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NEW EPHEMEROPTERA FROM THE GASPE PENINSULA\*

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The summer of 1933 was spent by Mr. W. J. Brown of the Dominion Entomological Branch in insect faunal survey work on the Gaspé Peninsula, his camp being located on the slopes of Mt. Lyall, near the headwaters of the Caspédia river, at an altitude of about 1500 ft. A small but very interesting collection of Ephemeroptera was secured, comprising *Blasturus nebulosus* Wlk., *Leptophlebia adoptiva* McD., *Leptophlebia debilis* Wlk., *Ephemerella aurivillii* Bngsstn., *Baetis vagans* McD., *Iron pleuralis* Banks and *Iron gracilis* Morg. There were further three undescribed species taken which very clearly link up the Ephemerid species of the Gaspé peninsula with those of the Rocky Mountain region; of one of these the nymphal association was discovered. I describe these species as follows.

***Ameletus browni* n. sp.**

Belongs, according to color of male abdomen and type of genitalia, in a group with *dissitus* Eaton and *cooki* McD.

*Male.* Head and thorax deep mahogany-brown, the mesonotum broadly light yellow-brown along the median line; some pale areas extending obliquely forward and downward from bases of wings and around the bases of the legs. Abdomen dorsally rather deep yellow with narrow brown rings on posterior edge of each segment which broaden out laterally into rather poorly defined brown triangular patches, the apices almost attaining the anterior margin of segment. Ventrally slightly paler yellow with a central row of oval brown spots on first seven segments and faint ruddy brown shading along the lateral margin. Forceps and setae faintly smoky, the latter with fine dark intersegmental rings. Legs yellowish, the femora tinged with ruddy-brown, especially the fore-femur which is considerably darker than the others. Wings hyaline, with a very faint amber tinge, most noticeable in the basal costal area; veins and crossveins fine, brown, except the costal crossveins before the bulla which are indistinct.

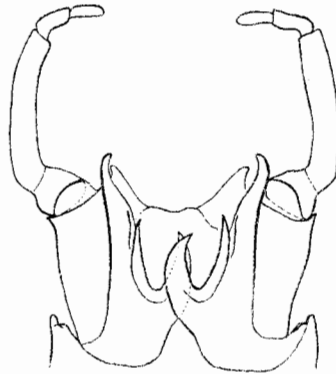
*Female.* Head dull ochreous, shaded broadly in the median area behind the antennae with ruddy brown; thorax rather lighter brown than in male with less yellowish shading on mesonotum; abdomen entirely deep purple-brown, due probably to underlying egg-masses; anal plate slightly notched at tip. Legs duller than in male, pale brown with the femora strongly shaded with purple-brown. Wings as in male but without any amber tinges. Length of body, 9 mm.; of

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

forewings, ♂, 8 mm., ♀, 10 mm.

*Subimago male.* Suffused with smoky over the colors of the male imago; wings rather deep smoky.

*Nymph.* Head, thorax, and abdomen light sepia-brown. On the head there are small whitish areas between and behind the antennae and the mouth parts are pale. The pronotum has a pale median band, pale lunate submedian and lateral streaks, enclosing a pale spot on anterior margin. Mesothorax has following pale marks:—a fine medio-dorsal line broadening into a patch at posterior margin; two pairs of subdorsal streaks, the posterior pair coalescing to form an H-shaped mark; several curved marks at bases of wing pads. Metathorax has a broad pale median band flanked by oblique pale streaks. The pale abdominal maculation of segments I-IX consists of a broad median band, slightly broken at anterior and posterior margins of segment and bordered by a faint dark spot in central portion of segment; a pair of white submedian dots in centre of segment and another pair in antero-lateral angle; a slightly oblique bent streak along lateral margin, leaving a dark shade in postero-lateral angle. Segment X is whitish with a pair of dark submedian streaks based on anterior margin. Ven-



*A. browrii*

trally pale brown with traces of a whitish medio-dorsal line, a pair of small subdorsal dark streaks and a dark dot, tipped with white, in antero-lateral angle; lateral margin whitish. Setae blackish for the basal three-quarters, then white with a very fine dark tip. Legs pale; coxa with a strong dark lateral bar; femur with faint dark median band and dark tip; tibia proximally and tarsus both proximally and distally tipped with dark. Gills rather small (especially first pair) oval, whitish, with fine darker edge but no visible tracheation

*Holotype*—♂, Mt. Lyall, Gaspé Co., Que., Aug. 11, (W. J. Brown) bred from nymph; No. 3652 in the Canadian National Collection, Ottawa.

*Allotype*—♀, same data.

*Paratypes*—1 ♂, 1 ♂ subimago, same data; 1 ♀, Aug. 14; also 2 ♂, 1 ♀, (bred material in alcohol), Aug. 10, 11, 14, and 1 ♂ (captured) Aug. 12.

The male genitalia differ decidedly, as a reference to the figure will show, from those of *cooki* in the shape of the stimuli.

#### ***Rhithrogena gaspeensis* n. sp.**

*Male.* Head deep brown, shaded with blackish around the ocelli; thorax deep pitch-brown, paler brown on the mesopleura, anterior to wing bases. Abdo-

men dull brown, slightly paler hyaline on the anterior segments near intersegmental area but without any definite maculation. Setae deep smoky. Legs dull brown, femora with a central longitudinal blackish streak. Wings hyaline with fine brown veins and crossveins and a very faint brownish tinge at extreme base of wing.

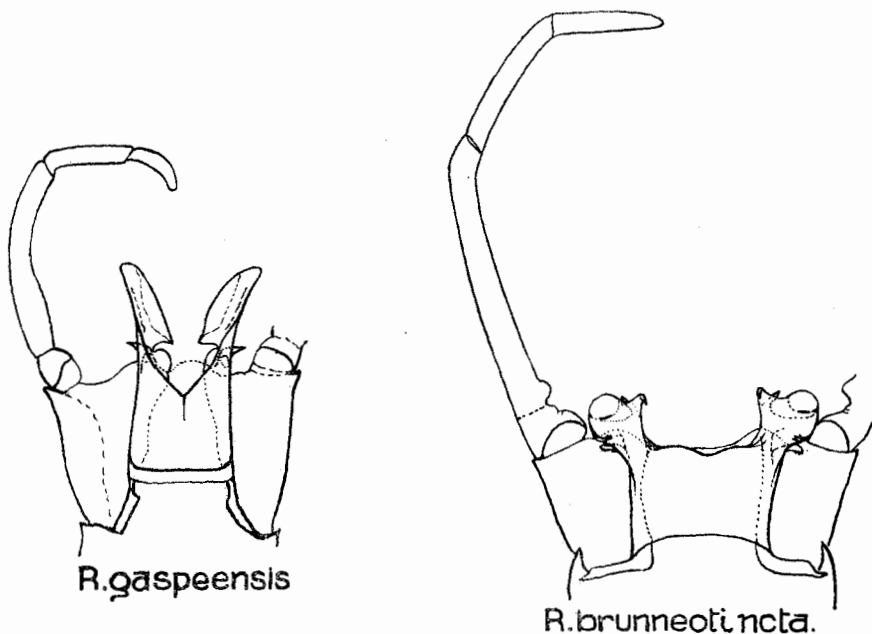
*Female.* Head brown, slightly paler along borders of eyes and tinged with smoky anteriorly. Coloration of remainder of body much as in the male. Length of body 11 mm.; of forewings 11-12 mm.

*Holotype*—♂, Mt. Lyall, Gaspé Co., Que., Aug. 9, (W. J. Brown); No. 3653 in the Canadian National Collection, Ottawa.

*Allotype*—♀, same data.

*Paratypes*—24 ♂, 12 ♀, same data, Aug. 8-10.

The species belongs in the *doddsi-morrisoni* group, according to male geni-



italia, showing the presence of a lateral spine on each penis-lobe. From the former species it differs in that the penis-lobes are much more narrowed apically and bend gently and evenly outward; there is further no trace of any other spining on either dorsal or ventral surfaces; in *morrisoni* the lobes are broader apically and more excurved and there is a very distinct, although small, spine on the inner ventral surface of each lobe.

#### ***Rhithrogena brunneotincta* n. sp.**

*Male.* Head brown, shaded with paler in the antennal region. Thorax deep pitch-brown with a slight paler brown shade on mesonotum before the scutellum; mesopleura and bases of legs shaded with ochreous brown and with a ruddy shade anterior to base of forewing. Abdomen dorsally deep brown with the lateral edge and small triangular areas on latero anterior and posterior margins lighter olive-brown; on the anterior segments the intersegmental area is also narrowly paler, giving a slightly ringed appearance; ventrally lighter olive-

brown deepening to brown on posterior segments. Forceps and setae deep smoky. Forelegs deep smoky with slight olive tinge on femora; mid and hind legs more olive brown with slight smoky shading on femora and tarsi. Wings hyaline, *distinctly tinted with brownish amber* on basal two-thirds of forewings and costal half of hindwings. Veins and crossveins fairly strong, brown, the crossveins of the pterostigmatic region being thickest, the costal ones not appreciably anastomosing, as is usual in the genus.

*Female.* Much as in the male; forelegs somewhat paler and shading on wing not quite so deep. Head rather bright brown with paler, ochreous shading in the antennal region and the anterior edge suffused with smoky. Anal plate short and rather squarely truncate. Length of body, 12 mm.; of the wing, 13 mm.

*Holotype*—♂, Mt. Lyall, Gaspe Co., Que., June 28, (W. J. Brown); No. 3654 in the Canadian National Collection, Ottawa.

*Allotype*—♀, same data, July 4.

*Paratypes*—1 ♂, 3 ♀, same data, June 28, July 3; 2 ♀ (in alcohol), July 5.

I also have before me a male which appears to belong here from Glen House, N. H., collected by C. W. Johnson on June 15, 1911.

Obviously related to the western *robusta* Dodds, according to male genitalia, and differing only in minor details of the spining of the penis-lobes; in the present species the inner apical spine of each lobe is dorsally recurved and the apex of the lobe itself is not so squarely truncate; the lateral spining is also somewhat different. The brown-shaded adult wings render the species easily recognizable.