

NOTES ON *MELITÆA ALMA* STRECKER.

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In a recent number of the CANADIAN ENTOMOLOGIST, Karl R. Coolidge published an article entitled "*Melitæa alma* and Its Synonymy." Since the publication of the above article I have added a considerable number of specimens to that group in my collection, with the intention of verifying Coolidge's classification. I have also received specimens of *M. alma*, *M. fulvia* and *M. cyneas* from Dr. Barnes, which have been compared with the types, and which agree with my own series.

I have *M. alma* from Chiricahua Mts., South Arizona; Santa Catalina Mts., Arizona, and Fort Wingate, N. M.

*M. fulvia* from Fort Wingate, N. M., and Santa Catalina Mts., Ariz.

*M. cyneas* from Chiricahua Mts. and the Huachuca Mts., Ariz.

All my *fulvia* males are constant, and show very little variation. A few of the females show a tendency to the *alma* form, which is also the case in my *cyneas*. There is no doubt in my mind that typical *alma* is a variety which occurs occasionally in both *fulvia* and *cyneas*, more often in the females. I have taken two female *alma* in the Chiricahua Mts. flying with *cyneas* males. Out of a series of twenty *fulvia* from Fort Wingate three of the females approach the *alma* form. Dr. J. McDunnough, with Dr. Barnes, says: "Many of the *fulvia* females show a tendency towards becoming yellow, but most of our males are very constant in this respect." I have not heard of any locality where the *alma* form predominates, but on the other hand there was not one *cyneas* among the *fulvia* from Fort Wingate, and I have never seen a *fulvia* either in the Chiricahua Mts. or Huachuca Mts., where *cyneas* is common.

I believe *fulvia* and *cyneas* bear the same relationship to each other that *leanira* does to *wrighti*, *fulvia* being the more northern form occurring in Colorado, New Mexico and Arizona, while *cyneas* is the more southern form occurring from S. Arizona to S. Mexico. The fact that *alma* occurs in the same localities as both *fulvia* and *cyneas* leads me to think that it was the original form occupying the whole general region, and that owing to geographical surroundings each of the others has become permanent and has gradually taken the place of the parent form, which still is occasionally found among both *fulvia* and *cyneas*, the latter becoming a geographical subspecies. According to priority I should give the following classification:

*Melitæa alma* Strecker.

Sub-sp. " *alma fulvia* Edwards.

" " *alma cyneas* Godman and Salvin.

The accompanying plate shows the three typical forms.

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