On the Nomenclature of New Zealand Homoptera.

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IT is hoped to publish from time to time contributions towards a knowledge of New Zealand Homoptera (order Hemiptera or Rhynchota), or cicadas, leaf-hoppers, scale-insects, and aphides. These papers will, as previously, take the form of revisions of families or sub-families rather than descriptions of odd new species. But during the course of this work and especially in consequence of an examination of all the available types of New Zealand Homoptera in European museums, a number of nomenclatural changes involving species in several families have become necessary, and these are presented here *en masse* in order that they may be assimilated into New Zealand entomology without waiting for the revision of the families concerned.

I wish especially to thank Mr. W. E. China of the British Museum for facilitating in every way my study of the types at that institution during a part of the summer of 1925.

CICADIDAE.

The genus *Melampsalta* Kol. has been a pitfall to the taxonomist, and events have shown that it is hardly possible to elucidate the nomenclature of the New Zealand species without extensive series and a knowledge of the insects in the field. Apparently the Fabrician and Walkerian types of New Zealand cicadas were examined by Kirby, Staal, Distant, and Kirkaldy, and different interpretations published. I am unfortunately compelled to differ from many of these views, and especially from those of Distant to which I subscribed in 1921, when my revision of the N.Z. species was published. My only excuse for supposing that the interpretation now offered is final is that I have examined extensive series of most of the species, from most parts of their range, and comprising several thousands of specimens; that I have studied the internal genitalia in greater detail than my predecessors, and observed the insects in the field, where the song is a specific character of great importance.

The full synonymy is not given here but only the references essential to demonstrating clearly the changes in nomenclature. Species not mentioned stand as in my *Revision* of 1921 (*Trans. N.Z. Inst.*, 53, 238-50, pl. 45-6).

Melampsalta cingulata (Fabr.)

The type material in the British Museum (Banksian collection) consists of two entirely normal males. Walker's type of *Cicada indivulsa* is a rather stout female of *cingulata*, while *C. mundosa* of the

same author is a typical male with the pygophor missing. This synonymy has been correctly indicated by previous writers and in addition *Cicada zealandica* Boisd. is apparently referable to the same species. At the Museum of Natural History, Paris, Mons. E. Séguy, in charge of Diptera and Hemiptera, kindly showed me the New Zealand cicada material, but Boisduval's type was not among it and is apparently no longer to be found.

Melampsalta cruentata (Fabr.).

The type material in the Banksian collection is in good condition and comprises two males, one corresponding to Walker's *Cicada cincta* and the other to *M. indistincta* Myers, which as I shall show later is identical with Walker's *C. nervosa* and *C. sericea.* The excellent and appropriate description of *cruentata* by Fabricius agrees in every respect with *cincta,* and not with the second species. It is extraordinary that subsequent workers, including myself, should have confused this species after reading the description, even without seeing the type. The relevant synonymy will stand as follows,—

M. cruentata (Fabr.) nec Staal, Distant, Hutton, Kirkaldy, Myers,

Syn. *M. cincta* (Walk.) et auctt., the type of which is a normal male of moderate size.

Melampsalta sericea (Walk.), 1850, p. 169.

The type is an average female of the species described by myself (*Revision,* p. 245) as *M. indistincta.* The type of *Cicada nervosa* Walker (*Cat. Homopt. B.M.,* 1850, p. 213) is a normal male of the same species and has thus nothing whatever to do with the alpine *M. cassiope* (Huds.) which was ranged with it under the synonymy of the purely Australian *M. quadricincta* (Walk.) which again is quite distinct from either. It is hoped to figure the male genitalia of all these forms in a larger forthcoming work.

Melampsalta muta (Fabr.), Kirby (part), Distant (part), Hudson (part), Hutton, Kirkaldy; nec Myers.

The type material in the Banksian collection comprises two females,—a stout South Island example (labelled "Forster") of var. *subalpina* (Huds.), and a smaller and more typical specimen of the very common lowland form hitherto known as *cruentata* (*Revision,* p. 244). The latter agrees better with the description and is therefore to be considered the holotype. The commonest cicada of New Zealand, which has been a puzzle so long on account of its intense variability and sexual dimorphism, becomes, therefore, once more *M. muta,* as indeed it was considered until Distant restricted that name to the green varieties of the same species and at the same time extended it to include the distinct, unicolorous green species called by Hudson *Cicada aprilina,* but henceforth to be known as *M. ochrina* (Walk.).

The synonyms of *M. muta* include the following types of Walker, all of which were examined.—

Cicada rosea Walk., a large and not very dark male. Possibly a faded example of the var. *cutora* Walk.

C. angusta, a buff and blackish male, slightly pubescent and resembling examples taken by Dr. Tillyard at Mt. Cook, at an elevation of 2,500 feet.

C. bilinea, a small greenish female of the type form.

C. cutora Walk., a long-winged green female belonging to a distinct variety co-ordinate with var. *subalpina,* and to be described as such in a forthcoming paper. I suggested (*Rep. Austr. Ass. Adv. Sci.,* (1923), p. 428, 1924) that the latter was entitled to specific rank, but almost immediately afterwards a series of strictly intermediate forms was found at the Dun Mountain, Nelson, connecting it with the type.

Melampsalta ochrina (Walk.)

The type is a rather small, beautiful yellow specimen of the unicolorous green species described by Hudson as *Cicada aprilina.* This type may be either a faded specimen, or as seems from its brightness more probable to me, an example of a colour-variety which I have taken in the field and which differs from the normal only in the replacement of the green coloration by a beautiful clear yellow. Be this as it may, Walker's name unfortunately has priority and must be retained for this species. Synonyms are,—

Cicada aprilina Hudson,

M. muta Distant (part), Myers, nec Fabricius.

Melampsalta scutellaris (Walk.).

The type is a male agreeing exactly with the current conception (*Revision,* p. 242). *Cicada arche* Walk. (suggested by Kirby as a synonym of *scutellaris*), *C. telxiope* Walk. and *C. duplex* Walk. form a possibly conspecific group with no resemblance to any New Zealand species and least of all to *M. scutellaris.*

Melampsalta mangu Buchanan White.

The Buchanan White collection is in the Perth Museum in the north of Scotland. Great thanks are due to Mr. W. E. China for his care in securing a loan of some of this type material, and to the Perth and British Museum authorities for allowing me to study one of the cicadas in America. Buchanan White (*Ent. Monthl. Mag.,* v. 15, p. 214, 1879) evidently had two species before him, comprised in four examples from "Porter's Pass, Canterbury, about 3,500 feet," collected by Wakefield. The bulk of the description seems to refer to the common alpine cicada named by Hudson, *C. cassiope,* but hitherto placed in the synonymy of the Australian *M. quadricincta* (Walk.) (*Revision,* p. 246). But the only remaining material of *M. mangu* in the Buchanan White collection is a female in poor condition labelled "*mangu*" presumably in White's handwriting, and with the locality "Porter's Pass," but lacking a date. It is reasonable to suppose that this example is one of the original four, and therefore by elimination to be considered the type of *mangu.* It is not conspecific with *M. cassiope* but with a form of which I have a series from the Dun Mountain, Nelson, and which I was about to describe as new. This species was not known to me when I wrote the *Revision* (1921). Buchanan White's specimen differs only in the fact that the hind-

tibiae have a dark ring near the middle, but the leg colouration in *Melampsalta,* especially in the mountain forms, seems very variable. The larger and altogether-black species mentioned by Buchanan White at the close of his description, is probably conspecific with a third large alpine species which I have under a manuscript name.

Melampsalta cassiope (Huds.).

This, our commonest alpine cicada, distinguished at sight by the strong reddish tinge ventrally, and with very distinct male genitalia, was placed by Distant under the synonymy of *M. quadricincta* (Walk.) described from "New Holland." But the type of the latter, collected by Capt. Grey at King George's Sound, S.W. Australia, is an entirely different insect, more nearly related to *M. sericea* (Walk.) (= *M. indistincta* Myers). As might have been expected none of the European workers received specimens of our alpine cicada until long after Walker's time. Buchanan White probably had examples when describing his *M. mangu,* but as shown above his remaining material is not referable to *cassiope.* Hudson's name, *cassiope,* therefore stands,—a conclusion eminently fitting in view of his tremendous contributions towards the study of New Zealand alpine insects and their distribution.

Melampsalta lindsayi (Myers), (*Pauropsalta*).

Melampsalta maorica (Myers), (*Pauropsalta*).

On wing-venation almost alone the writer placed these two species in the genus *Pauropsalta* Goding and Froggatt, but a study of further material, and especially of the male genitalia of *lindsayi* (the other species being still represented by a female only) shows that they are undoubtedly congeneric with the other New Zealand cicadas. However congested the genus *Melampsalta* may be, the removal of these two little species into another genus would obscure their relationships.

The writer has two other species of the genus *Melampsalta* to describe. These are both montane or alpine, and show the great need for further material from such localities, not so much for the obtaining of possible further new species as for the elucidation of the races and distribution of those now known.

List of species of *Melampsalta* involved in nomenclature changes.

Valid name.	Name in *Revision,* 1921.
M. cruentata (Fabr.)	*M. cincta* (Walk.)
sericea (Walk.)	*indistincta* Myers.
muta (Fabr.)	*cruentata* nec Fabricius.
ochrina (Walk.)	*muta* nec Febricius.
mangu Buchanan White	placed as syn. of next.
cassiope (Huds.)	*quadricincta* nec Walker.

In addition, the two species *lindsayi* Myers and *maorica* Myers, referred to *Pauropsalta* in 1923 (*Trans. N.Z. Inst.,* 54, p. 431) are removed to *Melampsalta.*

CERCOPIDAE.

The types of Walker and of Adam White were examined at the British Museum, but further study is needed to elucidate them. It is hoped to revise all the New Zealand species in the near future.

CICADELLIDAE (Jassoidea).

In my " Contribution to the study of New Zealand Leaf-hoppers and Plant-hoppers " (*Trans. N.Z. Inst.*, 54, pp. 407-429, 1923) the following changes are desirable.—

p. 408. Tettigoniellinae should be Cicadellinae.

Paropiinae should be Ulopinae. None of the former subfamily is yet known from New Zealand.

The seven species placed in the genus *Diedrocephla* Spinola belong to the tribe Errhomenellini. Professor C. F. Baker, to whom I am indebted for much help and many valuable suggestions, considers that they belong or are very close to *Tylozygus* Fieber. This European genus was erected in 1866 (*Verh. z.-b. Ges.* Wien, p. 501, t. 7, f. 11) for the *Tettigonia nigrolineata* of Herrich-Schaeffer (*Panz., Faun. Germ.*, 164, 17). The type species was founded on material (one? example) said to have come from Bohemia, but Melichar (1896) in his *Cicadinen von Mittel-Europa* comments on the fact that it has never been rediscovered and suggests that the original material may have come from North America. But the genus is at present as unknown in North America as in Europe.

I have compared the New Zealand material with Fieber's careful diagnoses, both the original cited above and the amplified one in *Cicadines d'Europe*, (1875, diagnosis; 1876, figures). There are several divergences in the shape of the head and the venation, so that there may be grounds for erecting a new and endemic genus for the New Zealand forms. For the present they may, however, be left in *Tylozygus*, to which they are certainly related.

CIXIIDAE.

In my paper, " New Zealand Plant-hoppers of the family Cixiidae" (*Trans. N.Z. Inst.*, 55, 315-26, 1924), the following changes are unfortunately necessitated by an examination of the types in the British Museum and a comparison of the genitalia.

Koroana interior (Walk.).

Walker's type of *Cixius interior* is undoubtedly conspecific with my *Koroana helena* (l.c., p. 319). His *C. rufifrons* is also referable to the same species. Mr. W. E. China kindly checked both these determinations with me. The synonymy is thus as follows,—

Koroana interior (Walk.), nec Myers (*Cixius*), = *Koroana helena* Myers,
Cixius rufifrons Walk.

Cixius aspilus Walk.

The type of *C. aspilus* is now a clear testaceous of the shade which has often been originally green. It shares with the New Zealand green *Cixius* (*interior Myers,* nec Walker) the possession of very long macrotrichia conspicuous when one looks across the surface of the tegmen. These bristles are long, black, and strong and are much less developed in other species of *Cixius, Koroana,* and *Oliarus.* The genital styles are identical, and I have no hesitation in confirming Mr. Muir's identification of this with our green species, which must hence be known as *C. aspilus* instead of *C. interior.*

Oliarus oppositus (Walk.).

As suggested in 1924 (l.c., p. 324) *C. marginalis* Walk. is undoubtedly conspecific with this. The types of both species were examined. The tip of the abdomen of *marginalis* is missing, but the specimen is apparently a female, while the type of *oppositus* is a male.

COCCIDAE.

In my " Synonymic Reference List of New Zealand Coccidae " (*New Zealand Journ. Sci. Techn.,* 5, pp. 196-201, 1922) the following changes are necessary,—

p. 197. *Coelostomidia compressa* (Mask.) has been made the type of a new genus, *Platycoelostoma* Morrison, (*Proc. U.S. Nat. Mus.,* 62, p. 34, 1923).

p. 198. *Ripersia rumicis* is the type of the genus *Ripersiella* Tinsley.

p. 200. *Chionaspis dubia* Mask. belongs to the genus *Phenacaspis.*

Leucaspis cordylinidis has not been recorded from New Zealand. The reference should be to *Lepidosaphes cordylinidis* (Mask.) which is quite another species. I am indebted to Mr. G. Brittin for pointing out this error.

p. 201. *Aspidiotus carpodeti, A. buddleiae* and *A. epidendri* are all generally accepted as synonyms of *A. hederae* (Vall.).

Lepidosaphes metrosideri was made the type of the genus *Anoplaspis* Leonardi, and Morrison describes a second species, *Anoplaspis maskelli,* from New Zealand (*Proc. U.S. Nat. Mus.,* 60, p. 112, 1922).