The insects of Australia. A Textbook for Students and Research Workers. Supplement 1974. Division of Entomology, CSIRO, Canberra, Melbourne University Press 1974. viii + 146pp

34. Diptera (Flies) S. 91-96

Colless & McAlpine 1974

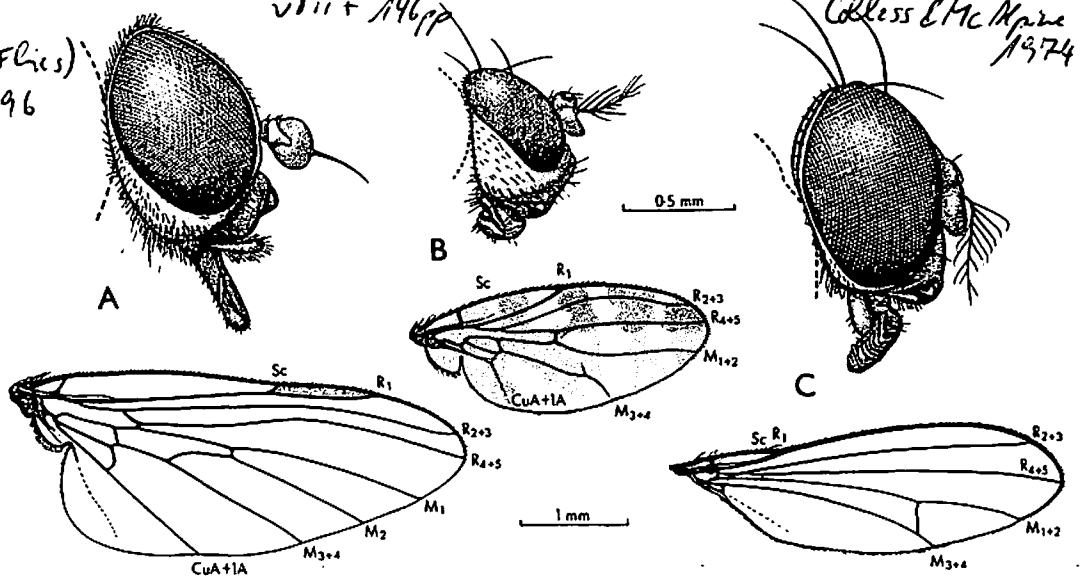

Fig. 34. A, *Ironomyia maculata*, Ironomyiidae; B, *Periscelis* sp., Periscelididae; C, *Axinota pictiventris*, Curtonotidae. [B. Rankin]

Series SCHIZOPHORA

In recent publications (Hennig, 1971a; Griffiths, 1972; Hori, 1967; Speight, 1969) many alterations have been made to the classification of Schizophora set out on p. **678**. Among the more important changes that we recommend are the separation of Agromyzoidea (Carnidae, Odiniidae, Agromyzidae, Fergusoninidae) from Opomyzoidea, and of Chloropoidea (Tethinidae, Canaceidae, Milichiidae, Chloropidae, possibly Cryptochetidae) and Brauloidea (Braulidae) from Drosophiloidea; the removal of Lonchaeidae and Pallopteridae to the Tephritoidea and of Coelopidae to the Sciomyzoidea; and addition of Eginiidae and Glossinidae to the Muscoidea.

The Tanypezoidea should perhaps include the Somatiidae and the recently established Neotropical Syringogastridae (Prado, 1969), to which the Papuan *Gobrya* (p. **722**) may be related. In Sciomyzoidea, the Helcomyzidae should probably be merged with Coelopidae. Griffiths raised the Helosciomyzinae (p. **724**) to family rank.

The Opomyzoidea are now restricted to the Neottiophilidae, Piophilidae, Opomyzidae, Clusiidae and Acartophthalmidae, of which only Piophilidae and Clusiidae are known in Australia. Its limits are still uncertain. The first 3 families have the face divided by vertical sutures into three panels, and in the Opomyzidae the median panel is desclerotized; in Clusiidae the face is more broadly membranous. All the families have the postvertical bristles widely divergent, or sometimes absent, and the tarsi cylindrical or almost so.

The Agromyzoidea are less diffuse. They have generally incurved lower fronto-orbital bristles, divergent (sometimes parallel) postvertical bristles, distinct vibrissae, sclerotized face not divided as in Opomyzoidea, a more or less reduced subcosta, and the cerci of the female fused or joined by a membrane.

Hennig (1971a) recognized a superfamily Anthomyzoidea, roughly equivalent to our Asteioidea, but including also Acartophthalmidae, Clusiidae, Opomyzidae, Chyromyidae and *Gayomyia* (p. **724**). At present we prefer the more restricted limits, and use the name Asteioidea which has priority.

The Drosophiloidea are best distinguished from Chloropoidea (Milichioidea) on the structure of the antenna (Hennig, 1971a).

The third antennal segment of Drosophiloidea has a basal dorsal tubercle fitting into a cavity in the second segment. The tubercle is absent in Chloropoidea, but present in several other families not often considered to be related, e.g. Platystomatidae, Periscelididae, and the presumed aulacigastrid genera *Cyamops* and *Stenomicra*. The position of the Cryptochetidae remains doubtful. The relationships of the Braulidae (discussed by Hennig, 1938) have been so obscured by specialization that treatment as a separate superfamily involves the least confusion.

The sequence below follows the new arrangement.

Pseudopomyzidae. Hennig (1969a, 1971c) has contributed further to the systematics of the family and described a fossil from Oligocene amber.

Micropezidae. Australian genera formerly placed in Calobatinae are better included in a separate subfamily Eurybatinae; they include *Cothornobata*, *Crepidochetus* and *Metopochetus* (D. McAlpine, in preparation).

Eurychoromyiidae. This should, perhaps, be used as a family to include *Gayomyia*, but there is no general agreement on it (J. McAlpine, 1968; Hennig, 1971a). *Gayomyia* may be distinguished from Australian chamaemyiids by having vein CuA+1A long and curved, R_1 with slight simple curvature distally, no narrow transverse swelling in front of scutellar suture, and shining black colour (our Chamaemyiidae are not shining and usually grey).

Lauxaniidae. A useful guide to world genera has been given by Stuckenberg (1971), but the generic assignment of many Australian species is still difficult. The Celyphidae probably do not merit separate family rank.

D. McAlpine (1967, 1968) has contributed to the systematics of the **Heleomyzidae**. The Australian **Sphaeroceridae** (O. Richards, 1973) include many introduced species of wide distribution. The subgenus *Leptocera* (*Biroina*), which is restricted to Australia and New Zealand, includes both winged and wingless species; the brachypterous *Otwayia* and apterous *Monteithiana* and *Bentrovata* are endemic to Australia.

Numerous additional genera and species of **Pyrgotidae** have been collected, bringing the species total to over 90; the hymenopterous mimic *Eumorphomyia* occurs in north Queensland. In **Tephritidae**, the interesting wasp-like genera *Phytalmia* and *Diplochorda*, formerly placed in a family Phytalmiidae, have also been collected recently in north Queensland; the males have peculiar cheek processes.

Platystomatidae have been revised, in part, by D. McAlpine (1973). On present evidence the genus *Duomyia* (p. **721**), with more than 70 species, is restricted to Australia. *Lenophila* is also endemic. The early stages of *L. dentipes* (Macq.) are evidently associated with *Eucalyptus*, but adults of the other 5 species are generally found on leaves of *Xanthorrhoea* and in 3 of them the larvae are known to live in the trunk of the plant.

In **Piophilidae** (=Thyreophoridae), further information on the genera has been given by Steyskal (1973).

Carnidae have the cerci of the female fused or joined by a membrane and the two spermathecae have complex sclerotized vesicles (Hennig, 1972); these are further points of distinction from Milichiidae. Griffiths (1972) proposed a separate family for *Australimyza*, but our studies tend to confirm its position in the Carnidae.

Hennig (1969a) provided a key to genera of **Odiniidae**. The Australian species, all rare in collections, belong, one each, in *Odinia*, *Traginops* and an apparently undescribed genus. A second genus of **Fergusoninidae** with large antennae not sunk into the facial cavities has been found in north Queensland, but its host plant is unknown.

Of the genera occurring in Australia, only the widely distributed, Old World, tropical *Amygdalops* remains in **Anthomyzidae**, and it would run out in couplet 52 of the key on p. **718**. *Cyamops* and *Stenomicra* were transferred to the **Aulacigastridae** by Hennig (1969a, 1971a), though their antennal structure is anomalous, and an undescribed Australian genus may also belong to this

family. Still another genus, considered to represent a new family, is associated with *Alocasia* in all stages, the larvae living among the developing fruitlets. It is related to an undescribed genus in southern Africa, and the Oligocene *Anthoclusia* could be the ancestor of both. Some Aulacigastridae would run to couplet 46, replacing Anthomyzidae there, and others to couplet 52, where they may be distinguished from *Amygdalops* by having only one strong fronto-orbital bristle, with a small setula close in front of it, and face entirely sclerotized, with median prominence bearing vibrissae below its summit. The remainder would run to the first half of couplet 29 (p. **717**), and may then be separated by the following couplet.

Ocellar bristles absent; Rs without bristles; 1 or 2 rows of acrostichal hairs or setulae ..... **Aulacigastridae** (pt)

Ocellar bristles present; Rs with 3 strong bristles dorsally towards base; mesonotum with numerous non-seriate hairs ..... undescribed genus near *Anthoclusia*

Periscelididae (Fig. 34B). A species of *Periscelis* has been collected recently in New South Wales and Queensland. It would run to couplet 52 (above), where it may be recognized by being a small broad fly (the others are slender) with broad wing, r-m and termination of R_1 near or beyond the middle, costa without trace of break or flexure, and cell M distinctly enclosed.

Asteiidae. A peculiar, primitive species recently found on Lord Howe Island has 3 reclinate fronto-orbital bristles and vein CuA+1A distinct but veins enclosing cell CuP obsolescent; the wing is otherwise rather like that of *Leiomyza* (Fig. **34.32B**). It has much in common with the Oligocene *Succinasteia* (Hennig, 1969b).

Curtonotidae (Fig. 34C). *Axinota pictiventris* Wulp from north Queensland, noted on p. **729**, remains the only Australian representative of the family.

The classification of the **Muscidae** was treated by Hennig (1965), and Australian muscids have been further studied by Pont (1969a, b, 1972, 1973a, b). *Neohelina*, which represents the **Eginiidae** in Australia, differs from the muscid genera among which it had been included by having the costa extending only to R_{4+5} (Pont, personal communication). Typical eginiids have a series of bristles on the mesopleuron and costa extending to M_1, which is not bent forward distally.

Calliphoridae. Kurahashi (1971) has reviewed the genus *Calliphora*, and Norris (1973) has drawn attention to some important features of nomenclature in that genus. P. Ferrar (unpublished) has found that several species of Ameniinae develop single larvae, which are 'nursed' *in utero* to an advanced stage of development. The same phenomenon is known to occur in the striking *Euphumosia papua* (Guérin), an exceedingly common species in Arnhem Land (Colless, in CSIRO, 1973).

Sarcophagidae. It is now known that *Parasarcophaga knabi* (Parker) breeds commonly, and apparently preferentially, in animal faeces, and its larvae form a significant element of the dung fauna (L. T. Woolcock, unpublished). The species occurs also in Oceania and the Oriental Region.

Tachinidae. A major advance has been the comprehensive study of the Rutiliini by Crosskey (1973a) which, for the first time, places a major group of our tachinids on a sound taxonomic basis. The vast array in other tribes, however, continues to pose an immense problem, particularly in view of heightened interest in their potential for control of pests. In the *Anagonia–Froggattimyia* complex, for instance, parasites of leaf-eating sawflies and chrysomelid beetles, there are more than 30 species and fewer than 10 valid names. A rare, perhaps unique, instance of a tachinid parasitizing other Diptera has been reported by Spratt and Wolf (1972), who reared *Bactromyiella* sp. nr *ficta* (Walk.) from adults of 2 species of *Dasybasis* (Tabanidae). Since the above was written, Crosskey (1973b) has published a catalogue of Australian Tachinidae, with keys to genera and host lists.

The taxonomy, biology, and zoogeography of our **Streblidae** and **Nycteribiidae** were comprehensively reviewed by Maa (1971).