

prolong the victim's life to its very utmost. The adaptation, of course, always exists, but here we probably see it at its highest level."

This retardation is by no means confined to Braconid parasites, but also occurs with other parasites, and, as Mr. Poulton suggests, in other than hot latitudes. I recall very well some observations which Mr. Schwarz and I made on the larvæ of *Plusia brassicæ* in cabbage fields in Washington in 1881. It was in the autumn, and full-grown larvæ of this insect were rather abundant in the fields. Fifty or more specimens were taken to the laboratory, and showed an almost complete percentage of parasitism by *Copidosoma truncatellum*.

Some of the observations made at that time were recorded by me in the *American Naturalist* for February, 1882, pp. 150-1, and also in the Annual Report of the Department of Agriculture for 1883, p. 121. I believed then, and I think Mr. Schwarz concurred (although neither of us ever published the statement), that this practically complete percentage of parasitism was not necessarily indicative of the whole percentage for the season, but indicated that the parasitized larvæ remained longer in the field, and without ocular evidence of parasitism for a considerable time after the unparasitized individuals had spun up and transformed to chrysalids.

In fact, it frequently occurs with lepidopterous larvæ, and, of course, with other insects as well, that parasitized individuals grow more slowly than the rest, and often may be identified by their smaller size. Many, as we know, are destroyed before reaching full growth by certain parasites, but many others reach the full larval size and linger on, sluggish it may be, but apparently unharmed for a considerable time after their unstung mates have crawled away and hidden themselves for transformation, or even perhaps, in case of multiple-brooded species, until individuals of a succeeding generation have approximated their stage of growth.

The practical feature of all this in work with parasites comes from the fact that we must take this retardation strictly into consideration in estimating percentages of parasitism. Should larvæ in considerable number be collected at the end of the season and kept for rearing purposes, it appears that through this retardation of parasitized individuals it may easily happen that an apparently almost complete percentage of parasitism will be observed which will by no means indicate the true percentage with the generation as a whole.