

31; 25-VI-59 and 6-VII-59; [Ancaster, Ont.; coll: J. Martin]. Adult and larvae in C.N.C.

General.—Length of largest larvae 13 or 14 mm. Length and width, respectively, of head on three specimens: 0.91 mm. and 1.07 mm.; 0.89 mm. and 1.04 mm.; 0.98 mm. and 1.14 mm. Head yellow with a blackish ocellar area, and occasionally, dark pigment at postgenal juncture. Thoracic shield yellowish with dark pigment laterally, especially surrounding and anterior to seta SD1. Thoracic legs and anal shield pale. Body colour pale. Pinacula large, flattish, of body colour. Spinules and their bases darker than body colour; the spinules obviously slender on most specimens. Anal fork moderately developed.

Comments.—A typical *Pseudexentera*, apparently close to *spoliata* Clem., but differing from it in colour pattern of thoracic shield, shape of anal shield which is more tapered than rounded posteriorly, and development of anal fork.

Distribution: Nova Scotia, southern Ontario (C.N.C.); New York, New Jersey, Pennsylvania, Connecticut, Wisconsin (Heinrich, 1923). Adults in April and May. Larvae aestivating in late or last instar, as is usual for this group.

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An Annotated List of the Hippodamiini of Northern America, with a Key to the Genera (Coleoptera: Coccinellidae)

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This paper is based almost entirely on material in the Canadian National Collection. It proposes several taxonomic changes, which are detailed in the summary that concludes the paper. It outlines the Canadian and Alaskan distribution of the forms considered and is, perhaps, justified by the paucity of published records of distribution in the more northern regions. The records for *Hippodamia* are based on more than 2,000 specimens that were identified by de Ruetete; these records supplement those of Chapin (1946, Smithsonian Misc. Coll. 106(11): 1-39), who revised the New World forms of the genus and mapped their distribution in the United States.

We are indebted to Dr. Carl H. Lindroth of the University of Lund, Sweden, who supplied specimens of *Hippodamia arctica* (Schneid.) from Lapland. We are indebted also to Mr. F. T. Scott of Visalia, Calif., who loaned Canadian specimens of that species and of *Ceratomegilla ulkei* Crotch.

Key to the Genera Occurring in the United States and Northward

- | | | |
|----|---|--------------------------------|
| 1. | Tarsal claws simply widened basally, neither toothed nor cleft | 2 |
| | Tarsal claws either toothed or cleft | 5 |
| 2. | Pronotal base with a fine, entire marginal bead | 3 |
| | Pronotal base not margined | 4 |
| 3. | Metasternum with postcoxal lines. [Elytral suture with three large spots, which are sometimes narrowly joined; each elytron in addition with a row of three large spots, which may be joined. One presumed species, <i>seriata</i> Melsheimer, which is said to occur as two or three subspecies on and near the coasts from Massachusetts to Florida and Texas and in southern California] | <i>Naemia</i> Mulsant |
| | Metasternum lacking postcoxal lines. [Elytra trivittate; the black area of the pronotum divided on the median line. One species, <i>vittigera</i> (Mannerheim), occurring from Oregon to Colorado and southward] | <i>Paranaemia</i> Casey |
| 4. | Elytral epipleurae sloping downward internally, entirely visible when the insect is viewed laterally. Body unusually elongate, the sides of the elytra subparallel. Each middle and hind tibia with two terminal spurs. [Elytra trivittate, the sutural vitta narrow. One American species, <i>episcopalis</i> (Kirby)]. | <i>Macronaemia</i> Casey |
| | Elytral epipleurae horizontal, largely concealed when the insect is viewed laterally. Body not unusually elongate, the sides of the elytra arcuate as usual. Each middle and hind tibia with a single terminal spur, rather than with two as in all of the other genera. [Elytra spotted or very irregularly vittate. Two American species, <i>bitriangularis</i> (Say) and <i>borealis</i> Timberlake] | <i>Anisosticta</i> Chevrolat |
| 5. | Each tarsal claw cleft near the apical third. Pronotal base not margined. [Numerous American species and subspecies, which, except <i>arctica</i> (Schneider), can be identified with Chapin's revision (1946, Smithsonian Misc. Coll. 106(11): 1-39)] | <i>Hippodamia</i> Mulsant |
| | Each tarsal claw with a subrectangular basal tooth. Pronotal base with a fine, entire marginal bead | 6 |
| 6. | Metasternum and first abdominal segment with distinct postcoxal lines. Male with the anterior and middle tarsi strongly enlarged, with the third segment of each antenna strongly triangular and wider than the adjacent segments. [Two American forms, <i>ulkei</i> Crotch, with the elytra largely black, and <i>parva</i> (Watson), with the elytra red and maculate with black] | <i>Ceratomegilla</i> Crotch |
| | Metasternum and abdomen lacking postcoxal lines. Male with the tarsi and antennae not modified. [Each elytron with four discrete spots in addition to a scutellar spot and a sutural or subsutural spot at apical third. One presumed species in North America, the form of northern United States and Canada being <i>maculata lengi</i> Timberlake] | <i>Coleomegilla</i> Timberlake |

***Anisosticta* Chevrolat**

Anisosticta Chevrolat, 1837, in Dejean, Cat. Coleop. Coll. Dejean, ed. 3. p. 456 [Type species: *Coccinella novemdecimpunctata* Fabricius, 1775, which is *Anisosticta novemdecimpunctata* (Linnaeus), 1758; designated by Crotch, 1874, Rev. Coleop. Fam. Coccinellidae, p. 93].

The name *Anisosticta* is usually attributed to Duponchel (1841 in d'Orbigny, Dict. Univ. Hist. Nat. 1:542), who was the first to publish it with a description. Like the name *Hippodamia*, it first appeared in the third edition of the Dejean catalog and was validated there like the names of the chrysomelid genera that were discussed by Barber and Bridwell (1940, Bull. Brooklyn Ent. Soc. 35:1-12) and attributed by them to Chevrolat.

The two American species of this genus are very similar to the two European species, and one of the former, *bitriangularis* (Say), has been confused with both of the latter. All four are compared in the following key, which describes all specific characters that we have observed.

- | | | |
|----|---|---|
| 1. | Abdomen entirely black. Mesepimera black or very strongly infuscate; the metepimera often black or bicolored. Elytra and pronotum more heavily maculate with black; the lateral margins of the elytra less broadly reflexed | 2 |
| | Lateral margins of the abdomen and the epimera pale. Elytra and pronotum much less heavily maculate except very rarely in northernmost specimens of <i>bitriangularis</i> ; the lateral margins of the elytra more broadly reflexed | 3 |
| 2. | Length 2.5 to 3.0 mm. Subsutural spot at the apical fourth of each elytron usually free, infrequently joined to the suture and then forming part of the sutural stripe, | |

never joined to the apical dark markings; the sutural and discal black stripes always completely and usually more distantly separated. Male genital organ as in *borealis* (see Fig. 1). Eurasia *strigata* (Thunberg)

Length 3.0 to 3.6 mm. Subsutural spot at apical fourth always broadly joined to the suture and forming part of the sutural stripe, usually joined to the apical dark markings; the sutural and discal black stripes usually more approximate, commonly joined together at one or more points. Alaska and subarctic Canada east to Hudson Bay *borealis* Timberlake

3. Male genital organ with the dorsal margin of the median lobe, in lateral aspect, much more strongly sinuate than in any other species (Fig. 2). Transcontinental in northern North America *bitriangularis* (Say)

Male genital organ with the dorsal margin of the median lobe feebly sinuate and with a very small, acute, subapical tooth that is lacking in all of the other species (Fig. 3). Eurasia *novemdecimpunctata* (Linnaeus)

Anisosticta borealis Timberlake

Figs. 1, 8

Anisosticta borealis Timberlake, 1943, Hawaiian Planters' Record 47:45 [type: Nulato, Alaska].

Subarctic; Alaska to Hudson Bay. In Alaska from Hope, on the Kenai Peninsula, to Unalakleet, on the coast at 63°54'N., to Umiat, at 69°28'N. 151°53'W., and eastward. In Yukon Territory from Rampart House, at 67°25'N. 140°59'W., south to Otter Lake, at 62°30'N. 130°35'W. In Northwest Territories at Aklavik and Reindeer Depot, both in the delta of the Mackenzie River, and in Manitoba at Churchill, on the coast of Hudson Bay at 58°40'N.; frequently abundant.

Variation in color pattern is moderate. The dark discal area of the pronotum may or may not be completely divided on the median line. The elytra of some Churchill specimens are more lightly maculate with black than are any specimens from the other localities.

Anisosticta bitriangularis (Say)

Figs. 2, 5-7

Coccinella bitriangularis Say, 1824, in Keating, Exped. St. Peter's River 2: 296 [cotypes: "Northwest Territory"].

Anisosticta bitriangularis, Casey, 1899, J. New York Ent. Soc. 7:76.

Anisosticta strigata Thunberg, ab. *bitriangularis*, Korschefsky, 1931, Junk Coleop. Cat., pars 118, p. 373.

Coccinella multiguttata Randall, 1838, Boston J. Nat. Hist. 2:51 [cotypes: Cambridge, Massachusetts]; Mulsant, 1850, Coléop. Trimères Sécuripalpes, p. 35.

Anisosticta strigata multiguttata, Gemminger and Harold, 1876, Cat. Coleop. 12:3744.

Anisosticta 19-punctata multiguttata, Weise, 1895, Ann. Soc. Ent. Belgique 39:126.

Anisosticta strigata Thunberg, ab. *multiguttata*, Korschefsky, 1931, Junk Coleop. Cat., pars 118, p. 373.

Anisosticta strigata, Crotch, 1873, Trans. American Ent. Soc. 4:369; Leng, 1903, J. New York Ent. Soc. 11:37; Wickham, 1894, Canadian Ent. 26:299; Blatchley, 1910, Coleop. Indiana, p. 510.

Anisosticta novemdecimpunctata irregularis Weise, 1879, Zeit. Ent. Breslau 7:49 [type: Oregon]; Weise, 1892, L'Abeille 28:12.

Transcontinental in southernmost Canada and from the interior of Labrador to Yukon Territory; not known from Newfoundland or from the coasts of British Columbia. Northernmost localities are: Goose Bay, central Labrador at 53°45'N.; Moose Factory, eastern Ontario at 51°12'N.; Gillam, eastern Manitoba at 56°20'N.; Fort Smith and Norman Wells, western Northwest Territories at 60°N. 111°W. and 65°17'N. 127°W. respectively; Swim Lake, eastern Yukon Territory at 62°56'N. 133°W. This species is very abundant.

Variation in color pattern is considerable and is partly geographic. Many specimens from southernmost Canada have all of the elytral spots free (Fig. 5), although in southern specimens the basal subsutural is often joined to the scutellar, and two or three discal spots are frequently joined together. Most specimens from Quebec and the adjacent parts of Ontario and from the northern parts of the

western provinces are a little more heavily maculate, and all specimens taken on and near the Atlantic coast are more heavily maculate still (Fig. 6). Nearly all from Northwest and Yukon Territories and from Labrador differ in having the discal spots fused into an almost regular vitta (Fig. 7). In three of the 48 from Yukon Territory, the elytral markings are expanded, and the pattern approaches closely that of the most lightly maculate specimens of *borealis* from Churchill, Man.

Macronaemia Casey

Macronaemia episcopalis (Kirby). From Sudbury, eastern Ontario at 46° 31'N. 81°W., to the Okanagan Valley, south-central British Columbia at 119° 35'W.; north to The Pas, westernmost Manitoba at 53°50'N., and to Fort Smith and Reindeer Depot, N. W. T., at 60°N. 111°W. and 68°42'N. 134°12'W. respectively; recorded from Dawson, west-central Yukon Territory; common throughout most of the range.

Coleomegilla Timberlake

Coleomegilla maculata lengi Timberlake. From the Windsor district of southernmost Ontario to the Ottawa district of Ontario and Quebec and north to Rupert House, Que., on the southern shore of James Bay; Winnipeg, Man.; reported from Levis County and Vaudreuil County, southernmost Quebec; usually abundant but local.

Ceratomegilla Crotch

Ceratomegilla Crotch, 1873, Trans. American Ent. Soc. 4:365 [Monobasic. Type species: *C. ulkei* Crotch, 1873]; Leng, 1903, J. New York Ent. Soc. 11:36; Scott, 1933, Pan-Pacific Ent. 9:126; Timberlake, 1943, Hawaiian Planters' Record 47:45.

Spiladelphia Semenov-Tian-Shanskij and Dobrzanskij, 1923, Rev. Russe d'Ent. 18:99 [Monotypic. Type species: *S. barovskii* Sem. & Dobrz. 1923]; Mader, 1926, Evidenz der paläarktischen Coccinelliden und ihrer Aberrationen in Wort und Bild, p. 87. *New synonymy*.

Because of its rarity, *Ceratomegilla* has remained very poorly known and has been confused with other genera. For 60 years the type species, *ulkei* Crotch, was known only from its type specimen. Scott noted that the modified third antennal segment, a character considered diagnostic for the genus by Crotch, is a male character. Timberlake saw the type specimen of *ulkei*; he compared *Ceratomegilla* with allied genera in a key that excluded from the genus all species known to him except *ulkei*. *Spiladelphia* includes three species from high altitudes in southwestern Siberia, Russian Turkestan, and Tibet; each species has been reported from only one locality. It is quite evident from the description that *Spiladelphia* is a synonym of *Ceratomegilla*. The essential characters of *Ceratomegilla* are as follows.

Body unusually elongate as in *Naemia* Mulsant, more elongate than in *Coleomegilla* Timberlake and *Hippodamia* Mulsant. Antennae long as in the last two genera; the apex of each ultimate and penultimate segment strongly oblique. Pronotum widest at middle, its sides evenly arcuate, its base with a distinct marginal bead. Apices of the elytra acute or subacute, not rounded. Postcoxal lines of the metasternum scarcely oblique, each attaining the lateral margin at the basal two-fifths of the episternum when not obsolete laterally; postcoxal lines of the first abdominal segment distinct, evenly arcuate, extending over the basal three-fifths of the segment and terminating on each side at the middle of the epimeron, sometimes briefly abbreviated laterally. Each middle and hind tibia with two terminal spurs. Each tarsal claw with a basal tooth; the tooth not as wide as long, its apex acute.

Male.—Third segment of each antenna strongly triangular, wider than the third or fourth segment, its anterior apical angle ciliate. The two basal segments of each anterior tarsus very strongly, of each middle tarsus almost as strongly dilated. Penultimate segment of the abdomen broadly, arcuately emarginate and depressed apically; the ultimate segment flattened.

Female.—Antennae and tarsi not modified. Penultimate segment of the abdomen truncate; the ultimate segment with the median line impressed.

In *Hippodamia* the pronotal base is not margined, and each tarsal claw is cleft at the middle. In *Coleomegilla* both the metasternum and abdomen lack postcoxal lines. In both of these genera, the male antennae are unmodified, and the male tarsi are not distinctly modified except in some species of *Hippodamia*. In *Adonia* Mulsant each tarsal claw is cleft at the middle as in *Hippodamia*, and the male antennae are not modified.

Ceratomegilla ulkei Crotch

Ceratomegilla ulkei Crotch, 1873, Trans. American Ent. Soc. 4:365 [type: "Hudson's Bay"]; Wickham, 1894, Canadian Ent. 26:305; Leng, 1903, J. New York Ent. Soc. 11:39; Scott, 1933, Pan-Pacific Ent. 9:126.

Scott reported this species from Yukon Territory; his specimens were from Selkirk (62°45'N. 137°11'W.). It occurs also at Coppermine, N.W.T. (67°49'N. 115°08'W.), Reindeer Depot, N.W.T. (eastern side of the Mackenzie Delta at 68°42'N.), Tununuk, N.W.T. (69°N. 134°40'W.), Fort McPherson, N.W.T. (near the Yukon Boundary at 67°36'N.), Muskox Lake, N.W.T. (64°45'N., 108°10'W.), Rampart House (Alaska-Yukon boundary at 67°25'N.), and at Umiat, Alaska (69°28'N. 151°53'W.).

In the 13 specimens from Rampart House and eastward, the variation in pattern is quite moderate. The head is bimaculate and the lateral margins of the pronotum are whitish as in *parva* (see below); the elytra are black except the epipleurae, which are red, and the margins, which are as follows: basal margins narrowly red except at the middle of each where the red is triangularly extended into the black discal area, the triangle about as long as wide; basal three-fifths of each lateral margin rather narrowly red except at basal fourth where the red is partially or completely (in one specimen) interrupted, this dark intrusion lacking in one specimen; the apical two-fifths of each lateral margin very narrowly red except in one specimen in which it is black on the apical fifth; the sutural margins narrowly red in apical half or two-fifths except at the extreme apex in several specimens. The pale markings are reduced in the two specimens, one of each sex, from Umiat, which differ as follows: spots of the head much smaller; pronotum black except a small crescentic spot at each anterior angle; elytra black above except a narrow lateral margin on basal third or half of each and, in one specimen, a small spot at the base of each.

Ceratomegilla parva (Watson), new combination

Hippodamia parva Watson, 1954, Canadian Ent. 86:45, Figs. 1-4 [type and paratypes: Cape Henrietta Maria (55°N. 82°15'W.), Ontario].

As in *ulkei* Crotch except for the pattern of the elytra; possibly a geographic variant of that species. Length 3.8 to 4.7 mm. Body and legs black; the labrum and tarsi rufescent; the antennae and palpi pale red. Head with a whitish spot, which includes the canthus, at the inner margin of each eye. Pronotum with the lateral margins whitish; the pale margins wide at the anterior angles, narrow at the middle and basally. Elytra red and maculate with black as figured by Watson; with a large scutellar spot, which widens posteriorly and attains the basal two-fifths; each with a large, oblique postmedian spot and with a much smaller but

moderately large subapical spot; three of the four specimens with a small sub-humeral spot on each, this subobsolete in two of these specimens and joined to the widest part of the scutellar spot in one; one specimen with a small sublateral spot on each at basal fourth.

Male genitalia as in *ulkei*.

These notes are based on the type, a female paratype, and on two females taken near timber line (4,500 ft. and 5,000 ft.) at mile 379 and mile 392 of the Alaska Highway (near Summit Lake, northeasternmost British Columbia).

***Adonia* Mulsant**

Adonia Mulsant, 1846, Hist. nat. Coléop. France, 4, Sulcicolles et Sécuripalpes, p. 39 [Monobasic. Type species: *Coccinella mutabilis* Scriba, 1790, a synonym of *Adonia variegata* (Goeze), 1777].

In the type species of *Adonia*, the pronotal base is margined with a distinct bead, the first abdominal segment bears postcoxal lines, and the first segment of each front and middle male tarsus is strongly dilated. *Hippodamia* is commonly described as lacking these characters, one or more of which is commonly used to distinguish the two genera. The characters fail in some American species. In *H. arctica* (Schneider), which most authors place in *Adonia* because it possesses postcoxal lines, the pronotal base is not margined and the male tarsi are scarcely dilated. Abdominal postcoxal lines are constantly lacking in *H. tredecimpunctata tibialis* (Say), *H. americana* Crotch, *H. falcigera* Crotch, and *H. washingtoni* Timberlake but are present and quite distinct in some but not in all specimens of all other species in northern America that are placed in *Hippodamia*. The first segment of each anterior and middle male tarsus is strongly dilated in *H. sinuata* Mulsant and *H. oregonensis* Crotch and is distinctly dilated in *H. caseyi* Johnson. It seems best, therefore, to follow Winkler (1927, Cat. Coleop. Reg. Palaearcticae, p. 770), who placed *arctica* in *Hippodamia*.

Adonia variegata (Goeze). Hamilton (1894, Trans. American Ent. Soc. 21:378) reported a doubtful record of this Eurasian species from Nova Scotia. As there are no other American records, this one must be erroneous.

Adonia amoena (Faldermann). Scott (1933, Pan-Pacific Ent. 9:126) reported this Siberian form from Kirkman Creek, Y.T., and Eagle, Alaska. These records are based on specimens of *Hippodamia arctica* (Schneider). However, Mader (1926, Evidenz pal. Coccinelliden und ihrer Aberrationen . . . pp. 62, 70) doubted that *amoena* and *arctica* are specifically distinct.

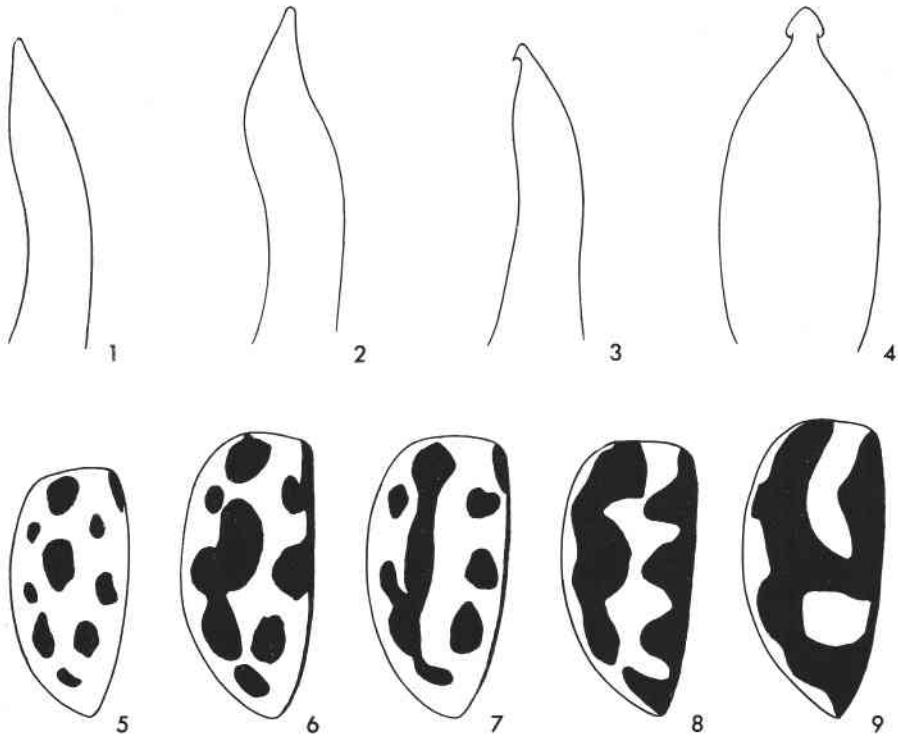
***Eriopsis* Mulsant**

Eriopsis connexa (Germar). Crotch (1873, Trans. American Ent. Soc. 4:365) reported this South American species from "Vancouver". As there are no subsequent North American records, this must be erroneous.

***Hippodamia* Chevrolat**

Hippodamia Chevrolat, 1837, in Dejean, Cat. Coléop. Coll. Dejean, ed. 3, p. 456. [Type species: *Coccinella tredecimpunctata* Fabricius, 1775, which is *Hippodamia tredecimpunctata* (Linnaeus), 1758; designated by Crotch, 1874, Rev. Coleop. Fam. Coccinellidae, p. 94].

The characters and content of this genus are discussed above in the notes on *Adonia*. The name *Hippodamia* is usually attributed to Mulsant (1846, Hist. nat. Coléop. France, 4, Sulcicolles et Sécuripalpes, p. 30), who was the first to publish it with a description. It first appeared in the third edition of the Dejean catalog and was validated there like the names of the chrysomelid genera that were discussed by Barber and Bridwell (1940, Bull. Brooklyn Ent. Soc. 35: 1-12) and attributed by them to Chevrolat.



Figs. 1-3. Median lobes, in lateral aspect, of the genital organs of *Anisosticta* spp.; the dorsal margin on the left. 1, *A. borealis* Timb. 2, *A. bitriangularis* (Say). 3, *A. novemdecimpunctata* (L.).

Fig. 4. Median lobe, in dorsal aspect, of the male genital organ of *Hippodamia arctica* (Schn.).

Figs. 5-8. Left elytra of *Anisosticta* spp. 5-7, *A. bitriangularis* (Say) from Riding Mountain National Park, Manitoba, Yarmouth, Nova Scotia, and Norman Wells, Northwest Territories, respectively. 8, *A. borealis* Timb.

Fig. 9. Left elytron of *Hippodamia arctica* (Schn.).

The American species of *Hippodamia* were revised by Chapin (1946, Smithsonian Misc. Coll. 106(11):1-39). Except for the addition of *arctica* (Schneider), his arrangement is followed below. The recently described *H. parva* Watson is listed above under *Ceratomegilla*.

Hippodamia tredecimpunctata tibialis (Say). Transcontinental in southernmost Canada and from Newfoundland to west-central Alaska. Northernmost localities are: Cartwright, coast of Labrador at 53°42'N.; Rupert House, eastern coast of James Bay at 51°27'N.; Gillam, eastern Manitoba at 56°20'N.; Fort Smith and Reindeer Depot, N.W.T., at 60°N. 111°W. and 68°42'N. 134°12'W. respectively; Rampart House, Alaska-Yukon boundary at 67°20'N.; Unalakleet, the Alaskan coast at 63°54'N. *H. t. tibialis* is very abundant throughout most of the range but is often scarce or lacking in coastal regions. The range in variation is moderate and is the same in all regions.

Hippodamia americana Crotch. Ontario to British Columbia and western Northwest Territories; probably transcontinental in the northern coniferous forests. The localities are: Moose Factory, eastern Ontario at 51°12'N.; Ogoki, central Ontario at 51°50'N.; Madge Lake, Manitoba-Saskatchewan boundary at 51°40'N.; McMurray, eastern Alberta at 56°44'N.; Fort Smith and Norman Wells,

N.W.T., at 60°N. 111°W. and 65°17'N. 127°W. respectively; Fraser Lake, central British Columbia at 54°02'N. 124°52'W. This is a rare species. It was known to Chapin only from Waskesiu Lake, central Saskatchewan at 54°05'N., and Whitefish Point, southeastern shore of Lake Superior.

Hippodamia falcigera Crotch. Eastern Alberta to Yukon Territory and the mountains of southern British Columbia. The localities are: McMurray, eastern Alberta at 56°44'N.; Edmonton, central Alberta at 53°33'N.; 30 miles north of Hotchkiss, western Alberta at approximately 57°34'N.; Banff, westernmost Alberta at 51°10'N.; Fort Smith and Fort Simpson, western Northwest Territories at 60°N. 111°W. and 61°52'N. 121°23'W.; Canyon Creek, Haines Junction, and Stewart River, Y.T., at 60°06'N. 130°40'W., 60°45'N. 137°30'W., and 63°19'N. 139°26'W., respectively; Summerland, central British Columbia at 49°40'N. This species is usually rather scarce.

Hippodamia washingtoni Timberlake. Anyox, B.C., which is situated near the Alaskan boundary at 56°26'N.; previously reported only from localities in Washington and northern Oregon.

Hippodamia parenthesis (Say). Transcontinental and abundant in southernmost Canada but known in British Columbia only from the Okanagan Valley, in the south-central part of the province at 119°35'W., where it is common; extending northward only in the west, where it reaches northern Yukon Territory. Northernmost localities are: Berwick, western Nova Scotia at 45°N.; Forestville, central Quebec at 48°45'N.; Kazabazua, western Quebec at 45°57'N.; Riding Mountain National Park, western Manitoba at 50°42'N.; Waskesiu Lake, central Saskatchewan at 54°05'N.; McMurray, eastern Alberta at 56°44'N.; Yellowknife, N.W.T., at 62°27'N. 114°21'W.; Snag and Rampart House, Y.T., near the Alaskan boundary at 62°24'N. and 67°25'N. respectively. Reported from "Alaska" by Chapin. The range in variation is moderate and is the same in all regions.

Hippodamia apicalis apicalis Casey. Reported from "British Columbia" by Chapin.

Hippodamia lunatomaculata dozbhanskyi Chapin. Southernmost Vancouver Island; all localities are within 10 miles of Victoria.

Hippodamia expurgata Casey. Willow Bunch, south-central Saskatchewan at 49°24'N. 105°37'W., to Lillooet, southwestern British Columbia at 50°43'N. 121°55'W. Extending north to Saskatoon, central Saskatchewan at 52°07'N.; Sunwapta Pass (6,700 ft.), westernmost Alberta at 52°13'N.; Whitehorse, western Yukon Territory at 60°43'N. The specimens taken east of the Rocky Mountains are constantly much more lightly maculate than those from the mountainous regions; a fairly common species.

Hippodamia arctica (Schneider)

Figs. 4, 9

Coccinella arctica Schneider, 1792, Neu Mag. Liebh. Ent. 2:148.

Scott (1933, Pan-Pacific Ent. 9:126) reported this species, as the Siberian *Adonia amoena* (Faldermann, 1835), from Kirkman Creek, Y.T., at 63°N. 139°W., and Eagle, Alaska, on the Yukon boundary at 64°42'N.

Most authors have placed *arctica* in *Adonia* (see the notes on that genus), and Mader (1926, Evidenz pal. Coccinelliden und ihrer Aberrationen . . . , pp. 62, 70) suspected that *arctica* and *amoena* are forms of one species. *H. arctica* has been reported only from Lapland, but it occurs from Labrador to Alaska and northern British Columbia. The additional localities are: Greenly Island, Strait of Belle Isle, Quebec; Hebron, coast of Labrador at 58°10'N.; Fort Chimo, central Quebec

at 58°08'N.; Great Whale River, eastern coast of Hudson Bay at 55°17'N.; vicinity of Summit Lake, northeasternmost British Columbia, 4,500 to 5,000 ft. (mi. 379 to mi. 392 of the Alaska Highway); Rampart House, Alaska-Yukon boundary at 67°25'N.; Umiat, central Alaska at 69°28'N.

This species belongs to the *parenthesis* group of Chapin. It differs from all forms of the group except *apicalis lengi* Johnson in having the margins of the elytral suture entirely black (Fig. 9) and from *a. lengi* in having a longitudinal black stripe on each elytron much as in the most heavily maculate specimens of *a. apicalis* Csy. and *expurgata* Csy.; the black stripe is interrupted before the middle in three of the 44 specimens. In *arctica* the male genitalia (Fig. 4) are distinctive; the postcoxal lines of the abdomen are distinct in all specimens; and the mesepimera and metepimera are usually black, infrequently bicolored, and very rarely entirely pale. The species is common at Summit Lake but is rarely taken in other regions.

Hippodamia quinquesignata quinquesignata Kirby. Transcontinental; Prince Edward Island to southernmost Vancouver Island, northernmost Yukon Territory, and western Alaska. Abundant west of and immediately east of the Continental Divide; rare, local, and tending to be northern to the east. East of Alberta, this species is known in Canada only from: Dalvey House, P.E.I.; Bathurst, northern New Brunswick; Roberval, central Quebec at 48°31'N.; Berthierville and Lanoraie, situated on the upper St. Lawrence River; Great Whale River, eastern coast of Hudson Bay at 55°17'N.; Gillam, eastern Manitoba at 56°20'N. Northernmost localities in the West are: Yellowknife and Norman Wells, western and westernmost Northwest Territories at 62°27'N. and 65°17'N. respectively; Rampart House, Alaska-Yukon boundary at 67°25'N.; Unalakleet, the Alaskan coast at 63°54'N. Many specimens from the Okanagan Valley, south-central British Columbia, and most of those from Vancouver Island have the elytral maculation more or less reduced. A few from the former locality and many from the latter have the elytra immaculate except for a very small scutellar spot. The series from all other localities are typical enough.

Hippodamia glacialis glacialis (Fabricius). The Ottawa district of Ontario and Quebec; the Windsor district of southernmost Ontario; Aweme, southwestern Manitoba at 49°43'N. 99°36'W., to Minton, south-central Saskatchewan at 49°05'N. 105°35'W.; uncommon. The series from Manitoba is intermediate between *g. glacialis* and *g. lecontei*; eight of the 12 specimens are typical enough of *g. glacialis*, but the others are small and are maculate like *g. lecontei*. The form of the male genital organ varies in all series of both subspecies.

Hippodamia glacialis lecontei Mulsant. Broadview, southeastern Saskatchewan at 50°20'N. 102°30'W., to Scandia, south-central Alberta at 50°17'N. 112°02'W.; north to Prince Albert, central Saskatchewan at 53°12'N., to McMurray, eastern Alberta at 56°44'N., and to Edmonton, central Alberta at 53°33'N.; uncommon. Of the 14 specimens, the one from Irvine, southeastern Alberta, is maculate like *g. glacialis*; the others are typical enough of *g. lecontei*. All specimens are as small as, or smaller than, the smallest of *g. glacialis*.

Hippodamia quindecimmaculata Mulsant. Grand Bend, Ont., which is situated at the southern end of Georgian Bay; Saskatchewan: at Carlton, 52°50'N. 106°30'W.; Saskatoon, 52°07'N. 106°38'W.; Elbow, 51°07'N. 106°35'W.; Saskatchewan Landing, 50°39'N. 107°59'W. In 36 of the 44 Saskatchewan specimens and in none of the 11 from Ontario, the sub-basal spots are joined to produce a transverse band. Evidently colonies of this species are populous but very rare.

Hippodamia moesta moesta LeConte. Low altitudes in southwesternmost British Columbia; from Bevan, 49°40'N., south to Victoria on eastern Vancouver Island; east in the valley of the Fraser River to Chilliwack at 49°11'N. 121°55'W.; Lillooet, at 50°15'N. 121°49'W.; uncommon.

Hippodamia moesta bowditchi Johnson. South-central and southeastern British Columbia from Cawston, 49°16'N. 119°45'W., to Trinity Valley, 50°15'N. 118°45'W., and Cranbrook, 49°32'N. 115°49'W.; abundant. All specimens are like the most heavily maculate specimen figured by Chapin; variation in pattern is very slight.

Hippodamia convergens Guérin. Southernmost Ontario to northeasternmost Manitoba and south-central British Columbia; recorded from Montreal, Que. This species is known in Ontario only from Southampton, on Georgian Bay, from Point Pelee, on Lake Erie, and from Ingolf, on the Ontario-Manitoba boundary at 49°45'N. In southern Manitoba it is common and widespread north to Victoria Beach, at 50°43'N. 96°33'W., and Riding Mountain National Park, at 50°42' 99°24'W.; it occurs also immediately south of Churchill, Man., at 58°46'N. 94°10'W. In Saskatchewan it is abundant north to Waskesiu Lake, at 53°55'N. 106°05'W. In Alberta it is known from Lethbridge, at 49°42'N. 110°50'W., and Aden, at 49°02'N. 111°19'W. In British Columbia it is known from Creston, at 49°05'N. 116°31'W., and in the Okanagan Valley north to Vernon, at 50°15'N. 119°17'W.; it occurs also immediately east of Vernon at Trinity Valley and north of Creston at Kaslo.

Hippodamia caseyi Johnston. South-central and southeastern British Columbia; from Copper Mountain, at 49°07'N. 120°38'W., north to Peters Lake, at 51°45'N. 120°45'W., and east to Crowsnest Pass, on the Alberta Boundary at 49°38'N.; a common species.

Hippodamia oregonensis oregonensis Crotch. Banff National Park, Alta., to Vancouver, east-central Vancouver Island, and to Mt. Revelstoke National Park, at 51°20'N. 118°20'W.; common at altitudes of 5,500 to 7,000 feet.

Hippodamia sinuata disjuncta Timberlake. From Le Bret, southeastern Saskatchewan at 50°45'N. 103°45'W., to Fort Smith, western Northwest Territories at 60°N. 111°W., and to Nicola and Osoyoos, south-central British Columbia at 50°07'N. 120°45'W. and 49°02'N. 119°30'W. respectively; abundant in the southern, but scarce in the northern regions.

Hippodamia sinuata spuria LeConte. Low altitudes in southwesternmost British Columbia; from Comox, 49°42'N., south to Victoria on eastern Vancouver Island; east to Agassiz, 49°16'N. 121°43'W., in the valley of the Fraser River; abundant.

Summary

A key to the seven American genera of Hippodamiini that occur in the United States and northward is given. The Canadian and Alaskan distribution of the 26 species and subspecies that occur in those regions is outlined. Notes on the characters and content of *Ceratomegilla* Crotch, *Adonia* Muls., and *Hippodamia* Muls. are given. The Asiatic genus *Spiladelphia* Sem. & Dobrz. is synonymized with *Ceratomegilla*, and *Hippodamia parva* Watson is transferred to *Ceratomegilla*. The American and European species of *Anisosticta* Chev. are compared; *A. bitriangularis* (Say) is re-elevated to specific rank. No new names are proposed.

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