

were exposed to cold at from 1 to 9 hours after forming. No. 2 all at from 30 to 60 minutes after forming. No. 3 at from 10 to 30 minutes. But I discovered afterwards, by a label, that in this last lot were three chrysalids which had not been exposed till two days after forming.

The butterflies began to emerge on the seventh day, and by the ninth all had emerged that were alive. Fully one-half of the chrysalids were either dead or had just life enough to allow the bursting of the case without any expansion of the wings; and of the butterflies several were cripples. No doubt this loss and maiming was in part owing to the water in the boxes, but I think more largely to the tender age of the chrysalids when exposed, their surfaces yet unhardened being liable to injury. But the general result was satisfactory.

Of lot 1 (exposure 1 to 9 hours after forming) there emerged 9 perfect butterflies, 5 ♂, 4 ♀, every one changed. The males were what I call var. D of *marcia*, and though varying much in their under surfaces, were all like examples of the over-wintering brood (*marcia*) taken in the Catskills. Of the 4 females, 2 are good examples of var. C, *marcia*, and vary between themselves considerably, as is usual with that variety. But the other 2 are fine examples of "suffusion," the colors on either side blending, and the definite markings characteristic of the species being lost; also the black color of hind margins of upper side is hoary or griseous. These are such examples as collectors prize as the gems of their collections when taken in the field.

Of lot 2 (exposure 30 to 60 minutes) emerged 5 females, no males. Three are very little, if at all changed, but the other two are very pretty examples of suffusion, though to a less degree than the two before mentioned from lot 1, and the running of the colors is mostly restricted to the under side. The black margins on upper side are, however, much broader than in the normal form, running into and absorbing the extra discal round black spots.

Of lot 3 (exposure 10 to 30 minutes after forming, but with three chrysalids two days after) there emerged two females, no males. One of these I cannot distinguish from the summer *tharos*, and I presume this was from one of the three chrysalids spoken of, though of course I have no certainty of it. But the other is a beautiful example of var. B, *marcia*, the under side of the hind wings being largely melanized.

It would appear not to be necessary that cold should be applied before