

There are no entirely black males of *longicornis* in the Casey collection, although this is a very common form in nature.

Synaphaeta Thoms.

S. humeralis Csy.=*gucxi* Lec.; *S. annulata* Csy.=*gucxi* Lec.

These species can be distinguished from the specimen labelled "*gucxi*" in the Casey collection only by size. *S. brevicollis* Csy. may possibly be distinct. All four species in the Casey collection are represented by only one specimen each.

Cyllene Newm.

C. angulifera Csy.=*infausta* Lec.

C. chara Say in the Casey collection is the species accepted as *decora* Oliv. by LeConte and represented by 15 specimens in the LeConte collection, all from Kansas.

C. genitiva Csy., *mediana* Csy., and *kansana* Csy. all are plain color variations of *decora* Oliv.

C. decora in the Casey collection appears to be *C. chara* Say as recognized by LeConte and also by Horn.

C. filicornis Csy.=*crinicornis* Chev.

ANOBIIDAE

Ptilinus Geoff.

P. pruinosus Csy., *lobatus* Csy., and *flavipennis* Csy. are in my opinion good species. *P. acuminatus* Csy., is *basalis* Lec. *P. basalis* Lec. of Casey is not that species, but apparently new. It is possible that some of these species may prove to be sexes of some of the species previously described from one sex.

THE EPHEMEROPTERA OF JASPER PARK, ALTA.*

BY J. McDUNNOUGH,

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I have recently had the pleasure of examining and determining the Ephemeropterid material collected by Prof. F. Neave and his assistants at Jasper Park, Alta., during the course of an investigation into the insect fauna of the lakes and rivers of this region conducted by the University of Manitoba.

Besides a quantity of nymphal material—which, on account of lack of association I was unwilling to determine further than to genus—there were a number of adults; as, up to the present, the Ephemeropterid species of this region have been entirely unknown and as some very interesting forms were disclosed, I append the following list of species which includes two new to science and one new record for our Canadian fauna.

Leptophlebia pallipes Hag. Maligne Lake, July 21.

Leptophlebia debilis Wlk. Beauvert Lake, Aug. 16.

Ephemerella (Eatonella) doddsi Needh. Maligne Lake, July 21; Medicine Lake, Aug. 14. Only females were taken but as far as can be told they appear to belong to this species.

Ephemerella tibialis McD. One ♀, Maligne Lake, Aug. 29; placed here on account of the long axillary cords.

Baetis parvus Dodds. Caledonia Cr., Aug. 20.

*—Contribution from the Division of Systematic Entomology, Entomological Branch, Dept. of Agric., Ottawa.

Siphonurus occidentalis Eat. Jacques Lake, Aug. 26.

Ameletus subnotatus Eat. Maligne Lake, July 21. Females only. Rather more heavily spotted on forewings than southern Alta. specimens but presumably belonging to this species.

Ameletus velox Dods. Maligne Lake, July 21. Females only.

Ameletus validus McD. Maligne Lake, July 21. Females only.

***Ameletus similior* n. sp.**

♀. (in alcohol). Very similar to the preceding in size and coloration: thorax rather brighter red-brown and abdomen more definitely brown-ringed on posterior margin of segments; mid and hind legs somewhat lighter. Best distinguished by a mid-ventral row of dark heart-shaped ganglionic spots on abdomen which are entirely lacking in *validus*, and also by the smaller subanal plate which covers less than half of the tenth segment in the present species whilst in *validus* it nearly reaches to the posterior margin. Length of body and forewing 9 mm.

Holotype—♀, Jacques Lake, Jasper Park, Alta., Sept. 4, 1926 (F. Neave), No. 2665 in the Canadian National Collection.

Paratype—♀, same data.

There are several subimagos from Banff, Alta. in the Canadian National Collection, taken Sept. 7, which appear to belong to this species.

***Ametropus neavei* n. sp.**

♀. (in alcohol). Head light brown, darker around the ocelli; prothorax dark brown with broad pale lateral edges; mesothorax light brown, tinged with darker brown anteriorly and with the posterior portion deep black-brown with a pale spot anterior to the scutellum. Abdomen dorsally brown with a broad pale area along the lateral margin and a double row of pale indistinct spots subdorsally which are more or less circular on anterior segments but elongate and tending to fork on the posterior ones, and almost absent on the paler brown ninth and tenth segments; ventrally the abdomen is light ochreous broadly tinged with brown laterally on the first eight segments, the posterior margin of the ninth segment shows a slight medio-ventral v-shaped slit, each lobe thus formed being convex but scarcely protruding to form an anal plate; setae three, of equal length, pale. Fore femur and tibia dark brown, tarsi pale, the two first joints slightly smoky; mid and hind femora deep yellowish, with an apical dark brown spot; tibiae and tarsi pale. Wings hyaline with brown longitudinal nervures and pale indistinct cross-veins. Length of body 15 mm., of forewing 15 mm.

Holotype—♀, Old Fort Pt., Athabasca River, Jasper Park, Alta., July 25, 1926, (F. Neave); No. 2664 in the Canadian National Collection.

This is the first occurrence of this European genus in our North American fauna, the structural details agreeing excellently with Eaton's characterization (Mon. Pl. XXII).

Iron grandis McD. Maligne Lake, July 21, Aug. 10.

Iron longimanus Eat. Maligne Lake, July 21, Aug. 26; Medicine Lake, July 24.

Cinygma ramaleyi Dods. Jacques Lake, Sept. 4; Maligne Riv., Sept. 12.

Rhithrogena doddsi McD. Maligne Lake, July 28.

Rhithrogena brunnea Hag. Maligne Lake, July 21. I have identified a

small series as this species on account of the excellent agreement of the ♂ genitalia with Eaton's figure from the type (Pl. XXIV, fig. 43c), especially as shown on the left hand side; the strongly divergent apices of the penes and the large lateral spine are quite characteristic. The species is one of the largest of the group, equalling *flavianula* McD. in size and being considerably larger than *doddsi*; the above is the first Canadian record for the species.

THE SUBGENUS *PLATYDERIDES* IN NORTH AMERICA (COLEOPTERA).*

BY W. J. BROWN,

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The subgenus *Platyderides* was erected to include those species of *Aphodius* in which the side pronotal margins are explanate. The group is better known as Horn's series I-a. The genus *Aphodius* does not lend itself well to subdivision, consequently *Platyderides* is not sharply defined. The only character of key value in defining the group is the explanate pronotal side margin, but this character is lacking in *insolitus* and feebly developed in several others. The species are usually strongly shining and medium sized or large for the genus. The head is never very roughly sculptured or strongly tuberculate, and the spinules at the apex of the hind tibiae are always unequal. Sexual characters are well developed; they have been described in detail in the following pages because they are often of value in separating closely allied species.

As the following table will show, the species are not very homogeneous. With the exception of a few aberrant forms, they fall into three or four natural groups. The table includes twenty-one species and one subspecies. All of these have been associated with the group previously except those described as new and *luxatus*. The latter has been included for reasons given in the notes describing the species. Schmidt has included *lutcolus* Horn in the subgenus, but it has been omitted from the present paper because it is not a member of the group.

Because of the rarity of the subgenus in collections, the author has been handicapped by lack of material; he was unable to study three species and only small series of other species were available. The rarity of the group is more apparent than real. The species are overlooked by collectors because their feeding habits are unknown. Hubbard (Proc. Ent. Soc. Wash., IV, 32, 1901) collected a specimen of *coquilletti* from a burrow of the kangaroo rat, and this is the only published record that gives a clue to the habits of the group. The author found several species common in Oklahoma. They never occurred in manure but were all found flying over meadows between four and five o'clock in the afternoon during the fall month. Mr. S. Criddle has recently taken four species at Aweme, Manitoba, in the nests of the pocket gopher, *Thomomys talpoides rufescens*.

In the table and notes that follow, a structure is sometimes described as being apparently impunctate. This term is used to describe a type of puncturation so fine that clean specimens and high magnification are necessary for its observation.

*—Contribution from the Division of Systematic Entomology, Entomological Branch, Dept. of Agric., Ottawa.

Mr. E. T. Cresson, Jr. kindly compared specimens of *brevicollis* and *haldemani* with the types and specimens of *punctissimus*, and *oklahomensis* with the type of *depressiusculus*. Mr. Nathan Banks compared specimens of *rudis*, *explanatus*, and *phaeopterus* with the types of those species. The author is indebted to Mr. Norman Criddle, Mr. S. Criddle, Mr. F. S. Carr, and Mr. J. B. Wallis for use of the material in their collections and to Prof. H. F. Wickham for a specimen of *iowensis*.

PLATYDERIDES Schmidt.

Platyderus Schmidt, Arch. Naturg., LXXIXA, fasc. 11, 122, 1913.

Platyderides Schmidt, 1. c., LXXXIIIA, fasc. 1, 99, 1916.

Platyderides Schmidt, Das Tierreich, lief. 45, 43, 1922.

KEY TO SPECIES.

1. Clypeus with an acute tooth on each side of emargination; basal pronotal margin strongly oblique on each side near the hind angle except in *luxatus* 2.
Clypeus angulate or broadly rounded on each side of emargination; basal pronotal margin not strongly oblique near the hind angles except in *ochreipennis* 4.
2. Pronotum without basal marginal line; humeri obtuse; elytral intervals finely punctate; length 6.5-7 mm. 2. *rudis* Lec.
Pronotum with basal marginal line 3.
3. Humeri distinctly dentiform; elytral intervals very finely and sparsely punctate; length 3.5-3.7 mm 1. *luxatus* Horn.
Humeri obtuse; elytral intervals minutely rugose, coarsely punctured; length 6.5 mm. 3. *coquilletti* Linell.
4. Clypeus distinctly but obtusely angulate on each side of emargination; pronotum rather closely punctate throughout, with basal marginal line; head and pronotum largely black 5.
Clypeus rounded on each side of emargination; other characters variable .. 7.
5. Pronotal margins broadly explanate; elytra brownish yellow; length 6-8.5 mm. 4. *explanatus* Lec.
Pronotal margins not broadly, less strongly explanate 6.
6. Elytra reddish yellow; length 7 mm. 5. *phaeopterus* Lec.
Elytra black; length 7-8 mm. 5a. *phaeopterus canadensis* Garn.
7. Pronotum not or feebly impressed near the hind angles, with basal marginal line, very distinctly and rather closely punctate throughout. 8.
Pronotum with a distinct impression before each hind angle, basal marginal line entirely absent except in *brevicollis*, impunctate or very finely and sparsely punctate except at base and sides 12.
8. Color uniformly pale reddish brown 6. *russeus* n. sp.
Head and pronotum largely blackish 9.
9. Elytra pale brownish-yellow; length 4-4.5 mm 9. *thomomysi* n. sp.
Elytra red or reddish brown; size usually larger 10.
10. Clypeus granulate near anterior margin; pronotal sides not explanate 10. *insolitus* n. sp.
Clypeus punctate throughout; pronotal sides explanate 11.
11. Hind tarsus distinctly longer than the hind tibia; ninth and tenth elytral intervals strongly convex 7. *leptotarsis* n. sp.
Hind tarsus and tibia subequal in length; ninth and tenth elytral intervals feebly convex 8. *aquilonarius* n. sp.

Edmonton, 8 ♀ ♀, May 28-30; 3 ♀ ♀, June 2-6. Bilby, 9 ♀ ♀, June 8-29; 2 ♂, June 30; 1 ♀, August 21.

22. *Bremus flavifrons* var. *dimidiatus* (Ashm.). Calgary, 1 ♀, May 26; 1 ♀, July 16; 2 ♂, August 5-11; 4 ♂ ♂, August 17-27; 1 ♀, August 11; 1 ♂, September 5. Edmonton, 8 ♀ ♀, May 28-30; 4 ♀ ♀, June 6; 1 ♂, June 23. Bilby, June 8; 6 ♀ ♀, June 2.29.

23. *Psithyrus suckleyi* (Greene). Banff, 2 ♂, August 15. Edmonton, 2 ♀ ♀, May 28; 9 ♀ ♀, June 2-6. Calgary, 1 ♀, May 24; 2 ♀ ♀, June 3-12. 1 ♂, Bilby, 7 ♀ ♀, June 11-25.

24. *Psithyrus insularis* (F. Sm.). Banff, 8 ♂ ♂, August 13-16; 3 ♀ ♀, August 16-18. Bilby, 2 ♀ ♀, June 24-25. Edmonton, 1 ♀, May 30; 2 ♀ ♀, June 6. Calgary, 3 ♀ ♀, June 3-16; 2 ♀ ♀, July 16-20; 7 ♂ ♂, August 4-28.

25. *Psithyrus fernaldae* Franklin. Edmonton, 2 ♀ ♀, June 2-6. Bilby, 1 ♀, June 25. Banff, 1 ♂, August 16.

EPHEMERID NOTES WITH DESCRIPTION OF A NEW SPECIES.*

BY J. MCDUNNOUGH,

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Ephemerella cornuta Morg.

Ephemerella dorothea McDunnough (nec Needham) 1925, Trans. Roy. Soc. Can. XIX, 212.

In my paper on the Ephemeroptera of Covey Hill, Que., I recorded the species *E. dorothea* Needham as extremely common. In the summer of 1927 my assistant, Mr. G. S. Walley, took numerous full-grown nymphs in the Covey Hill brook at a time when the so-called *dorothea* were emerging, so that the association of nymph and adult is fairly safe. These nymphs, however, proved to agree excellently with the description of *cornuta* Morg. except for the somewhat smaller size, and a careful reading of Dr. Morgan's description of the male sub-imago (the only other stage known to her) made it evident that the Covey Hill species should be known as *cornuta* Morg. and not *dorothea* Needh.

Through the kindness of Dr. P. Claassen I have examined some slides of the original nymphal material of *dorothea* and this nymph is certainly quite distinct from that of *cornuta*, among other features there being no horns below the antennae. The adults are evidently quite similar; my first determination of the Covey Hill species was based on a study of the adult type material of *dorothea* in alcohol and the only distinction I noted was the paler color of the types. This, at the time, I supposed due to a teneral condition and to the immersion in alcohol, but it is evidently a natural feature; the genitalia of the Covey Hill males bear great similarity to Needham's figure of these parts in *dorothea* but show a row of small, dorsal spines at the base of each penis-lobe not given in Needham's figure and arranged much as in my figure of *invaria* Wlk. (op. cit. Pl. I, fig. 6).

Ephemerella infrequens McD.

Ephemerella inermis Needham (nec Eaton), 1927, Ann. Ent. Soc. Am. XX, 114, fig. 1, T.

Judging by the figure of the male genitalia given by Needham as cited above his identification of *inermis* Eaton in his valuable paper on the Rocky Mt. species of *Ephemerella* was erroneous; the species before him was evidently *infrequens* McD. In the description of this latter species (Can. Ent. LVI, 223)

*—Contribution from the Division of Systematic Entomology, Entomological Branch, Dept. of Agric., Ottawa.

I called attention to the fact that *inermis* showed no apical enlargement of the second joint of the forceps, my determination being based on a slide of the genitalia of one of the type lot of males from the Arkansas Canyon, Colo., received through the courtesy of Dr. Banks of the Cambridge Museum of Comparative Zoology; there is also a long series before me from the Platte Canyon, Colo., which agrees with this paratype.

Apart from the genitalic differences the two species are very similar but *inermis* is on the whole somewhat smaller and darker-colored, the thorax showing scarcely any of the ruddy tints found in *infrequens*; this species, I might incidentally note, was extremely common at Seton Lake Creek, Lillooet, B. C. in 1926.

Baetis pluto McD.

Baetis rusticans McD. 1925, Trans. Roy. Soc. Can. XIX, 217 (♀ nec ♂).

The type material of *pluto* consisted of a male from Covey Hill, Que. (holotype) and a male from the Ottawa region. During the summer of 1927 my assistant, Mr. G. S. Walley, was successful in securing a long series of both sexes of this species at Covey Hill which clearly shows that the females which I associated with *rusticans* in the description of this species actually belong to *pluto*. Typical *pluto* females, as distinguished from other *Baetis* females occurring in the same region, show an almost unicolorous chocolate-brown head, a deep brown abdomen, distinctly tinged with wine-color, and brown crossveins on the primaries; generally the intercalaries in the first interspace of primaries are wanting and there is one (occasionally two) intercalary on the secondaries between veins two and three as in the male sex; a further very useful character is found in the shape of the rear margin of the head which is bilobed with a distinct narrow median v-shaped indentation, whereas in allied species of *Baetis* from the same region this margin is gently sinuous with a shallow, broadly u-shaped, median excavation.

Cinygma ramaleyi Dodds.

Ecdyurus ramaleyi Dodds, 1923, Trans. Am. Ent. Soc., XLIX, 101.

Iron tollandi Dodds, 1923, Trans. Am. Ent. Soc., XLIX, 109.

These two names refer to a single species, *ramaleyi* having priority. The differences in male genitalia figured by Dodds are not actual but simply due to distortion of the parts; the normal position is that figured for *ramaleyi* (fig. 9) and if we imagine the penes twisted about 180° we can readily see how his figure 25 may result.

In dried or alcohol specimens such variation is common all through the group, as Needham has recently shown for *mimus* (Can. Ent., 1927, p. 134), but if slide material is made by treating the parts with a 10% solution of caustic potash, the normal position is resumed; typical material of *tollandi* received from Dodds and so treated has resulted in genitalia similar to those figured for *ramaleyi* and amongst my material of this species from the Canadian Rockies specimens have frequently occurred which match the *tollandi* figure excellently. The synonymy appears, therefore, to be reasonably sure, especially as the two so-called species came from exactly the same locality.

Rhithrogena anomala n. sp.

Male. Eyes (living) slate gray. Head, thorax and dorsum of abdomen deep brown; pleura brown tinged with ochreous at base of wings; sternum brown, tinged with ochreous laterally, especially around bases of legs; abdomen ventrally

paler than above, more ochreous brown. Legs yellow-brown with paler tarsi; femora with a small median purple brown spot, rather indistinct and not forming the longitudinal dark dash which is characteristic of most species in the group. First joint of fore tarsi about one-fifth the length of the second one. Wings hyaline with brown venation, the crossveins fine and not well-marked, especially in costal region; in the pterostigmatic area they anastomose as usual to form a network. Length of body and forewing 7 mm.

Holotype—♂, Knowlton, Que., June 22 (G. S. Walley); No. 2656 in the Canadian National Collection, Ottawa.

Paratype—♂, S. Bolton, Que., June 17 (W. J. Brown).

The species very much resembles *jejuna* Eaton (*fusca* Wlk.) and *impersonata* McD. but differs in the male genitalia, the penes possessing a short, blunt spine with slightly serrate edge, situated ventrally about midway between apex and base of each lobe; the inner apical edge of each penis-lobe is also distinctly serrate.

OBSERVATIONS ON THE CHERMIDAE (HEMIPTERA: HOMOPTERA). PART V.¹

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Genus *Leuronota* Crawford.

1914. Crawford, U. S. Nat. Mus. Bull. 85:67.

As far as I am aware, there are known at the present time but four species which are referred to this genus. Of these, one is recorded from Florida, one from Texas and Arizona, one from Nicaragua and one from Brazil.

Two species are at hand in my Mexican material. One of these I am, with hesitation, referring to a named form and the other—with greater hesitation—I am describing as new. Both species are represented by nymphs as well as adults and these nymphs prove to be extremely interesting forms.

The genus is referred by Crawford—and apparently quite correctly—to the Triozinae, but the nymphs depart rather widely from the characteristic triozine form. In this typical form, as I have indicated in earlier papers of this series, the wing-pads are produced forward, the head, as it were, being sunken into the shoulders. In the nymphs of these two species of *Leuronota* there is but the faintest indication of this feature. They remain, however, typically triozine in certain other respects. In all the triozine nymphs that I have examined practically the entire dorsum, excepting only the sutural lines and a small area at the base of the abdomen is sclerotic, the wing pads being continuous with a sclerotic area that is interrupted only by the mesal suture which ruptures at the time of molting. This condition does not appear in any nymphs other than triozines that I have seen.

Leuronota maculata (Crawford).

1914. *Leuronota maculata* (Crawford), U. S. Nat. Mus. Bull. 85:68:figs.

MATERIAL EXAMINED. Nymphs and adults from *Celtis iguanea*, near Siuatenejo, Guerrero, Mexico, Feb. 1926 (G. F. Ferris). The species has previously been recorded, on the basis of adults only, from *Condalia obovata* and

1.—Continued from Canadian Entomologist LX, 109 (1928).