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THE COLEOPTERA OF CANADA.

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V. The Coccinellidæ of Ontario and Quebec.

This family includes a moderate number of beetles, usually of compact, convex and often more or less hemispherical form, coloured as a rule in striking patterns of yellows or reds and black. In most cases the surface is glabrous, though in *Scymnus* and some less extensive genera it may be plainly pubescent. Technically, the family may be known by the clavate antennæ, the three-jointed tarsi with dilated second joint and the partially membranous dorsal abdominal segments; the ventral segments are free, the first usually with coxal lines, and the claws ordinarily appendiculate or toothed. It will, however, seldom be necessary to recur to these characters in the study of a limited fauna such as is presented by East Canada, as the facies is usually such as to render the fact of an insect belonging here unmistakable. Sexual characters are feeble and seldom used in specific or generic determinations.

The larvæ are common on leaves of plants, and may often be seen in numbers on twigs infested with aphides, which constitute the chief food of the more northern species, although *Epilachna borealis* (Fig. 35), which occurs farther to the south, is known to be phytophagous in habit. Most of the known North American larvæ of this family agree in being of somewhat elongate form, often quite spiny and usually spotted or banded in reds, black and yellows. They bear a resemblance to a minute alligator in shape, and are known under that name by children in some parts of the country. When full fed the larva attaches itself by the anal extremity to some convenient surface—the under side of a leaf or the bark of a tree in wild countries—and transforms to a pupa (Fig. 36—pupa of *Coccinella 9-notata*), displaying the characteristic gaudy colours before mentioned, the old larval skin adhering to the posterior extremity.

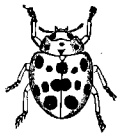


Fig. 35.

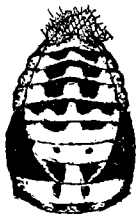


Fig. 36.

The genera are extremely difficult to tabulate in a

satisfactory form, and I have been unable to find easily seen characters in all cases—partly because of the extreme resemblance in form among certain genera, and partly on account of the wide variation in colour shown by a few species precluding much use of this in a table. In part, I have followed the "Classification," while in other places I have used more readily perceived characters, which, while not in themselves of true generic value, will nevertheless allow the species here treated to be properly placed. The interpretation of specific characters is, in general, after the "Revision of the Coccinellidæ of the United States," by Mr. Crotch, although he has not tabulated most of them. *Scymnus* is omitted for the present.

A word of caution is necessary to beginners. Some of the species are very closely allied, and often so variable in colour, especially as regards the greater or less development of the elytral spots, that they may prove extremely puzzling, and in order to avoid mistakes the tables and descriptions, which have been made fuller than in preceding papers of this series, should be carefully studied. The considerable number of figures offered should also prove an aid to accurate work.

The species known from our region may be placed in their approximate genera by use of the following key:

A. Body pubescent.
  Antennæ reaching base of thorax; body oblong-oval... *Coccidula.*
  Antennæ scarcely as long as the head; body nearly hemispherical..... *Scymnus.*

AA. Body glabrous, base of antennæ covered by a frontal plate, thorax very small; upper surface black, elytra each with one red spot..... *Chilocorus.*

AAA. Body glabrous, base of antennæ exposed, thorax of moderate size.
  b. Form oblong-oval or elongate, ventral lines absent or nearly so.
    c. Elytra with sutural and discoidal black stripe..... *Næmia.*
    cc. Elytra spotted.
      d. Thorax distinctly margined at base..... *Megilla.*
      dd. Thorax not margined at base.
        Small (.13 in.). Elytra each with eight spots,* sometimes confluent..... *Anisosticta.*
        Larger (.20—.30 in.). Elytra with not more than six spots* on each..... *Hippodamia.*

*The common sutural spots excluded.

bb. Form usually rounded and much more convex; metasternal and ventral coxal lines distinct.

e. Antennæ longer (sometimes only slightly so) than the head; form looser, less contractile; colour above usually pale with dark markings.

f. Size small (.08 to .10 in.).....*Psyllobora.*

ff. Larger (.16 to .38 in.).

g. Antennæ only slightly longer than the head, elytral epipleuræ not extending to tip.

Lines on first ventral angulate externally.....*Coccinella.*

Lines on first ventral semicircular, complete .....*Adalia.*

Lines on first ventral incomplete externally.....*Harmonia.*

gg. Antennæ longer, extending at least to middle of prothorax; epipleuræ entire.

Claws bifid, body oval, more convex.....*Mysia.*

Claws toothed, body rounded in outline, less convex.....*Anatis.*

ee. Antennæ extremely short, about as long as the front; body compact, strongly retractile; colour above black, with yellow or red markings.

Anterior tibiæ with a strong spine on the outer edge, elytral spots more numerous.*Brachyacantha.*

Anterior tibiæ simple, elytral spots fewer in number.....*Hyperaspis.*

ANISOSTICTA, Duponchel.

A. strigata, Thunb., which represents the above genus in the Canadian fauna, is a small ovate or somewhat elongate insect (.13 in.), black beneath excepting the sides and tip of the abdomen, which, with the legs and antennæ, are yellow. Above, the head is yellow anteriorly, the thorax yellow, with two triangular black spots, the apices of the triangles being applied to the base. These spots are sometimes irregularly **v**-shaped, or the outer limb of the **v** may even be separated as a spot. Elytra yellowish, with a common bilobed spot on the scutellar region, and usually eight others on each, black; these spots may, however, be confluent in a varying degree, so as to form a less number of larger size.

NÆMIA, Muls.

To this genus belongs *N. episcopalis*, Kirby, a small species (.15 in.) of more than usually elongate and parallel form, black beneath, with the legs and sides of the abdomen yellow. Above, the head and prothorax are black with yellow stripes, the elytra yellow with a narrow common black sutural vitta, and on each a broader discoidal one; none of these reach the apex.

MEGILLA, Muls.

The well-known *M. maculata*, DeGeer, is of an oval, not very convex form, black beneath, the prosternum and a row of triangular lateral abdominal spots reddish. Above, reddish, with large black spots as follows:—Two large black sub-triangular on the prothorax, one diamond-shaped on the scutellar region of the elytra, one transversely elliptical on the suture about three-fourths to tip; each elytron has in addition four spots (the second the largest) arranged longitudinally near the external edge. Legs black, head black with a triangular frontal spot prolonged on to both sides at the broad end. Length, .20 to .22 in. (Fig. 37.)

Fig. 37.

HIPPODAMIA, Muls.

The species are rather numerous and vary to a considerable extent in the size of the elytral black spots. The thorax has a pale border and often two white dashes on the disk.

A. Tibiæ black.

b. Thoracic border sinuate or interrupted. Discal marks absent, or nearly so.

Basal elytral spots large, usually connected so as to form a transverse band. Length, .25–.27 in. . . *5-signata*, Kirby.

Basal elytral spots small or wanting, .28–.30 in. *Lecontei*, Muls.

bb. Thoracic border nearly uniform, disk with two white dashes.

Elytral spots small, never united, .18–.20 in. . . *convergens*, Guer.

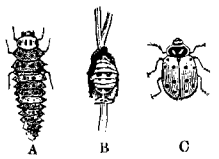
AA. Tibiæ pale.

Thorax with quadrate yellow spot at middle of base, .16–.20 in. . . . . *parenthesis*, Say.

Thorax without spot at base, .20–.24 in. . . . *13-punctata*, Linn.

Fig. 38 is a diagram of *Hippodamia 5-signata;* Fig. 39—A the larva, B the pupa, and C the imago of *H. convergens;* Fig. 40 *H. parenthesis;* Fig. 41 *H. 13-punctata.*

Fig. 38.



A B C

Fig. 39.

Fig. 40.

Fig. 41.

COCCINELLA, Linn.

A number of species of very convex form constitute this genus; they vary, as do those of *Hippodamia*, in the extent of the black markings, but may be separated thus :—

A. Elytra red, immaculate. White margin of thorax with three branches..... *sanguinea*, Linn.

AA. Elytra reddish or yellowish with black markings.

b. Thorax with anterior margin white.

Elytra with three black transverse fasciæ, sometimes reduced or partially divided, .22 in..... *trifasciata*, Linn.

Elytra with a common scutellar, and each with four other spots, black, the two anterior smaller, .26–.30. *9-notata*, Hbst.

bb. Thorax with anterior angles only white.

c. Elytra strongly punctulate, shining; thorax with anterior angles triangularly white. Elytra each with a triangular subapical black spot and a common black sub-basal fascia tridentate anteriorly, .19 in..... *tricuspis*, Kby.

cc. Elytra alutaceous, obsoletely punctulate. Thorax with a quadrate white spot on the anterior angles above.

Anterior thoracic angles only narrowly white beneath. Sub-basal spots of elytra usually united into a common fascia, .28–.30 in..... *transversoguttata*, Fabr.

Anterior thoracic angles as broadly white beneath as above. Elytra without sub-basal band, usually with an oblique medial fascia, a scutellar spot and a subapical spot on each, .28–.30 in.... *monticola*, Muls.

Of the above species, *C. tricuspis* is unknown to me in nature. Figures are given of *C. sanguinea*, Fig. 42; *C. trifasciata*, Fig. 43; *C. 9-notata*, Fig. 44, and its larva, Fig. 45, and pupa, Fig. 36; *C. transversoguttata*, Fig. 46; and *C. monticola*, Fig. 47.

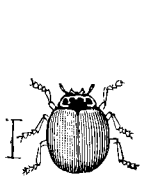


Fig. 42.


Fig. 43.


Fig. 44.

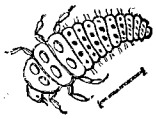


Fig. 45.


Fig. 46.


Fig. 47.

ADALIA, Muls.

Two species are found in the Canadian lists ; they are similar in outline to *Coccinella*, but less convex. Being very variable in colour, they are likely to make trouble, but may be separated thus :—

Elytra uniform yellowish red or with transverse fasciæ of small black spots in varying number, .18 in.....*frigida*, Schn.

Elytra yellowish-red with a rather large discoidal black spot, .19 in.....*bipunctata*, Linn.

Elytra black, humeral angles, or entire basal region, and a smaller post-median spot red.....var. *humeralis*, Say.

HARMONIA, Muls.

The species of Harmonia are very troublesome to define by description, but are comparatively easily recognized after a short acquaintance. *H. 12-maculata* is easily known by its convex form and resemblance in coloration to *Megilla maculata*, while the oblong-oval form and peculiar markings (see Fig. 48) of *H. picta* render the more typical specimens easily known. *H. 14-guttata*, while of somewhat the same form as *21-maculata*, may be easily separated from it by the dark ground colour with lighter markings. The differences may be stated, then, as follows :—

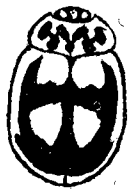


Fig. 48.

Elytra testaceous or pinkish, with large black spots ; one common scutellar, one common at about three-fourths, and, on each elytron, one humeral, two medial, one post-medial, and one triangular apical. Thorax with two very large black spots. Form hemispherical, .22 in.....*12-maculata*, Gebl.

Elytra light red with pale spots, or black with red spots, normally seven on each, but sometimes reduced to two. Punctuation unequal. Thorax with front and hind margins pale, often also with a medial line and spot near the hind angles, .23 in.... *14-guttata*, Linn.

Elytra entirely pale or with a longitudinal line, and a spot on each side (the spot often confluent with the line) dark or black. Prothorax pale, with black spots often coalescing into an **M**-shaped mark, with a dot on each side, or varying infinitely in size and shape. Form oblong-oval, less convex, .17 in. .....*picta*, Rand.

MYSIA, Muls.

M. pullata, Say. Oval, convex, head black with two yellow frontal spots, thorax black with narrow whitish front margin, sides broadly white and enclosing a black spot. Elytra reddish, sometimes with an irregular blackish dorsal vitta. Legs usually black, .28 in. Larger than *Coccinella sanguinea*, which it recalls at first sight, and with the thorax differently marked.

ANATIS, Muls.

Two species are recorded from Canada, differing thus :—

Elytra very distinctly punctured; thorax yellowish white, with a heavy, more or less **M**-shaped discoidal black mark, and a black marginal spot near the hind angles. The elytra are usually yellowish with black spots, arranged in three transverse rows, though occasionally specimens are found in which the elytra are brown or nearly black. Legs wholly or in part yellow, .30–.38 in. (Fig. 49).....*15-punctata*, Oliv.

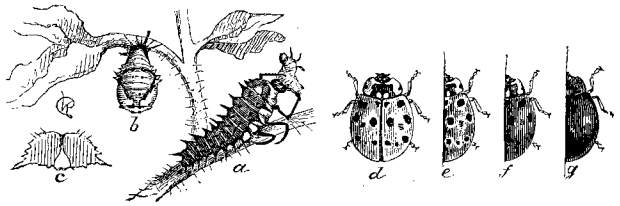


Fig. 49.

Elytra quite smooth, with oblong piceous spots, variable in form and extent, so that nearly the entire disk may become piceous, enclosing small yellow stripes or blotches.....*subvittata*, Muls.

The former is our largest Coccinellid, and is easily recognized. The latter I am unacquainted with, and owe the characters on which the separation is made to the kindness of Dr. Horn.

PSYLLOBORA, Chevr.

A small, yellowish-white species (*P. 20-maculata*, Say.), only .08 to .10 in. in length, with numerous black spots; cannot be mistaken for anything

else, since it is the only black-spotted Coccinellid of such small size and hemispherical shape in the Canadian fauna.

CHILOCORUS, Leach.

Fig. 50.

C. bivulneratus, Muls., is the only Canadian species. It is a rounded, very convex species, with a very short thorax and wide margins to the elytra, which are black, with a red discoidal spot. The abdomen is red. Length, .20 in. Fig. 50, imago; Fig. 51, larva.

Fig. 51.

BRACHYACANTHA, Dej.

One species comes from our region, *B. ursina*, Fabr., a rather small, oval convex insect (my specimens varying from .09 to .16 in. in length), black above, head yellow, the thorax with front margin yellow in the male. The elytra are black, with five yellow spots, one humeral, one basal, two medial and one sub-apical. The variety *10-pustulata*, Melsh, includes the small specimens in which the head is often black, with an orange spot on the vertex.

HYPERASPIS, Chevr.

Resembles *Brachyacantha* in form, but differs in having no spine on the anterior tibiæ. The ornamentation in the Canadian species is also usually less profuse.

A. Elytra black, with marginal spots or lateral stripe and a discoidal spot before the middle yellow. Sides of prothorax (in ♂ the front margin and head also) yellow, .08–.10 in..... .....*undulata*, Say.

AA. Elytra black, without series of lateral spots or stripes.

b. Prothorax black (♀), with sides and front margin pale (♂).

Elytra black, each with a rounded red spot at about the middle, and sometimes another small one near the tip, .09–.16 in.....*signata*, Oliv.

bb. Prothorax with lateral spot or margin pale in both sexes, ♂ with head pale.

Elytra each with a round spot at middle and two small ones (sometimes wanting) one-fifth from the tip, sides of prothorax yellow; ♂ with front margin and head also yellow, .08–.12 in.....*proba*, Say.

Fig. 52.

Elytra each with a round red spot near the tip, thorax with a large lateral spot, .11–.12 in.....*bigeminata*, Rand.

Fig. 52 represents *H. undulata*.

COCCIDULA, Kug.

A single species is known, *C. lepida*, Lec., about .12 in. in length, pubescent, and of rather elongate form. My specimens are yellowish above, the head black, except at sides. Elytra with a broad black common sutural stripe, dilated at apex and extending three-fourths to tip. At base this stripe is also dilated, and extends across to the sides, where it becomes confluent with a broad, black lateral vitta, which runs beyond the middle. Beneath, mostly black, the legs, sides of prothorax and four terminal abdominal segments yellow. Antennæ longer than usual, yellow.

The remaining Provinces of Canada, after excluding Ontario and Quebec, seem to have furnished comparatively few additional species of Coccinellidæ; the few published records that I am able to find (excepting *Scymni*) are appended.

Ceratomegilla ulkei, Cr. Hudson's Bay. "Oval, subopaque, antennæ and tarsi ochreous; head with a white spot in front of each eye, thorax bordered with ochreous on the sides, anterior angles broadly ochreous, and a very minute line in the middle of the anterior margin also ochreous; elytra rather closely punctate, a triangular spot on the base, the external margin irregularly, and an elongate common sutural spot near the apex fulvous. L., .22 in." Unknown to me.

Adonia constellata, Laich. Nova Scotia. "Black, tibiæ, antennæ and entire front of head pale; thorax with a narrow border, abbreviated medial line connected with the anterior margin, and a round dot on either side, white. Elytra with a scutellar spot, and six others (as in *Hippodamia*) variously united or absent." L., 19 in.

Eriopsis connexa, Germ. Vancouver. "Oblong, black; thorax with the sides and a spot on the front and hind margins yellow. Elytra with the base, margin and two dorsal spots yellow; the marginal line is dilated in five places, one basal, one subhumeral, one medial, one at three-fourths and one sub-apical. L., .22 in."

Hippodamia moesta, Lec. Victoria, Van. Isl. (var. of *Lecontei*). Elytra entirely black, with a small basal dot near the scutellum and a triangular marginal subapical spot, yellow. L., .29 in.

H. falcigera, Cr. Slave Lake, Hudson's Bay. Black, head with a small yellow frontal spot; thorax without discal marks, with a narrow uniform yellow border. Elytra yellow, with the suture black (narrowing out before the apex), and each with a black, equally broad vitta, suddenly incurved before the apex. L., .22 in.

H. americana, Cr. Hudson's Bay. Tibiæ pale, metepimera black, thoracic margin narrow in front, broader and emarginate at sides, sutural vitta suddenly dilated at one-third. L., .20 in.

Coccinella transversalis, Muls. Victoria, Van. Isl. A variety of *C. transversoguttata*, in which the basal band is divided, or only the scutellar spot left. It, therefore, resembles, superficially, *C. monticola*, from which it may be separated by the thoracic spot, as shown in the preceding table.

Anatis Rathvoni, Lec. Nanaimo, Van. Isl. (Holland). May be known from *A. 15-punctata* by the black meso-and metepimera.

Psyllobora tædata, Lec. Victoria, Nanaimo, Van. Island. Smaller than *P. 20-maculata*, spots mostly brown, sub-confluent, punctuation fainter.

The more essential bibliography of this family is not extensive, but in part very difficult to procure. The following are the principal titles:—

1850. Mulsant. Species des Coleopteres trimeres securipalpes. Ann. Soc. d'Agric, Lyon, Ser. II., 1850. Supplement Ann. Soc. Linn., Lyon, Ser. III., 1853. Additions et rectifications, l. c., Ser. II., 1856.

1852. Le Conte. Remarks upon the Coccinellidæ of the United States. Proc. Acad. Nat. Sci., Phila., Vol. VI.

1873. Crotch. Revision of the Coccinellidæ of the United States. Trans. Am. Ento. Soc., IV.

1880. Le Conte. Short studies of North American Coleoptera. Trans. Am. Ento. Soc., VIII. (p. 186, *Hyperaspis*).

PHILAMPELUS ACHEMON.

While collecting on the 29th of last June, at an electric light on the outskirts of Toronto, in company with Mr. H. R. Hayter, he captured a ♀ specimen of *Philampelus achemon*, Drury. The insect had lost one antenna, but was otherwise in perfect condition. I have not heard of any other capture of this insect near Toronto.

G. M. Stewart, Toronto.