

## PHYCIODES.

*Phyciodes*, Hübner, Verz. bek. Schm. p. 29 (1816).

*Melitæa* section ii., Doubleday, Gen. Diurn. Lep. p. 181.

The species of this group of Nymphalinæ have received very various treatment at the hands of different authors. Doubleday, to whom a comparatively few species were known, places some of them as a second section of the genus *Melitæa*, others under *Eresia*. Hewitson called all the species *Eresia*; and Kirby followed him, substituting Hübner's name *Phyciodes* for the whole group. Strecker, in his 'Catalogue of North-American Butterflies,' on the other hand, includes them under *Melitæa*, whilst Scudder splits them up into a number of different genera.

The tangible points of separation are by no means obvious; and though many of the species may be arranged in groups, others do not lend themselves to such a division, but serve to blend the whole.

We have examined the anal appendages in the males of a considerable number of species, with results which show that our present knowledge of these organs is not sufficiently advanced to enable us to use them in classification. On the whole, these parts in *Phyciodes* resemble those of *Melitæa* (*M. cinxia*) rather than those of *Argynnis* (*A. selene*), inasmuch as the tegumen is, as a rule, somewhat atrophied and devoid of the hook present in *Argynnis*. But, as usual, much variation is present in different species, the harpagones being considerably reduced in *P. drymæa* and short in *P. liriopæ*, whilst *P. leucodesma* has the tegumen more developed, thus resembling some species of *Argynnis*.

The character by which *Phyciodes* can be best distinguished from *Melitæa* is the terminal joint of the palpi, which in the former genus is much more attenuated than in the latter. The tibia of the middle and hind legs of *Phyciodes* are like those of *Melitæa*, the outer surface being smooth and not spiny as in *Argynnis*. The neuration, too, is essentially that of *Melitæa*, the first subcostal branch of the primaries being thrown off before the end of the cell, and the second after it. The antennæ have 33 joints, the terminal 12 forming an abrupt club. The front legs of the male are slightly hairy, the coxa stout, femur + trochanter > 2 coxa, tibia = femur, tarsus short (single-jointed) =  $\frac{1}{3}$  tibia.

So far as the Mexican and Central-American species are concerned, the division of the species into those which have a simply rounded outer margin to the primaries and those in which this margin is sinuated and which possess a distinct prominence near the anal angle, seems to a great extent a natural one. This, at least, is true so far, as the former section includes all the species of the *P. tharos* group, a more northern type whose range does not extend beyond the highlands of Guatemala. The species with the notched wing are of a southern type, the northern extension of which reaches Texas, where *P. texanus* occurs. The group represented by *P. fragilis* and *P. nigrella*,