ON THE IDENTITY OF CULEX PALLIDOHIRTA.

[Diptera; Culicidæ.]

By Harrison G. Dyar and Frederick Knab.

Grossbeck described *Culex pallidohirta* in 1905 (Can. Ent., xxxvii, 359) from two female specimens bred May 5 from pupæ collected in the Orange Mountains, New Jersey. The supposed species is very unusual in appearance, the whole dorsal region of the abdomen being covered with grayish silvered scales. One of the type specimens is in the U. S. National Museum and has been often examined by us. It is an *Aëdes*, and it would seem as if other specimens should have occurred among the early spring collecting during the last five years if the species were really valid. But none have been found. We have been suspicious of the species for this reason, and also for its freakish appearance, but have been hitherto unable to suggest any plausible explanation. We have, therefore, been obliged unwillingly to list *Aëdes pallidohirta* as a valid species known only by the two type specimens.

Recently, however, light has been thrown upon the matter from a most unexpected quarter. A lot of mosquitoes in alcohol were submitted to us for determination, collected by a correspondent of the U. S. Public Health and Marine Hospital Service in Malaga, Spain. Two species were contained in the sending, which we were enabled to positively identify by the male genitalia as *Culex pipiens* Linn. and *Aëdes calopus* Meig. Of the latter, several specimens were taken from the alcohol and dried, when, to our surprise, three females exhibited the abdomen suffused with dull silvery all over the dorsum, while two males were normally marked. These females possess the peculiar scaling on the clypeus absolutely diagnostic of the species, even when the thoracic markings are lost, but of the lyre-shaped marking there are distinct traces in one specimen, though on a very light ground. The palpi are broadly silver-scaled at the tip; the leg markings are normal; in one specimen the abdomen is silvery gray on the sides, but the lateral spots still show as a brighter silvery; in another there are some black scales laterally, especially around these spots, most numerous on the posterior segments. The identity of the species is, therefore, perfectly obvious in this case, while the conclusion is justified that the silvery suffusion of the abdomen is not a specific character in *Aëdes*. Moreover, it is not even truly varietal, but in the nature of an aberration or a freak.

Applying this conclusion to *Aëdes pallidohirta*, it is easy to recognize in the supposed species merely a freakish specimen

of *Aëdes fuscus* O. S. In fact, we are able to detect in our specimen of *pallidohirta* the white lateral line on the abdomen characteristic of *fuscus*.

It is probable that this silvery scaling may occur on other parts than the abdomen, for instance on the legs, in which case *Aëdes nivitarsis* Coq. will be seen to be only an aberration of *Aëdes canadensis* Theob., as Dr. Ludlow formerly suggested to us.

We are ignorant of the cause of this peculiar variation. It cannot be produced by the fluid in which the specimens were preserved, because the males of *calopus* from Spain, preserved in the same bottle with the females, were not thus affected, and because Mr. Grossbeck's type of *pallidohirta* was not put in fluid. It cannot be due to the specimens having been wet on emergence in the breeding jar, because the specimens from Spain were not bred, but captured, some having blood in their stomachs. It seems doubtful whether the chemical contents of the water is the cause, for while *pallidohirta* and *nivitarsis* both came from pools on the mountains of New Jersey, the aberrant *calopus* could only have bred in water-vats or other artificial receptacles in Malaga, Spain. Moreover, normal examples of *canadensis* were bred from the same pools as the *pallidohirta*, at the same time, as Mr. Grossbeck states, and these should have been similarly affected if the composition of the water were the cause.

We can only suggest the action of cold upon the newly formed pupæ. W. H. Edwards and others have shown that the effect of cold upon the newly formed pupæ of Lepidoptera is to produce a suffusion of the colors, the light colors being extended and enlarged at the expense of the dark ones, as in the peculiar form *calverleyi* of *Papilio asterias*. The similar suffusion of the white abdominal or tarsal bands of the *Aëdes* might produce the peculiar effect noted. That this is a possible explanation is supported by the facts that the *calopus* from Spain were taken in December, while the New Jersey insects were bred from early pupæ in the spring of 1905. The writers have cause to remember the late snows and cold of that spring, which hampered them in their collections of the early mosquito larvæ in Massachusetts and northern New York. That the *Aëdes canadensis* in the same pool were not similarly affected by the cold, as were the *fuscus* into a *pallidohirta* form, may be explained by their having pupated later, after the cold spell. Mr. Grossbeck states that they emerged later than the *pallidohirta*.