

The Canadian Entomologist.

VOL. XX.

LONDON, NOVEMBER, 1888.

No. II.

AN EXTREME CASE OF SEASONAL DIMORPHISM IN COLIAS.

BY T. D. A. COCKERELL, WEST CLIFF, COLORADO.

It was thought strange when it was proved that *Colias kee-waydin* and *C. eurhytheme* were seasonal forms of a single species. Still stranger did it seem when Mr. W. H. Edwards proved by breeding that *C. eriphyle* (alias *Hagenii*) was also a form of *eurhytheme*, but even after this I was not quite prepared for the conclusion, forced upon me by irresistible facts, that in this locality the orange and yellow forms were not only of one species, but actually alternated seasonally, the former being the summer, and the latter the winter form. The locality in question is the eastern slope of the Sangre de Cristo range, in Custer County, Colorado, in the neighborhood of Swift Creek, at altitudes varying from about 7,800 to 8,400 feet. Only two forms of *C. eurhytheme* are found (exclusive of the pale females), and neither of these agrees precisely with those already described, so that ("West American Scientist," 1888, p. 42,) I called the orange one *intermedia*, and the sulphur yellow form *autumnalis*, this last being very close to *C. eriphyle*.

The facts of the case are best shown by extracts from my diary, all bearing upon this locality:—

July 13th, 1887.—Arrived here, found *intermedia* flying abundantly, and so until the middle of August, when I left for a trip to the western slope. No *autumnalis* seen.

October 22nd.—Returned to this locality; a few worn *intermedia* seen, the last of brood.

November 9th.—Caught a ♀ *autumnalis*, the first I had seen.

May 13th, 1888.—Caught a ♀ *autumnalis*—the first of the year. Soon after *autumnalis* became common, but no *intermedia* seen. The first ♂ was caught May 19th. (The ♀'s of both forms of *eurhytheme*, and also of *C. alexandra*, seem to emerge here sooner than the ♂'s.)

June 4th.—The first *intermedia* of the year seen.