6. TWO NEW FOSSILS FROM THE UPPER MIOCENE OF THE PUENTE HILLS

The two new specimens were found by Dr. Lore Rose David in Upper Puente shale of the Mohnian Horizon, Upper Miocene, at depth of 2105-2127 ft. in the Puente Hills, southeast of Puente, Los Angeles Co., California. They were given by her to Miss Jane Everest, who presented them to the Los Angeles County Museum of History, Science and Art.

Specifically, the location is 2649° N.- 2' E. from the S. W. corner of Section 21 - 2 S -10 W, La Habra quadrangle, elevation 620, in Axis Co. well Rowland No. 1.

This is a light gray shale, and the first specimen is beautifully etched in white lines, while the second specimen is such a faint impression that it is quite marvellous that it should have been detected.

The first wing is of the mayfly type, but more primitive than the modern mayflies, because of the complete absence of cross veins. It shows relationship to the Megasecoptera, but to keep the record clear a new ordinal name is proposed.

Order APHELOPHLEBIA, *new order*

An order of fossil insects in which there are no cross veins in the wings. The radius extends the entire length of the wing and has three apparent branches; medius has two long stems and a short intermediate branch; cubitus is entire; paracubitus is apparently branched.

Family APHELOPHLEBODIDAE, new family

With the characters of the order.

Genus APHELOPHLEBODES, new genus

Name based on ἄφελῶς, simply, and φλεβῶδης, veined. The costal-subcostal region is not visible. Radius is slightly concave in the supposed subcostal region, thence almost straight to its apex in the wing margin. Near its apical fourth a short vein, interpreted as Radius 2 + 3 branches off and reaches the margin at the apex of the wing. At about the middle of Radius a longer vein, interpreted as Radius 4 branches off, and reaches the margin of the wing. Below this and just before its apical fourth a short little vein, interpreted as Radius 5 branches off and reaches margin of wing. The next vein is longer and looks as if it were also a branch of Radius from its basal fourth, but is interpreted as Medius 1. The next long vein arises at the base of the wing

and is interpreted as Medius 3 + 4. Apically between these two is a fainter vein reaching the wing margin, and interpreted as Medius 2. Cubitus arises at base and extends to wing margin, parallel to Medius 3 + 4. Paracubitus is basally strong, but about midway to the wing margin seems to be branched, perhaps into a long branch and two shorter branches, which are indicated by typical whitening of the other veins.

APHELOPHLEBODES STOCKI, new species. (Plate 2)

Type of the genus; named in honor of Dr. Chester Stock, Professor of Paleontology of California Institute of Technology, Senior Curator of Earth Sciences at the Los Angeles County Museum of History, Science and Art, and a Director of the Southern California Academy of Sciences. Type in Los Angeles Museum, under Accession No. A4709, Paleontology specimen S 9006.

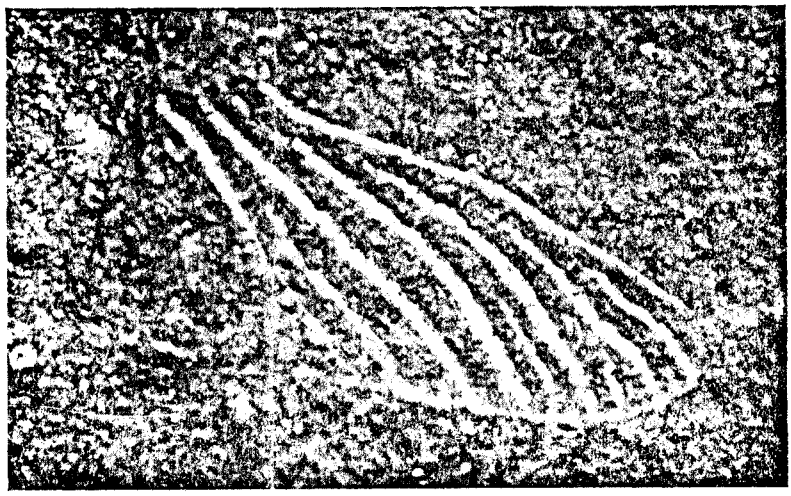

PLATE 2

Aphelophlebodes stocki Pierce; impression of wing of fossil mayfly from oil well core, near Puente, Cal., at depth of 2105-2127 ft., in Upper Puente shale, Mohnian Horizon, Upper Miocene.

Length of impression 7 mm., greatest width 2.6 mm. The fossil consists of impressions of the veins, which are milky white, smooth texture, on a small square piece of shale.

The species description is that of the genus. The excellent photograph is by Mr. Peter Marry, Photographer of the Museum.

Order Lepidoptera linnaeus

Family Hepialidae Stephens

Genus Protohepialus, new genus

This genus is typically hepialid, because of the three basal cells formed by Radial Sector, Medius 2, Medius 3, and Cubitus 2 with the R-M, M-M, and M-Cu crossveins. These crossveins are very indistinctly shown by the photograph by Mr. Marry, but can be seen by other lighting. The genus differs from other Hepialidae by having Radius 1 and Subcosta united at base; by the faintness of Medius 1; the presence of an indication of Medius 4; the division of Cubitus 1 into two or possibly three veins.

Protohepialus comstocki, new species. (Plates 3, 4)

Type of genus; named in honor of Dr. John Adams Comstock, Head Curator of Science of the Los Angeles Museum of History, Science and Art, and Secretary-Treasurer, Editor of the Southern California Academy of Sciences. The holotype is a faint impression of a portion of a wing of a primitive hepialid moth, occupying a space about 5x5 mm. The sketch (Plate 4) interpreting the photograph gives the Author's ideas of the venation, which is typically hepialid.

Briefly the elements of venation discernible are: Subcosta and Radius united for some distance; Radial sector divided beyond the cross veins into Radius 2 and 3; Radius 4 and 5 branching from the first cell; Medius 1 indistinct between Radius 5 and Medius 2; Medius 2 and 3 almost parallel, forming with M-M cross vein the second cell; Medius 4 faint; Cubitus 1 divided into two, possibly three branches; Cubitus 2 forming with the M-Cu cross vein and Medius 3, the third cell.

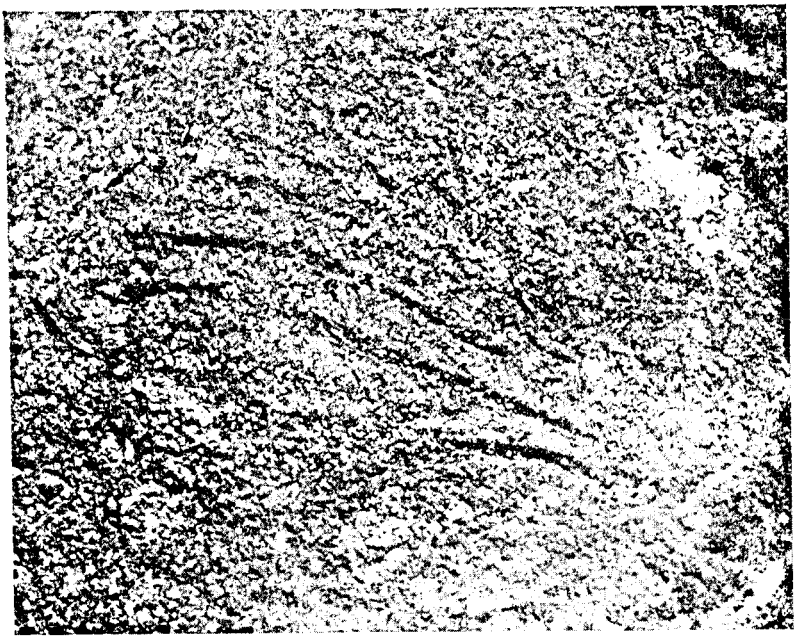

PLATE 3

Protohepialus comstocki Pierce; impression of wing of moth from oil well core, near Puente, Calif., at depth of 2105-2127 ft., Upper Puente shale, Mohnian Upper Miocene

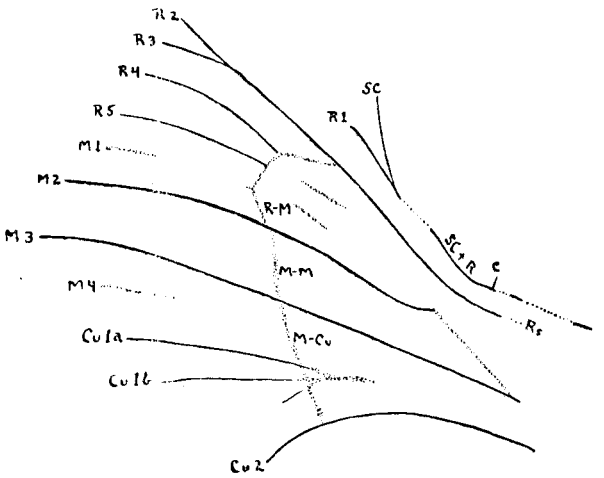

PLATE 4

An interpretation of the venation of *Protohepialus comstocki* Pierce