ON SOME OF OUR COMMON INSECTS.

PAPER NO. 1.

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This paper is the first of a series in which it is proposed, by members of the editorial staff alternately, to describe some of our more common insects, to illustrate them with suitable cuts, and to make the descriptions of so plain a character that the most unscientific reader may be able readily to comprehend their meaning. Since it is one of our aims in publishing the ENTOMOLOGIST to popularize our favorite science, we shall offer no apology for introducing into our journal these readable papers, in which much material may from time to time appear, which, to the scientific reader, may look stale and uninviting. In a recent letter from a correspondent who takes some interest in "bugs" but is not deeply versed in the technicalities of the science, he complains much of the depth of the learning which has been displayed in our pages during the past, and says that although he has frequently taken a plunge into the depths of the article, one after another, that he has rarely been able to touch bottom. It will be our aim, then, while still devoting the larger portion of our pages to scientific matter, to introduce something into each future number in which subscribers of similar scientific calibre to the gentleman already referred to, may be able, not only to touch bottom, but to wander through the shallows with ease, and we hope with some degree of pleasure.

The first insect of which we propose to treat is one of our commonest butterflies, known as the *archippus* butterfly (*Danaïs archippus*). This insect is said to hibernate during the winter; it is seen on the wing usually as early as the middle of May, but it is not very common until later in the season. These first few individuals lay their eggs on the leaves of the common milkweed (*Asclepias cornuti*) and other species of *Asclepias*, also on the bitter root (*Apocynum androsaemifolium*), during the latter part of May or the beginning of June. The eggs, when fresh laid, are white, but in two or three days they become yellow and then dull gray just before the time of hatching. They are $1/25$ th of an inch long, conical in form,

flattened at the base. When viewed with a magnifying glass they appear very beautiful. See figure 1,

where *a* represents the egg much enlarged, while at *c* it is shown of natural size and in its usual position on the underside of the leaf. On this egg there are about twenty-five raised longitudinal lines, and about the same number of cross lines between each, so that the whole appears covered with a regular and beautiful net work, as shown in the figure, which has been drawn from nature, as those also have which are to follow, by our esteemed friend, Prof. C. V. Riley, of St. Louis, Mo.

In about six or seven days the egg matures, producing a minute caterpillar one tenth of an inch long, with a large black head, and yellowish-white body, with a few black hairs on each segment, as shown at *e* and *f*, fig. 1. This larva grows very rapidly, and soon finds that its skin will bear no further stretching, when it conveniently disrobes itself and appears in garb gay and new by crawling out of its skin through a rent down the back, which takes place just at the proper time, which process is repeated three times during its growth. At *b*, fig. 1, the head and anterior segments of the larva just before its last moult is figured for the purpose of showing how the long fleshy horns with which the mature caterpillar is furnished are conveniently coiled up when buried beneath the old skin.

The full grown larva, fig. 2, is about one and three quarter inches long.

Fig. 2.

Its head is yellowish with a triangular black stripe in front below, and another of a similar shape above.

The upper surface of the body is beautifully ornamented with transverse stripes of black, yellow and white, the white covering the greater part of each segment, and having a wide black

stripe down its centre, while the yellow occupies the spaces between. On the third segment (reckoning the head as first) are two long black fleshy horns, and on the twelfth two others of a similar character, but shorter and not quite so stout.

The under side is black with a greenish flesh color between most of the segments.

The next change which comes over this caterpillar is that which transforms it to a pupa or chrysalis, a most astonishing transformation, when the voracious larva becomes for a time torpid, senseless, and almost motionless while preparing for that change when it is to appear in brilliant plumage, and gracefully float and flutter through the air, enjoying the summer's sunshine and sipping the nectar of flowers. Fig. 3 shows the

Fig. 3.

larva as it appears at different periods during its transition to the state of chrysalis. At *a* it hangs suspended from a silken web, in which its hind legs are entangled and which has been previously attached by the caterpillar to the underside of a leaf, or rail fence or some other secure place of retreat, and here while hanging for about a day the larva contracts its length, and increases its bulk, especially on the anterior segments. By and by a rent takes place in the skin down the back, and the chrysalis begins to appear, and after long and persevering efforts and much wriggling the skin is worked nearly up to the hinder extremity, as shown at *b*. Now a difficulty presents itself, and a feat is to be performed to imitate which would puzzle the most daring acrobat, for without hands or feet to hold on by it has to withdraw itself from the remnants of its larva skin, and hang itself up by a black protuberance covered with a bunch of hooks, with which the chrysalis is furnished. Perilous as this undertaking seems to be, it is very seldom indeed that a failure occurs in its accomplishment. A ready explanation of the means by which this is done is given at *c*, fig. 3. The joints of the abdomen being freely movable, are first stretched against a portion of the larva skin, when, by a sudden jerk backwards, the skin is grasped and firmly held while the terminal segments are withdrawn, and

the process of suspension completed. Soon after this the chrysalis begins a series of wriggling and jerking movements to dislodge the empty larva skin, after the removal of which it remains motionless, unless disturbed, and becomes gradually harder and more contracted until it assumes the appearance represented by fig. 4.

The chrysalis is about an inch long, and of a beautiful bright green colour dotted with gold, and with a band of golden dots extending more than half way round the body above the middle; this band is shaded with black. There is a patch of black also around the base of the black protuberance by which it is suspended, and several dots of the same on other portions of the surface.

The insect seldom remains in chrysalis more than ten or twelve days, and towards the latter end of this period, the handsome green and gold colours begin to fade, the chrysalis growing gradually darker until the diminutive wings of the future butterfly show plainly through the semi-transparent enclosure. The escape of the imprisoned insect, now nearly ready for flight, is usually made quite early in the morning. We have several times watched for their deliverance, and have usually found it to take place soon after daybreak. A sudden crackling and slight tearing sound is heard, which arises from a splitting of the chrysalis case part way down the back, the fore legs, head and antennae are first withdrawn, and in a few moments the entire insect is liberated. At first the wings are very small, and the new born butterfly seeks at once some suitable spot where the wings may be held so as to hang down and thus facilitate the rapid growth which follows. This growth is truly amazing; we have seen the wings double their size within three minutes, and seldom more than fifteen or twenty minutes pass before they have attained their full dimensions, and, ere the sun is high in the heavens, the soft, flabby wings have dried and the butterfly is ready for flight.

The *archippus* butterfly, fig 5, is so well known that it needs but little description, especially when so good a figure is given. The ground colour of the wings, when fresh, is a beautifully bright orange red, the veins are heavy and black, and the margins are spotted with white, the latter being more or less covered or encroached upon by the general colour. Near the middle of the hind wings there appears in the figure on one of the veins

an enlarged black streak or blotch; this, when closely examined, is found

Fig. 5.

to be a small excrescence; it is found only in the male, and by this peculiarity the sexes may be readily distinguished.

We have frequently seen this butterfly in great numbers on pine trees which have been infested by *aphis*, attracted there no doubt by the sweet exudations which flow from the bodies of the *aphis*, thus interfering with the rights and privileges which have always been accorded to the industrious ant. They also have the fashion of congregating at times, late in the season, in prodigious swarms consisting of tens of thousands or hundreds of thousands of individuals. In September, 1871, we met with a swarm of this character on the shore of Lake Erie. They hung in clusters everywhere on a group of trees which they completely covered; as many as thirty-two individuals were counted on a space of the size of ones' two hands, and their total numbers we thought might safely be estimated by millions. No satisfactory reason has yet been assigned for such gatherings.

SOME REMARKS ON CHANGES IN NAMES OF CERTAIN BUTTERFLIES.

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PAPILIO ASTERIAS. Now sought to be changed to *Polyxenes*, although from the time of Fabricius to the publication of Kirby's Catalogue (1871), no other name than *asterias* has been in use. The species has been repeatedly figured as *asterias* in these hundred years, and under this name is well known to everyone who takes the least interest in these things.