

moderate (*Phausis*), or very small (*Microphotus*). The light organs are either brilliant in both sexes (*Phausis reticulata*), wanting in the male (*P. inaccensa*, female unknown), feeble in male and brilliant in female (*Plevotomus*, and probably *Microphotus*). In the Photini the light organs are completely wanting (*Tenaspis*, n. g.), obsolete and ineffective (*Lucidota*, *Ellychnia* most species); well developed in both sexes, but more brilliant in male than female (*Pyraclomena*, *Photinus*); equally brilliant in both sexes (*Photuris*): in all these the antennæ are long, either slender or broad, and closely approximate; the eyes are widely separated on the upper side, and usually also beneath. In *Matheteus* and *Polycclasis* the antennæ are pectinate, or bipectinate, and rather widely separated; the eyes are more distant, and the light organs wanting.

The Phengodini are known only by the male. The eyes are lateral, convex, moderate in size, and widely separated; the antennæ are distant at their insertion, plumose in *Phengodes* and *Zarhipis* (n. g.); bipectinate in *Mastinocerus* and *Cenophengus* (n. g.); pectinate in *Pterotus*, and serrate in *Tytthonyx*, if I am correct in associating that genus with this tribe. *Phengodes* is said by Lacordaire* to be luminous, while the observations of Mrs. King above cited prove that *Mastinocerus* is also phosphorescent.

From this detailed statement it may be inferred that there is no distinct correlation between the eyes, the antennæ, and the light organs of the two sexes which obtains for the whole sub-family.

That the eyes of the male should in comparison with the other organs of special sense, the antennæ, be more largely developed than in the female, is explicable from the more generally active disposition of that sex, but that these characters should prevail in the contradictory categories, where the female is more brilliant, and where she is less brilliant than the male, does not seem to me explicable either on grounds of teleology or natural selection, and especially do these explanations seem imperfect when we consider that the largest eyes are possessed by those males which seek the most brilliant, but also the most helpless females.

The luminous powers of these insects suggest three distinct investigations, which seem to me very important, and to which I would earnestly invite the attention of my colleagues in other branches of science:

1st. Spectroscopic examination of the nature of the light, and an

* Gen. Col., iv., 345.