The Male Genitalia of the New Zealand Carposinidae.

By Alfred Philpott, Hon. Research Student in Lepidoptera, Cawthron Institute, Nelson.

[*Read before the Nelson Philosophical Society, 4th July, 1928; received by Editor, 16th July, 1928; issued separately, 16th November, 1928.*]

The Carposinidae form a small family, comprising about a hundred species, chiefly characteristic of Australia and the Hawaiian Islands, but having a few outliers in other regions, as India, Europe, and North America. Though formerly placed under the Tortricoidea, the Carposinidae have latterly been disassociated from that group by several systematists and relegated to a position near the Orneodidae and the Copromorphidae. In the venation the forewing departs from the Tortricid type in the nearness of the origin of Cu 1b to the angle of the cell, in the hindwing by the absence of two branches of M; the tufts of raised scales on the forewing are also quite an unusual character. The labial palpi are certainly more or less Tortricid, but the maxillary palpi seem to be absent or extremely atrophied, whereas in normal Tortricids there are from two to four segments present. The antennae again, with their long fine ciliations, depart markedly from the usual Tortricid structure. It is in the male genitalia, however, that the greatest departure from the Tortricoidea is exhibited. Here the two groups have practically nothing in common, the Carposinidae having neither socii nor gnathos and possessing harpes and aedeagus of an altogether different type from the Tortricoidea.

Only one genus of the Carposinidae is represented in New Zealand; this is *Carposina,* of which 15 species have been recorded. Ten of these are dealt with in the present paper, together with a form from Auckland Island previously regarded as a variety of *gonosemana* Meyr. *C. epomiana,* described by Meyrick and afterwards sunk as a synonym of *gonosemana,* proves to be distinct from that species and with Mr. Meyrick's concurrence, is here resuscitated.

Carposina Herrich-Schaffer.

The genitalia are comparatively simple; though there has been considerable specialization the parts are not of elaborate or intricate structure, and there is little difficulty in their interpretation.

The tegumen is well developed and ends in a long thin strongly-curved uncus. Usually the shoulders of the tegumen (the areas on each side of the base of the uncus) are produced into a pair of processes, which may be long and sharp or short and rounded; frequently these bear a patch of stiff spines. Ventrally the margins of the tegumen are usually broadly and irregularly folded inwards, the edges being armed with double series of minute spines or teeth. There is no trace of socii or gnathos. The vinculum is small and weak, the thin arms articulating with the bases of the harpes. The aedeagus consists of a rather long and very thin basal rod, which

opens apically into a concave spoon-like plate the apex of which is cleft into two asymetrical portions. The ductus ejaculatorius connects with this structure at the base of the expanded part and lies along the concave portion. Patches of cornuti, differing greatly in the several species, are frequently, but not invariably, present towards the apex of the aedeagus. In some species the left apical process of the aedeagus is produced into a long ribbon-like filament which protrudes beyond the harpe. As far as I am aware, a similar structure has not been observed in any lepidopterous group; I propose to name it the "vitta." The juxta consists of a pair of short or moderate finger-like processes rising from a small basal plate. The harpes are long and moderately broad. They are divided into a small and simple sacculus and a long cucullus, which often bears one or more processes on its costal margin; a small process (ampulla of Pierce?) is usually present near the base of the sacculus.

KEY TO THE SPECIES OF *CARPOSINA*.

1.	Harpes with processes on costal margin	2.
	Harpes without processes on costal margin	8.
2.	Harpes with apex of cucullus evenly rounded	3.
	Harpes with apex of cucullus produced into a point costally	4.
3.	Lobes of juxta long and narrow	*contactella* Walk.
	Lobes of juxta short and broad	*gonosemana* Meyr.
4.	Aedeagus with long apical filament	5.
	Aedeagus without long apical filament	*iophaea* Meyr.
5.	Harpes with apical costal process slight; "ampulla" short, not clavate; juxta with lobes rather incurved apically	*charaxias* Meyr.
	Harpes with strong apical process; "ampulla" rather long, clavate; juxta with lobes not incurved apically	6.
6.	Harpes with apical process blunt and median process short	*cryodana* Meyr.
	Harpes with apical and median costal processes pointed and fairly long	7.
7.	Harpes with apex rectangularly excised; juxta v-shaped basally	*epomiana* Meyr.
	Harpes with apex roundly excised; juxta u-shaped basally	n. sp.
8.	Harpes with median area of costal margin scobinate	*exochana* Meyr.
	Harpes with median area of costal margin not scobinate	9.
9.	Inner margins of tegumen armed with minute teeth	10.
	Inner margin of tegumen not so armed	*adreptella* Walk.
10.	Harpes with sacculus long, markedly narrowed basally; aedeagus without cornuti; juxta with broad basal plate, lobes slightly dilated	*eriphylla* Meyr.
	Harpes with sacculus moderate, little narrowed basally; aedeagus with lateral patches of cornuti; juxta with narrow basal plate, lobes not dilated	*maculosa* Philp.

LETTERING.

(Lettering: ae, aedeagus; ap, ampulla; c, cornuti; cu, cucullus; de, ductus ejaculatorius; h, harpe; pt, apical processes of tegumen; sa, sacculus; sc, saccus; t, tegumen; u, uncus; v, vinculum; vi, vitta. Unless otherwise stated the views of the genitalia (A) are from the lateral aspect, those of the harpes (B) are from within, and those of the tegumen (C) central ones.)

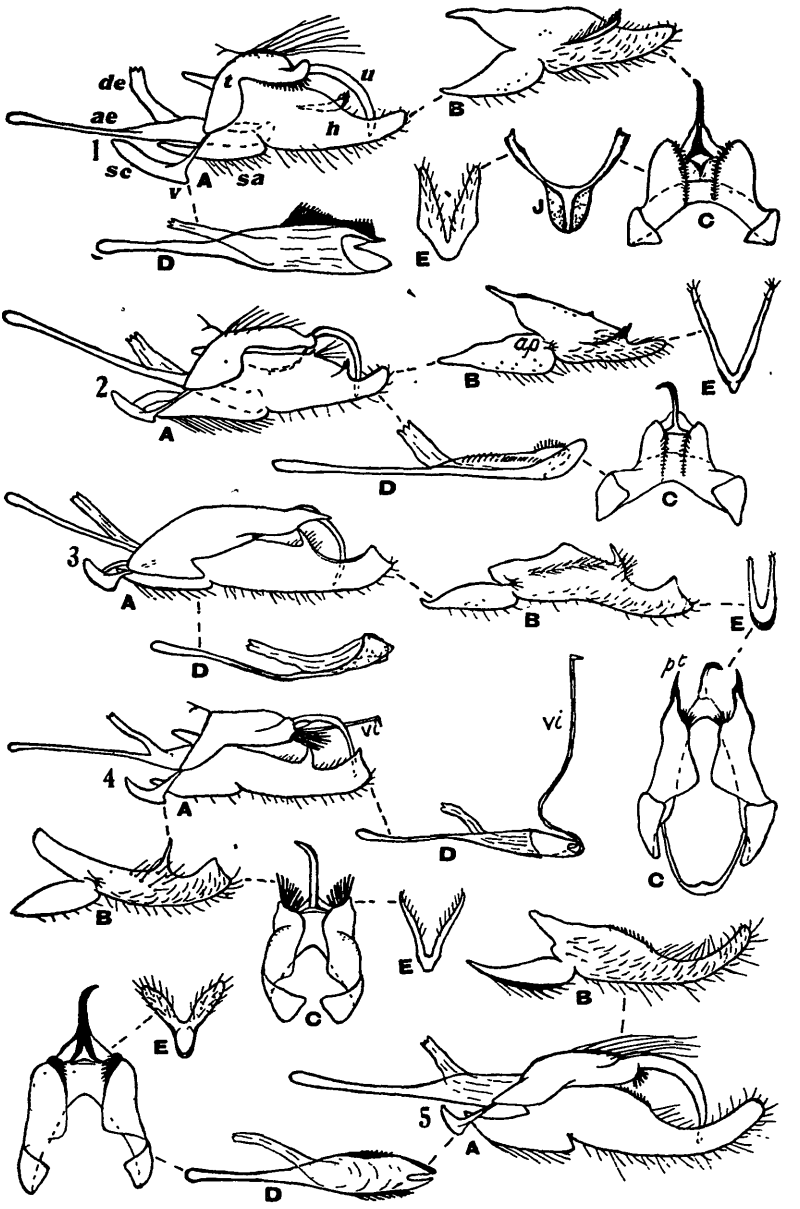

FIG. 1.—*Carposina gonosemana* Meyr. A, male genitalia. B, harpe. C, tegumen. D, aedeagus, dorsal view. E, juxta. J. vinculum.

FIG. 2.—*C. contactella* Walk. A, male genitalia. B, harpe. C, tegumen. D, aedeagus, lateral view. E, Juxta.

FIG. 3.—*C. iophaea* Meyr. A, male genitalia. B, harpe. C, tegumen and vinculum. D, aedeagus, lateral view. E, juxta.

FIG. 4.—*C. charaxias* Meyr. A, male genitalia. B, harpe. C, tegumen. D, aedeagus, dorsal view. E, juxta.

FIG. 5.—*C. exochana* Meyr. A, male genitalia. B, harpe. C, tegumen. D, aedeagus, dorsal view. E, juxta.

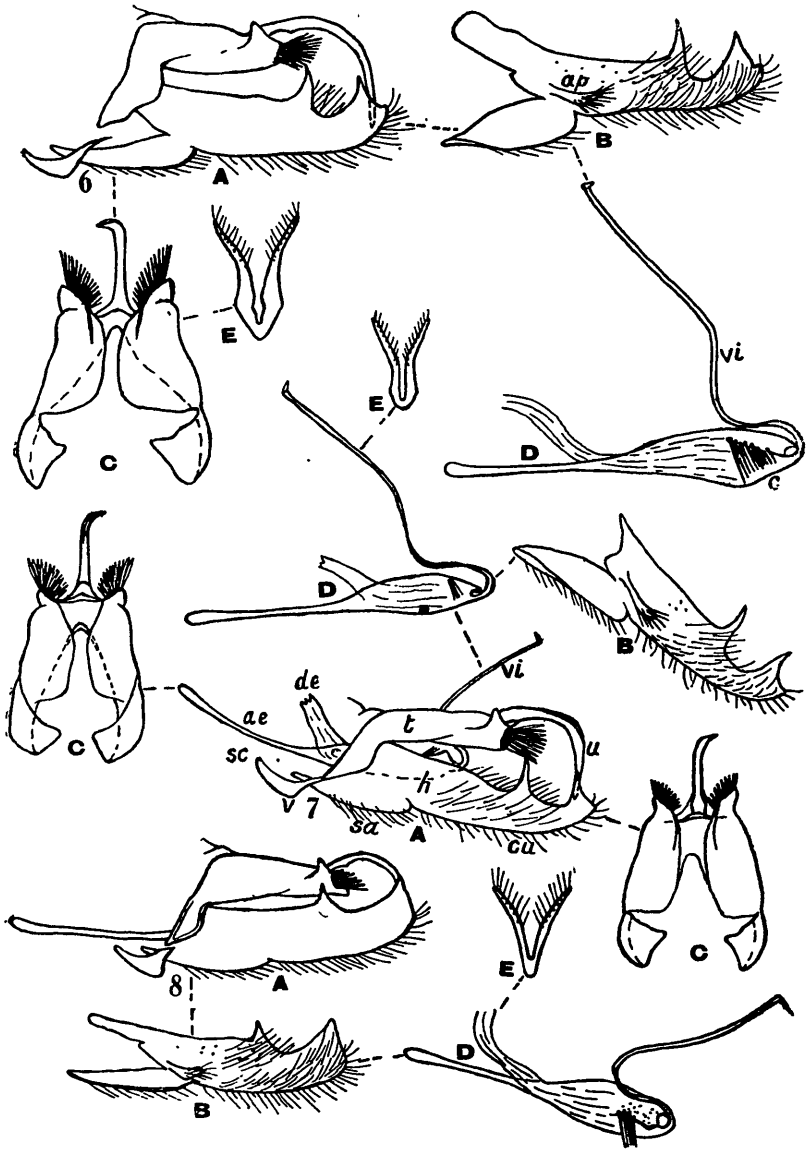

FIG. 6.—*C. epomiana* Meyr. A, male genitalia. B, harpe. C, tegumen. D, aedeagus, dorsal view. E, juxta.

FIG. 7.—*C.* n. sp. A, male genitalia. B, harpe. C, tegumen. D, aedeagus, dorsal view. E, juxta.

FIG. 8.—*C. cryodana* Meyr. A, male genitalia. B, harpe. C, tegumen. D, aedeagus, dorsal view. E, juxta.

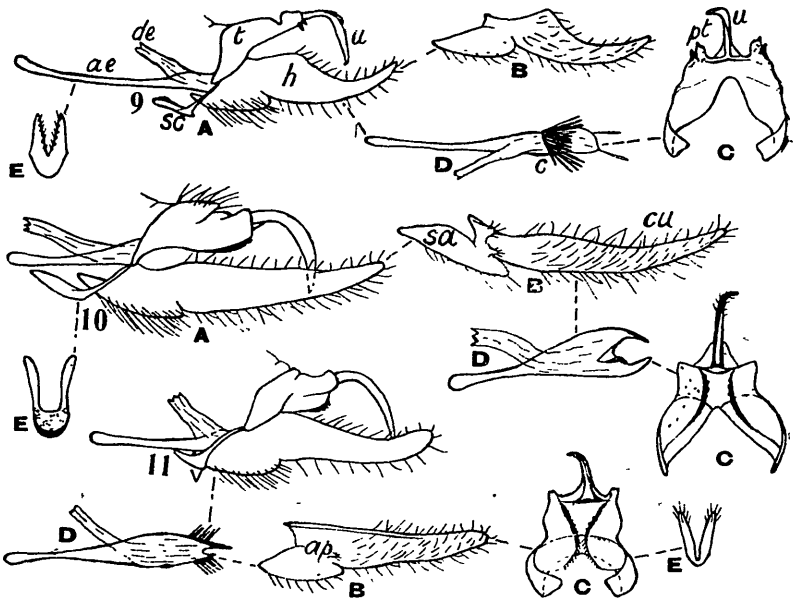

FIG. 9.—*C. adreptella* Walk. A, male genitalia. B, harpe. C, tegumen. D, aedeagus, dorsal view. E, juxta.
FIG. 10.—*C. eriphylla* Meyr. A, male genitalia. B, harpe. C, tegumen. D, aedeagus, dorsal view. E, juxta. J, vinculum.
FIG. 11.—*C. maculosa* Philp. A, male genitalia. B, harpe. C, tegumen. D, aedeagus, dorsal view. E, juxta.