

UPPER PERMIAN HOMOPTERA FROM NEW SOUTH WALES.

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(Figures 1-64.)

In the twenty-five years which have elapsed since the first descriptions were published of Upper Permian Homoptera preserved in volcanic tuff in New South Wales, much new and interesting material has been brought to light. Former collections have been described by Tillyard (1921, 1922, 1926*a*), Davis (1942) and Evans (1943).

The present collection, comprising some 124 specimens, has been made principally by Mr. Malcolm Stanley. A few specimens, comprising some of the very greatest interest, have been contributed by Mr. O. le M. Knight. Both Mr. Stanley and Mr. Knight have generously presented their material to the Australian Museum.

It is but seldom that a taxonomist interested in recent insects is given the opportunity to study new fossil material in his chosen group, and appreciation and thanks are expressed to the Director and Trustees of the Australian Museum for having afforded me this privilege.

Unless otherwise indicated, all specimens dealt with in this paper were found in Upper Permian strata between Belmont and Warner's Bay and are contained in the Malcolm Stanley collection of fossil insects at the Australian Museum, Sydney. The photograph reproduced in Fig. 24*a* was made available by Mr. Knight.

Division PALAEORRHYNCHA.

Family ARCHESCYTINIDAE.

In a recent paper (Evans, 1943) a remarkably preserved small Homopteron from the Upper Permian of Belmont (*Permocephalus knighti* Ev.) was placed in the Archescytinidae. This was an error, the result of confusion induced by the following circumstances. In 1926, Tillyard (1926*b*) erected a new family, the Permopsyllidae, in which he placed a single genus, *Permopsylla* Till. The genotype, *P. americana* Till., was found in Lower Permian strata in Kansas. Tillyard, following a definition of the family, stated that it was a specialized offshoot from the Archescytinidae which had undergone reduction in size and in the length of the tegmen compared with its breadth, together with great reduction in the clavus. The latter character Tillyard considered brought the type of wing definitely within the Sternorrhyncha. In the same year (Tillyard, 1926*a*) he described three more genera, *Permothea*, *Protopsyllidium* and *Permopsyllidium*, all from Upper Permian strata in New South Wales, and these he also included in his family Permopsyllidac.

In 1931 Carpenter transferred *Permopsylla* to the Archescytinidae and pointed out that the reduction of the clavus was more apparent than real, due to the incomplete preservation of the type specimen. For this family he proposed a new division, the Palaeorrhyncha. Insects in the Palaeorrhyncha, according to Carpenter, combine primitive features of both the Auchenorrhyncha and the Sternorrhyncha, as Archescytinids were furnished with long antennae, consisting of twenty-five segments; three-segmented tarsi and a fully developed clavus in each tegmen with two anal veins. At the same time he proposed the family name Protopsyllidiidae for the genera *Permothea*, *Protopsyllidium* and *Permopsyllidium*.

Davis, in 1942, referred to Carpenter's action in transferring *Permopsylla* to the Archescytinidae, but apparently overlooked the new family name Protopsyllidiidae, as he continued to include the three genera from New South Wales previously defined