

OCCASIONAL PAPERS OF THE MUSEUM OF  
ZOOLOGY

UNIVERSITY OF MICHIGAN

ANN ARBOR, MICHIGAN

PUBLISHED BY THE UNIVERSITY

## ON SOME HEMIPTERA FROM WESTERN CANADA

BY H. M. PARSHLEY

Investigation of the origin and present distribution of the hemipterous fauna of northern America has been greatly impeded by the meagreness of collections from the Northwest, for a knowledge of the species occurring in this region is of vital importance in connection with the inviting hypothesis of migration hither from northeastern Asia. A step toward filling this need is made in the present paper, which is based on my study of a considerable collection of Heteroptera from Alberta and British Columbia, and some light is thrown on the general questions involved, although the list of species falls far short of completeness.

The collections have come to my hands through the good offices of my friend John D. Tothill, of the Entomological Laboratory at Fredericton, N. B., who in his travels through the Dominion has not omitted to start in my direction such hemipterous materials as he meets with in nature or in cabinets; and through the kindness of Frederick M. Gaige, of the

Museum of Zoology of the University of Michigan, who has sent me for study an interesting lot from Alberta, collected by Mrs. J. A. Miller, of Edmonton. I am indebted to Mr. W. Downes, of Victoria, and to Mr. M. H. Ruhmann, of Vernon, B. C., for their kindness in sending extensive materials, most of which they themselves have collected. Mr. Downes' collection is especially valuable for the careful and copious notes accompanying it, providing important ethological data for many species concerning which nothing of the kind has hitherto been published. Special acknowledgement is due my colleagues in Hemipterology, Barber, Knight, and Van Duzee, for valued advice in the determination of species on which I felt unable to pass with certainty.

Most of the localities mentioned in the succeeding list will be found on ordinary maps, but some special information regarding them, communicated by Mr. Downes and Mr. Ruhmann, may be of interest. All of the localities on Vancouver Island (indicated 'V. I.' in the list) lie in the southern part. Saanich District (Dist.) is the term applied to the whole peninsula extending north from Victoria and bounded on the west by Saanich Inlet. Royal Oak, not to be found on some maps, is on the peninsula, about four miles north of Victoria; here is located a field laboratory of the Department of Agriculture. Mr. Downes states of Saanich District, "The same faunal and climatic conditions obtain throughout" (*in litt.*). Savary Island lies to the north of Texada Island, in the Gulf of Georgia. Sea Island is across the Straits of Georgia, somewhat south of the city of Vancouver. Most of the localities on the mainland, Vernon, Lillooet, Kelowna, etc., are in the southern part of Yale-Cariboo District, in the region known as the "upper country," of which Downes writes, "The elevation is about 1100 to 1500 feet above sea level, and the climate is very dry

in summer and cold in winter. Much of the country consists of open range hills, and on the levels a good deal of fruit farming is carried on with the aid of irrigation." Anderson Lake and Mt. McLean are near Lillooet. All the Alberta material is from Edmonton, in the south central part of the Province.

In the study of our northern fauna species of holarctic distribution require especial attention because the facts of their present occurrence may well furnish reliable clues to movements now lost in the obscurity of the past. In connection with the list of species common to New England and the Palaearctic region, given in a former paper<sup>1</sup>, I called attention to the large proportion of holarctic forms occurring in New England, as compared with other regions of the continent, and remarked as follows concerning the bearing of this observation on Horváth's<sup>2</sup> view that such species have migrated hither from eastern Asia, "The latter opinion seems hardly in accord with the apparent massing of the species on the eastern side of the continent, . . . but . . . possibly the range [of these species] may be found . . . to extend westward when our knowledge of the fauna of British America is more nearly complete." In the collections now under consideration there are represented 19 species found also in the Palaearctic region, all of which find place in the New England-Palaearctic list, except *Aradus cinnamomeus* which occurs on Long Island, N. Y.; together with 2 others, *Mecomma gilvipes* and *Ischnorrhynchus franciscanus*, so closely related to the palaearctic *M. ambulans* and *I. resedae* that very possibly they are in reality subspecies<sup>3</sup>, differentiated since the disappearance of some of the early conditions favor-

<sup>1</sup> Occas. Papers, 7, Boston Soc. Nat. Hist., Fauna N. E. 14, Hem. Het., 1917, pp. 7-9.

<sup>2</sup> Rels. entre faunes hém. Eur. et Am., Ann. Mus. Hungarici, Vol. 6, 1908, p. 7.

<sup>3</sup> This possibility regarding *M. gilvipes* is suggested by Van Duzee, Rept. Hem. Giffard, Proc. Cal. Acad. Sci., (4), Vol. 7, 1917, p. 276. Concerning *I. franciscanus* see page 15 of the present paper.

ing migration. These facts lend new support to the hypothesis of palaeartic origin and eastward spread, and we may now predict with some degree of confidence that these species will be found in Alaska and throughout the breadth of Canada. There is room for doubt, however, regarding one of the species of the subjoined list, *Pithanus maerkelii*, the occurrence of which in North America was unsuspected until 1915 when Olsen<sup>4</sup> reported its discovery on Long Island, N. Y. In 1916 I found it in material from Maine and Nova Scotia<sup>5</sup>, and now from southern Vancouver Island we again meet with numerous examples identical with those found in the east. Present knowledge of this form does not preclude the opinion that it has been introduced by commerce and is in process of establishment near sea ports, but, on the other hand, it may be in fact a holartic species, and the matter will be decided only when further collections from the interior are available for study. The following palaeartic species appear in the collections under consideration:—

<i>Corizus crassicornis</i>	<i>Calocoris norvegicus</i>
<i>Aradus lugubris</i>	<i>Poeciloscytus unifasciatus</i>
<i>A. cinnamomeus</i>	<i>Capsus ater</i>
<i>Nysius thymi</i>	<i>Lygus pratensis</i>
<i>N. ericae</i>	<i>L. campestris</i>
<i>Sphragisticus nebulosus</i>	<i>Camphylomma verbasci</i>
<i>Scolopostethus thomsoni</i>	<i>Limnoporus rufoscutellatus</i>
<i>Nabis fesus</i>	—————
<i>Miris dolabratus</i>	? <i>Ischnorrhynchus resedae</i>
<i>Stenodema trispinosum</i>	? subsp. <i>franciscanus</i>
<i>Pithanus maerkelii</i>	? <i>Mecomma ambulans</i>
<i>Stenotus binotatus</i>	? subsp. <i>gilvipes</i>

<sup>4</sup> Capsid New to our Fauna, Bull. Brooklyn Ent. Soc., Vol. 10, 1915.

<sup>5</sup> New and Noteworthy Hem. N. E., Ent. News, Vol. 27, 1916, pp. 104-105.

In subsequent pages I have made some further attempts at the discrimination of forms of less than specific value which may intergrade to some degree but still obtrude themselves constantly on the observer as entities usually distinctive in appearance<sup>6</sup>. Such forms in certain cases may owe their peculiarities to the action of special influences during individual development, but this explanation, in my opinion, will not usually suffice. When certain distinct varieties of a given species recur again and again in material from widely separated regions of diverse environmental nature, it would seem sufficiently clear that some factor of genetic or perhaps evolutionary significance is involved, since under such conditions the chance of exact duplication of ontogenetic environment is negligible. Even if it were shown that gross similarity in environing influences, such as a season relatively hot, cold, wet, or dry, could result in a preponderating number of individuals belonging to a certain variety, we would still feel impelled to seek some genetic factor which such conditions might call into activity, in order to account for the detailed nature and general uniformity of the adult varietal characters thus produced. The taxonomist fails in his duty if he avoids the responsibility of discriminating and naming these forms, since in this way only may definite data on distribution and seasons be made known for each, and the student of experimental genetics should not neglect them, since in these forms of Hemiptera he has definite variations produced under natural conditions, and he is therefore free from the justifiable suspicion that laboratory conditions—domestication, so to speak—may have had some untoward influence in the matter. At least he will be able to collect in the field specimens to serve as checks in the consideration of the product of his breeding cages, an advantage which cannot be claimed

---

<sup>6</sup> Cf. my Hem. Notes, *Psyche*, Vol. 25, 1918, pp. 64-65.

for most of the conventional materials of such research. Many species of Hemiptera exhibit such naturally occurring varieties, e. g., *Lygaeus kalmii*, *Stiretrus anchorago*, *Perillus exaptus*, etc., and some are well adapted for rearing in confinement, wherefore I would suggest that they present a promising field for the student having inclination and facilities for protracted experimental breeding. It should be emphasized, however, that much can be done by the study of extensive series of these varieties collected and preserved with our newly developed care for minuteness in recording data, as is strikingly illustrated in Bateson's "Problems of Genetics," a work full of suggestion for taxonomist and genetic experimentalist alike.

In his Catalogue of the North American Hemiptera, Van Duzee records 87 species of Heteroptera from Alberta and British Columbia, a large majority of these records referring to Vancouver Island. The present report enumerates 144 species from these Provinces, of which 96 are recorded for the first time. The figures given in the following table emphasize the fragmentary nature of our present knowledge of distribution and suggest opportunities open to those who are so situated that they can make carefully annotated collections in the many regions of the continent not yet fully explored entomologically.

*Summary of Numerical Data*

Species Recorded in	Alberta and British Columbia	Alberta	British Columbia	B. C. excluding Vancouver Island	North America
Van Duzee's Catalogue	87	1	86	comparatively few	1629
Present paper	144	14	137	89	....
Both V. D. Cat. and present paper. Corroborations	48	1	47	13	....
Present paper only. New records	96	13	90	76	....
New England list	419				
Both N. E. and present lists	78	Probably transcontinental in large part.			

Collectors: E. M. Anderson, W. Downes, Mrs. J. A. Miller, M. H. Ruhmann, R. S. Sherman, J. D. Tothill, R. C. Treherne, R. C. Woodward.

LIST OF SPECIES

Family SCUTELLERIDAE

*Homaemus aeneifrons* (Say).

ALB.—Edmonton, June 15, Aug. 29, 1912 (J. A. M.).

B. C.—Saanich Dist., V. I., Oct. 8, 1917 (W.D.), from willow.

*Homaemus bijugis* Uhler.

B. C.—Royal Oak, V. I., Oct. 9, 1917 (W. D.), from willow; Vernon, Sept. 26, 1918 (W.D.).

*Eurygaster alternatus* (Say).

B. C.—Royal Oak, V. I., June 30, 1917 (W. D.); Savary Id., July 10, 1917 (R. S. S.); Victoria, V. I., April 19, 1918 (W. D.); Suswap Falls, June 18, 1916 (E. M. A.).

Family CYDNIDAE

*Thyreocoris anthracinus* (Uhler).

ALB.—Edmonton, Aug. 10, 1912 (J. A. M.).

*Thyreocoris pulicarius* (Germar).

B. C.—Vernon, April 17, 1915 (M. H. R.)

*Sehirus cinctus* (Palisot de Beauvois).

B. C.—Vernon (M. H. R.).

Family PENTATOMIDAE

*Brochymena affinis* Van Duzee.

B. C.—Vernon, March 23, 1916, May 5, 1915 (M. H. R.).

*Peribalus abbreviatus* (Uhler).

B. C.—Lillooet, June 28, 1917 (M. H. R.); Vernon, May 5, 1915 (M. H. R.).

*Peribalus limbolarius* Stål.

B. C.—Royal Oak, V. I., Sept. 6, 1918 (W. D.).

*Chlorochroa uhleri* Stål.

B. C.—Mt. McLean, June 24, 1917 (M. H. R.); Saanich Dist., V. I., Aug. 8, 1917, nymphs (W. D.), Oct. 27, 1917 (W. D.).

Van Duzee now considers that the eastern *persimilis* Horváth cannot be distinguished from *uhleri*<sup>7</sup>, but the British Columbia examples show some of the characters ascribed to *uhleri* by Van Duzee when he considered the species distinct<sup>8</sup>. In the males the genital segment is distinctly shorter ventrally than in eastern specimens, but the form of body is variable in both series and it is impossible to distinguish the females, as far as I can see. Possibly we are dealing with true subspecies (races), and it will be of interest to ascertain the condition of specimens from intervening regions.

*Chlorochroa ligata* (Say).

B. C.—Vernon, 1908 (M. H. R.).

*Chlorochroa sayi* Stål.

B. C.—Vernon, Aug. 28, 1917 (M. H. R.).

*Carpocoris remotus* Horváth.

B. C.—Lillooet, Aug. 3, 1916 (A. W. A. P.); Okanagan Landing, June 21, 1916 (E. M. A.); Vernon, Aug. 10, 1915 (M. H. R.).

*Euschistus euschistoides* (Vollenhoven).

B. C.—Lillooet, July 23, 1916 (A. W. A. P.).

<sup>7</sup> See Van Duzee's Check List, 1916, and Catalogue, 1918.

<sup>8</sup> List Pent., Trans. Am. Ent. Soc., Vol. 30, 1904, p. 39.



*Euschistus conspersus* Uhler.

B. C.—Saanich Dist., V. I., Aug. 18, Oct. 8, 1917 (W. D.);  
Savary Id., July 10, 1917 (R. S. S.); Vernon, Apr.  
18, June 10, 1915 (M. H. R.).

*Euschistus variolarius* (Palisot de Beauvois).

B. C.—Vernon, June 8, 1916 (M. H. R.).

*Aelia americana* Dallas.

ALB.—Edmonton, July 1, 1912 (J. A. M.).

*Neottiglossa undata* (Say).

B. C.—Saanich Dist., V. I., Aug. 3, 1918, Oct. 8, 1917 (W.  
D.).

*Cosmopepla bimaculata* (Thomas).

B. C.—Prospect Lake (Saanich Dist.), V. I., Sept. 18, 1917  
(W. D.); Vernon, Apr. 3, 1915, July 25, 1917 (M.  
H. R.).

*Cosmopepla conspicillaris* (Dallas).

B. C.—Saanich Dist., V. I., May 11, June 6, 1918 (W. D.).

*Eysarcoris intergressus* Uhler.

B. C.—Saanich Dist., V. I., June 5, 1918, June 30, 1917 (W.  
D.); Mt. McLean, June 24, 1917 (M. H. R.); Ver-  
non, July 6, 1917 (M. H. R.).

*Thyantia custator* (Fabricius).

B. C.—Saanich Dist., V. I., Aug. 18, Oct. 8, 1917 (W. D.),  
on willow.

*Banasa dimidiata* (Say).

B. C.—Saanich Dist., V. I., June 5, 1918 (W.D.); Vernon,  
(M. H. R.).

The Saanich specimens were taken on flowers of *Lonicera involucrata* (Richards) Banks and *Chamaenerion* (or *Epilobium*) *angustifolium* (Linné).

*Banasa sordida* (Uhler).

B. C.—Savary Id., Apr. 9, 1917, July 2, 1918 (R. S. S.).

*Meadorus lateralis* (Say).

B. C.—Saanich Dist., V. I., Sept. 14, 1918 (W. D.); Vernon,  
Apr. 28, 1915 (M. H. R.).

*Elasmotethus cruciatus* (Say).

B. C.—Vancouver, Sept. 16, 1917.

*Elasmotethus cooleyi* (Van Duzee).

B. C.—Vernon, Apr. 28, 1915 (M. H. R.). Determined by  
Van Duzee.

*Perillus bioculatus* var. *clanda* (Say).

B. C.—Okanagan Landing, Aug. 26, 1916 (E. M. A.).

*Perillus exaptus* (Say).

ALB.—Edmonton, July 17, 1912 (J. A. M.).

B. C.—Cowichan, V. I., Aug. 24, 1918 (W. D.).

Two of the varieties described by Van Duzee<sup>9</sup> are represented: var. *c*, but with lateral pronotal margins red; and var. *d*. These varieties should be named by some student having adequate material, whatever their origin and genetic nature.

*Apateticus bracteatus* (Fitch).

ALB.—Edmonton, June 15, July 15, 1912 (J. A. M.).

With nymphs (July and August), probably of this species.

*Apateticus crocatus* (Uhler).

B. C.—Saanich Dist., V. I., Aug. 29, Oct. 10, 1917 (W. D.)

This species has a peculiar habitus, difficult to describe, and the genital pieces differ in form from those of *bracteatus*. The male genital segment in *crocatus* is narrower and its lateral margins are more evenly curved, less sinuate or irregular. In the female sternite 10 is rather distinctly transverse, with its lateral margins less cut into by the projection of parasernite 9 on each side than in *bracteatus*, where sternite 10 is nearly as long as broad and somewhat hour-glass shaped<sup>10</sup>.

<sup>9</sup> List Pent., *l. c.*, pp. 65-66.

<sup>10</sup> For figure see my Synop. Pent. N. E., Psyche, Vol. 22, pl. 16, fig. 8.

Downes reports this species from willow and orchard trees, and it has been found attacking cutworms.

*Podisus maculiventris* (Say).

B. C.—Saanich Dist., V. I., May 8, 1918 (W. D.).

*Podisus modestus* (Dallas).

ALB.—Edmonton, June 15, July 15, 1912 (J. A. M.).

B. C.—Saanich Dist., V. I., May 11, 1918 (W. D.); Victoria, V. I., July 31, 1918 (W. D.); Vernon, June 8, 1916 (M. H. R.).

#### Family COREIDAE

*Leptoglossus occidentalis* Heidemann.

B. C.—Agassiz, Aug. 28, 1914 (W. D.); Duncans, Aug. 25, 1917 (W. D.).

Taken by Downes on Douglas fir, *Pseudotsuga taxifolia* (Lambert) Britton.

*Coriomeris humilis* (Uhler).

B. C.—Vernon, May 5, 1915 (M. H. R.).

#### Family ALYDIDAE

*Megalotomus quinquespinosus* (Say).

B. C.—Savary Id., Aug. 9, 1915 (R. S. S.).

*Alydus pluto* Uhler.

B. C.—Royal Oak, V. I., Oct. 10, 1917 (W.D.); Victoria, V. I., Sept. 1, 1917 (W. D.); Vernon, Apr. 12, 1915 (M. H. R.).

The characters of this species are adequately described for the first time by Fracker in a recent paper<sup>11</sup>.

*Alydus curimus* (Say).

B. C.—Vernon, Apr. 12, 1915, July 1, 1917 (M. H. R.).

---

<sup>11</sup> Alydinae of U. S., Ann. Ent. Soc. Am., Vol. 11, 1918, pp. 255-282.

*Tollius curtulus* Stål.

B. C.—Savary Id., July 2, 1915 (R. S. S.); Vernon, July 19, 28, 1918 (R. C. W.).

## Family CORIZIDAE

*Harmostes reflexulus* (Say).

B. C.—Mt. McLean, June 21, 1917 (M. H. R.); Saanich Dist., V. I., June 18, Sept. 4, 1917 (W. D.); Vernon, June 10, 1918, Aug. 10, 1917 (M. H. R.).

*Harmostes croceus* Gibson.

Ent. News, Vol. 28, 1917, p. 445.

B. C.—Royal Oak, V. I., June 18, 1917 (W.D.).

*Corizus crassicornis* (Linné).

B. C.—Royal Oak, V. I., June 15, Oct. 9, 1917 (W. D.); Vernon, June 24, 1917 (R. C. T.), Aug. 12, 1917 (M. H. R.).

*Corizus bohemani* Signoret.

B. C.—Vernon, Aug. 28, 1917 (M. H. R.).

*Corizus indentatus* Hambleton.

B. C.—Royal Oak, V. I., Aug. 14, 1917 (W. D.); Victoria, V. I., Sept. 30, 1917 (W. D.); Vernon, Aug. 28, 1918 (R. C. W.).

*Leptocoris trivittatus* (Say).

B. C.—Summerland, Sept. 28, 1918 (W. D.); Vernon (M. H. R.).

## Family ARADIDAE

*Aradus behrensi* Bergroth.

B. C.—Yale, May 26, 1918 (W. D.).

*Aradus debilis* Uhler.

B. C.—Saanich Dist., V. I., Aug. 6, 1918 (W. D.); Mt. McLean, June 19, 1917 (M. H. R.).

Downes writes concerning his specimen: "The nymphs feed on a yellow fungus of puff-ball type, growing on the bark of dead fir stumps. Adult was raised from last stage nymph taken in May. This nymph was kept alive in a vial without food for three months, but was supplied with a piece of rotten wood and slight moisture, and moulted to adult on August 6th." This note is of especial interest since there seem to be on record no definite statements concerning the food of *Aradus*. I would suggest that in all probability the nymph found suitable fungous food in the rotten wood supplied. With my friend de la Torre Bueno I very recently made an observation bearing on the matter. In this case we watched a captive adult of *Aradus quadrilineatus* with its rostrum inserted in the spongy and fungus filled substance of a piece of damp rotten bark, undoubtedly drawing up the juices present.

*Aradus inornatus* Uhler.

B. C.—Vernon, May 31, 1917 (M. H. R.).

*Aradus funestus* Bergroth.

B. C.—Vernon (M. H. R.).

*Aradus lugubris* Fallén.

ALB.—Edmonton, July 26, 1912 (J. A. M.).

*Aradus cinnamomeus* Panzer.

B. C.—Kelowna, May 17, 1917 (M. H. R.); Vernon, Apr.  
12, 1915 (M. H. R.).

*Aradus insoletus* Van Duzee.

B. C.—Vernon, Apr. 12, 1915 (M. H. R.).

Family NEIDIDAE

*Neides muticus* (Say).

B. C.—Duncans, V. I., Aug. 25, 1917 (W. D.); Kelowna,  
May 17, 1917 (M. H. R.); Saanich Dist., V. I.,  
Apr. 19, 1918 (W. D.); Vernon, June 16, 1917,  
(R. T. C.), July 26, 1917 (M. H. R.).

## Family LYGAEIDAE

*Lygacus kalmii* Stål, subsp. *kalmii* Stål, mihi.

B. C.—Revelstoke, Oct. 10, 1917 (M. H. R.); Vernon, June 10, 1918 (R. C. T.).

In describing *kalmii*, Stål<sup>12</sup> distinguished three color varieties, which he designated *a*, *b*, and *c*. In spite of Stål's clear description *kalmii* and *turcicus* Fabricius were much confused until Montandon published a paper<sup>13</sup> in which he reemphasized the distinguishing characters of the two species, redescribed (without naming) the three varieties of *kalmii* Stål, and added another which he called *melanodermus*.

After an examination of extensive materials, kindly sent by H. G. Barber, E. H. Gibson, and others, and some discussion of the matter in correspondence, especially with Barber, I am led to the conclusion that there are two distinct geographical races of *kalmii*, which may be discriminated as follows:

Subsp. *kalmii* Stål (typ.) Western race. Membrane of hemelytra with two discal white spots and with a broad white margin; red band between corium and membrane strongly narrowed at middle; general form of body usually rather narrow, sides of body more nearly parallel. Texas, Arizona, Kansas and westward.

Subsp. **angustomarginatus** subsp. nov. Eastern race. Membrane usually without discal spots, rarely with small ones, white margin extremely narrow or rarely absent; red band between corium and membrane broader, almost or quite as wide as that between corium and clavus; form usually a little broader, the sides more strongly arcuate. Texas, Kansas, Wisconsin, and eastward.

These two subspecies can always be distinguished by a dif-

<sup>12</sup> Enum. Hem., 4, 1874, p. 107.

<sup>13</sup> Lyg. exot., Ann. Soc. Ent. Belgique, Vol 37, 1893, pp. 399-406.

ference of habitus, arising from the characters mentioned and others less readily definable in words, without reference to locality of collection. The varieties *a* and *b* of Stål fall under subsp. *kalmii*, var. *c* under subsp. *angustomarginatus*. These, with var. *melanodermus* Montd. and a number of undescribed varieties, are color forms of more or less doubtful value, to be discussed in another place where further data on the subspecies will be given.

Typical examples of the new subspecies will be placed in the Museum of Zoology of the University of Michigan and in the United States National Museum.

*Lygaeus bicrucis* Say.

B. C.—Saanich Dist., V. I., Aug. 16, 1917 (W. D.).

*Nysius thymi* (Wolff).

B. C.—Vernon, Aug. 10, 1917 (M. H. R.)

Barber has kindly verified this determination.

*Nysius ericae* (Schilling).

B. C.—Saanich Dist., V. I., Aug. 21, Nov. 13, 1917 (W. D.);  
Vernon, Aug. 10, 1917 (M. H. R.).

Mr. Ruhmann writes that at Vernon this species appeared in great numbers, swarming over the trails and entering houses. For a few days the walls of the houses inside and out were covered with the insects and complaints were made that they bit children, altogether a most unusual occurrence.

*Ischnorrhynchus franciscanus* (Stål).

B. C.—Saanich Dist., V. I., Apr. 27, 1918, Aug. 18, 1917  
(W. D.); Shawnigan, V. I., July 21, 1918 (W. D.);  
Vernon, Mar. 6, 1915 (M. H. R.).

I feel some doubt regarding the relations between *franciscanus*, *resedae* (Panzer), and *geminatus* (Say). The specimens recorded here agree with Stål's description and they have been determined by Barber. Horváth's characterization

of *resedae*<sup>14</sup>, drawn up with American examples before him, happens to fit these specimens pretty well, and before I was acquainted with the description of *franciscanus* I felt inclined to consider these specimens as examples of *resedae*, the first I had seen from America. Moreover they agree fairly well with my European examples of *resedae*. I doubt the occurrence of typical *resedae* in America and Barber writes that he is coming to the same conclusion. Possibly a thorough study of these three forms, with ample material, would show that they are not distinct species.

*Cymus luridus* Stål.

B. C.—Saanich Dist., V. I., June 5, 1918 (W. D.); Shawnigan, V. I., July 21, 1918 (W. D.).

*Blissus leucopterus* (Say).

B. C.—Saanich Dist., V. I., Aug. 25, 1918 (W. D.).

*Geocoris bullatus* var. *bullatus* (Say).

B. C.—Royal Oak, V. I., Sept. 28, 1917 (W. D.)

*Geocoris bullatus* var. *discopterus* Stål.

B. C.—Gordon Head, V. I., Aug. 2, 1918 (W. D.).

*Geocoris atricolor* Montandon.

B. C.—Victoria, V.I., July 22, 1918 (W. D.).

*Ligyrocoris contractus* (Say).

B. C.—Saanich Dist., V. I., July 22, 1918, Sept. 18, 1917 (W. D.).

*Pseudocnemodus canadensis* (Provancher).

B. C.—Vernon, Aug. 18, 1915 (M. H. R.).

*Peritrechus fraternus* Uhler.

B. C.—Vernon, Mar. 20, 1915 (M. H. R.).

*Peritrechus tristis* Van Duzee.

B. C.—Saanich Dist., V. I., Apr. 4, 1918, Oct. 22, 1917 (W. D.); Vernon, Mar. 20, 1915 (M. H. R.).

<sup>14</sup> Remarques Hem. Am. Nord, Ann. Mus. Nat. Hungarici, Vol. 6, 1908, p. 560.



*Malezonotus sodalicus* (Uhler).

B. C.—Saanich Dist., V. I., Apr. 30, May 6, 1918 (W. D.).  
Reported by Downes as common in strawberry fields.

*Malezonotus* Barber<sup>15</sup> is a genus recently proposed to accommodate certain species formerly placed in *Rhyparochromus* Curtis and *Trapezonotus* Fieber.

*Malezonotus angustatus* (Van Duzee).

B. C.—Saanich Dist., V. I., Apr. 4, 1918 (W. D.).  
Described under *Rhyparochromus* by Van Duzee.

*Sphragisticus nebulosus* (Fallén).

B. C.—Vernon, Mar. 20, 1915 (M. H. R.).

*Emblethis vicarius* Horváth.

B. C.—Saanich Dist., V. I., Aug. 2, Nov. 24, 1917 (W. D.);  
Sidney, V. I., Sept. 4, 1917, nymph (W. D.).

*Eremocoris ferus* (Say).

B. C.—Vernon (M. H. R.)

*Eremocoris obscurus* Van Duzee.

B. C.—Vernon, May 5, 1915 (M. H. R.).

*Scolopostethus thomsoni* Reuter.

B. C.—Saanich Dist., V. I., Apr. 4, 1918, Oct. 22, 1917 (W. D.);  
Victoria, V. I., Apr. 18, 1918 (W. D.).

Taken in sweeping willow. The brachypterous form in this species, as in the next, has the lateral margins of the pronotum straight, presenting an appearance rather unlike that of the macropterous, where these margins are concavely arcuate (Barber *in litt.*).

*Scolopostethus atlanticus* Horváth.

B. C.—Saanich Dist., V. I., May 3, 1918 (W. D.).

This species is very closely allied to the European *affinis* Schilling, scarcely distinguishable from it, in fact. Possibly

---

<sup>15</sup> Synop. Keys Lyg., Psyche, Vol. 25, 1918, pp. 71-88.  
Concerning Lyg. 2, Jour. N. Y. Ent. Soc., Vol. 26, 1918, p. 54.

we may trace here the steps in evolutionary differentiation, consequent upon the severance of former paths of migration.

Family TINGIDAE

*Corythucha distincta* Osborn and Drake.

B. C.—Vernon, July 11, 1914 (M. H. R.), Sept. 27, 1918 (W. D.).

Taken on hollyhock by Downes. In fresh specimens, with colors dark and unfaded, the marginal spines are almost entirely lacking, a condition characteristic of the species and not due to accidental causes as Gibson suggests. Thus the status of var. *spinata* Osborn and Drake cannot be considered as settled<sup>10</sup>.

*Corythucha canadensis* sp. nov.

Membranous portions opaque white, some of the areoles hyaline; disc of pronotum brown; posterior lobe of hood largely brown, anterior lobe with narrow lateral brown stripes; paranota with two brown spots, of which the anterior is larger; median carina with a brown spot; lateral carinae and apex of angulate process white. Hemelytra with distinct apical and basal brown bands, the former broad, occupying one-third of the hemelytra and enclosing several hyaline areoles, the latter made up of separate spots on humeri and discal elevations; costal margin with a small brown spot at middle. Antennae, legs, and plates forming rostral groove reddish brown, the last mentioned sometimes darker. Body piceous.

Hood barely twice as high as median carina and slightly longer than the carina, its height a little more than one half the length of carina and equal to one half its own length, its width

---

<sup>10</sup> See Gibson, The Genus *Corythucha* Stal, Trans. Am. Ent. Soc., Vol. 44, 1918, p. 81. Consult this paper for references to literature on the genus.

slightly more than one-third entire width of prothorax; hood sharply constricted, posterior lobe circular in outline as seen from above and a little more than twice as wide as the narrow parallel anterior lobe; hood as seen in profile low, anterior and posterior margins straight, forming a very obtuse angle, the apex rounded. Median carina slightly shorter than hood, slightly arched anteriorly, with two series of areoles at middle, four times as long as high. Lateral carinae moderately developed, with two or three areoles, terminating at a distance from base of hood equal to height of median carina. Costal margins of hemielytra slightly convex; spines of costal and par-anotal margins very rudimentary; discal elevations rather small, not reaching middle of hemielytra, with sharp dorsal edge; costal area largely triseriate. Antennae with rather numerous long setae. Length, male 3.48 mm., female 3.57 mm.; width, male 2.00 mm., female 2.08 mm.

Holotype female, Vernon, B. C., Sept. 28, 1918 (W. D.), in National Collection at Ottawa; allotype, same data; four paratypes, same data, in collections of Downes, Van Duzee, and the writer.

This species has been taken on willow. It runs to 21 in Gibson's key and resembles *distincta* in general appearance, being distinguished as follows: hood much lower and narrower, lateral carinae smaller and terminating far from base of hood. It is larger than *pergandei* Heidemann, lacks distinct marginal spines, and is of a totally different habitus. *C. contaminata* Gibson is of narrower form, has larger lateral carinae with 5 or 6 distinct areoles, and is provided with marginal spines.

*Corythucha padi* Drake.

B. C.—Goldstream, V. I., June 2, 1918 (W. D.); Vernon, Apr. 17, 1915, July 11, 1914 (M. H. R.).

Reported by Downes from "alder and hazel." In the original

description Drake describes the costal margin as "concave, sinuate," while Gibson in his redescription makes it "nearly straight." In this series of 15 specimens some variation in this character is to be observed, but all show more or less concavity. Certain specimens also exhibit the paler colors and the medial evanescence of the apical band mentioned by Drake.

*Corythucha salicata* Gibson.

B. C.—Saaneh Dist., V. I., May 8, Sept. 28, 1918 (W. D.);  
Vernon, April 23, 1915 (M. H. R.).

Taken by Downes on alder. The markings in this species are even more variable than indicated in the original description, ranging from very distinct to almost obsolete. The apical marking of each hemielytron, when well developed, forms an oblique band situated at some distance from the apex. The reticulation of the hood is also somewhat variable, the areoles of the hood being in some cases rather larger than those of the paranota.

*Corythucha marmorata* Uhler.

B. C.—Vernon, July 11, 1914 (M. H. R.).

***Corythucha marmorata* var. *informis* var. nov.**

Membranous portions milky white as a rule, many of the areoles hyaline at center; disc of pronotum brown; edges of angulate process and lateral carinae white; hood with a narrow transverse brown band on posterior lobe and two longitudinal stripes on anterior; paranota with a large brownish spot at middle and often a smaller one posteriorly; median carina with a brown spot. Hemielytra with apical, basal, and intermediate transverse brown bands, made up of more or less confluent spots of which there are three in each costal area and one on each discal elevation; the apical band divided trans-

versely, except sometimes at the costal margins, by a row of pale areoles; region anterior to elevations brownish. Antennae, legs, and plates forming rostral groove brownish yellow. Body piceous, the pleurae paler.

Hood usually twice as high as and considerably longer than the median carina, its height about one-half its own length, its width about one-third width of entire prothorax; anterior lobe parallel, about one-half width of posterior; hood as seen in profile rounded above, anterior margin nearly straight; areoles of hood equal in size to those of paranota. Median carina shorter than hood, almost one-half as high as long, arched, with two series of areoles at middle. Lateral carinae slightly developed, mere tabs at anterior corners of angulate process (the sides of which are not elevated posteriorly), containing only two or three scarcely perceptible areoles and terminating far from base of hood. Hemielytra very short, together a little broader than long; costal margins straight, slightly convex, or slightly concave, usually somewhat retro-convergent; marginal spines, including those of paranota, small, numerous, closely set; discal elevations comparatively large, nearly as high as median carina, almost hemispherical, extending posteriorly to or a little beyond middle of hemielytra and anteriorly to inward band of costal area, which is biseriate at middle, triseriate anteriorly and posteriorly. Antennae with very few long setae. Length, male 2.87 mm., female 3.13 mm.; width, male 1.83 mm., female 1.9 mm.

Holotype female, Vernon, B. C., July 11, 1914 (M. H. R.), allotype, Vernon, B. C., Sept. 25, 1918 (W. D.), in the National Collection at Ottawa; paratypes, eight with same data, in Downes', Ruhmann's, and my collections; Colorado, and Truro, Nova Scotia, Aug. 14, 1917, in Drake's collection.

Food plant not recorded. The extreme development of this

form is described above. This I considered a distinct and very peculiar species until recently, when I received through the kindness of Professor C. J. Drake a series of specimens containing intermediates which lead indubitably to typical *marmorata*, through atypical forms of the latter common in every collection, and which fully support the idea expressed by Drake (*in litt.*), that *informis* and *marmorata* are not specifically distinct. *Informis* is not a geographical race, since it occurs in districts as widely separated as Nova Scotia, Colorado, and British Columbia, in company with the typical form. The color pattern is essentially alike in all of the specimens examined and is identical with that of typical *marmorata*, the presence of an intermediate hemielytral band and the transverse division of the apical band by a row of pale areoles being characteristic. The intensity of the markings is subject to variation, as usual. The height of the hood, proportions of hemielytra and their discal elevations, and length of marginal spines all vary, and there are before me various stages in the development of all these structural characters, leading to the extreme variety *informis*. In typical *marmorata* the hood is frequently twice as high as the median carina, a point which may cause confusion in the use of Gibson's key.

In explanation of this unusual degree of variability, I would suggest that in the species under consideration we may note the appearance of a distinct tendency toward pterygo-poly-morphism, a phenomenon of wide spread occurrence among the Tingidae but not hitherto observed in the genus *Corythucha*. Specimens of *informis* are at hand which have the hind wings much shorter than the abdomen and the hemielytra reduced as described above, while in typical *marmorata* the wings often extend considerably beyond the abdominal apex and the hemielytra are of course fully developed. But there are certain

peculiarities in *informis* which would not be expected to result from mere polymorphism of wings, as it appears in other groups, and hence the form may well be distinguished by a definite name at least until its true nature is more fully understood.

***Corythucha hesperia* sp. nov.**

Membranous portions hyaline, with a general brownish tinge; disc of pronotum brown; dorsal veinlets of hood brown; paranota immaculate or with a faint brownish spot before middle; median carina with a brown spot; lateral carinae and apex of angulate process white. Hemelytra with broad and distinct apical and basal brown bands; without included clear areoles, the extreme apical row of areoles hyaline. Antennae, legs, and plates forming rostral groove light yellow. Body piceous.

Hood more than twice as high as median carina and somewhat longer, its height equal to length of carina and not quite two-thirds its own length, its width three-sevenths width of entire prothorax; hood rather sharply constricted, posterior lobe as long as anterior and twice as wide; hood as seen in profile rounded above, the anterior and posterior margins nearly straight. Median carina shorter than hood, distinctly arched, with two series of areoles at middle, its height nearly one-third its length. Lateral carinae small, scarcely reticulated, terminating far from base of hood. Costal margins of hemelytra nearly straight, the spines rather long, about as far apart as long; discal elevations of moderate size, with sharp dorsal edge; costal area largely triseriate. Antennae with rather numerous long setae. Length, female 3.05 mm.; width, female 1.08 mm.

Holotype female, Vernon, B. C., May 24, 1918 (W.D.), in

the National Collection at Ottawa; three paratypes, same data, in Downes' and in my collection.

Labeled by Downes "hazel, alder, birch, choke cherry," the food plant being doubtless one or more of these. This form is closely related to *borealis* Parshley, to which it runs in Gibson's key and from which it is to be distinguished by the following characters: apical band of hemielytra without clear areoles (*borealis* has three almost entirely hyaline); paranotal spot very faint or absent; lateral carinae smaller and terminating farther from base of hood; median carina a little lower; discal elevations less suddenly declivous posteriorly.

*Corythucha pura* Gibson.

B. C.—Kelowna, May 17, 1917 (M. H. R.).

Taken on wild sunflower. The sixteen specimens of this series agree well with the original description and with a typical example which I owe to Gibson's kindness. The areoles of the hood vary a little in size, but are usually somewhat larger than those of the paranota. The height of the hood is also slightly variable, occasionally reaching twice the height of the median carina. In some examples a faint yellowish tinge is to be detected in the regions occupied in other species by the apical and basal hemielytral bands.

*Physatocheila variegata* Parshley.

Parshley, Tingidae N. E., Psyche, Vol. 23, 1916, p. 166.

Osborn and Drake, Notes Tingidae, Psyche, Vol. 24, 1917, p. 156.

Van Duzee, Rept. Hem. Giffard, Proc. Cal. Acad. Sci., (4), Vol. 7, 1917, p. 260.

B. C.—Vernon, Apr. 20, 1915 (M. H. R.).

With regard to remarks to be found under the second reference given above, it may be said that Uhler and Heidemann were acquainted with but one of the forms to which, in general, Say's description of *Tingis plexus* (Compl. Writ., Vol. 1, pp. 349-350) might be considered to apply, this form being the



one which I have named *variegata*, though the two authors mentioned called it *plexa*. Possibly we might be satisfied with such identification, though the discrepancies are considerable in my opinion, provided no form agreeing better with Say's description were known. But such a form has come to light, and is discussed under the first reference given above as the true *plexus* of Say. It is gratifying to note that in his key to the genus, given under the third reference, Van Duzee agrees with my interpretation of the matter.

Family PHYMATIDAE

*Phymata erosa* subsp. *fasciata* (Gray).

B. C.—Lillooet, Sept. 2, 1918 (M. H. R.).

Family REDUVIIDAE

*Ploiariola hirtipes* (Banks).

B. C.—Victoria, V. I., Sept. 8, 1918 (W. D.), in cellar.

*Ploiariola canadensis* sp. nov.

Color light brown in general, basal segment of rostrum and antenniferous tubercles marked with black, anterior lobe of head yellowish with Y-shaped median dorsal mark, posterior lobe yellowish with median line and posterior margin black, sides of head dark; antennae pale, with numerous rather regularly alternating narrow and broad black rings. Pronotum with lateral carinae and posterior margin white, the disc completely outlined by a dark brown submarginal line which is broader and more irregular anteriorly. Scutellum dark brown, the spine, posterior margin, and two posteriorly converging discal carinae pale. Free margin and spine of postscutellum pale. Front coxae pale, with an incomplete black ring beyond middle; trochanters pale; femora with four black rings of which the basal, medial, and subapical are narrow, the apical

broad and not quite reaching apex of femora; tibiae with two black rings in basal half, of which the distal is the broader, apex slightly darkened. Middle and hind legs with numerous narrow black rings, which are evanescent toward the apices of the tibiae. Meso- and metapleurae dark brown with faint longitudinal paler markings. Connexivum and margins of genital pieces pale. Hemielytra pale, mottled with numerous brown spots, which are irregular except a quadrangular series around apical and inner margin of membrane; costal margin with a distinct elongated black spot at extreme apex of corium, in front of which is a linear white area twice as long as the spot, and further toward apex is a large irregular white area outside the large basal cell of membrane.

Gula finely pubescent; part of head anterior to interocular groove as seen from the side slightly higher and about as long as part behind the groove. Antennae (female) with fine sparse decumbent pubescence, the hairs somewhat longer than the thickness of the segment; first antennal segment twice as long as head and thorax to apex of scutellum together, second a little shorter than the first, third and fourth missing. Head three-fourths length of pronotum, a little longer than broad including eyes; anterior lobe seven-tenths width of posterior and slightly shorter, including antenniferous tubercles; posterior lobe nearly orbicular, with a median longitudinal depression. Pronotum almost rectangular, slightly widened posteriorly, the anterior lobe a little less than one-half length of posterior; median basal tubercle very slightly elevated, concolorous with disc; lateral margins nearly straight, sinuate posteriorly, lateral angles prominent, rounded, continued in short lobes covering base of hemielytra laterally. Scutellum transverse, with a blunt tubercle extending posteriorly (scarcely a spine); postscutellum almost twice length of scutellum,

with a long, almost erect spine. Hemielytra extending to apex of abdomen. Front coxae two-fifths longer than head; femora slightly more than twice length of coxae, densely pilose beneath, with a series of very minute spinules of which those in basal half are larger; tibiae about three-fourths length of femora, incrassate at apex. Hind femora two-fifths longer than middle femora, extending considerably beyond apex of abdomen. The lateral pale appendages situated dorsally at base of female genitalia short, cylindrical, obliquely truncate at apex. Length, female 7 mm.

Holotype female, Victoria, V. I., B. C., July 26, 1918 (W. D.), in the National Collection at Ottawa.

This species is much larger than the other American forms, except *hirtipes* Banks, from which it is to be distinguished by its much darker coloration, and the very short pubescence of the middle and hind legs. It is especially characterized by the extremely short scutellar spine, slightly developed basal tubercle of pronotum, and distinct markings of head and thorax.

*Rhynocoris ventralis* (Say).

B. C.—Vernon, May 5, 1915 (M. H. R.).

This specimen belongs to the typical variety, having the corium red, the anterior lobe of the pronotum black, and the connexivum conspicuously spotted with black. The legs, however, are dark reddish, showing a tendency toward var. *annulipes* Van Duzee. After a study of more ample material, I now agree with Van Duzee's view that *americanus* Bergroth is a variety of *ventralis*, and not a distinct species as I formerly maintained<sup>17</sup>.

*Sinea diadema* (Fabricius).

B. C.—Vernon, Aug. 28, 1918 (R. C. W.); Lillooet, Sept. 11, 1916 (A. W. A. P.).

<sup>17</sup> Review Van D. Check List, Psyche, Vol. 23, 1916, pp. 128-129.

## Family NABIDAE

*Pagasa fusca* (Stein).

B. C.—Royal Oak, V. I., Nov. 13, 1917 (W. D.).

*Nabis subcoleoptratus* Kirby.

ALB.—Edmonton, July 26, 1912 (J. A. M.).

*Nabis ferus* (Linné).

B. C.—Lillooet (A. W. A. P.); Vernon, Mar. 6, 1915 (M. H. R.).

?*Nabis ferus* var. *punctatus* Costa.

B. C.—Saanich Dist., V. I., June 30, Nov. 13, 1917 (W. D.);  
Vernon, Mar. 6, 1915 (M. H. R.). Determined  
with some doubt by Barber.

*Nabis roscipennis* Reuter.

ALB.—Edmonton, June 15, 1912 (J. A. M.).

B. C.—Vernon, May 5, 1915 (M. H. R.).

*Nabis rufusculus* Reuter.

B. C.—Saanich Dist., V. I., Oct. 8, 1917 (W. D.); Vernon,  
Mar. 6, 1915 (M. H. R.).

## Family ANTHOCORIDAE

*Anthocoris antevolens* White.

B. C.—Saanich Dist., V. I., Apr. 4, 1918, Sept. 29, 1917 (W. D.); Long Lake, Aug. 10, 1917 (M. H. R.); Vernon, Apr. 20, 1915 (M. H. R.).

Taken by Downes on willow.

*Triphleps insidiosus* var. *tristicolor* White.

B. C.—Saanich Dist., V. I., Aug. 18, Sept. 29, 1917 (W. D.);  
Vernon, July 10, 1917 (M. H. R.).

*T. tristicolor* is usually considered to be specifically distinct from *insidiosus*, but there are no grounds for maintaining its separation, since it differs only in having the clavus black while

this part is largely pale in *insidiosus*. *Tristicolor* cannot be considered even a geographical form since I have recently detected it from several localities in New England, where it occurs in company with the typical variety. These eastern examples agree with specimens from the west and Van Duzee concurs in their identification as *tristicolor*. In his monograph of the family Reuter says of *insidiosus*, "A *Tr. tristicolor* B.-Wh. vix nisi colore hemielytrorum divergens," but treats them as separate species. His var.  $\beta$  of *tristicolor*, "Clavo margine exteriore macula albido-testacea ante apicem" may be considered an intermediate leading toward the condition characteristic of the typical variety.

## Family MIRIDAE

*Miris dolabratus* (Linné).

B. C.—Lillooet (A. W. A. P.).

*Stenodema trispinosum* Reuter.

B. C.—Saanic Dist., V. I., May 11, 1918, Aug. 14, 1917 (W. D.); Vernon, Apr. 17, 1915 (M. H. R.).

*Stenodema vicinum* (Provancher).

B. C.—Saanic Dist., V. I., May 8, 1918, Aug. 18, 1917 (W. D.); Vernon, Apr. 28, 1915, Aug. 10, 1917 (M. H. R.).

*Megaloceraea debilis* Uhler.

B. C.—Vernon, June 16, 1917 (R. C. T.).

*Trigonotylus* sp.

B. C.—Shawnigan, V. I., July 21, 1918 (W. D.).

*Platytyellus bivittis* (Stål).

B. C.—Saanic Dist., V. I., July 24, Aug. 14, 1917 (W. D.).  
Taken on willow.

*Pithanus maerkelii* (Herrich-Schaeffer).

B. C.—Saanic Dist., V. I., June 18, 1918, July 24, 1917 (W. D.).

*Phytocoris lasiomerus* Reuter.

B. C.—Victoria, V. I., July 31, 1918 (W. D.).

*Phytocoris interspersus* Uhler.

B. C.—Saanich Dist., V. I., Sept. 8, 1917 (W. D.); Victoria,  
V. I., July 31, 1918 (W. D.).

*Phytocoris eximius* Reuter.

B. C.—Saanich Dist., V. I., Aug. 18, 1917 (W. D.); Victoria,  
V. I., July 31, 1918 (W. D.).

*Adelphocoris superbus* (Uhler).

ALB.—Edmonton, July 1, Aug. 29, 1912 (J. A. M.).

B. C.—Saanich Dist., V. I., Aug. 3, 1918 (W. D.); Vernon,  
July 25, 1917 (M. H. R.).

*Stenotus binotatus* (Fabricius):

B. C.—Saanich Dist., V. I., June 30, 1917 (W. D.).

*Irbisia brachycerus* var. *solani* Heidemann.

B. C.—Vernon, May 24, 1918 (W. D.).

*Thyrellus pacificus* (Uhler).

B. C.—Vernon, June 16, 1917 (R. C. T.).

*Calocoris norvegicus* (Gmelin).

B. C.—Royal Oak, V. I., July 24, 1917 (W. D.); Lillooet,  
July 23, 1917, 6000 ft. (R. C. T.).

*Poeciloscytus unifasciatus* (Fabricius).

B. C.—Lillooet (A. W. A. P.).

*Capsus ater* (Linné).

ALB.—Edmonton, June 15, Aug. 14, 1912 (J. A. M.).

*Lygus pratensis* var. *oblineatus* (Say).

ALB.—Edmonton, June 15, 1912 (J. A. M.).

B. C.—Saanich Dist., V. I., July 31, Sept. 4, 1917 (W. D.);  
Vernon, Mar. 20, 1915, Aug. 19, 1917 (M. H. R.).

*Lygus atriflavus* Knight.

Bull. Cornell Agr. Exp. Sta., No. 391, 1917, p. 572.

B. C.—Royal Oak, V. I., July 24, Aug. 15, 1917 (W. D.);  
Vernon, July 10, 25, 1917 (M. H. R.).

*Lygus elisus* Van Duzee.

B. C.—Saanich Dist., V. I., June 30, Sept. 8, 1917 (W. D.);  
Lillooet (A. W. A. P.); Vernon, July 10, 1917  
(M. H. R.).

*Lygus elisus* var. *hesperus* Knight.

*Op. cit.*, p. 575.

B. C.—Royal Oak, V. I., Aug. 13, 1917 (W. D.).

*Lygus nubilosus* Knight.

*Op. cit.*, p. 585.

B. C.—Royal Oak, V. I., Aug. 18, 1917 (W. D.).

*Lygus campestris* (Linné).

B. C.—Vernon, Aug. 1, 1917 (M. H. R.).

*Lygus communis* Knight.

Can. Ent., Vol. 48, 1916, p. 346.

B. C.—Saanich Dist., V. I., July 8, 1918 (W. D.).

*Camptobrochis validus* Reuter.

B. C.—Saanich Dist., V. I., Apr. 19, 1918 (W. D.); Vic-  
toria, V. I., July 14, 1918 (W. D.); Vernon, Mar.  
20, 1915 (M. H. R.).

*Orectoderus* spp.

B. C.—Saanich Dist., V. I., July 3, 1918 (W. D.).

Several myrmecoid females taken on salmon berry, unde-  
termined in the absence of males.

*Dicyphus agilis* (Uhler).

B. C.—Saanich Dist., V. I., June 22, Aug. 3, 1918 (W. D.).

*Dicyphus vestitus* Uhler.

B. C.—Saanich Dist., V. I., Apr. 30, Sept. 14, 1918 (W. D.).

*Strongylocoris stygicus* (Say).

ALB.—Edmonton, Aug. 10, 1912 (J. A. M.).

*Ceratocapsus modestus* (Uhler).

B. C.—Royal Oak, V. I., Sept. 28, 1917 (W. D.), on willow.

*Lopidea aculeata* Van Duzee.

Rept. Hem. Giffard, Proc. Cal. Acad. Sci., (4), Vol. 7, 1917, p. 271.

B. C.—Saanich Dist., V. I., Sidney, Sept. 4, 1917 (W. D.);  
Sea Island, Aug. 11, 1916 (R. C. T.).

Taken by Downes on goldenrod and reported as injurious to potatoes.

*Hadronema militaris* Uhler.

ALB.—Edmonton, July 1, 26, 1912 (J. A. M.).

B. C.—Vernon, June 14, 1917 (R. C. T.).

*Paraproba nigrinervis* Van Duzee.

*Op. cit.*, p. 274.

B. C.—Victoria, V. I., July 14, 1917 (W. D.).

Downes reports that this species was common in his garden, where one was seen feeding on a dead fly.

*Diaphmidia debilis* Uhler.

B. C.—Royal Oak, V. I., Aug. 18, Sept. 29, 1917 (W. D.);  
Victoria, V. I., July 14, 1918 (W. D.).

*Diaphmidia provancheri* Burque.

B. C.—Victoria, V. I., July 31, 1918 (W. D.).

*Orthotylus insignis* Van Duzee.

B. C.—Vernon, June 8, 1918 (R. C. T.).

*Orthotylus tibialis* Van Duzee.

B. C.—Mt. McLean, June 21, 1917 (M. H. R.).

This and the preceding species determined by Van Duzee.



*Orthotylus pacificus* Van Duzee, sp. nov.

"Closely allied to *dorsalis* but larger with longer antennae; black, marked with fulvotestaceous about as in *dorsalis*, the cuneus entirely pale, dextral male clasper deeply notched; length to tip of membrane 6 mm.

"Vertex moderately convex, transversely depressed before the broad convex basal carina, this depression produced forward a little on the median line. First antennal segment as long as posterior lobe of pronotum; second as long as from the base of pronotum to the apex of clavus; third about one-half the length of the second; fourth one-half the third and subequal to the first. Length of pronotum a little more than one-half its basal width; callosities prominent, broad oval, well defined posteriorly by an impressed line; sides slightly arcuated with the anterior angles well rounded; hind margin truncate. Elytra long, parallel, the costa almost rectilinear; abdomen attaining basal third of cuneus. Whole upper surface sparsely clothed with a short pale appressed pubescence. Rostrum attaining middle of intermediate coxae. Dextral male clasper almost straight along its ventral margin, produced in a smooth acuminate point at apex; dorsally produced in two serrated squarish lobes, the basal longer and a little narrower; sinistral clasper as long as the dextral, almost linear and a little sinuous, its base dorsally with a long slender parallel appendage which is bent into a curved hook at apex and attains the apical fourth of the clasper.

"Color fuscous or black marked with fulvotestaceous; above mostly black; margin of vertex next the eyes, anterior and lateral margins of pronotum, a broad median vitta from behind the callosities to apex of scutellum, and slender scutellar and commisural margins of the clavus, pale. Corium and cuneus

pale, the former with a large fuscous spot on its inner angle, which begins at the basal third and follows the radial nervure to its apical one-fourth where it forms a squarish projection extending half way to the costa; cuneus deeper yellow, immaculate. Membrane smoky, with a hyaline spot at outer angle beyond the areole followed by a deeper fuscous ray; veins yellowish at apex. Beneath pale with a black lateral vitta which may cover most of the venter; the male genital segment pale. Legs soiled yellowish, paler on the base of the femora, the tip of the rostrum and the tarsi infuscated. Antennae entirely black.

"Described from two males and one female taken at Victoria, V. I., B. C., July 14, 1918, on willow, by W. Downes.

"Holotype male in National Collection at Ottawa; allotype in collection of H. M. Parshley; paratype in collection of E. P. Van Duzee."

Since Van Duzee has recently published a review of *Orthotylus* I submitted the specimens of this species to him for study, and he has kindly sent the description quoted above for inclusion in the present paper.

*Orthotylus formosus* Van Duzee.

B. C.—Saanich Dist., V. I., July 8, 1918 (W. D.).

*Mecomma gilvipes* (Stål).

B. C.—Saanich Dist., V. I., Aug. 13, 1918 (W. D.).

*Macrotylus multipunctatus* Van Duzee.

B. C.—Vernon, June 10, 1918 (R. C. T.).

Van Duzee writes that this is the second specimen of the species he has seen.

*Plagiognathus moerens* Reuter.

B. C.—Vernon, June 18, 1917 (R. C. T.).

*Plagiognathus obscurus* Uhler.

B. C.—Royal Oak, V. I., July 24, 1917 (W. D.); Victoria,  
V. I., July 31, 1918 (W. D.).

This and the preceding determined by Van Duzee.

*Bolteria picta* var. *hirta* Van Duzee.

B. C.—Vernon, June 10, 1918 (M. H. R.).

Two specimens in poor condition which Van Duzee determines with some doubt.

*Campylomma verbasci* (Meyer-Dür).

B. C.—Royal Oak, V. I., Sept. 13, 1917 (W. D.); Vernon,  
Aug. 12, 1917 (M. H. R.).

Family GERRIDAE

*Gerris remigis* Say.

B. C.—Saanich Dist., V. I., May 6, 1917 (J. D. T.), Oct. 17,  
1917 (W. D.); Vernon, 1908.

*Linnoporus rufoscutellatus* (Latreille).

B. C.—Saanich Dist., V. I., June 18, 1918, Sept. 1, 1917 (W.  
D.); Vernon, May 5, 1915, (M. H. R.).

Family NOTONECTIDAE

*Notonecta undulata* Say.

B. C.—Saanich Dist., V. I., Sept. 1, 1917 (W. D.).

*Notonecta insulata* Kirby.

B. C.—Okanagan Landing, May 2, 1916 (E. M. A.); Ver-  
non, Apr. 29, 1918, Dec., 1908 (M. H. R.).

Family BELOSTOMATIDAE

*Lethocerus americanus* (Leidy).

B. C.—Kamloops, June 20, 1914 (W. D.).

