

FOSSIL MECOPTEROID INSECTS FROM THE UPPER PERMIAN OF NEW SOUTH WALES.

By E. F. RIEK.

Commonwealth Scientific and Industrial Research Organization—Division of Entomology,
Canberra, A.C.T.

(Plates v—vi; Text-figures 1–167.)

This paper deals with the Mecoptera and all the related orders of insects collected from the Upper Permian strata between Belmont and Warner's Bay, New South Wales. All the material described is in the Collection of the Australian Museum, Sydney. Tillyard published several papers dealing with the early collections of insects from these beds but the more recent and rather extensive collections remain unworked except mainly for the Homoptera and Psocoptera. The present material extends considerably our knowledge of the previously described species and has brought to light a great wealth of new forms.

Tillyard, in his papers on the orders under consideration, allowed practically no variation within a species and was often led astray by irregularities in the preservation of the specimens. It is considered, from a study of very long series, that these Permian species showed considerable variation and also that great care must be taken to allow for the effects of preservation.

Of the Mecopteroid orders the true Mecoptera are dominant in the fauna. In addition to Eumecoptera there are the primitive suborders Protomecoptera and Paramecoptera as well as the Protodiptera which also are best considered within the Mecoptera. The Neuroptera are represented by a number of interesting types. Trichoptera are recognized from these beds for the first time, and this, I believe, is the first record of the order from Permian strata.

I greatly appreciate the opportunity to study this material for which I am grateful to the Director and staff of the Australian Museum; to Mr. O. le M. Knight (who collected a considerable portion of the material) for the loan of literature, and to the Chief of the Division of Entomology, C.S.I.R.O., for permission to devote a little of my official time to the study of fossil insects.

Order MECOPTERA.

This order is expanded to include not only the Eumecoptera but all the Mecopteroid forms which do not fall into any of the recognized living orders. In the suborder Protomecoptera, which includes the families Platychoristidae and Permomeropidae, and the suborder Paramecoptera, CuA is forked in the forewing. In the other fossil suborder, Protodiptera, CuA is simple in both wings. The Paratrichoptera were inaccurately diagnosed by Tillyard and are considered as a family within the Eumecoptera.

Suborder PROTOMECOPTERA.

Tillyard first used the name Protomecoptera for the Triassic *Archipanorpa*. This genus shows a distinct costal vein so that its Mecopterous affinity is doubtful. Subsequently the group was expanded to include *Platychorista* and *Permomerope*. The Recent genera *Merope*, *Austromerope* and *Notiothauma* are also included in the suborder. The name is best retained in the altered sense to include all the above genera except *Archipanorpa*.