

mother-bird had eggs or young ones, but whether, in the former case, she had laid a part only or the whole of her complement of eggs.

That peculiarities in the flight of insects, too, have arrested the eye of the ordinary observer may be gathered from the common names given to different species, such as the Hawk moth, the Humming-bird moth, the Owlet moth, the Vapourer, etc. But the scientist regards nature with a keener eye than does the ordinary observer; and what American entomologist does not recognize at a glance the dash of *Clisiocampa Americana*, or the loose-jointed shambling flight of *Ctenucha Latreilliana*? What naturalist does not readily distinguish between the steady, shrill clarion of the mosquito and the fussy, impertinent buzz of the cattle-fly (*Stomoxys calcitrans*)? The late Reverend Chancellor Bird, who was an accomplished entomologist, was one night heard groping for a match by a friend, who enquired if anything were the matter. "No," he said. "Such a moth (naming it) is in my room. I know it by its hum; and I want it for my collection." And, in all probability, many a sound we cannot hear, and many a motion we cannot see, and many a scent our organs of smell fail to distinguish, have their messages to numberless living things.

First, a few words on the general form and build of insects. And, to illustrate the subject, let us take that philosophical toy named after the smooth-sailing bird of prey, the Kite. The school-boy, to secure the balance of his kite, attends to the weight and the disposition of the wings and the tail, and to the proper adjustment of the martingale. Now, take for example any species of the genus *Papilio* (such as *Papilio turnus*, fig. 32). The weight of the body of the insect answers to the tension of the string upon the martingale; the backward stretch of the hind wings, with their appendages, answers to the tail in the kite; and the adjustability of the wings secures evenness of flight. A number of insects have, more or less, the form of the *Papilionidae*. Amongst them are the showy Canadian moth, *Attacus luna* (fig. 33), and the Brazilian, *Eudemonia Streckeri*.

Another remarkable form of insects may be called the Bat-like. *Attacus cecropia* (fig. 34) is an example of this; and so closely do the motions of the moth resemble those

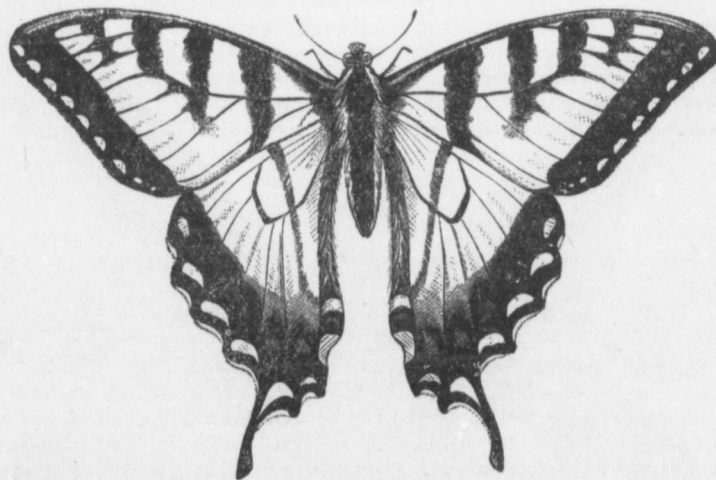


Fig. 32.

of the *Vespertilio* that, in the dusk of the evening, it requires the eye of a naturalist to distinguish between them. Many of our butterflies have more or less of this form.

A third is the Bird-like. In this, when the wings are expanded, the body projects beyond the lines of the wings. In some cases the abdomen is furnished with tufts, which serve, in a measure, the purposes of the tail in birds. For examples see *Amphion nassus* and *Sesia pelagrus*. To maintain the balance of insects of this form nature has many expedients. In the *Diptera* the absence of the under-wings, which, in other cases,