A FOSSIL MECOPTERON FROM THE TRIASSIC BEDS AT BROOKVALE, N.S.W.

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(Plate xviii and Figures 1–4.)

The shale beds at Brookvale have yielded beautifully preserved insect fossils, some of which have been described by Tillyard (1925) and McKeown (1937). In many cases the wing pigmentation pattern has been preserved, as it is in the Mecopterous wings described here. The lithology and horizon of this fossil bed have been outlined in earlier papers, so it is sufficient to restate that they occur in a lens of shale in the Hawkesbury Sandstone Series of Triassic age.

Although there are eleven fossil specimens of Mecoptera, they are all of the one species, representing both forewings and hindwings and portion of the body structure. The only parts not known are the apex of the abdomen and most of the legs. One specimen shows clearly a side view of the head with antennae, and the thorax with portions of the wings. The fossil resembles some of the Liassic Orthophlebiidae very closely but retains a distinct cubito-median Y-vein. It is described in this family as a new genus, Choristopanorpa, having characters of both the recent Chorista and Panorpa, but possibly more closely allied to the latter genus. It is very near Mesopanorpa Handlirsch as emended by Martynov, 1927.

Family ORTHOPHLEBIIDAE Handlirsch.

Mesozoic Mecoptera, fore wing with a five-branched media similar to that of recent Choristidae; Rs variable, tending to pectination, but R₄₊₅ only two-branched; Sc long, almost as long as R₁. Hindwing (based on Choristopanorpa) with cubito-median Y-vein absent and M with only four branches; CuP and A₁ fused for part of their length.

Choristopanorpa differs from normal panorpids mainly in the typically five-branched M of the forewing. On rare occasions M is five-branched in recent panorpids.

Genus CHORISTOPANORPA novo

Genotype, Choristopanorpa bifasciata, sp. nov.

Forewing with Sc long, reaching into the pterostigma; Rs five-branched, extra fork on R₂, R₃₊₄ forking before R₄₊₅; M arising close to base, five-branched, the extra branch on M₃; cubito-median Y-vein well developed; three anal veins, A₁ fused for part of their length. The hindwing is very similar to that of recent panorpids.

Choristopanorpa bifasciata, sp. nov.

Forewing.—Wing rather large, costal space not greatly expanded, apex evenly rounded; Sc long, rather close to the costal margin, ending on the margin within the pterostigma and with a weak branch to the margin from towards its apex; R decidedly curved before the origin of R₁, R₂ curved within the pterostigma; pterostigma well developed, lower margin sharply defined by a distinct pterostigmatic groove almost equidistant from R₁ and R₂; R₃ arising in the basal third, R₄₊₅ forking slightly before R₃₊₄ with R₃ forking again at a level of about the middle of the pterostigma; M arising