

2. Metallic-black species; front rather narrow (1, 2, 3). *Lonchæa*.
Yellow or yellowish species; front broad (p. 80, 15). *Palloptera*.
3. Arista with short and dense plumosity; anterior fronto-orbital bristles proclinate (10, 11). *Pachycerina*.
Arista bare, pubescent or loosely plumose; anterior fronto-orbital bristles reclinate. 4
4. Face broad, in profile strongly convex below (6, 7). *Physogonua*.
Face receding, flattened or gently arched. 5
5. First posterior cell much narrowed in the margin (12). *Griphoneura*.
First posterior cell not or but slightly narrowed in the margin. 6
6. Shining black species; third joint of antennæ more elongate (8, 9). *Lauxania*.
More or less yellow or pollinose species; third joint of antennæ less elongate (4, 5). *Sapromyza*.*

* From the description and figures I can discover no differences, save the imperfect anal cell, an unimportant character, to distinguish *Chalocalia* from those species of *Sapromyza* having pictured wings.



Sapromyza, species; enlarged.

Williston, 1908

XLI. FAMILY AGROMYZIDÆ.

Front broad, with or without bristles. Antennæ short, the third joint usually rounded, sometimes a little elongate or subquadrate; oral vibrissæ usually present. Arista bare or pubescent, never distinctly plumose; rarely wanting. Genitalia rarely prominent. Wings broad; auxiliary vein vestigial or indistinct, never clearly separated, save sometimes in its proximal part, from the first vein. Second basal and anal cells always small, oftentimes indistinct, or the second basal united with the discal; cross-veins often much approximated, never very remote from each other.

This family of small or minute flies, as here defined, includes four or five groups which various authors have either given independent rank or united with other groups. Czerny would unite the Ochthiphilinæ with the Sapromyzidæ, in which view I do not concur. The limits of the Agromyzinæ and Milichinæ, if there be any, will only be determined for our American genera by a more exhaustive study than I can give to them; several of the genera I do not know: *Eusiphona*, *Hemeromyia*, *Arctobiella*, *Parodinia*. Czerny and Hendel make different combinations than do most other authors. The Agromyzinæ, according to these authors, have divergent post-vertical bristles, the Milichinæ and Ochthiphilinæ convergent.

From the Drosophilidæ the members of this family will be distinguished easily (in the American forms) by the nonplumose or nonpectinate arista. Nearly all the genera are at once distinguished from the Oscinidæ and Ephyrinidæ by the distinct, though small, posterior basal cells; but this character is sometimes difficult to detect

Williston, 1908

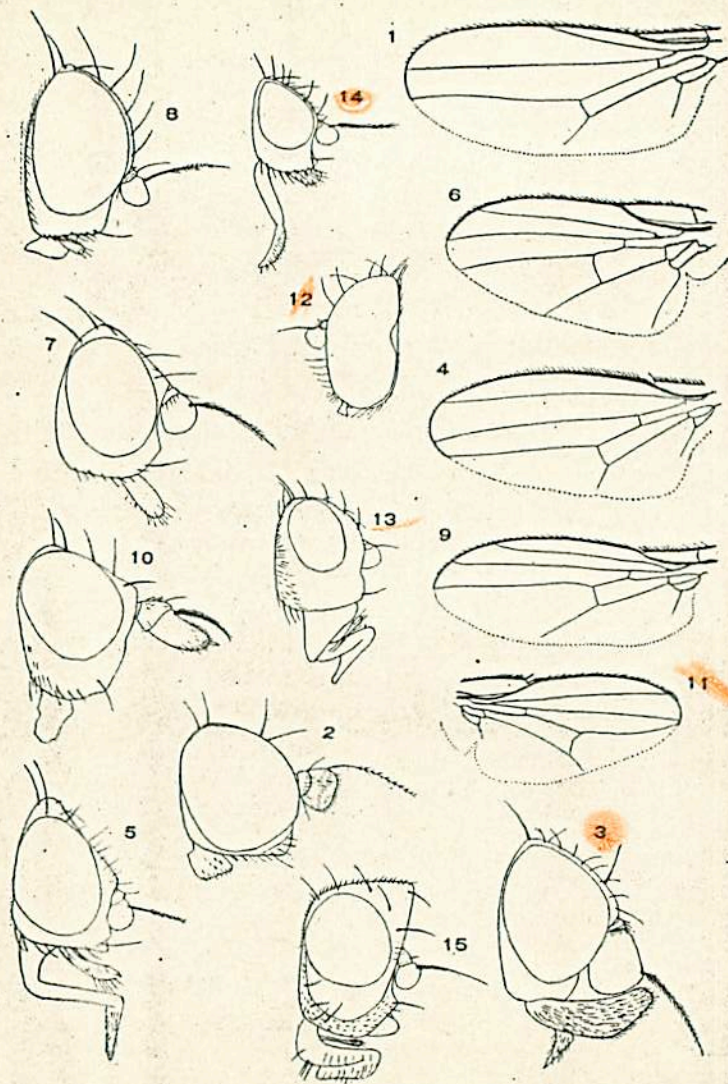
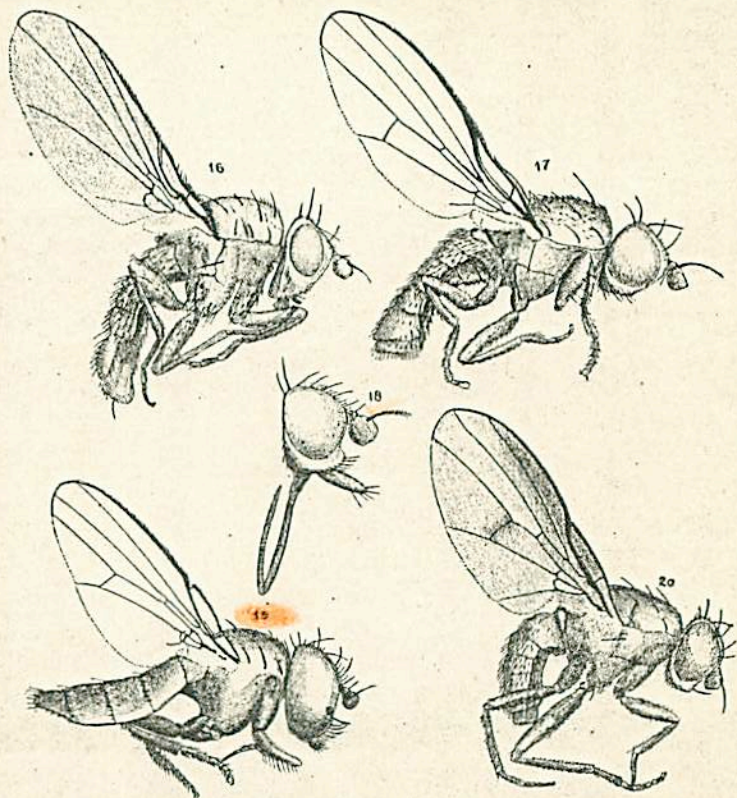


Fig. 115.



Figs. 115, 116. Agromyzidæ, 1, *Aulacigaster*, n. sp. (West Indies), wing; 2, *Aulacigaster*, same species, head; 3, *Phyllomyza magnipalpis*, head (♂); 4, *Platophrymyia nigra*, wing; 5, *Platophrymyia*, id. head; 6, *Agromyza xanthophora*, wing; 7, *Agromyza* (gen. nov.?) head (♂); 8, *Agromyza jucunda*, head; 9, *Ceratomyza dorsalis*, wing; 10, *Ceratomyza*, id. head; 11, *Ophthalmomyia lacteipennis*, wing; 12, *Ophthalmomyia*, id. head (♂); 13, *Rhicnoessa cinerea*, head (♂); 14, *Desmommetopa*, sp. head; 15, *Traginops irrorata*, head (Coquillett); 16, *Phytomyza*, sp. Phytomyzinæ; 17, *Ochthiphila polystigma*, Ochthiphilinæ; 18, *Paramyia*, sp. (Georgia), Phytomyzinæ (?); 19, *Miliichia leucogaster*, Milichinæ; 20, *Agromyza*, sp., Agromyzinæ.

in such small insects, and will usually require the use of a compound microscope; indeed such a microscope, with a one inch or half inch objective, is advised for the study of most of the species of the family. The absence or presence of the basal cells is not an important character in these and allied flies, and may not even have specific value. *Aulacigaster* has been located in various families, but it seems to find its most natural place here. From the Geomyzidæ the distinction of some of the genera is very difficult, if not impossible at present. One would better consult that family in case of doubt.

The larvæ of *Phytomyza*, and probably also of *Paramyia*, are leaf miners; those of *Ochthiphila* have been found in the galls of *Triticum repens*. The larvæ of *Agromyza* are elliptical in shape, the hind stigmata situated upon small rounded plates on the under side of the last segment; the abdomen is provided with false legs, without bristles. The larvæ of *Leucopis* are cylindrical, thicker posteriorly; the skin roughened with short hairs; hind stigmata elongate, tube-like and widely separated. The larvæ creep leech-like, or like geometrid larvæ.

TABLE OF GENERA.

1. Posterior cross-vein absent (Phytomyzinæ).	2
Posterior cross-vein present.	3
2. Proboscis elongate, folding; palpi long and thickened (18).	
	<i>Paramyia</i> .
Proboscis and palpi not elongated (16).	<i>Phytomyza</i> .
3. First posterior cell narrowed in the margin; proboscis long and geniculate.*	<i>Eusiphona</i> .
First posterior cell not or but slightly narrowed in the margin.	4
4. Posterior cross-vein situated before the middle of the wing, the two cross-veins approximated.	5
The cross-veins not approximated.	12

*I do not know this genus, originally described as a tachinid; it must have a curious resemblance to *Stylogaster* (Conopidæ).

5. Posterior cross-vein opposite or before the anterior cross-vein, that is the second basal and distal cells together are but little longer or shorter than the first basal cell.	<i>Napomyza</i> .
Posterior cross-vein at least its own length beyond the anterior cross-vein.	6
6. The third antennal joint terminates in a spiny point (9, 10).	<i>Ceratomyza</i> .
Third antennal joint not terminating in a spiny point.	7
7. Third antennal joint rounded, of moderate size.	8
Third antennal joint very large, subquadrate (3).	<i>Phyllomyza</i> .
8. Arista wholly wanting; second basal and discal cells confluent.	<i>Cryptochætum</i> .
Arista present.	9
9. Proboscis long and geniculate.	10
Proboscis short and not geniculate.	11
10. Front long and plane, or concave, longitudinally (4, 5).	<i>Platophrymyia</i> .†
Front shorter and convex (14).	<i>Desmometopa</i> .
11. Vibrissæ distinctly above oral margin; face strongly convex.	<i>Hemeromyia</i> .
Vibrissæ not distinctly above the oral margin (6, 7, 8, 20).	<i>Agromyza</i> .
No distinct vibrissæ (see Ephyridæ, (25, 36)).	<i>Pelomyia</i> .
12. Second basal cell united with the discal cell; first basal cell but little longer than the anal (1, 2).	<i>Aulacigaster</i> .
Discal cell separated from the second basal.	13
13. Oral vibrissæ present (Milichinæ).	14
Oral vibrissæ wanting; postvertical bristles convergent; auxiliary vein usually distinct from first longitudinal through a considerable part of its course (Ochthiphilinæ).	21
14. Costa with a distinct incision before the tip of the first vein.	15
Costa not with such incision.	16
15. First posterior cell narrowed in the margin; posterior orbits with a distinct incision (11 12).	<i>Ophthalmomyia</i> .
First posterior cell not narrowed in the margin; posterior orbits not incised (19).	<i>Milichia</i> .

† I am not sure of the distinction of this genus from *Desmometopa*.

16. Front projecting forward anteriorly in a high angular eminence (15). **Traginops.**
Front not so projecting. 17
17. Vibrissæ not well differentiated from the adjacent hairs; rather thickly haired species; eyes densely pubescent. **Arotobiella.**
Vibrissæ distinctly differentiated. 18
18. Mesonotum with bristles on the sides only. **Cacoxenus.**
Mesonotum with bristles in the middle also. 19
19. Only two pairs of fronto-orbital bristles. **Parodinia.**
Three or four pairs of fronto-orbitals. 20
20. In addition to the usual fronto-orbital bristles there is an inner row of frontal bristles or bristly hairs (13). **Rhinoessa.**
No additional row of bristles. **Odinia.**
21. Head triangular in outline, the front strongly projecting, the face much retreating, almost horizontal. **Acrometopia.**
Head not of such form. 22
22. No orbital or ocellar bristles. **Leucopsis**
Orbital bristles present. 23
23. Front with a transverse groove near the middle. **Pseudodinia.**
Front not with transverse groove (17). **Ochthiphila.**

XLII. FAMILY GEOMYZIDÆ.

Head rounded, usually with vibrissæ at oral margin; front broad, with one, two or three pairs of fronto-orbital bristles; postvertical bristles convergent. Antennæ short, the third joint rounded or a little elongated, with a bare, pubescent, pectinate or plumose arista. Wings comparatively long; auxiliary vein always coalescent distally with the first vein; posterior basal and the anal cells small but distinct.

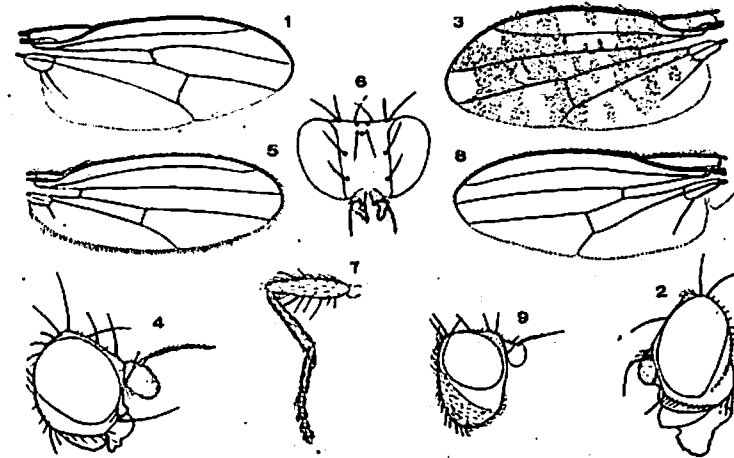


Fig. 117. Geomyzidæ. 1, *Sinophthalmus pictus*, wing; 2, *Sinophthalmus pictus*, head; 3, *Spilochroa ornata*, wing; 4, *Spilochroa ornata*, head; 5, *Anthomyza tenuis*, wing; 6, *Anthomyza tenuis*, front; 7, *Anthomyza tenuis*, front leg; 8, *Chiromyia flava*, wing; 9, *Chiromyia flava*, head.

This small group of small flies, as here limited, includes the Geomyzidæ and Opomyzidæ of Loew, and the Anthomyzidæ of Czerny. The limits of the family are