CALLOSAMIA ANGULIFERA.

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Through the great kindness of a friend, I have received cocoons of *Callosamia angulifera*. These are stemless, and at once distinguishable from those of *C. promethea*. This character bears out the theory (see CAN. ENT. for April, p. 94) that *C. angulifera* is the older, more generalized form in the genus. In my work on the Saturnians, June, 1896, I tried to show that the stemmed cocoons of *Philosamia*, *Attacus* and *C. promethea* were specializations and a more modern development, and gave probable reasons for the acquirement of the habit of fixing the cocoon to the branches, so that it might not fall with the leaf in the autumn (l. c., pp. 15–16; also Plate I.). I have shown that, in a general way, the specialization of the Attacid cocoon keeps pace with the specialization of the imago in the whole group. But these specializations do not move exactly together, and the independence of the different stages in this respect is decidedly indicated. In the case of *C. promethea*, the male has evidently more recently become black, while the cocoon has added the stem wanting in the supposed primitive form: *C. angulifera*. But *Samia* shows no disposition in this direction, and yet the imago must be considered more specialized as compared with *Callosamia*. The specializations are unequal throughout, not only as between the different stages of larva, chrysalis and perfect insect, but development is hastened or retarded in different parts or organs in the same stage. Until this is appreciated, judgment will constantly be at fault in classifying these insects. The characters upon which genera are founded are those of comparative specialization.

In the passage of *Samia* to *Rothschildia*, the tendency to form a stem to the cocoon becomes apparent, evidently controlled by the nature of the food-plant. I have suggested (l. c) that this habit of fixing the cocoon to the tree by an artificial stem spun round the leaf and fastened to the twig above, is correlated with the increase of the wings in surface dimension. My studies on the species of *Samia* are not concluded. So far it appears not improbable that the Eastern forms, *Columbia*, *Gloveri*, *Cecropia*, are developments of the Western *Californica (Ceanothi)*.