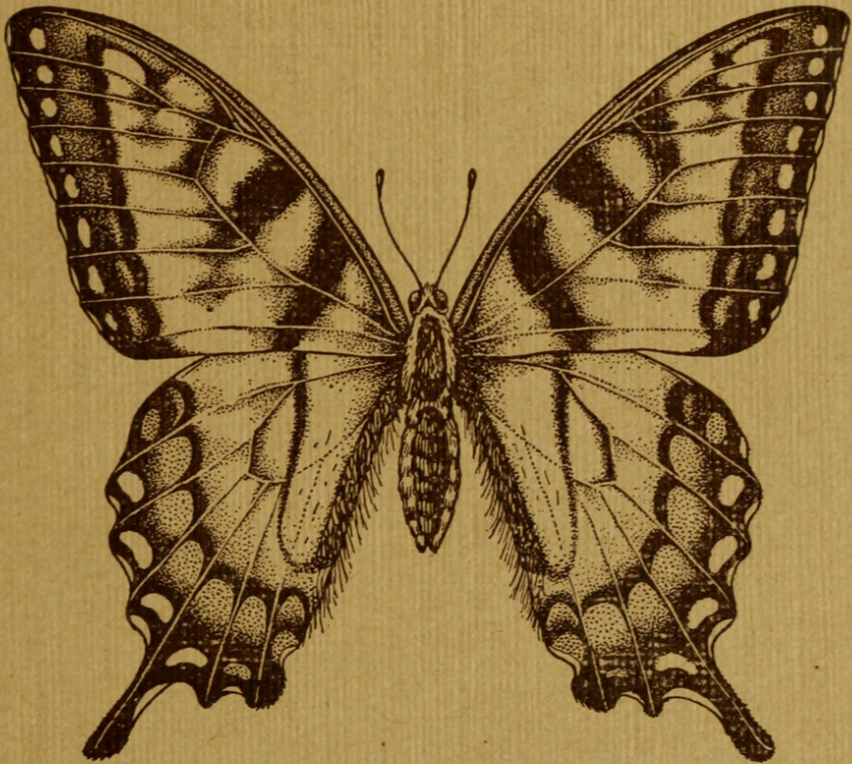


AMERICAN MUSEUM OF NATURAL HISTORY

OUR COMMON BUTTERFLIES

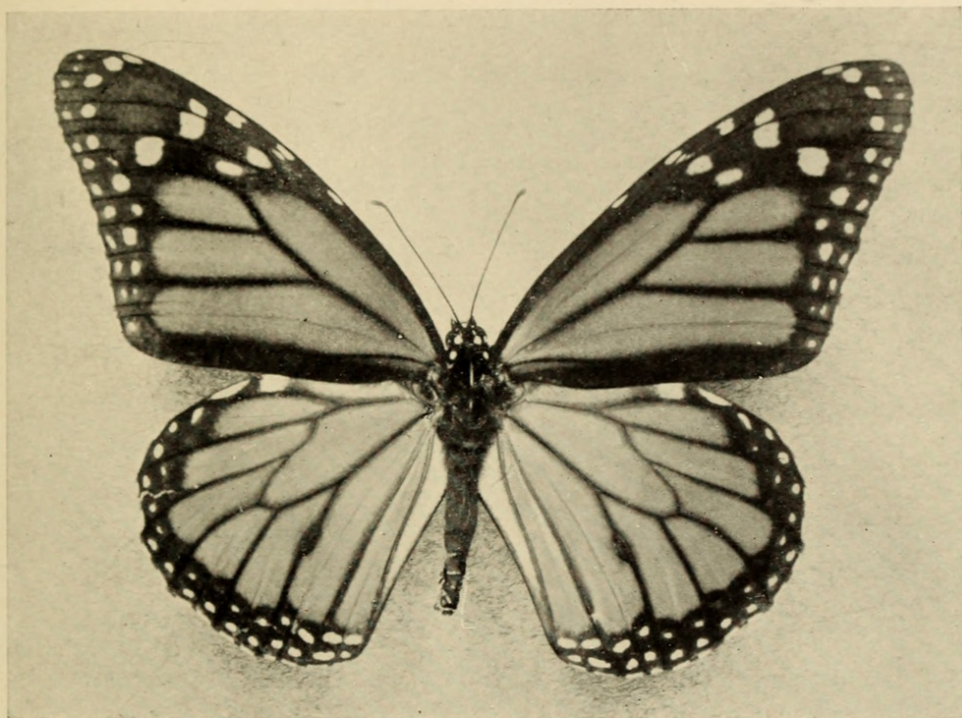


By F. E. LUTZ and F. E. WATSON

GUIDE LEAFLET No. 38

OUR COMMON BUTTERFLIES

BY F. E. LUTZ AND F. E. WATSON



AMERICAN MUSEUM OF NATURAL HISTORY

GUIDE LEAFLET SERIES No. 38

Third Edition

NEW YORK, SEPTEMBER, 1920

PRINTED AT THE MUSEUM

BUTTERFLIES are not only among the most attractive of Nature's subjects, but among the most abundant and most readily captured.

Many have collected them in their youth, and some have thus started on the path that leads to serious study in Natural History. Many more admire these bright-colored sprites flitting by the roadside and over the fields. To all these this leaflet is offered. It is an attempt to provide everyone with a simple means of identifying our most common butterflies, or more strictly speaking, those of our eastern states, and to afford a little information regarding them. And readers may feel relieved to learn that the caterpillars of butterflies, and even of our most beautiful moths, are rarely harmful — the greatest damage to foliage is done by the larvæ of dull-colored moths as if out of spite for the sombre dress Nature has bestowed upon them.

FREDERIC A. LUCAS

Director

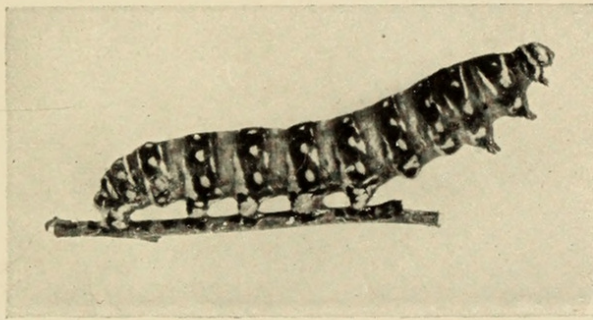
American Museum of Natural History

June, 1914

Our Common Butterflies



The graceful flight and beauty of adult butterflies have made them the most popular of insects, but in their youth they have little beauty and can only crawl and eat. They are "horrid caterpillars," poisoned by gardeners and shunned by all except the few who see in them the possibilities of maturity. However, not all caterpillars develop into butterflies; the majority become moths, and some creatures which strongly resemble caterpillars are really quite different from either butterflies or moths.



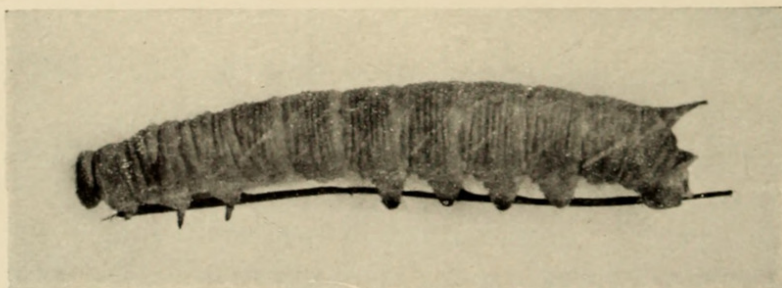
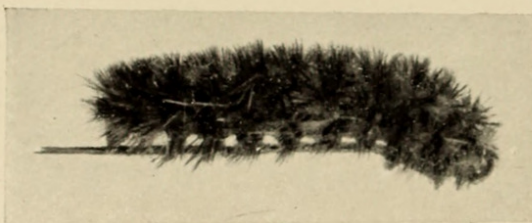
A YOUNG PAPILIO
Showing the two sorts of legs

A useful distinguishing characteristic of insects is the possession of three pairs of true legs. Nothing else which the amateur is likely to notice has just this number. Spiders have four pairs and centipedes have many; they are not insects. Now a caterpillar *appears* to have more than three pairs of legs, but it will be seen upon close examination that the three front pairs are the only ones which are jointed. The other "legs" are not true legs but merely fleshy props. Young leaf-feeding beetles do not have these props and young saw-flies (relatives of wasps) have five or more pairs in the middle of the body, whereas young butterflies have four pairs and a pair of claspers at the hind end of the body.



A PAPILIO WITH ONE WING SCALED

Both butterflies and moths belong to that division of insects known as Lepidoptera or "scaly-winged." When the minute colored scales which cover their wings are removed nothing is left but a semitransparent membrane supported by veins.

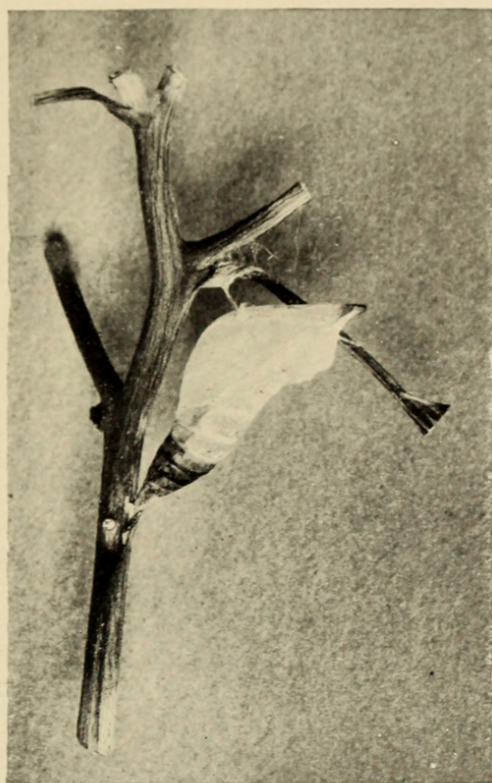


LARVÆ OF MOTHS

It is not possible to state concisely and in lay terms the difference between young moths and young butterflies. However, cut-worms, inch- or measuring-worms, fuzzy caterpillars, caterpillars with a single

OUR COMMON BUTTERFLIES

horn at the hind end, those which are larger than a man's little finger, and those which make nests are fairly certain to be young moths. A part of the rest are young butterflies.



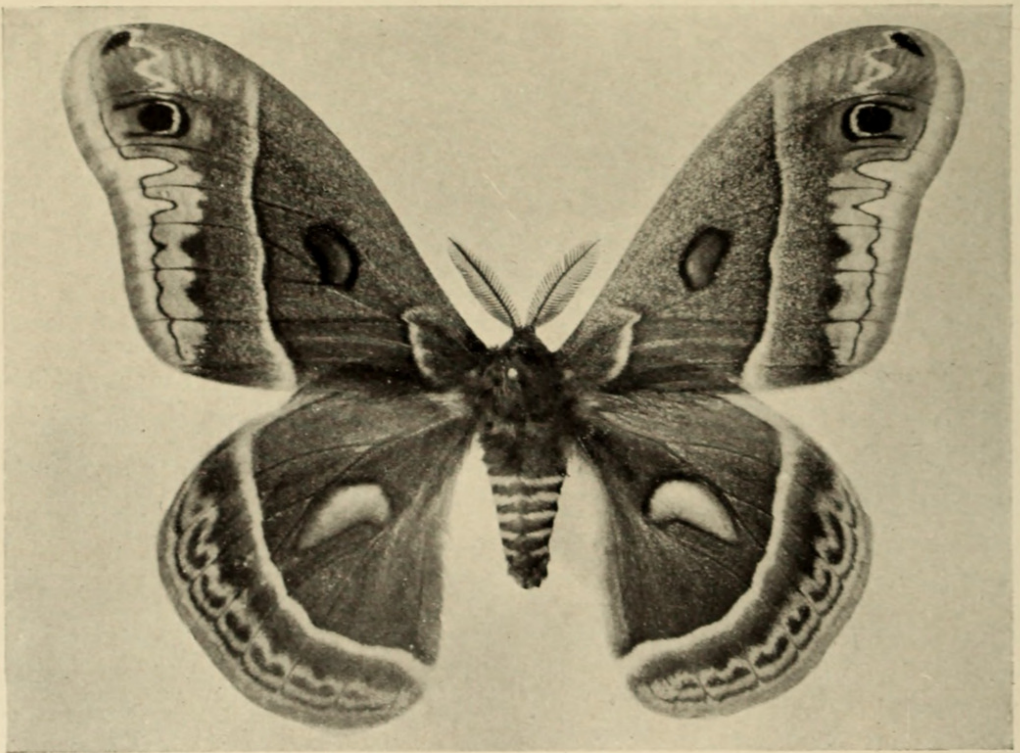
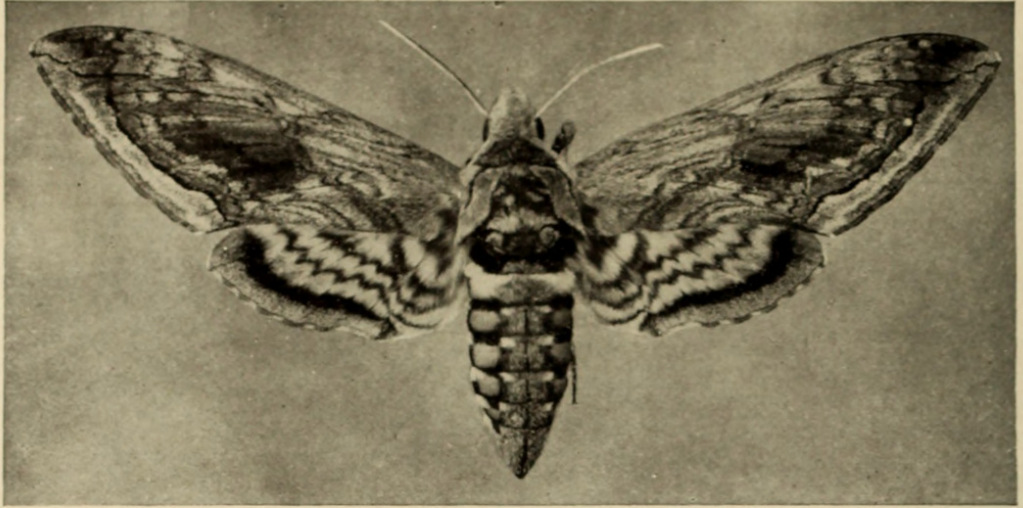
A CHRYSALIS

When young *Lepidoptera* have eaten their fill once they cast off the skin they have been wearing and get a larger one. This process is repeated three or four times and finally they are full-grown caterpillars. Then, if they be young moths, they seek a suitable place and usually spin a cocoon of silk threads. Inside of this they moult once more but instead of becoming a larger caterpillar each turns into a mummy-like pupa. If they be young butterflies, the fundamental process is the same but no cocoon is made. The pupa, which is called a chrysalis, hangs naked. Perhaps the single thread around the body of some of them and the silk which fastens the tail to the supporting surface represent the moth's cocoon.

The distinction between adult moths and adult butterflies is largely a matter of habits and "feelers." The antennæ are a pair of appendages on an insect's head which are popularly called "feelers," although, as a matter of fact, insects smell and hear with their antennæ as well as feel. The antennæ of butterflies are thread-like and have a knob or

OUR COMMON BUTTERFLIES

swelling at the tip. The antennæ of many moths are clearly feather-like. In others the plumules are not visible to the naked eye and the



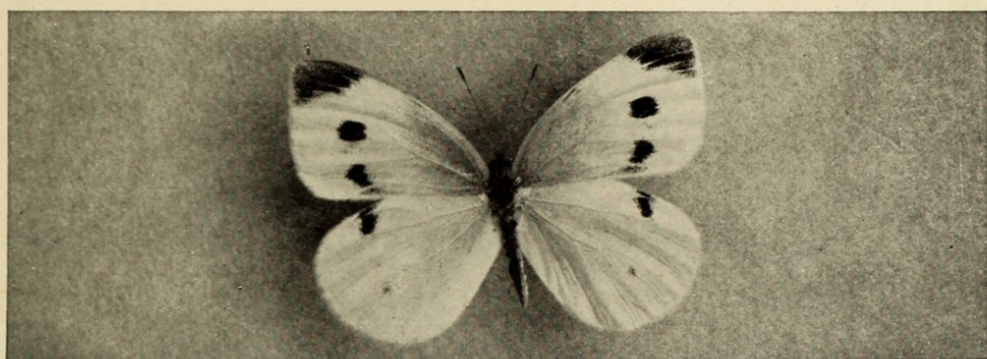
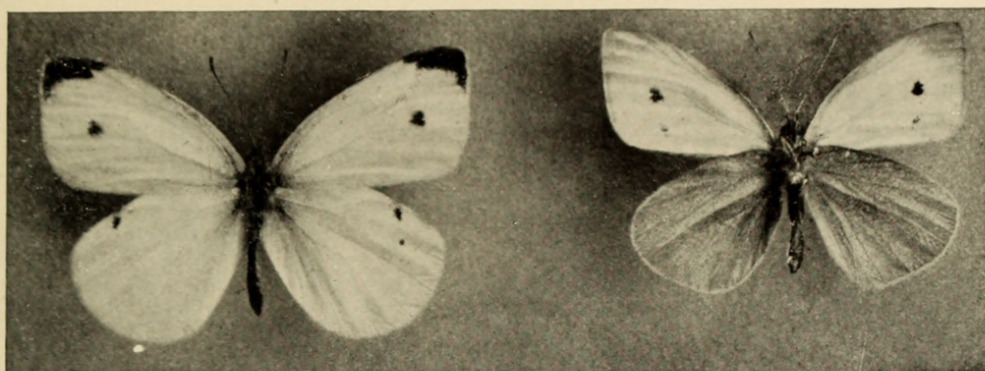
MOTHS

Showing two types of antennæ

antennæ look like threads but they almost never have a swelling at the end large enough to be confused with the knob of butterflies. Then, too, all our butterflies fly only in the daytime, while all but a very few of our moths fly only at night.

Largely White Butterflies

A largely white butterfly is a common sight and a guess that it is the Cabbage Butterfly (*Pieris rapæ*) will almost always hit the mark. There are really three kinds of white butterflies in the East whose young feed on cabbage. Two of them are natives, but the third was accidentally brought from Europe to the vicinity of Quebec about 1860.

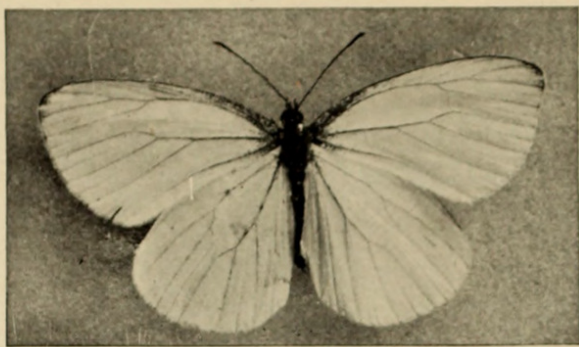


EUROPEAN CABBAGE BUTTERFLY (*Pieris rapæ*)*
Male (upper and under sides), above; Female, below

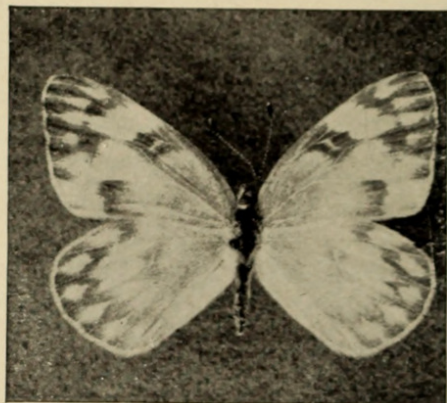
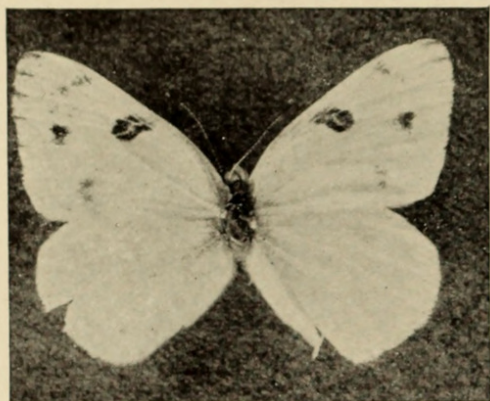
Since that time, aided doubtless by further importations, it has spread over the whole country and, like its compatriot the English sparrow, seems to be driving its native relatives out of existence. The European Cabbage Butterfly has the tips of the upper side of the front wings black; there are two black dots on each of the front wings of the female and one on those of the male; the under side of the hind wings is yellowish and without markings.

With us the Mustard White, or Immaculate Cabbage Butterfly, has practically no markings on the upper surface of the wings, although in other parts of the country it is subject to many interesting variations.

*To aid in the identification of specimens all figures have been made as nearly as possible the natural size of the species shown



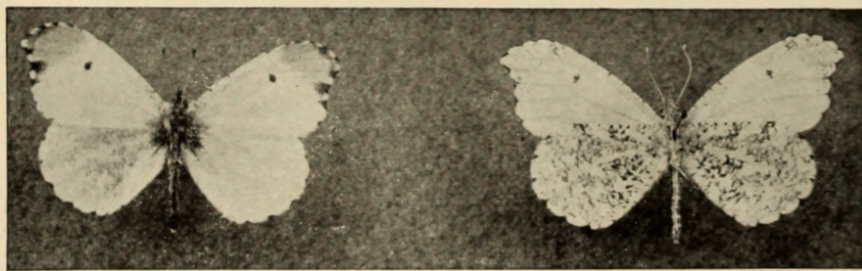
THE MUSTARD WHITE (*Pieris napi*)



CHECKERED WHITE (*Pieris protodice*)

Male, left; Female, right

The Checkered White, or Southern Cabbage Butterfly, has no definite black tips to the front wings but it has more than two black dots on the upper surface of each.



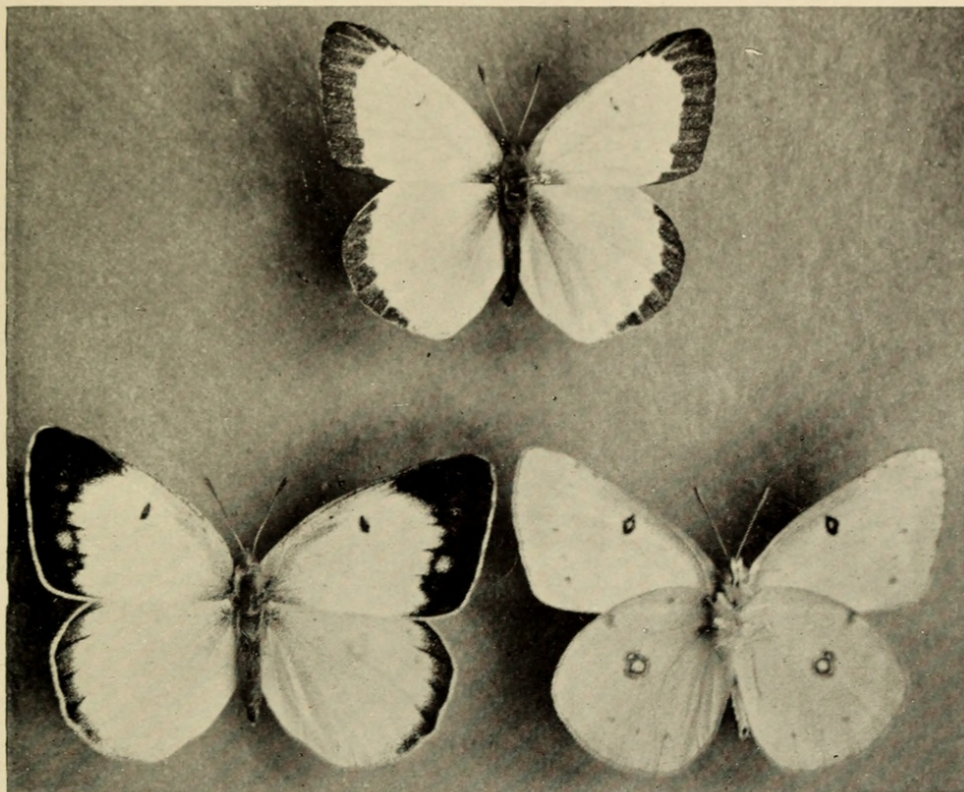
FALCATE ORANGE-TIP (*Euchloe genutia*)

Upper and under sides

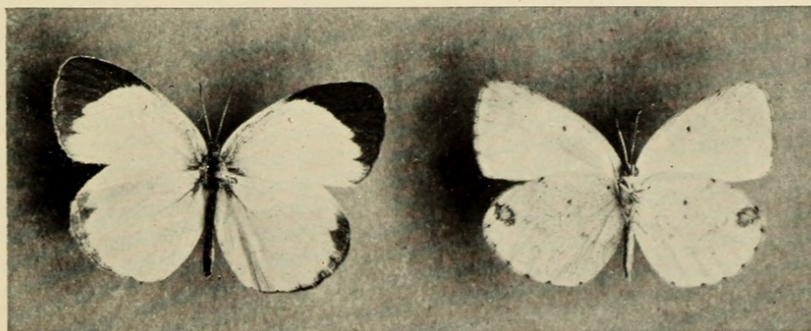
This pretty little White may be recognized by the green marbling of the hind wings. It is called the Falcate Orange-tip from the shape and color of the front wings, although only the males are orange-tipped.

Largely Yellow Butterflies

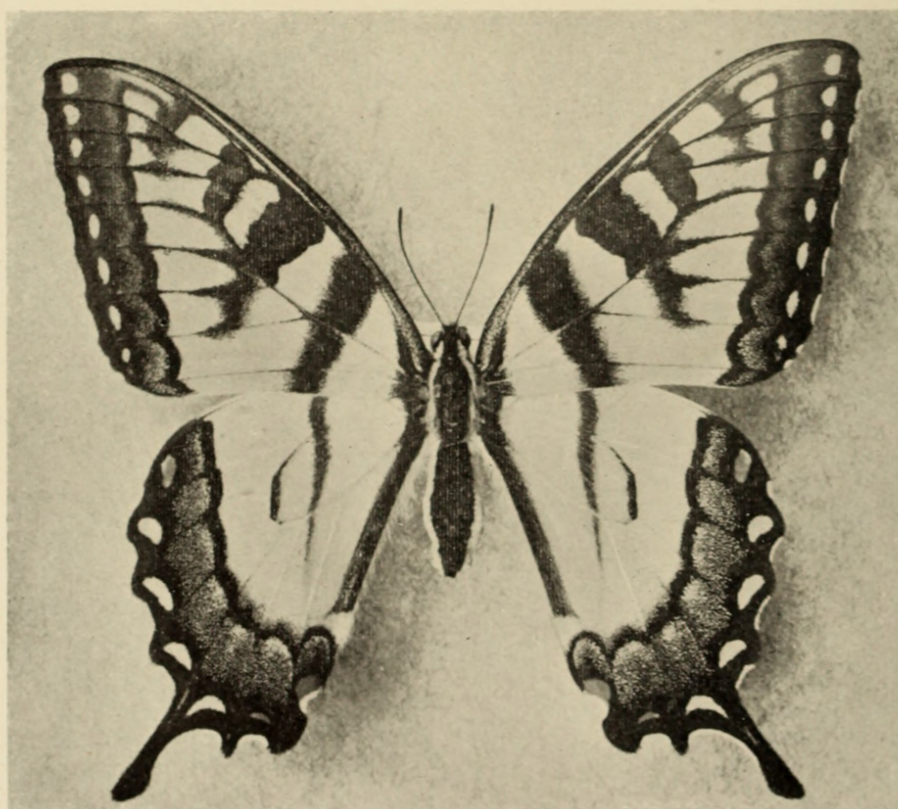
There are several species of yellow butterflies which are closely related to the White just described. They nearly all feed on clover and its allies. It should be remarked parenthetically that when the food of a species is mentioned we mean the food of its young, for adult butterflies do not eat. At most they sip water from wayside pools or nectar from flowers through a coiled tube-like mouth which entirely lacks teeth or even jaws.



THE CLOUDED SULPHUR (*Colias philodice*)
Male above; Female (upper and under sides), below



THE LITTLE SULPHUR (*Terias lisa*)
Upper and under sides



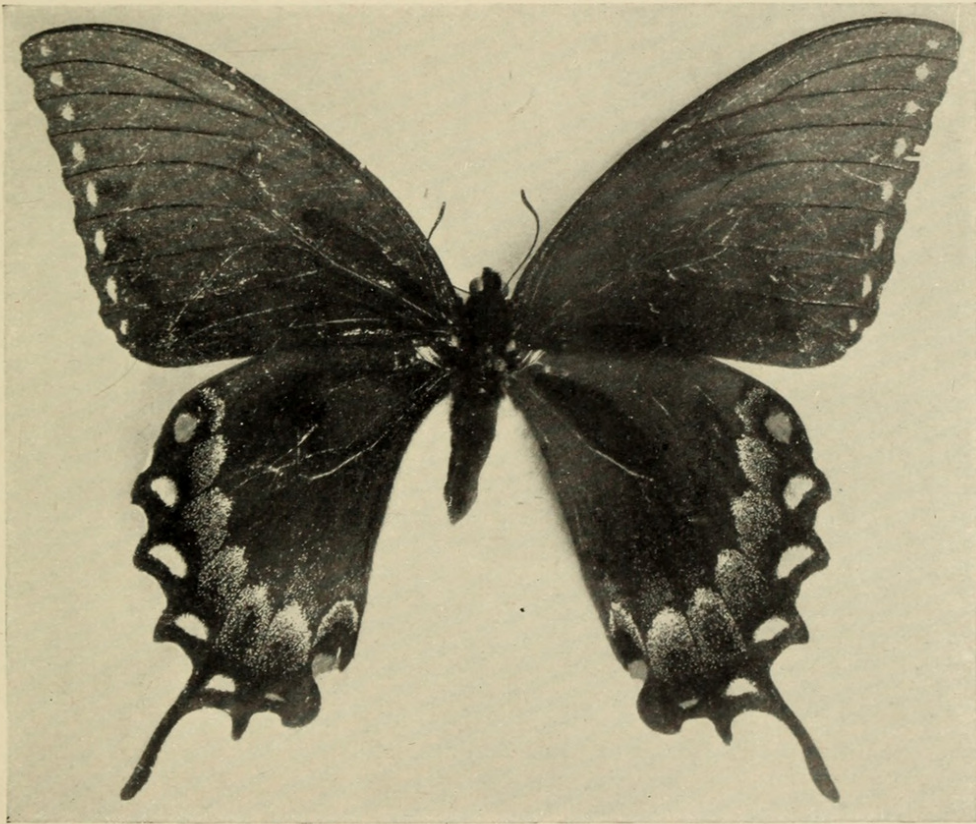
THE TIGER SWALLOW TAIL (*Papilio turnus*)
Male, above; Female below

The most common Sulphur in the Northeast has already been mentioned as being sometimes white. It is the Clouded Sulphur and may be distinguished from the Little Sulphur by the presence of silvery spots on the under surface of the hind wings. Furthermore, the former has a wing expanse of about two inches, while the latter is rarely larger than one and a half inches.

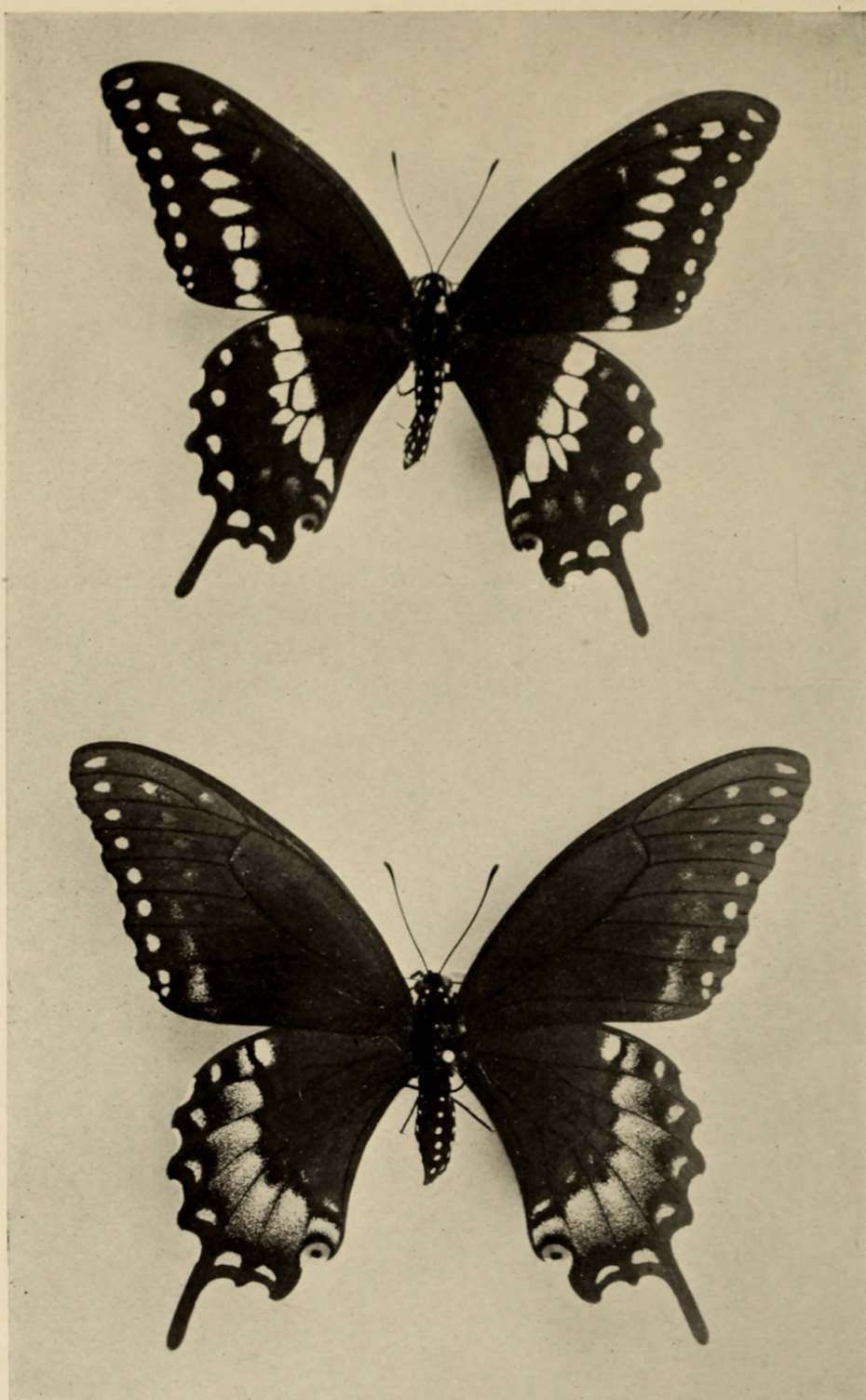
In completing the list of common yellow butterflies we reach the

Papilios or Swallowtails

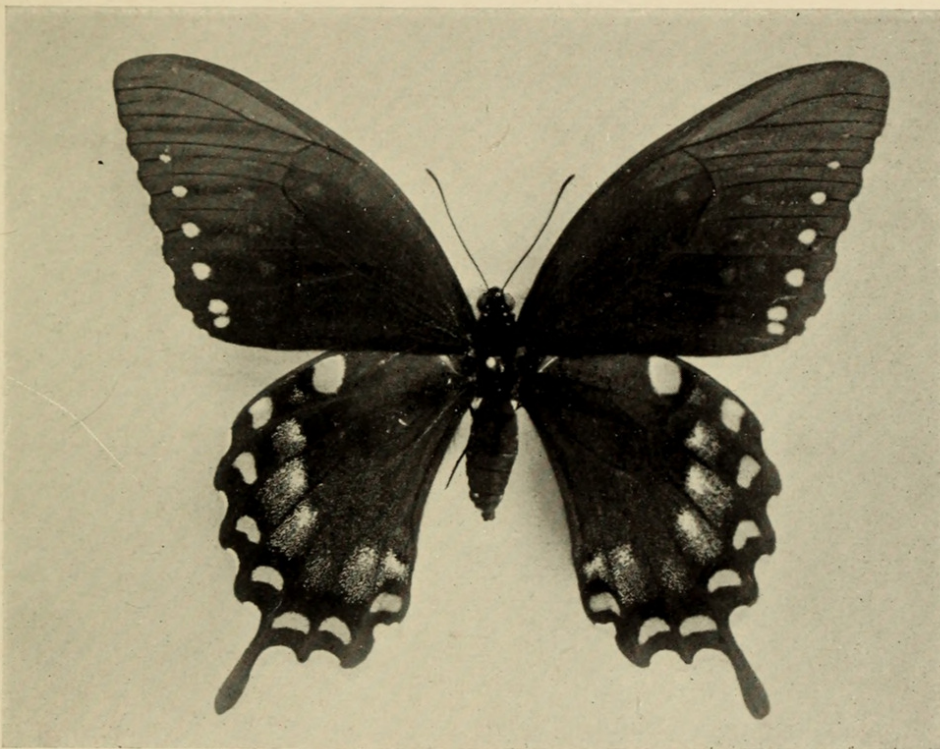
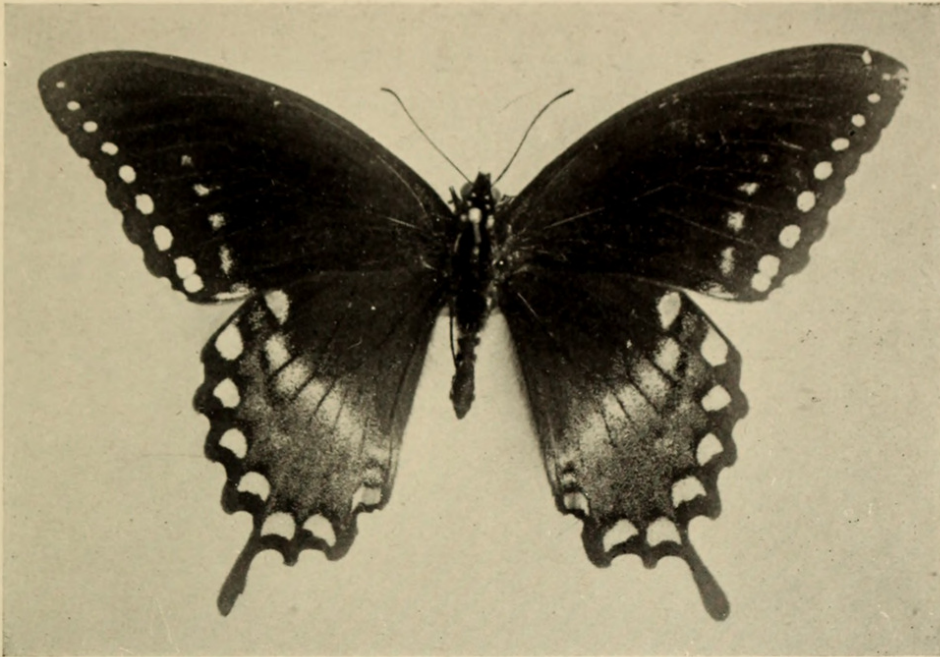
These are the giants of our northern day-fliers. The conspicuous resemblance of their hind wings to the "swallow-tails" of the sartorial art and their large size distinguish them from all of our Lepidoptera except the pale green night-flying Luna. The Papilio which is largely yellow and has, among other black markings, three or four short black bands on the front half of each front wing is the Tiger Swallowtail. In a rare form of the female of this species the yellow is replaced by sooty brown except for the marginal spots.



THE DARK FORM OF THE TIGER SWALLOWTAIL



THE ASTERIAS SWALLOWTAIL (*Papilio polyxenes*)
Male , above; Female, below

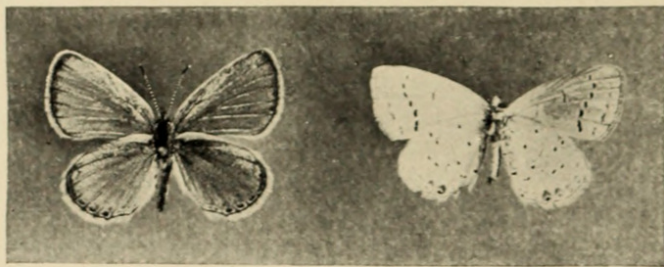


THE SPICEBUSH SWALLOWTAIL (*Papilio troilus*)
Male, above; Female, below

The Asterias Swallowtail is about as common as the Tiger. Its young feed on parsley, carrot, celery and parsnip leaves. The adult male may be recognized by the row of yellow spots across the middle of the wings. These spots are sometimes reduced in the female to the extent shown here. The row of blue spots, inside the marginal yellow ones, is more distinct in the female than in the male.

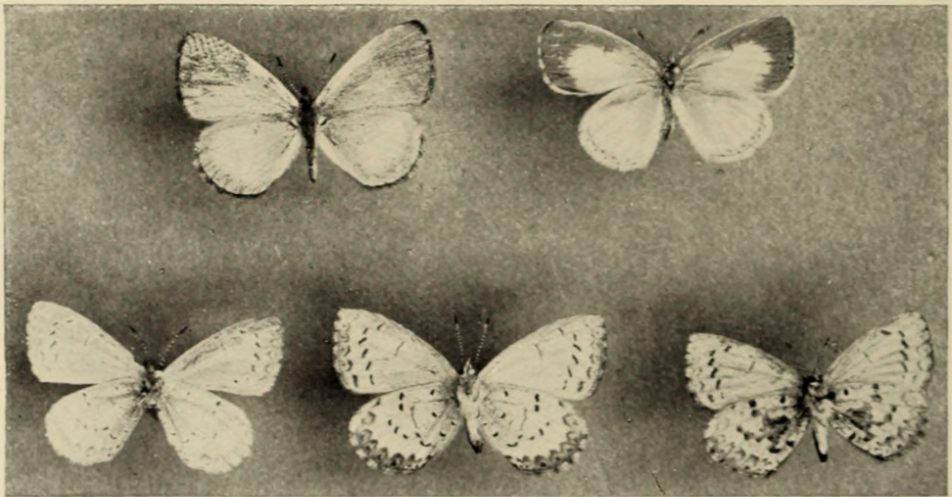
Troilus has a single or at most an incomplete second row of yellow spots on the front wings. The hind wings are usually suffused with greenish. Its larvæ feed on sassafras and spicebush leaves.

The Small Blues



THE TAILED BLUE (*Lycaena comyntas*)
Upper and under sides

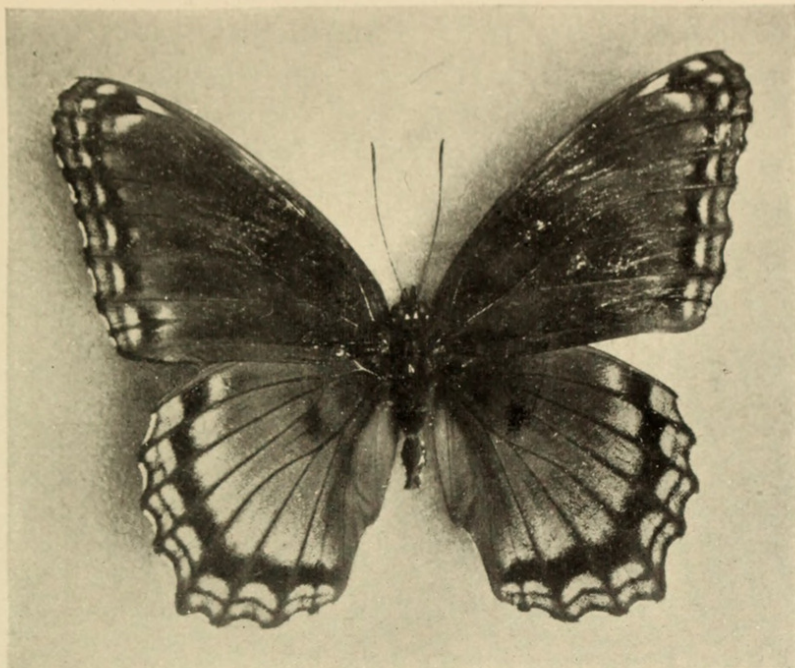
There is a delicate little blue creature (*Lycaena comyntas*) which has tails that may be seen by looking closely, but it is apt to be confused



THE COMMON BLUE (*Lycaena ladon*)

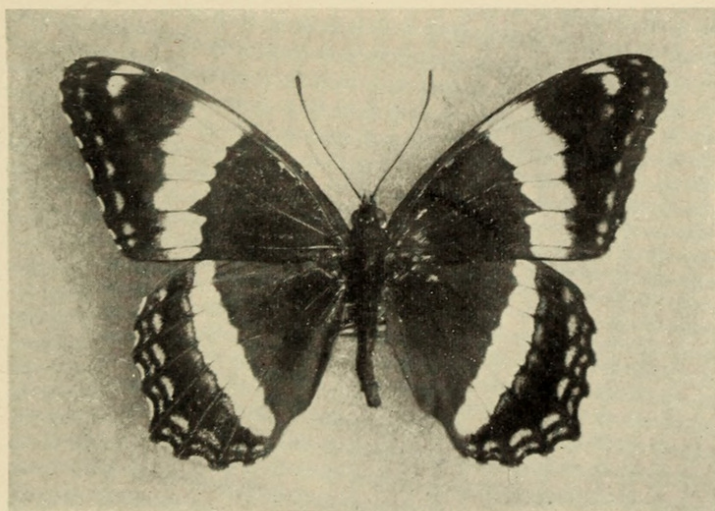
with the Common Blue — its extremely variable relative. Both of them have several generations a year although the latter is frequently called the Spring Azure on account of its abundance when other butterflies are scarce.

The Rulers



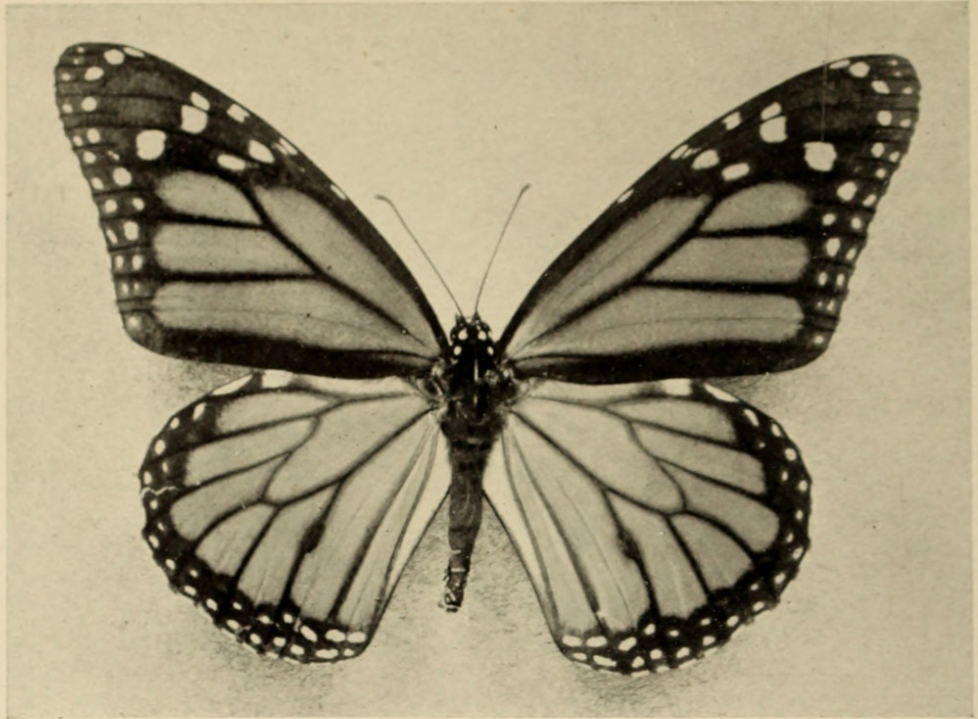
THE BLUE EMPEROR (*Basilarchia astyanax*)

There are a number of butterflies whose common names signify high rank. The Blue Emperor is also called the Red-spotted Purple, the red spots being at the apex of the front wings on the upper side but more scattered on the lower side.

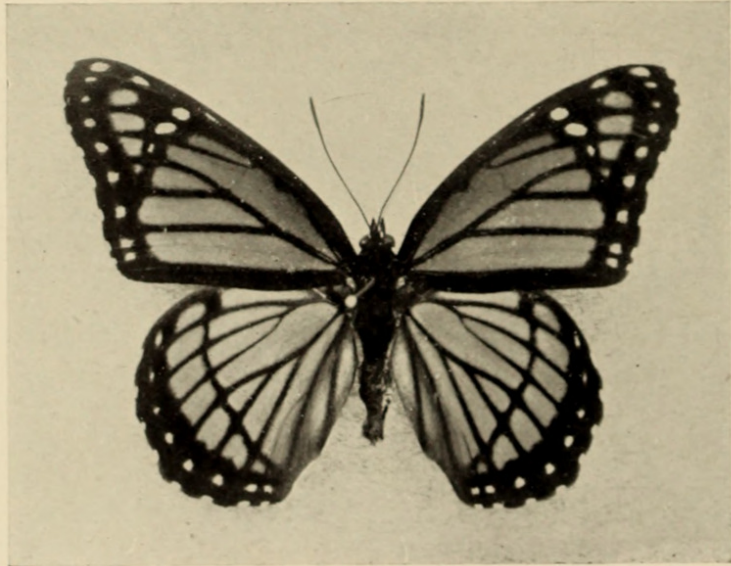


THE WHITE ADMIRAL (*Basilarchia arthemias*)

The White Admiral may be recognized by the conspicuous white band which crosses both dark purple wings.



THE MONARCH (*Danaus plexippus*)



THE VICEROY (*Limenitis archippus*)

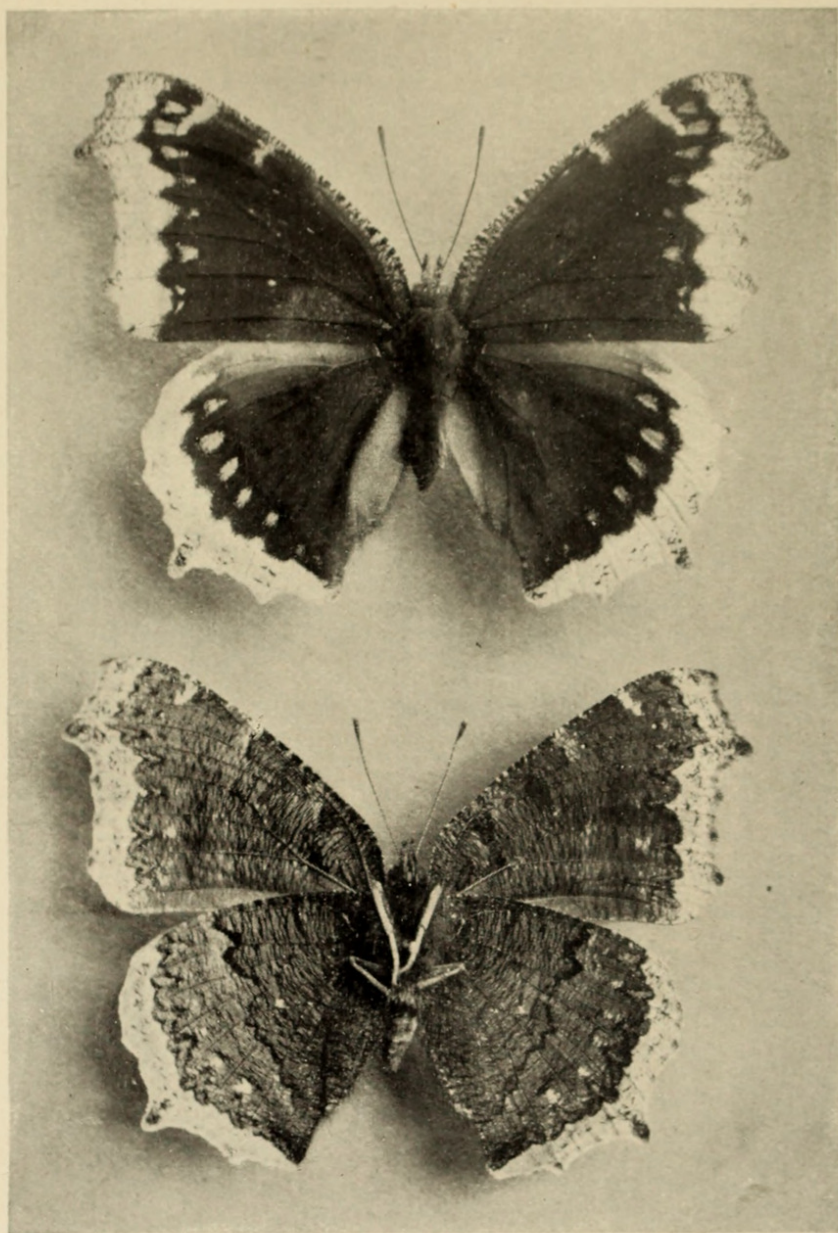
The Viceroy is extremely interesting. Although related to the species just mentioned, it resembles to an astonishing degree the common and wide-spread but only distantly related Milkweed or Monarch Butterfly. Its general color is a tawny red; the wing veins are outlined in black, and there is a white-spotted black margin to the wings. So far, the description will fit either species but the Viceroy has a narrow black band across the middle of the hind wings which the Monarch lacks. Like other members of its genus it hibernates as a larva.

During early autumn the Monarch assembles in great swarms in the northeastern United States, large numbers hanging quietly from the leaves and branches of trees and shrubs. These flocks then move southward, suggesting the migration of birds. It is believed, but not positively established, that there are return migrants in the spring. At any rate, none of us have ever found the Monarch in the North during the winter, although its black and yellow banded larvæ with their long flexible "horns" and its gold-dotted delicate bluish-green chrysalids are as easily recognized as is the adult.

A group in the Museum's Insect Hall represents a portion of one of these autumnal swarms and gives a slight idea of the wonderful spectacle they present. The cover design of this leaflet is from a photograph of this group. If the Monarch were a favorite food of birds it is clear that such a gathering would be dangerous to the species concerned, as birds would find their prey very easy to catch. The fact that birds do not follow up these swarms has given rise to the belief that the Monarch is distasteful to them. Its larvæ feed on the leaves of milkweed, and the acrid juices of their food plant are supposed to impart an acrid flavor not only to the larvæ but through the pupæ to the adults. This is the way in which the Monarch is supposed to be protected from the birds.

The bright red color of the adult Monarch is believed to be a notice to birds that it is inedible. On the other hand the Viceroy is considered suitable bird food but it has acquired — by natural selection or otherwise — a color very similar to that of the Monarch, and the birds are usually unable to tell the difference so that the Viceroy is protected by mimicking the Monarch. It is interesting in this connection that Viceroy's have been found in which the distinguishing black band on the hind wing is nearly or quite absent.

Other Reds and Browns



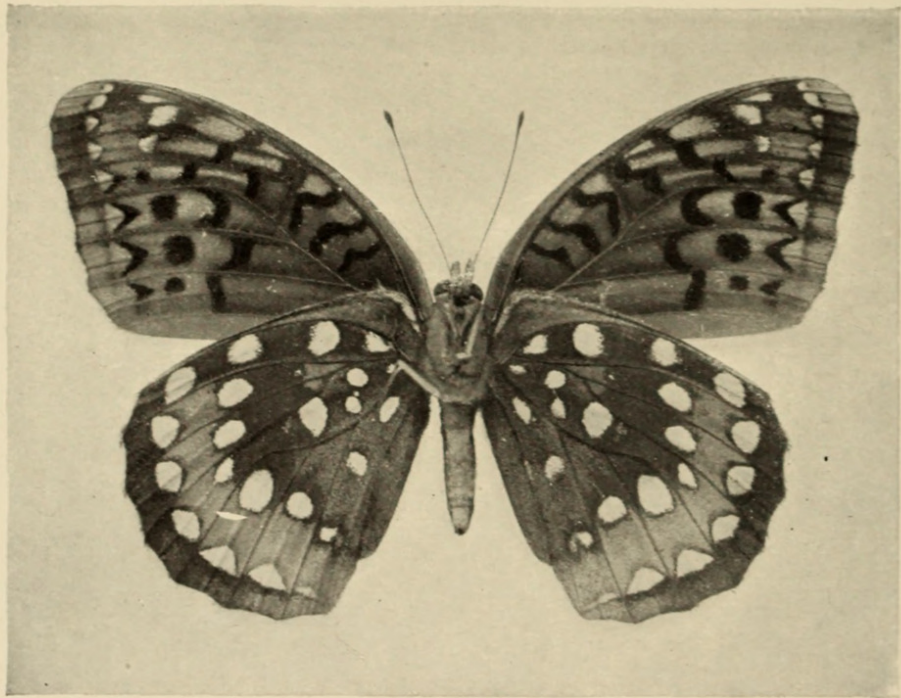
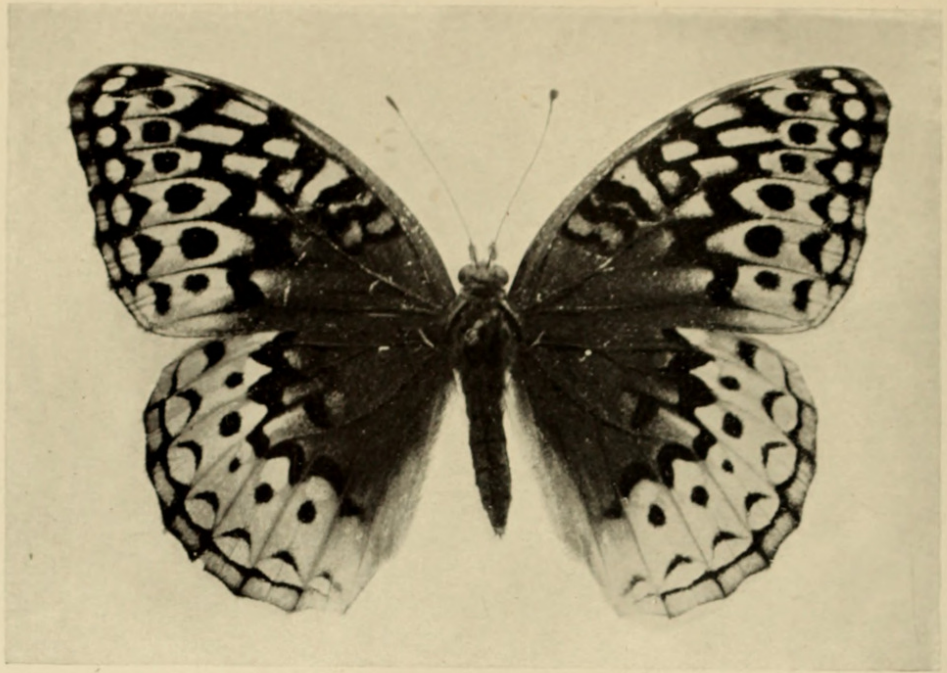
THE MOURNING CLOAK (*Vanessa antiopa*)
Upper and under sides

The Mourning Cloak, or, as the English call it, the Camberwell Beauty, is brownish, edged with light underneath and blue-black-brownish edged with yellow above. It is one of the few butterflies which pass our northern winters in the adult state, hidden securely away in a hollow log or under a pile of fence rails. Its spiny young feed on willow, poplar, elm and the like.



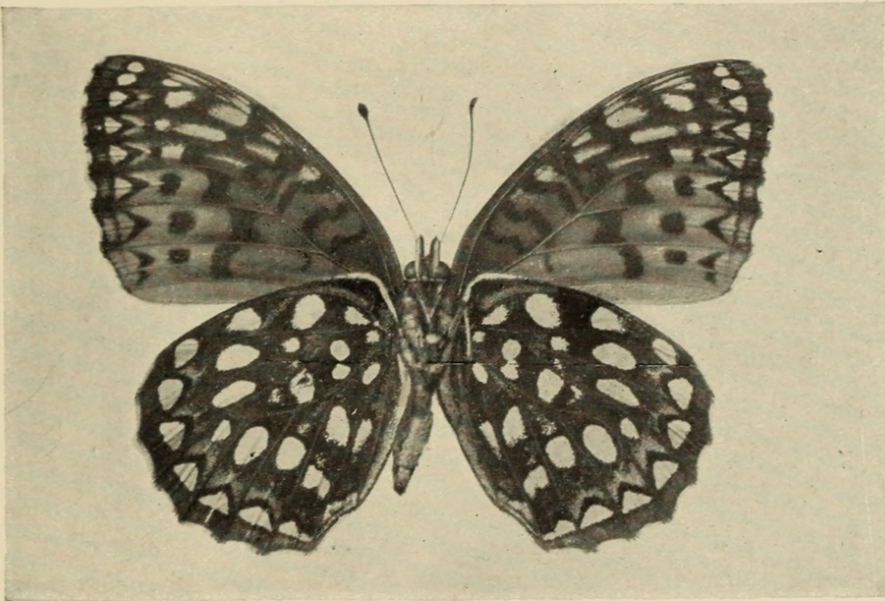
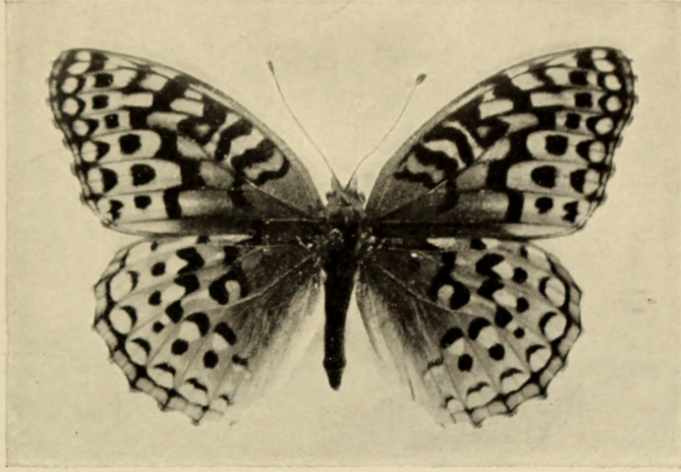
THE REGAL FRITILLARY (*Argynnis idalia*)
Upper and under sides

Three of our Fritillaries have a wing expanse of at least two inches. They are tawny or tawny red above, variously studded on one or both sides with silvery white spots. The upper surface of the hind wings of the Regal Fritillary is nearly black but the base is tawny



THE GREAT SPANGLED FRITILLARY (*Argynnis cybele*)
Upper and under sides

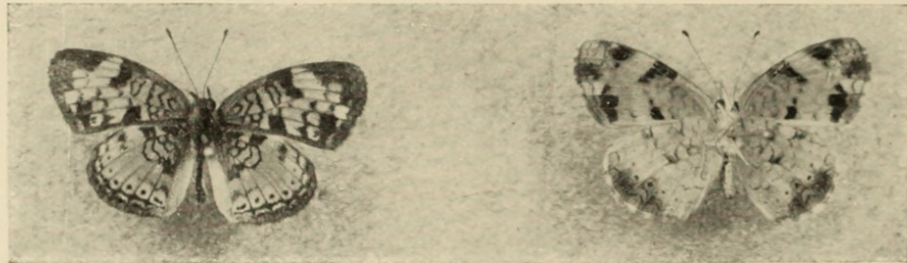
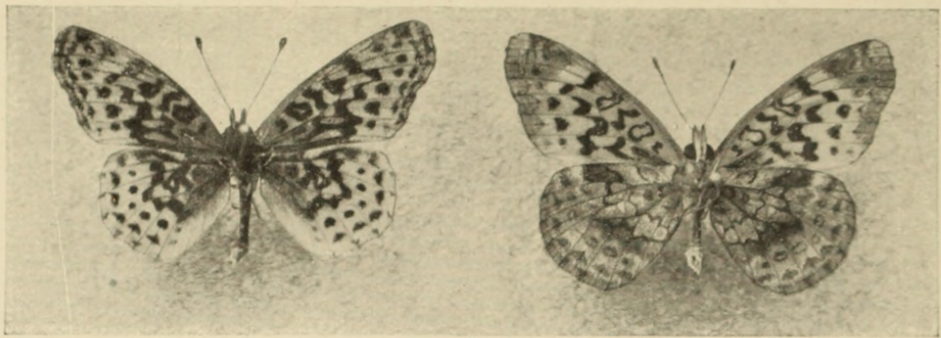
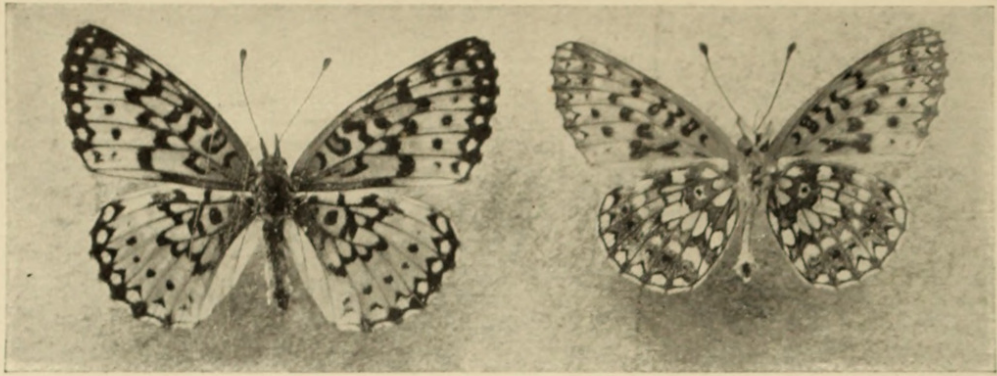
and there are two rows of light spots. Cybele and Aphrodite have no white markings on the upper surface and the wings are darker at the base than elsewhere although not at all black except for spots and



THE SMALLER SPANGLED FRITILLARY (*Argynnis aphrodite*)
Upper and under sides

irregular bands. It is difficult to distinguish between these two species, the chief difference being on the hind wings and in the smaller size of *Aphrodite*. All three of them feed upon violets, as do *Bellona* and *Myrina*, their smaller relatives.

OUR COMMON BUTTERFLIES



From above downward, upper and under sides of
THE SILVER-BORDERED FRITILLARY (*Argynnis myrina*)
THE MEADOW FRITILLARY (*Argynnis bellona*) and
THE PEARL CRESCENT (*Phyciodes tharos*)

The Pearl Crescent, which feeds upon asters, should be considered with the last two mentioned, for all have the upper side tawny, closely checkered with black, and all have a wing expanse of not much over one and a half inches. The under side of the hind wings of *Myrina* is spotted with silver, that of *Bellona* has no white markings and that of the Pearl Crescent is light yellow mottled with brown, a whitish crescentic spot near the middle of the hind margin being usually present and frequently accompanied by other similar spots.

Angle-wings

The Angle-wings "look as if Mother Nature had with her scissors snipped the edges of their wings, fashioning notches and points according to the vagaries of an idle mood." The wing expanse is about two inches and while the upper surface is tawny, variously marked, the under surface is a combination of brown and gray which corresponds so closely with the color of dead leaves that an Angle-wing at rest on the forest floor is extremely well hidden.

The Violet-tip has a tail suggestive of the Papilios. The upper surface of this tail and the adjacent marginal portions of the hind wing are tinged with violet. On the under side of each hind wing there is a pair of silvery markings which are somewhat like an interrogation point. The young feed on elm leaves.

The Hop Merchant or Comma has a silvery comma or parenthesis on the under side of each hind wing and there is considerable yellowish color on the under surface of both pairs of wings. The first name given here refers to the feeding habits of the young.

The Gray Comma or Progne has a silvery marking similar to that of the Comma but smaller and the under surface lacks yellow. Its young prefer the leaves of currant and gooseberry.

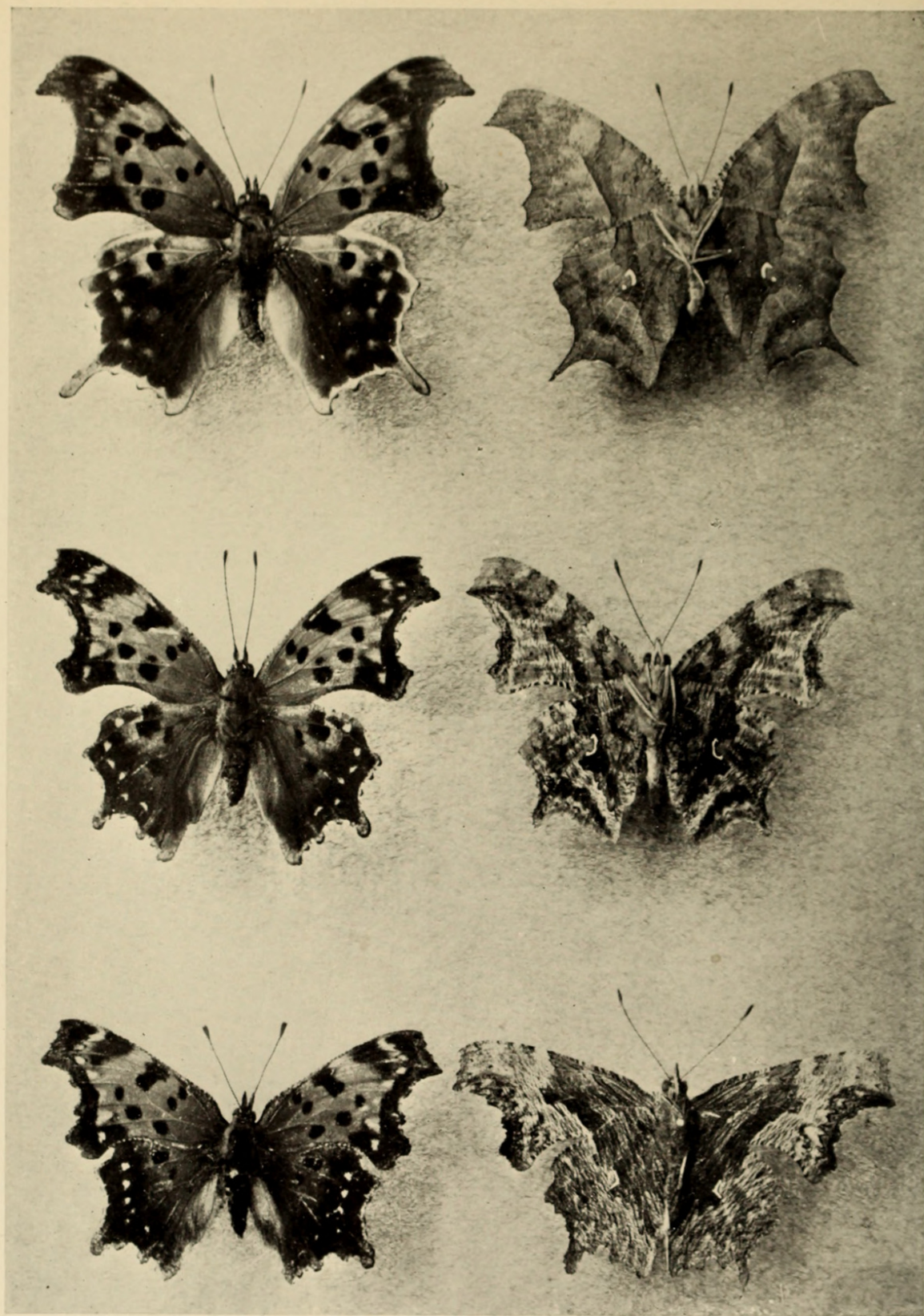
The Angle-wings, like the Vanessas, hibernate as adults. They show considerable variation in their markings and general color. Several varietal forms have been considered worthy of special names.

Eye-spots

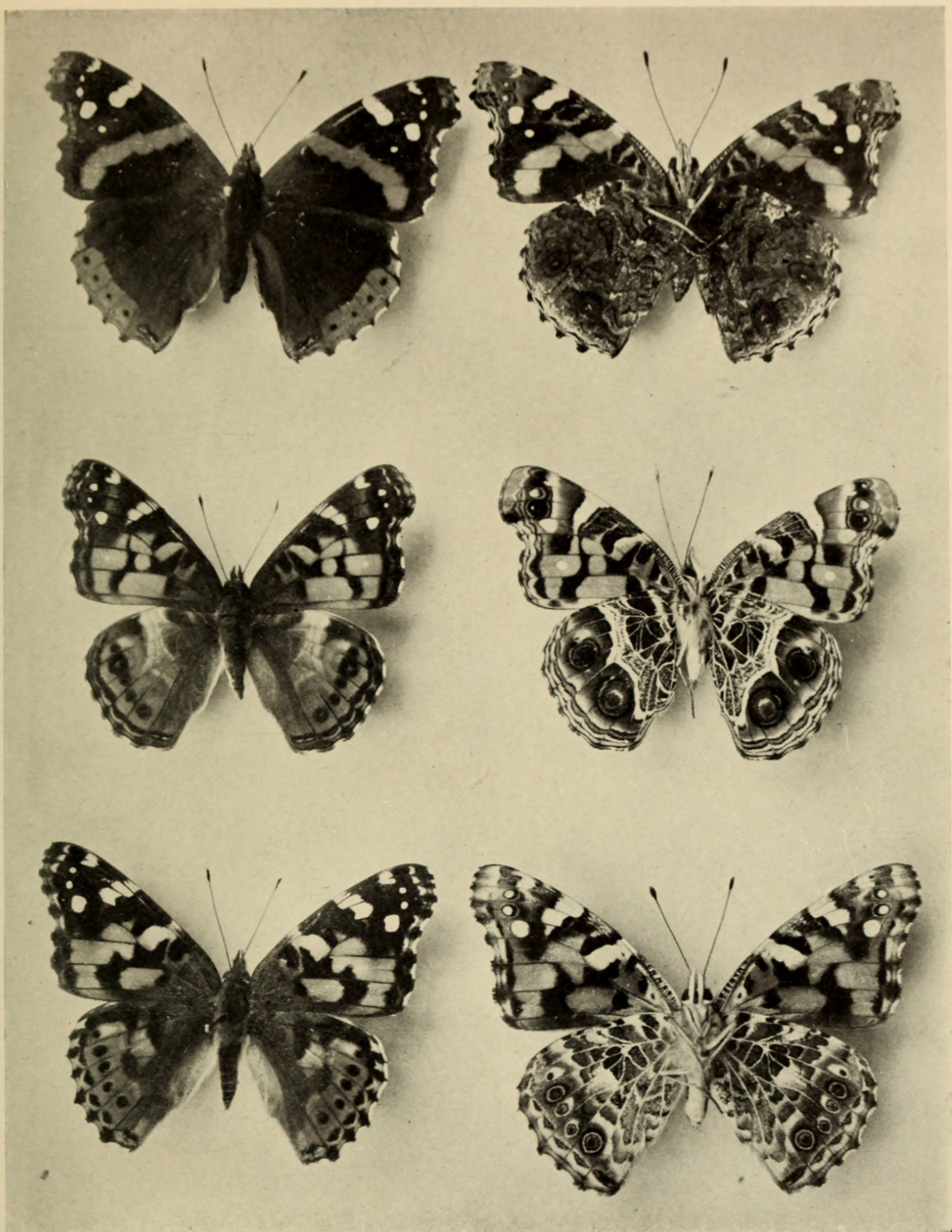
(An "eye spot" is a circular spot surrounded by one or more rings of a different color.)

The Red Admiral has such spots on the under side of the hind wings but they are usually very indistinct. This species can best be recognized by the brilliant red band crossing each black front wing.

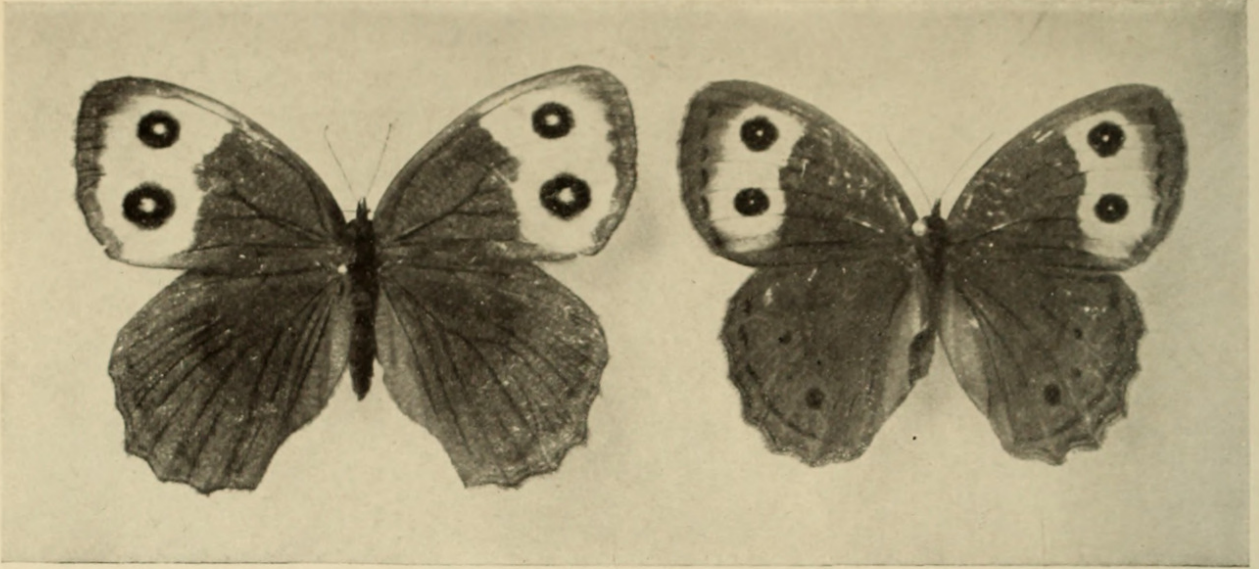
Eye spots are very distinct on the under surface of the hind wings of Hunter's and the Thistle Butterflies. For some strange reason, these, but more particularly the latter, are also called the Painted Lady or Painted Beauty. The Thistle is one of the most widely distributed of butterflies — as widely as the thistles on which it feeds. There are usually four eye spots on each hind wing, below, which are smaller than the two of Hunter's.



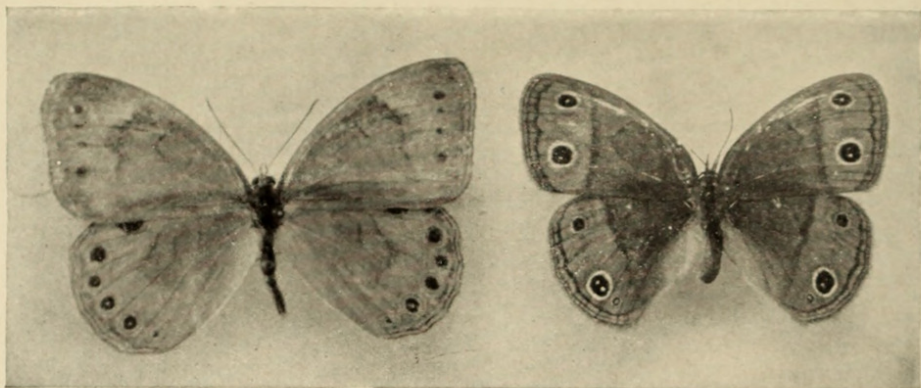
From above downward, upper and under sides of
 THE VIOLET-TIP (*Grapta interrogationis*),
 THE HOP MERCHANT (*Grapta comma*) and THE GRAY COMMA (*Grapta progné*)



From above downward, upper and under sides of
THE RED ADMIRAL (*Vanessa atalanta*), HUNTER'S (*Vanessa huntera*) and
THE THISTLE (*Vanessa cardui*).



THE COMMON WOOD-NYMPH (*Satyrus alope*)
Female and Male



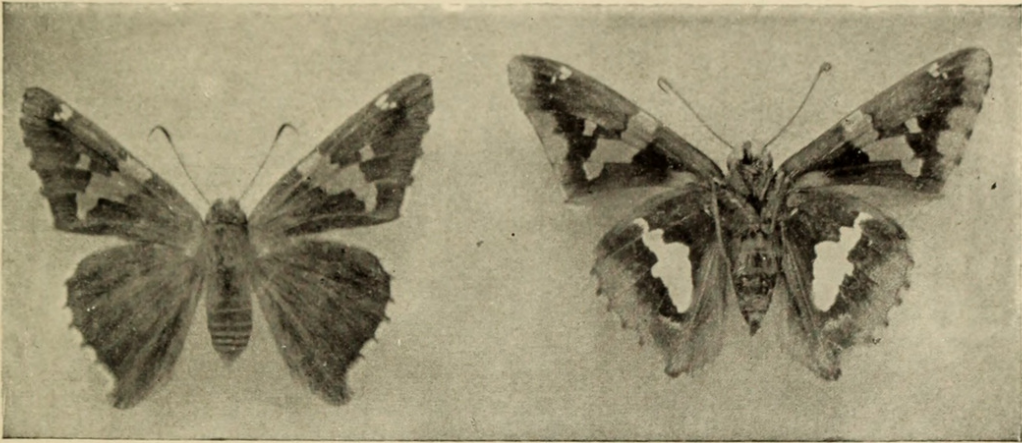
THE COMMON GRASS-NYMPH (*Satyrodes canthus*) on the left
THE LITTLE WOOD-SATYR (*Neonympha eurytus*) on the right

The common Nymphs have eye spots on the upper side of the front wings. The general color is brownish. That of the Common Wood-nymph is dark but the eye spots of the front wings are set in a band of yellowish. There are not usually more than two, if any, spots on the upper surface of each hind wing.

The Common Grass-nymph has a row of four small spots on the upper surface of each front wing and the Little Wood-satyr has but two. The brown of both is rather pale and both have the spots on the upper surface of the hind wings "eyed." The young of Nymphs and Satyrs live upon grasses.

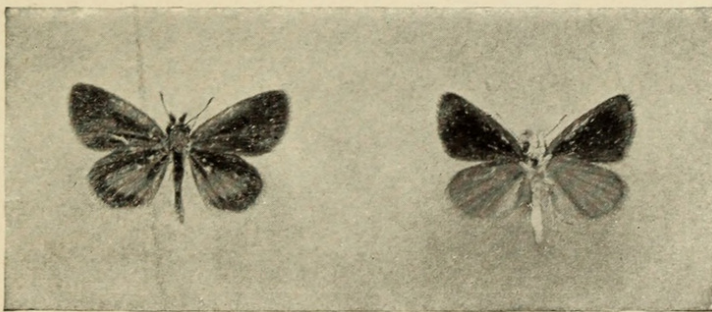
The Skippers

These butterflies, belonging to the family Hesperidæ, get their common name from their rapid, darting flight. They are, for the most part, small and dull-colored. The sexes of some species differ in the markings on the upper side.



THE SILVER-SPOTTED SKIPPER (*Epargyreus tityrus*)
Upper and under sides

The Silver-spotted Skipper may be recognized by the large silvery spot on the under side of the hind wings. It is extremely pugnacious and will dash at any insect which flies near it.



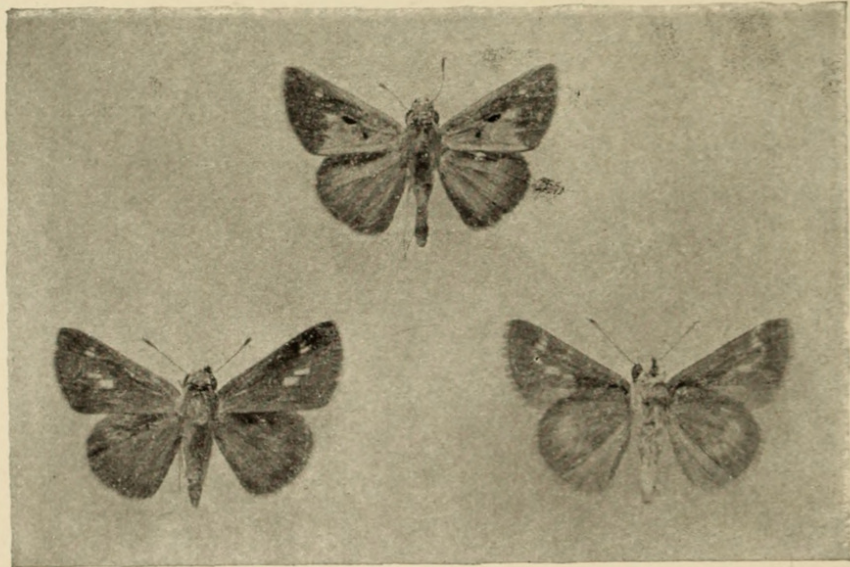
THE LEAST SKIPPER (*Ancyloxypha numitor*)
Upper and under sides

Numitor is called the Least Skipper because of its small size. Its wings are tawny and dark brown. The front wings are generally dark above but have a light front margin below.



THE YELLOW-SPOTTED SKIPPER (*Polites coras*)
Upper (male and female) and under sides

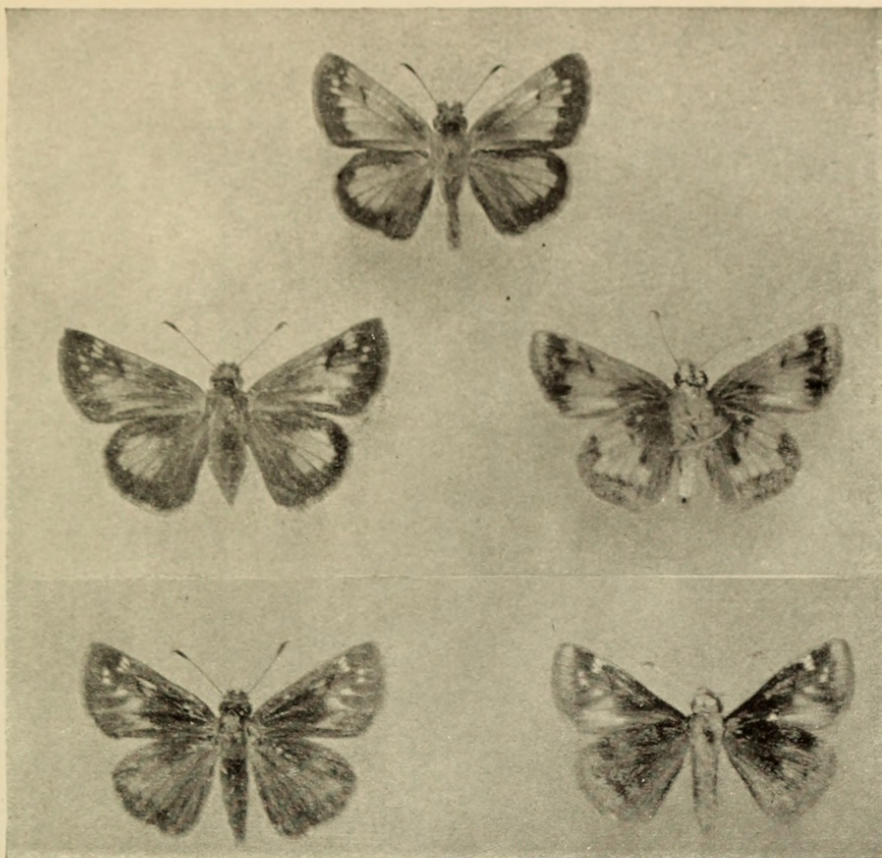
The Yellow-spotted Skipper has bright yellow spots, as shown in the figure, on a brown ground color. These are brighter and larger on the under side of the wings. Other species have similar colors but the pattern is different.



THE VOLCANIC SKIPPER (*Catia druryi egeremet*)
Male, above; Female (upper and under sides), below

The Volcanic Skipper is very dark brown, with a greenish shade which is more pronounced on the hind wings.

The Mormon Skipper has two female forms. The typical one is tawny orange with dark brown border; the other (variety *pocahontas*) is darker and the markings are more obscure.



THE MORMON SKIPPER (*Atrytone hobomok*)
Male, above; Females (upper and under sides), below

In addition to those already mentioned, there are about twenty other species which are rather common in this vicinity, but longer and more technical descriptions than can be given here would be necessary for their easy identification. They are, for the most part, Hair-streaks and Skippers, small brownish or brown and yellow creatures which flit before our eyes and then, aided by their concealing colors, disappear.

On the following pages is a table which gives the approximate life-histories for this vicinity of the butterflies described here. These histories vary somewhat according to the locality and weather conditions. The cycle from egg — through caterpillar, chrysalis and butterfly — to egg is indicated by letters as follows: E = egg; L = larva or caterpillar; P = pupa or chrysalis; A = adult butterfly.

Readers desirous of collecting and preserving these or other insects will find simple directions for doing so in a leaflet on that subject published by this Museum. The Collection of Local Insects in the Museum may be seen upon application and the Curator will be glad to give those interested personal attention.

TABLE OF LIFE HISTORIES

NAME	Nov. to March	April	May	June	July	Aug.	Sept.	Oct.	Preferred Food-plant	HAUNTS
Cabbage Butterfly	P	PAE	AEL	PAEL	AELP	AELP	AELP	ALP	Cabbage	Gardens, Open Fields
Mustard White	P	AE	AEL	LPA	AELP	LPAE	AEL	LP	Two-leaved Toothwort	Open Woods, Wood Roads
Checkered White	P	AE	AEL	PAEL	AELP	AELP	AELP	ALP	Wild Peppergrass	Open Fields, Waste Places
Falcate Orange-tip	P	AE	AEL	LP	P	P	P	P	Lyre-leaved Rock-cress	Open Woods
Clouded Sulphur	LP	PA	AEL	AELP	LPAE	AELP	LPAE	AEL	Clover	Open Fields, Meadows
Little Sulphur	?	?	?	AELP	AELP	AELP	AELP	A	Sensitive Pea	Open Sandy Fields
Tiger Swallowtail	P	PA	AEL	LP	AEL	AELP	AELP	P	Wild Cherry	Open Fields and Woods
Asterias Swallowtail	P	P	AEL	LP	AEL	AEL	AELP	LP	Wild Carrot	Open Fields, Meadows
Spicebush Swallowtail	P	PAE	AEL	LP	AEL	ALP	AELP	LP	Sassafras	Open Fields, Woods, Meadows
Tailed Blue	L	PA	AEL	AELP	LPAE	AELP	AEL	L	Round- headed Bush-Clover	Open Fields, Meadows
Common Blue	P	AE	AEL	AELP	AELP	AELP	AELP	LP	Maple-leaved Arrow-wood	Open Woods
Blue Emperor	L	L	LP	LPAE	AEL	LPAE	AEL	L	Wild Cherry	Lanes, Orchards
White Admiral	L	L	LP	LPAE	AELP	LPAE	AEL	L	Black or Sweet Birch	Wood Roads
Monarch	Absent	Absent	AEL	LP	AEL	AELP	LPAE	ALP	Milkweed	Open Fields, Meadows
Viceroy	L	L	LP	AELP	AEL	ELPA	AEL	L	Willow	Damp Places, Meadows
Mourning Cloak	A	AE	AEL	LP	AEL	LPAE	AELP	LPA	Elm	Open Woods, Lanes
Regal Fritillary	L	L	L	LP	PA	AE	AEL	L	Violet	Wet Meadows
Great Spangled Fritillary	L	L	L	LPA	PA	AE	AEL	L	Violet	Wet Meadows
Smaller Spangled Fritillary	L	L	L	LPA	PA	AE	AEL	L	Violet	Wet Meadows
Silver-bordered Fritillary	L	LP	PAE	AELP	LPAE	LPAE	AEL	L	Violet	Wet Meadows
Meadow Fritillary	L	LP	PAE	AELP	LPAE	LPAE	AEL	L	Violet	Wet Meadows
Pearl Crescent	L	LP	AEL	AELP	PAEL	AELP	AEL	AL	Aster	Open Fields, Meadows
Violet-tip	A	A	AEL	AELP	AEL	AELP	LPA	PA	Elm	Open Woods, Lanes, Roads
Hop Merchant	A	A	AEL	AELP	AEL	AELP	LPA	A	Nettle	Open Woods, Lanes, Roads

TABLE OF LIFE HISTORIES

NAME	Nov. to March	April	May	June	July	Aug.	Sept.	Oct.	Preferred Food-plant	HAUNTS
Gray Comma	A	A	AEL	AELP	AEL	AELP	LPA	A	Currant	Open Woods, Lanes, Roads
Red Admiral	PA	A	AEL	AELP	PAEL	LPA	PA	PA	Nettle	Wood Roads, Lanes
Hunter's Butterfly	PA	A	AEL	AELP	PAEL	LPA	LPA	PA	Sweet or White Balsam	Open Fields, Meadows
Thistle	A	A	AEL	AELP	PAEL	LPAE	PAEL	PA	Burdock	Open Fields, Waste Places
Common Wood-nymph	L	L	L	LP	PA	AEL	AEL	L	Grasses	Grassy Meadows
Common Grass-nymph	L	L	L	LPA	PAE	AEL	L	L	Grasses	Wet Meadows, Swamps
Little Wood-satyr	L	L	PA	AEL	AEL	L	L	L	Grasses	Grassy Places, Edges of Woods
Silver-spotted Skipper	P	P	AEL	LPAE	PAEL	AEL	ALP	LP	Locust	Open Fields near Locust Trees
Least Skipper	P?	P	PA	AEL	PAEL	LPAE	AEL	P?	Grasses	Grassy Places, Fields & Meadows
Yellow-Spot	LP	LP	PA	PAE	AEL	LPAE	AEL	LP	Grasses	Grassy Places, Fields & Meadows
Volcanic Skipper	L	L(P?)	(LP?)	PAE	AEL	AEL	L	L	Grasses	Grassy Places, Fields & Meadows
Mormon Skipper	LP	LP	PA	PAE	AEL	L	LP	LP	Grasses	Grassy Places, Edges of Woods and Meadows



Watson, Frank E. and Lutz, Frank Eugene. 1920. "Our common butterflies."
Guide leaflet 38, Page 1-29.

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