

afterwards disengages and casts off the skin which had served it for a ladder.* I am tempted to give one other analogous case, that of the caterpillar of a Butterfly (*Thekla*), which feeds within the pomegranate, but when full fed gnaws its way out (thus making the exit of the butterfly possible before its wings are fully expanded), and then attaches with silk threads the point to the branch of the tree, that it may not fall before the metamorphosis is complete. Hence, as in so many other cases, the larva works on this occasion for the safety of the pupa and of the mature insect. Our astonishment at this manœuvre is lessened in a very slight degree when we hear that several caterpillars attach more or less perfectly with silken threads leaves to the stems for their own safety; and that another caterpillar, before changing into a pupa, bends the edges of a leaf together, coats one surface with a silk web, and attaches this web to the footstalk and branch of the tree; the leaf afterwards becomes brittle and separates, leaving the silken cocoon attached to the footstalk and branch; in this case the process differs but little from the ordinary formation of a cocoon and its attachment to any object.†

A really far greater difficulty is offered by those cases in which the instincts of a species differ greatly from those of its related forms. This is the case with the above mentioned *Thekla* of the pomegranate; and no doubt many instances could be collected. But we should never forget what a small proportion the living must bear to the extinct amongst insects, the several orders of which have so long existed on this earth. Moreover, just in the same way as with corporeal structures, I have been surprised how often when I thought I had got a case of a perfectly isolated instinct, I found on further enquiry at least some traces of a graduated series.

I have not rarely felt that small and trifling instincts were a greater difficulty on our theory than those which have so justly excited the wonder of mankind; for an instinct, if really of no considerable importance in the struggle for life, could not be modified or formed through natural selection. Perhaps as striking an instance as can be given is that of the worker of the Hive-bee arranged in files and ventilating, by a peculiar movement of their wings, the

* Kirby and Spence, *Entomology*, vol. iii, pp. 208-11.

† J. O. Westwood in *Trans. Entomol. Soc.*, vol. ii, p. 1.