The External Features of the Heads of Leafhoppers

(Homoptera, Cicadelloidea)[1]

By

J. W. EVANS

Research Associate, Australian Museum, Sydney

(47 Bundarra Road, Bellevue Hill, Sydney 2023)

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Figures 1–65

[1] For the purpose of this study, the Membracidae, and related families (Aetalionidae, Nicomiidae, Biturritidae) which have been grouped together by Strümpel (1972) into the superfamily Membracoidea, are here included in the Cicadelloidea.

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SUMMARY

The external features of the heads of insects comprised in the superfamily Cicadelloidea are described and they are shown to be extremely unstable in comparison with those of insects in the other superfamilies of the Auchenorrhyncha.

By using a series of weighted characters an attempt is made to assess the evolutionary levels, and periods of geological origin, of the species selected for illustration. Possible homologies of the sclerites, sutures, and clefts, of the heads of leafhoppers are discussed.

1. INTRODUCTION

The heads of adult insects comprised in a single family or superfamily are usually stabilized at approximately the same level of evolutionary development and, moreover, resemble each other in general appearance. For this reason, insect groups, to which neither of these generalizations apply, are of unusual interest.

Outstanding, and possibly pre-eminent amongst such groups, is the superfamily Cicadelloidea. It is the purpose of this paper to draw attention to this phenomenon in leafhopper heads and to discuss its varied significance.

A claim that cicadelloid heads may differ more from each other in general appearance than do insects comprised in other superfamilies would, by itself, be impossible to substantiate. Thus, for example, the heads of insects in a related superfamily, the Fulgoroidea, are even more diverse in appearance. The differences, however, which separate fulgoroid heads from each other are essentially of a superficial nature unlike those between the heads of many of the Cicadelloidea. Some of the latter differ from others so considerably that heads of insects of presumed Mesozoic origin can be readily distinguished from others of more recent development, and differences may exist between the heads of species belonging to a single genus of a greater magnitude than the ones separating from each other the heads either of all the Cercopoidea or of all the Cicadoidea.

For purposes of comparison with the Cicadelloidea the basic structural characteristics of the heads of insects comprised in each of the three other superfamilies of the Auchenorrhyncha need to be noted.

2. HEAD CHARACTERISTICS OF THE FULGOROIDEA, CERCOPOIDEA AND CICADOIDEA

Fulgoroidea

The transclypeal suture is incomplete. The lora are *always* laterally associated with the postclypeus for its entire length. The maxillary plates are *always* narrow and largely concealed. The epistomal suture is *always* retained and facially situated, and subgenal sutures are sometimes present. The tentorium is complete but the anterior arms are weakly developed and their pits are difficult to locate. Except in the Tettigometridae, the paired ocelli are *always* close to the antennal bases and a median ocellus is occasionally retained. The frons is *always* separately defined and ventrally situated. The antennae, which arise from ring-like structures, are situated either in front of the eyes, or adjacent to their anterior margins.