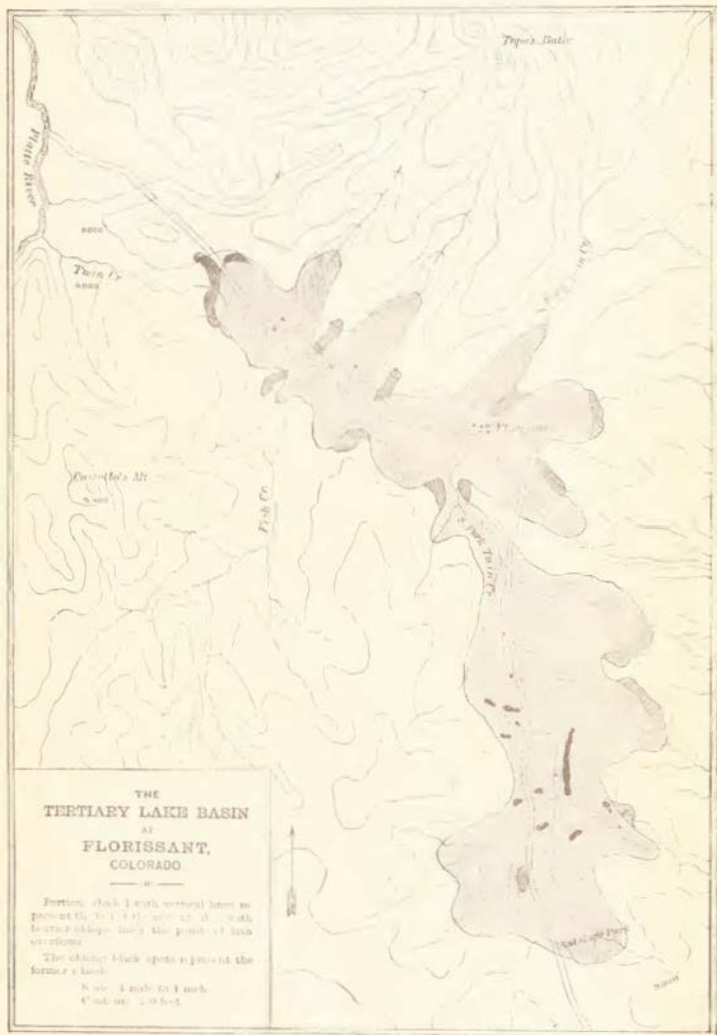
- Fig. 1. (399) (?) Cone of Sequoia, seen in cross-section; supposed when the plate was engraved to be a coiled myriapod.
2. (8616) (?) *Parotermes hagenii*.
3. (1247) (?) *Parotermes fodinae*.
4. (1326) (?) *Ephemera macilentia*, larva.
5. (8824) (?) *Ephemera immobilis*, larva.
6. (6040) (?) *Hodotermes ? colindensis*.
7. (10660) (?) *Ephemera pumicosa*, pupa.
8. (4643) (?) *Taphacris reliquata*.
9. (5587) (?) *Ephemera exsurca*.
10. (13526) (?) *Ephemera macilentia*, larva.
11. (349) (?) *Necropsylla rigida*.

- Fig. 12. (1931) (?) *Eutermes meadii*.
13. (3041) (?) *Parotermes insignis*.
14. (490) (?) *Parotermes insignis*.
15. (1516) (?) *Ephemera pumicosa*, larva.
16. (233) (?) *Ephemera pumicosa*, larva.
17. (31) (?) *Eutermes meadii*.
18. (1623) (?) *Lepisma platymera*. Some of the abdominal joints are not indicated.
19. (4643) (?) *Taphacris reliquata*.
20. (6049) (?) *Eutermes fossarium*.
21. (310) (?) *Necropsylla rigida*.
22. (11190) (?) *Parotermes fodinae*.



THE FLORENTINE BASIN

MONTECATINI, NEAR AREZZO



22
881
545
UNITED STATES GEOLOGICAL SURVEY OF THE TERRITORIES.

THE
TERTIARY INSECTS

OF

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