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THE BEES OF PEACEFUL VALLEY, COLORADO.

By T. D. A. COCKERELL,

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During the last week of August, 1918, having no holiday this summer, my wife and I ventured to retire for four days to Peaceful Valley, in the mountains of Boulder County. It is a deep valley running east and west, with steep wooded sides, the altitude at the bottom about 8,000 feet above sea level. The biota is characteristically boreal, the plants including such genera as *Linnæa*, *Pyrola*, *Achillea*, *Antennaria*, *Dasytephana*, *Vaccinium*, *Arnica*, *Veronica*, etc. It is above the zone of sun-flowers, but a solitary *Helianthus lenticularis*, of small stature, had developed from some accidentally dropped seed, and was blooming cheerfully. Weeds are not very abundant, but there is a large patch of *Gartneria tomentosa* (Nutt.) Heller. The principal bee-flowers were found to be *Phacelia heterophylla* Pursh and *Heliomeris multiflora* Nuttall; they are cited below by the generic names only. At one spot, patches of *Phacelia*, *Heliomeris* and *Monnarda* grew close together, and it was interesting to note that their bee-visitors were almost all different. Galls of *Rhodites tuberculator* Ckll. were found on the roses. The common butterflies included *Basilarchia weidemeyeri* Edw., *Euvanesa antiopa* L., *Pieris rapæ* L., *Eurymus alexandra* Edw., etc. Few moths were caught; the most interesting were *Autographa angulidens* Smith and *Crambidia casta* Sanborn. The coccid *Orthezia occidentalis* Dougl. was common; it seems to be specially attached to *Fragaria*. Among wasps the curious *Crabro latipes* Smith was taken. The bee-fauna proved unusually interesting, including the following species:

Prosopis gaigei Ckll. 2 ♀, at *Phacelia* (W. P. Cockerell). New to Colorado.

Prosopis elliptica Kirby. 1 ♀, Aug. 27.

Andrena apacheorum Ckll. 1 ♀, Aug. 25.

Halictus cressonii Rob. Both sexes; all at flowers of *Heliomeris*, except one female from *Phacelia*.

Halictus ruidosensis Ckll. Both sexes. Male at *Phacelia* (W. F. C.).

Halictus euryceps Ellis. 2 ♀, at *Phacelia*, Aug. 26 (W. P. C.).

Halictus hemimelas Ckll. 1 ♀, Aug. 25. New to Colorado. The abdomen is strongly brassy-greenish; the type, from New Mexico, has the abdomen faintly bronzy or greenish. In all other respects, the Colorado specimen agrees with *hemimelas*, and I am confident that it is the same species.

Halictus synthyridis Ckll. 1 ♂.

Halictus (Chloralictus) phaceliarum new species.

Female.—Length about 6.5 mm.; robust, with broad head, and eyes not much converging below; face and front olive-green, the front dull and granular, clypeus mainly black; cheeks and metathorax blue-green, the latter shining, with a steely lustre, with minute punctures, sparse on disc; antennæ dark, the flagellum partly red beneath toward apex; hair of face and thorax above tinged with yellow, of cheeks and pleura clear white; area of metathorax large, with an oblique raised line at sides; surface of area with delicate but conspicuous plicæ, complete at sides, but in middle weak and running into a reticulation which does not reach the hind margin; tegulæ smooth, brownish black; wings very faintly grayish, stigma and nervures pale dull reddish-testaceous; legs black, tarsi brownish at apex; hind spur with long spines; abdomen polished, black (including hind margins of segments), not at all metallic; third and following segments (third sparingly on disc), and sides of second, covered with grayish pruinose pubescence.

Peaceful Valley, Colo., Aug. 26, 1918, at flowers of *Phacelia*, collected by W. P. Cockerell.

Variety a. Mesothorax olive green; wings slightly reddish.

Peaceful Valley, Aug. 27 (T. D. A. Cockerell).

Closely related to *H. subconnexus* Ellis, but the sculpture of metathoracic area is much more delicate, the eyes converge less below, and the abdomen is without metallic tints.

There are also in the collection several small species of *Halictus* represented only by males. They do not agree with any identified males, but they may have been described from females, as numerous species are known only in that sex at present.

Calliopsis coloradensis Cresson. 1 ♀, Aug. 27, at *Chrysopsis*.

Perdita affinis Cresson. 1 ♀, Aug. 27, at *Chrysopsis*.

Panurginus porterae Ckll. 2 ♂, Aug. 26, at *Heliomeris*.

Halictoides oryx Viereck. Both sexes; females at *Heliomeris*.

Pseudomelecta interrupta rociadensis Ckll. One, Aug. 26.

Triepeolus helianthi pacificus new subspecies. One male, Aug. 26 (W. P. Cockerell).

I find that the western forms related to *T. helianthi* are at least subspecifically distinct; the differences are indicated in the following table:

***Triepeolus* Robertson.**

- About 10 mm. long, with a delicate median line on clypeus.....1
 Much larger; about 13 mm. long, anterior wing 9.5 mm.; no trace of a line on clypeus; anterior margin of pleura below transverse band hairy; sides of front above with a small punctureless area, but it is not highly polished. (Both sexes, the male the type, at flowers of *Cirsium acaulescens*, Florissant, Colo., July 29. collected by S. A. Rohwer; also a female collected by W. Porter near San Ignacio, New Mexico)...***grandior*** new subspecies.
 1. Anterior margin of pleura below the transverse band without hairs; upper part of front at sides without shining spaces (Illinois)...***helianthi*** Rob.
 Anterior margin of pleura below the transverse band broadly hairy; upper part of front on each side with a smooth polished space.
pacificus new subspecies.

Melissodes grindeliæ Ckll. Females; one at *Grindelia*.

Anthophora montana Cresson. Females; one at *Monarda* (W. P. C.).

Anthophora smithii Cresson. 1 ♂, at *Monarda* (W. P. C.).

Anthidium emarginatum Say. Both sexes at *Phacelia*, abundant (W. P. C.).

Anthidium porteri Ckll. 1 ♀, Aug. 27.

Osmia fulgida Cresson. Females common at *Phacelia* (W. P. C.).

Osmia armaticeps Cresson. One female at *Phacelia*, Aug. 26 (W. P. C.).

Osmia wardiana Ckll. One female at *Phacelia*, Aug. 26 (W. P. C.).

Osmia copelandica Ckll. Four females at *Phacelia*, Aug. 26 (W. P. C.).

Monumetha albifrons Kirby. One female at *Phacelia*, Aug. 26 (W. P. C.).

Bombus juxtus Cresson. Workers at *Phacelia* and *Helianthus lenticularis*.

Bombus bifarius Cresson. Worker at *Heliomeris*, Aug. 26.

On the way to and from Peaceful Valley, we had occasion to spend a few hours at Puzzler, alt. 8,700 feet. The bees caught here were ***Anthidium tenuifloræ*** Ckll., ***Melissodes grindeliæ*** Ckll., ***Megachile relativa*** Cresson, and a few others not yet examined.