the tubercles are primary, not recently developed structures. Automeris and Hemileuca must have separately acquired stinging spines and not from "an initiatory existence in a common ancestor," as Mr. Grote puts it, because there is no such condition in Aglia or Citheronia, which are placed between them, nor any evidence that these genera are derived from wart-bearing ancestors, a condition necessary for the multiple spine formation. I regard these conditions as very improbable.

If my larval tree is correct, Aglia has remained more nearly in the primitive condition in regard to vein IV_2 in that this vein is only slightly moved toward IV_1. Yet, it is somewhat moved, which weakens Mr. Grote's point (see the fig. Die Sat., p. 19, fig. 8). Hemileuca has followed out the same process separately; derived from a common stem with Automeris, vein IV_2 has moved close to IV_1 separately from the Attacus branch. Hemileuca is separately specialized in this respect.

Some collateral evidence may help to a conclusion. If these moths be separated on the position of the wings in rest, the wings folded over the back in the shape of a roof or with the upper faces together (as in butterflies) a tree results like the larval one. In the hind wings there are two anal veins in Hemileuca and Citheronia, the rest have one. A tree constructed on these characters (which I believe to be as good as the one selected by Mr. Grote) would be different from either. To reconcile it with my tree, it must be supposed that the left-hand branch had lost one anal vein, while Automeris on the right branch also lost it, but separately. To reconcile it with Mr. Grote's tree, three separate losses of anal vein must be supposed, viz., in Automeris, Aglia, and Attacus-Saturnia. My view is here the simpler.

As to the pectinations of the antennæ in the male, those of Hemileuca only have simple branches; in the female only Attacus-Saturnia have them double. Mr. Grote may suppose that the original ancestor had single pectinations in both sexes, retained in Hemileuca; the right branch acquired double pectinations in the male, while Attacus-Saturnia separately acquired them in both sexes, which seems improbable.

In my larval tree the ancestor must have already possessed double pectinations in the male, which became transferred to the female also in Attacus-Saturnia, but were lost by degeneration in the male of Hemileuca. It is true that this supposition can also be applied to Mr. Grote's tree, so that we are not greatly benefited by the consideration. Other characters will have to be compared; but this I will leave to Mr. Grote, with the