

UNITED STATES GEOLOGICAL SURVEY

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SYSTEMATIC REVIEW

OF OUR

PRESENT KNOWLEDGE OF FOSSIL INSECTS

INCLUDING

MYRIAPODS AND ARACHNIDS

BY

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thirty, or even sixty individuals, and fifteen species are recognized, about one-ninth the number of living species known, but nearly one-half as many as the species now living in Germany according to the latest monograph by Kolbe. These fossil species are divided among ten genera as follows: Troctes, 1; Sphæropsocus, 1; Empheria, 2; Archipsocus, 2; Amphientomum, 1; Epipsocus, 1; Cæcilius, 3; Philotarsus, 2; Psocus, 1; Elipsocus, 1. The genera Sphæropsocus, Empheria, and Archipsocus are peculiar to amber; the first mentioned, a most remarkable form, has the front wings developed into the semblance of elytra. It is worthy of note that, while in the existing fauna of Europe the groups to which Psocus and Elipsocus belong embrace about half the species, they include only one-seventh the amber fauna. Hagen and Kolbe are at variance on the interpretation of these facts.

#### 5. Family Perlina.

With the exception of a fossil from the Eocene of the Isle of Wight, referred to this family, and of a species of Leuctra described by Hagen from the Miocene of Rott, all our knowledge of the Perlina in ancient times is through the amber deposits. Thirteen species are known, belonging to the genera Perla, Tæniopteryx, Leuctra, and Nemura, all existing genera, and the species present no peculiarities worth special mention, being similar to existing types in north temperate regions, though in no case identical with them. It is worth remarking, however, that the number of species known from Prussian amber is nearly half that of those now living in Austria. \*

#### 6. Family Ephemerides.

Undoubted remains of four or five species of this family occur in the Oölite of Solenhofen, some of very large size, most of which have been described under the generic name Ephemera, but one, in which the neuration, so far as it goes, is perfectly preserved, has been referred to a new genus, Hexagenites. Eichwald also describes and figures under the name of Ephemeropsis a larva found in the Siberian Jurassic rocks.

Our knowledge of Tertiary species comes largely from amber inclusions, but Heer and Scudder each describe a species of Ephemera from Oeningen and Florissant, and the latter distinguishes in addition five species from Florissant in an immature state. Wilkinson has also found a species in Australia. The amber species are eight in number, three of which are species of Baetis and the others are distributed among the genera Leptophlebia, Palingenia, Potamanthus, and Cronicus, the last an extinct genus allied to Heptagenia, distinguished from it by the four-jointed forceps of the male and the shortness of the middle anal bristle.