

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, forewing with a five-branched media similar to that of recent Choristidae; R_s variable, tending to pectination, but R_{4+5} only two-branched; Sc long, almost as long as R_1 . Hindwing (based on *Choristopanorpa*) with cubito-median Y-vein absent and M with only four branches; CuP and A_1 fused for part of their length.

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

Genus CHORISTOPANORPA nov.

Genotype, *Choristopanorpa bifasciata*, sp. nov.

Forewing with Sc long, reaching into the pterostigma; R_s five-branched, extra fork on R_2 , R_{2+3} forking before R_{4+5} ; M arising close to base, five-branched, the extra branch on M_4 ; cubito-median Y-vein well developed; three anal veins, A_3 forked in the genotype. Hindwing with Sc long, simple; R_1 forked near apex, R_s typically five-branched but occasionally six-branched; M four-branched; cubito-median Y-vein absent; CuP and A_1 fused for part of their length. The hindwing is very similar to that of recent panorpidids.

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 petrostigma and with a weak branch to the margin from towards its apex; R decidedly curved before the origin of R_s , R_1 curved within the pterostigma; pterostigma well developed, lower margin sharply defined by a distinct pterostigmatic groove almost equidistant from R_1 and R_s ; R_s arising in the basal third, R_{2+3} forking slightly before R_{4+5} with R_2 forking again at a level of about the middle of the pterostigma; M arising