

with it; these together form a basis for the Group-unit *Exoristia*.

The eleven family types indicated in the diagram farther on show pronounced adult characteristics which cause them to stand forth prominently, as in bas-relief, from the mass of the Muscoidea. These characteristics are reinforced by valuable characters drawn from the eggs, early stages and reproductive system. But the limits of the groups which these eleven family types represent are often greatly obscured in the external anatomy of the adult, and it is the function of the egg, early-stage and reproductive characters to clear up this obscurity in all cases. This is the first time in the history of muscoid taxonomy that we have had the means of definitely segregating these various families and accurately determining their limits, and they may well be maintained now on the sum-totals of their respective characters. But in synoptic treatment, as will appear later, these family groups are unwieldy and do not aid us as such, though their divisions may be employed as leading directly to the group-limits.

The characters of the facial plate apparently continue to hold better in the main for the indication of family types than do those of any other single external adult structure. They become subordinated to the characters of the female reproductive system and early stages occasionally, as in the case of the Sarcophagidae and Dexiidae, but this is in accordance with the well-known law of contraction of values, and the consequent fluctuation of characters, which cannot hold for all groups. They are reinforced by various other external adult characters in the several groups. Where they fail from lack of differentiation to mark off otherwise prominent groups, the characters of the first and second categories are always available. The following scheme of derivations illustrates well, reading the group from left to right, the successive retrograde modifications of the facial plate that appear to have taken place in these flies.

- (1) Phasid stem (Facial plate remains wide and elongate).
- (2) Muscid (3) Exoristid (4) Hystriciid (5) Masiceratid stem (Facial plate shortens but remains wide).
- (6) Phasiopterygid (7) Dexiid stem (Facial plate shortens further and becomes constricted below).
- (8) Sarcophagid stem (Facial plate in the typical stock very