INTER-SPECIFIC PAIRING IN LYCÆNIDÆ

by JOHN C. DOWNEY

Only two inter-specific pairings involving North American Lycænidæ are known to me. These are:

Callophrys dumetorum (Bdv.) ♂ × *C. augustinus iroides* (Bdv.) ♀, reported by WRIGHT (1906);

Lycæna thoe Guérin ♂ × *L. phlæas americana* Harris ♀, noted by SICHER (1953).

It was therefore rather surprising to find two unpublished examples of inter-specific pairing in a recent examination of Lycænidæ in eastern museums. These unusual combinations are as follows:

Lycaena cupreus snowi Edw. ♀ × *Chlosyne* c. f. *acastus* (Edw.) ♂ (Nymphalidæ), at the Carnegie Museum;

Plebejus (*Icaricia*) *icarioides* (Bdv.) ♂ × *Plebejus* (*Lycæides*) *melissa* (Edw.) ♀, at the American Museum of Natural History.

Mr. HARRY K. CLENCH called my attention to the first pairing, which specimens were in the W. H. Edwards collection. No locality data accompanied the specimens which were mounted on a single pin, but they were labeled "*in copula*" in EDWARDS' handwriting. The *P. icarioides - melissa* specimens were captured *in copula* in flight at Porcupine Basin, Wind River Range, Sublette Co., Wyoming, August 9, 1953, by Dr. F. H. RINDGE. This pairing is of somewhat more than casual interest for several reasons. NABOKOV (1949) considers his subspecies *Plebejus* (*Lycæides*) *argyrognomon longinus* to be somewhat intermediate between the nominate *argyrognomon* and *P. melissa melissa* (Edw.).

Although both species are sympatric throughout much of their range, only in the Teton Mountains, Wyoming has NABOKOV (*loc. cit.*) noted morphological transitions. He further selected the holotype male of *longinus* from Jackson Hole, Wyoming, even though the specimen was somewhat battered, because of its being taken *in copula* with the allotype "... thus leaving no doubt as to their being conspecific" (*loc. cit.*, p.516). I concur with NABOKOV in this decision and the taxonomic usefulness of mated pairs. In fact, in some Lycænidæ showing marked sexual dimorphism, *i.e. Epitola,* only by catching the species *in copula* can the

sexes be properly associated (see Roche, 1954). Inter-specific coupling seems to be sufficiently rare that this use is justified; however, a degree of caution would seem warranted in certain cases and areas. For instance, although the Wind River specimens above offer meager evidence of "behavioral integradation' for at least one of the species involved (*melissa*), the addition of this notation to NABOKOV's morphological intermediates involving the same species in relatively the same region suggests that mating patterns may not be equally fixed throughout the range of a species. *P. melissa* in western Wyoming may prove to have fewer inter-specific mating barriers than in other geographical areas.

It should be noted that the above "pairings" need not and, in fact, probably would not, result in fertilized eggs. Attempts at inter-specific (and even inter-generic) matings are often noted in other insect groups, for example, the beetles. Within the Lepidoptera, numbers of unusual pairings have been reported in the moths (e. g., Akester, 1956; Demuth, 1956; Fischer, 1949; Owen, 1952), and in the butterflies, cases within the genus *Colias* are well known. WATKINS (1954) has reported a suspected hybrid between the European lycænids *Polyommatus icarus* Rott. and *Lysandra coridon* Poda. WRIGHT (*loc. cit.*) made some attempt to derive data on frequency of "mis-matings" by comparing the number noted versus an estimated total number of pairings observed over a seven year period. His figures indicated 1 out of 70 (*not* 1 out of 140 as given *loc. cit.*, p.22) pairings observed were inter-specific. Although his method was very subjective, together with the rather numerous subsequent reports from the literature, it is suggested that inter-specific coupling in the Lepidoptera is much more common than might be otherwise supposed.

It may be more significant, however, that cross-matings seem, in general, not even to be attempted. Some of the reasons for this may be involved in size, behavioral characteristics, time of flight, time of maximum activity, seasonal cycles, and micro-ecological niches. This information is lacking for most of the Lycænidæ and yet, if as many as seven species, as reported above, occasionally couple with other species, perhaps the answer to inter-specific pairing and the infrequency of its occurrance is within easy reach. It is suggested that lepidopterists, both amateur and professional, can make valuable contributions to this subject by maintaining accurate records of their field observations and publishing them when sufficiently significant.

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Literature Cited

Akester, W. J., 1956. A cross-pairing of *Dilina tiliæ* (L.) ♀ and *Laothoe populi* (L.) ♂ (Sphingidæ). *Ent. gazette* 7: 96.

Demuth, R. P., 1956. An unusual pairing. *Ent. rec. journ. var.* 68: 191-192.

Fischer, W., 1949. Ein neuer Schwärmer-Hybrid. *Celerio hippophaes* ♂ × *Pergesa porcellus* = hybrid *benzi* Fisch. *Ent. Nachrichtenbl.* (Burgdorf) 3: 40.

Nabokov, V., 1949. The nearctic members of the genus *Lycæides Hübner. Bull. museum comp. zool.* 101: 479-541.

Owen, D. F., 1952. An unusual pairing. *Entomologist* 85: 96.

Roche, Patrick, 1954. Revisional notes on the genus *Epitola Westwood. Bull. Brit. mus. nat. hist., entomology* 3: 489-501, pls. 19-22.

Sicher, H., 1953. Interspecific mating. *Lepid. news* 6: 108.

Watkins, N. A., 1954. *Polyommatus icarus* Rott. pairing with *Lysandra coridon* Poda. *Ent. rec. journ. var.* 66: 23.

Wright, W. G., 1906. *Butterflies of the West Coast,* 2nd ed. 255 pp., 32 col. pls. Publ. by author, Los Angeles, Calif.

Dept. of Zoology, Southern Illinois University, Carbondale, Ill., U. S. A.

PARASITINSEKTEN DER BLATTMINIERER EUROPAS. By L. Fulmek. 203 pp. 1962. Publisher: W. Junk, Den Haag, Netherlands. [Bound; price Dutch Guilders 28.00].

The author arrived at the good idea of publishing a book on the insect parasites of leaf miners, as an addition to the monumental work of E. M. Hering *Bestimmungstabellen der Blattminen von Europa* (see review in *Lepid. news* 11: 177-178; 1957). In its main part (145 pages) the new book represents an annotated check list of 680 host species, all of them being leaf miners recorded in Europe. Among them 415 species are Lepidoptera, 213 Diptera, 35 Coleoptera, and 17 Hymenoptera. This comprises about 34% of the entire total of leaf miners (over 2000 species) treated by Hering in his book. The number of host species reviewed by Fulmek in his present book must be recognized as rather high, taking into consideration the fact that insect parasites are known so far in only about 10% of all described insect species.

In the check list the host species are arranged alphabetically, by orders and genera. In each order the lists of hosts are preceded by a summary of the systematic distribution of the genera among the families and concluded by some statistical data on the parasites. The annotations to