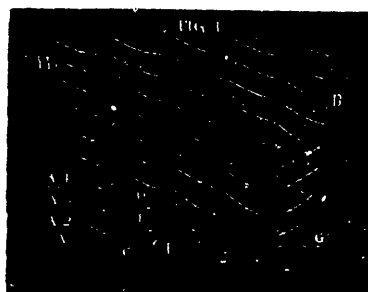


after its first moult ; then leaves it, and feeds externally for about two days, usually on the under side of the leaf, but occasionally also on the upper side. There it spins beside a rib a thin sheet of white silk, beneath which it spins a cocoonet, in which it again assumes the horse-shoe shape, and passes in about a day to second moult. Emerging from its cocoonet, it continues to feed externally for three days, when either on the plant or near to it, it spins its ribbed cocoon, in which it passes the pupa state. I have not observed accurately the length of this stage ; in August it is about a week. The mature larva is about three lines long.

I have frequently been puzzled to understand how the larva could spin this singular cocoon, but I have now fortunately been enabled to watch it at work under the microscope. The cocoon shows six longitudinal ribs or ridges, with depressions like valleys between them. Each rib consists of four threads, and is four times as thick as the depressions ; the threads of the ribs are longitudinal and rigid, those of the valleys run obliquely transverse, and each is permitted to droop or sag down, and they are spun

first from right to left, then from left to right, crossing each other at a somewhat acute angle, the one set being kept always about four threads in advance of the other, the finished portion of the cocoon showing the two threads crossing each other, while the unfinished shows only two threads without any thread crossing them, as shown in fig. 1 at *a* finished, at *b* unfinished, portion of the cocoon.



But properly speaking, this is no part of the cocoon, but only a reticulated frame or net-work, within and attached to which the true cocoon is spun. The whole net-work is a continuous thread, with no break ; each transverse thread continues entirely across the cocoon, but the ribs are not continuous threads the length of the cocoon ; each rib is made by a multitudinous succession of movements forward and back again, each movement only the length of the space between two transverse threads. Whenever in the transverse movement of the head, the apex of the spinneret touches a rib, it is moved forward and back again. Thus, the larva (having laid the floor or foundation of its reticulated frame-work by spinning its web somewhat densely over the portion of the leaf that is to