

large family is reared, in which eggs, larvæ of all stages of development, pupæ, and young and old adults are found crowded promiscuously in leaf-like brood-chambers, which are continually broadened or extended by the adults and possibly by the larvæ, to make room for the increase. It appears that the brood-chambers are broadened and extended by the adults, and that the borings, mixed with the fungus, are softened and furnish additional food for the larvæ and young beetles.'

Mr. Hubbard records the discovery of a death chamber, or a kind of catacomb, in which the dead mother beetles and other dead friends or foes of a large colony are consigned by the survivors. In some fresh specimens of galleries before me (Plate 3, fig. 2 b b), I find the same thing, but it appears that in addition to a resting place for the dead, it is also utilized for the disposal of all objectional and refuse matter, which, owing to the crowded condition of the chamber, cannot be conveniently expelled from the entrance. One of the males found in this set of chambers was excavating a burrow in the mass of material in the death or garbage chamber. Whether he was excavating his own tomb, or simply providing bachelor quarters, I cannot say.

The proportion of males in this, as in all other species of the genus *Xyleborus*, is remarkably small. There are usually not more than three males in the largest colonies, or groups of brood-chambers. It would appear from observations made by Swiner and Eichhoff in Germany, and the numerous colonies I have examined in this country, that there is, on an average, about one male to twenty females. The males have no wings, therefore probably do not leave the brood-chambers, but remain with the over-wintering colony until all have emerged in the spring. They are then left to be smothered in overabundant ambrosial food, or to the tender mercies of predatory insect enemies which had previously been prevented from entering the brood-chambers by one or more female sentinels at the entrance. A few females may emerge from time to time during the summer to start new colonies, but from the excessively crowded condition of the brood-chambers during the fall and winter months, it

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1. NOTE.—In a brood-chamber before me just cut from a near-by apple tree, I find a pupa minus an abdomen. No predaceous enemies can be found, but two or three half-grown larvæ are in such a position as to make the circumstantial evidence quite plain that they are to blame for the mutilation. The remaining portion of the pupa is in a normal condition, which would indicate that the attack had been recent and when the victim was alive. This would also indicate that the helpless pupa may furnish food for the larva in case of a scarcity of ambrosia, or that they may be thus disposed of to prevent an overcrowded brood-chamber.