

have data upon which to found a more precise knowledge of the distribution of the various species; this is at present very vague, such words as North America, Canada, United States, &c., being employed in most scientific works to indicate the localities. A catalogue of all the Canadian Lepidoptera is a great desideratum, and numerous zealous observers, in different parts of the country, willing to communicate their observations, are the only means by which we can ever hope to arrive at such a much-to-be-wished for result.

Hitherto we have given figures of each of the species, but in future we shall engrave only one in each genus, except when circumstances render it advisable to figure more, and we shall endeavor to get through all the diurnal lepidoptera as speedily as possible. We shall frequently include species which inhabit New York and other Northern States, and which are likely to occur in Canada. As we know of no work exclusively devoted to Canadian species, we are compelled to adopt this course, as otherwise many Butterflies would be omitted, which doubtless inhabit those portions of this country with which we are unacquainted. We hope our correspondents will be able to set at rest any doubts respecting some, if not all such species, by sending us specimens, and all necessary information regarding them.

GENUS PAPILIO. (Continued.)

Species 3.—*Papilio Troilus*. The Laurel Swallow-Tail.



a.



b.

This species is about the size of *P. asterias*. Upper side, the wings denticulated, black, with the notches yellow; the anterior wings have on their hind margin a row of six or seven pale yellow spots, which gradually increase in size, from the costa to the inner margin. They have beyond this a spotted band of four or five small and obscure spots placed in a line, and formed of greyish atoms. The posterior wings have a marginal series of seven lunules, the first of which is orange, whilst the other six are of a greenish or bluish grey. Inside these marginal lunules is a broad bluish grey band, divided by the nervures; the lunule of the anal angle is triangular, orange on its inner margin, and greenish grey on its outer. The tail is black, very short, and a little swollen at its extremity. Under side, the wings brownish black at the base. Anterior wings, with the spots of the upper side much better defined, so that they here form two spotted bands; they have also two triangular yellow spots which are placed beyond the others. Posterior wings with two bands, each formed of six orange lunules, a little tinged with yellow on their edges. The anal spot fulvous, only tinged with grey on its outer edge. Between these two spotted bands there are seven glossy blue lunules, the third of which is partly covered by a verticle oblong spot, generally of a greenish grey. The body is black with some reddish dots on the front of the thorax, and a series of yellow spots on each side. The female differs from the male in the following particulars: the anterior wings are generally destitute of the marginal row of yellow spots, the second row being seldom or never indicated by any greyish atoms; the posterior wings have above the marginal lunules a sort of band badly defined, rather broad, and formed of shining blue atoms, whilst in the male this band is better defined, and of a bluish or greenish grey. The under side differs but little.

a the Caterpillar. b the Chrysalis.

The caterpillar is green, with a yellow marginal band, which mixes itself a little with the green color. It has upon the sides two rows of blue dots, and upon the fourth segment two flesh colored spots, upon the third segment a flesh colored eye spot with a deep blue ocellus, and upon the first a black collar. The underside of the body and of the head are of a flesh-color, a little tinged with ferruginous. All the feet are ferruginous, but at the base of the membranous ones is a row of seven blue dots. It feeds on sassafras, (*Laurus sassafras*) and Mr. Beadle has observed it on spice wood, (*Laurus benzoin*). It also feeds on many other species of Laurel.

The chrysalis is a little gibbous, of a pale ferruginous color, with stripes of a darker tint.

The larvæ which are found in autumn change to pupæ before the winter, and produce the imago at the beginning of the following Summer; the others are hatched from the end of May all through the month of June and beginning of July.

This fine butterfly is very easily caught. It generally flies around the laurels, and loves to bask on the fragrant blossoms. It is common in Georgia and Virginia, and is found in the island of Jamaica. It is included in Dr. Harris' List of Lepidoptera inhabiting Massachusetts, and as before mentioned we have received it from St. Catherine's, Canada West.

We now come to the second division of the Papilionidæ.

SUB-FAMILY II. PIERIDI.

Anal edge of the hind wings not concave, but grooved or formed into a gutter to receive the abdomen; the anterior tibiae do not possess a spur in the middle, and the tarsal ungues are one or two dentate.

The caterpillars are not furnished with a nuchal fork. They are slightly pubescent, and rather slender at each end of the body.

It contains many genera, of which we believe only two occur in Canada, viz.: *colias* and *pieris*. We do not know whether any species of the beautiful genera, *aporia*, *xanthidia*, *gonopteryx* and *callidryas*, which inhabit the Southern and middle, and the Southern parts of the Northern States, are to be met with any where in Canada, but we hope to learn that we may include some of them in our fauna.

GENUS I. COLIAS.

Palpi short, much compressed, fringed with short and close hairs, the last joint much shorter than the preceding; antennæ straight, short, terminated by an obtuse gradually formed club which occupies about a fourth of their length, the head has no frontal tuft; forewings sub-triangular, and the posterior rounded; the discoidal cell of the hind wings closed; thorax thick; body shorter than the wings; tarsal ungues bifid; fore legs alike in both sexes. Their flight is very rapid, and they are difficult to capture. The caterpillars naked, elongate, cylindric, very finely setose and tubercled. The chrysalides rather short, sub-angular, gibbous, slightly beaked in front, attached by the tail, and by a girt behind the thorax.

The larvæ feed on leguminous plants.

This is one of the most natural genera of diurnal lepidoptera; the color is always some shade of yellow or orange, more or less bright, and frequently tinged with green. All have a portion of the wings marked with black; the forewings also exhibit a black discoidal spot, and the posterior a central spot, which is orange above, and generally silvery beneath. The palpi and antennæ are always reddish or rosy.

The general resemblance between the species and some being extremely subject to variation, has led to much confusion in their synonymy. The species are not very numerous, and none of them, even of the exotic kinds, beyond the middle size. This genus is found in all the temperate parts of the globe, but they are not known to inhabit the equatorial regions of the two continents. All those which are known come from Europe, Siberia, Cape of Good Hope, Barbary, North America, Mexico and New Holland. Six or seven species inhabit North America, of which two are found in Canada, viz.: *C. edusa* and *Philodice*. We also describe a third, *C. chrysoteme* which occurs in the State of New York. Two or three species inhabit Labrador and the Hudson's Bay Territories, and the remaining one the Southern States.

Species 1.—*Colias Edusa*. The Clouded Yellow.

Male:—Antennæ, rose-colored, with the club somewhat embrowned. Upper side; anterior wings, deep orange or saffron co-

By some authors *Gonopteryx* and *Colias* are separated into a third sub-family called *Rhodocercidi*, but for the sake of simplicity we have adhered to the more general arrangement which includes them amongst the Pieridi.