of shrubs or thickets of small trees. On 9 July 1980 a single individual was seen nectaring on the yellow-green inflorescence of *Rhus typhina*. On 5 July 1981 at 1400 h, two individuals were seen nectaring on this flower species in a shaded thicket. The day was cloudy and very humid with the air temperature about 29°C. The first individual was observed for over 15 min, moving slowly from one blossom to another before disappearing out of view. The second one was found in another clump of these trees but nectared at the flowers only briefly. The first butterfly seen on 5 July 1981 had initially been found resting on the leaves of *Rhus typhina* with its wings open and flat, very much like a geometrid moth. Later, another individual was also found resting on leaves of these trees in this manner, certainly very uncharacteristic of members of this family.

Other butterflies of interest found in this area include *Parrhasius m-album* (Bdv. & LeConte), *Satyrium liparops* (LeConte), *Harkenclenus titus* (F.), *Atrytonopsis hianna* (Scudder), and *Hesperia metea* Scudder. The latter, however, may have been recently extirpated here.

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THE "WHITE MALE" VARIANT OF COLIAS (PIERIDAE): TWO NEW RECORDS FROM COLORADO

Male *Colias* butterflies with their ground color white or near-white, in contrast to the typical yellow and orange phenotypes, are extremely rare. Such "white males" have been reported in at least seven *Colias* species (see review by Remington, 1954, Adv. Genetics 6:403–450). Wild captured white males are few; they occasionally segregate out of inbred laboratory strains and mass cultures of these pierids. Here I report captures of two more white male *Colias*, one being from a species in which this variant has not previously been recorded.

On 8 July 1977 I collected a white male *C. meadii* Edw. (Fig. 1) at the Mesa Seco, elev. 3590 m, 8 km west of Lake City, Hinsdale County, Colorado. I am not aware of other captures of white males for this *Colias* species. The specimen was initially mistaken for an "alba" female as it flew down a steep grade. *C. meadii* "alba" females are themselves uncommon in Colorado (Remington, 1958, Proc. X Intl. Congr. Entomol. 2:787–805; Ferris, 1972, Bull. Allyn Museum 5:1–23) and have never been captured at Mesa Seco during a decade of mark-recapture studies by Watt's Stanford research group (W. B. Watt, pers. comm.).

I also collected a white male *C. philodice eriphyle* Edw. (Fig. 2) on 3 August 1977 in an alfalfa field near State Route 92, elev. 1645 m, 8 km west of Hotchkiss, Delta County, Colorado. The "alba" phenotype frequency in *C. p. eriphyle* females in some of these agricultural populations is in the neighborhood of 15 percent or less. Here, as in much of North America, positive identification of some white females to species is hampered by the presence of migrant *C. eurytheme* Bdv. (whose "alba" frequencies in western Colorado are generally below 10 percent) and concomitant introgression. Rearings of "alba" females from pure yellow *C. p. eriphyle* (and the reciprocal) taken in fields near Montrose, Colorado, demonstrate that "alba" does occur in pure *C. p. eriphyle* and not just as a result of introgression with *C. eurytheme*.

It should be noted that the coloration of "white male" *Colias* differs significantly from that of their white female counterparts. White males, and some of the white



FIGS. 1, 2. White male *Colias*: 1, specimens of *Colias meadii*; top: normal male; bottom: white male; 2, specimens of *Colias philodice eriphyle*; top: normal male; bottom: white male. Locality data given in text. Color filter used to enhance contrast between white males and normal males.

females, are products of autosomal alleles recessive to others for typical ground coloration (e.g., the genes "whitish" and "blonde," Remington, 1954, Lepid. News 7:139– 145). These characters are not sex-limited, as is "alba," but it is believed that "whitish" and "blonde" females generally pass unnoticed due to their phenotypic similarity to



FIG. 3. Specimens of *Colias alexandra*: Left, male "black-vein" variant; Right, normal male. Locality data given in text. Compare "black-vein" *C. alexandra* to the white male and "black-vein" *C. meadii* in Fig. 1.

the vastly more abundant "alba" females. For recent reviews of the biochemistry and adaptive value of the "alba" variant see Watt (1973, Evolution 27:537–548) and Graham et al. (1980, Proc. Natl. Acad. Sci. USA 77:3615–3619). The selective (if any) and biochemical details of the white male coloration remain unknown.

The new white male *C. meadii* also exhibits a second interesting genetic character, that of "black-vein" (Fig. 1 does not show this character particularly well). A typical and a wild-captured "black-vein" *C. alexandra* Edw., both taken 5 km east of Crested Butte, elev. 8950 m, late June 1977, are shown for comparison (Fig. 3). Ae (1958, Genetics 43:564–576) demonstrated that "black-vein" is almost certainly the product of a single autosomal allele. The white male *C. meadii* is indeed curious, as the viability and/or penetrance of the "black-vein" character appear low (ibid.; Remington, op. cit.). The two white males have been deposited in the entomological collections at the Peabody Museum of Natural History, Yale University.

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ON THE STATUS OF *PSEUDOTHYATIRA EXPULTRIX* (GRT.) AND *EUTHYATIRA PENNSYLVANICA* J. B. SMITH (THYATIRIDAE)

Pseudothyatira cymatophoroides (Guenée, 1852) and P. expultrix (Grote, 1863) were described as distinct species and continued to be regarded as such until about 1917. I am not sure who was responsible for the change, but in the Barnes & McDunnough check list of that year expultrix was treated as a form of *cumatophoroides*. There it remained until 1966, when Werny, in a world revision of a large part of the Thyatiridae, restored it to specific rank (p. 322), citing in support of this some minor genital differences as well as the more obvious differences in wing markings. I have dissections of several specimens of each form and can see no differences in the genitalia. The two "species" always occur together, from Newfoundland to British Columbia, south to northern California, Maryland, West Virginia, Kansas, and in the Appalachians to North Carolina (probably, also the White Mountains, Arizona, but only one example seen, a male of the nominate form from Pinetop, Navajo Co., about 8000 ft, R. B. Nagle collection). I have recently seen both forms from a locality much farther south than previously reported—West Feliciana Parish, Louisiana (V. A. Brou collection). It is, therefore, not surprising that doubts concerning the validity of Werny's taxonomic change should have persisted. I know that these moths have been reared by others, but no conclusive results of such a test have appeared in the literature.

On 31 May 1980 I collected at bait a female of the nominate (well-marked) form (Fig. 1) at Colesville, Montgomery Co., Maryland, and from eggs laid by this moth reared a brood of 37 adult progeny in August and September of the same year. The larvae were reared on *Betula nigra* L., *B. populifolia* Marsh, and *Prunus virginiana* L., as available. Sixteen of the offspring were of the nominate form (Fig. 2), and 21 were of form *expultrix* (Fig. 3), showing conclusively that these are indeed forms of the same species.

The situation with respect to *Euthyatira pudens* (Guenée, 1852) and *E. pennsylvanica* J. B. Smith, 1902 is not so certain. Werny (1966, Untersuchungen über die Systematik der Tribus Thyatirini, Macrothyatirini, Habrosynini und Tetheini (Lepidoptera: Thyatiridae), Inaugural-Dissertation, Universität des Saarlandes, Saarbrücken, Germany, pp. 237, 245) also elevated *pennsylvanica* from the status of an infrasubspecific form to that of a species. The few *pudens* that have been reared from eggs have turned