

the body and with the ovipositor extended to its fullest length. Pairing generally takes place and eggs are laid within 24 hours. An anatomical examination (by Prof. H. Landois) showed the number of eggs in a single female to be 678. Of four separate females which I have enclosed immediately after pairing, the number of eggs laid has in each instance been a little under 300; but this does not necessarily disprove the above statement.

The eggs are beautiful objects; under the microscope they are about $\frac{1}{10}$ of an inch in length, about half as wide as long, of an oblong form with rounded ends and having the surface marked with rather large star-shaped prominences, the radiating lines or wrinkles of which are waved. The eggs are greenish white when first laid, $\frac{1}{10}$ of an inch in length, oblong or slightly kidney shaped with rounded ends, and are deposited singly or sometimes in strings of from three to fourteen, connected by their ends. Mr. Sidney Klein found that "the eggs appeared to be laid on the top of the sacks, and hatched within a few days. The larvæ burrowed through the sacking, spinning long galleries through the flour, generally not penetrating to a greater depth than three inches." (*Insect Life*, vol. ii, p. 170). This may be the case or the eggs may be pushed in between the meshes or into crevices of woodwork where flour has lodged; the ovipositor of the female is so long and slender that this would be quite possible. In the breeding jars the eggs were laid indiscriminately all over the surface of the glass and grain placed in the bottom; but in one jar, the neck of which was closed with a plug of cotton wool, a large mass of eggs was found, pushed into the cotton, over a quarter of an inch from the surface, where they had been laid by the females. Three lots of eggs laid in October and November and kept inside my study hatched in 19 days, this period would probably be rather shorter in summer-time.

The caterpillars are very slender active little creatures, rather under $\frac{1}{10}$ of an inch in length when first hatched, of a pinkish-brown colour with dark heads, and they are covered with long slender hairs. After leaving the egg-shell which they seldom eat, as many caterpillars do, they wander about quickly looking for food. From the very first they have the habit, which when they are larger constitutes one of their most injurious characters, of spinning silken threads wherever they go. They not only eat a certain quantity of flour but render a much larger quantity useless by the copious silken threads and tunnels which they spin through their food at all stages of their larval growth. A tin box $3\frac{1}{2}$ inches high by 2 inches in diameter, filled with Indian corn meal as food for about 30 nearly full-grown larvæ, in about a month had the contents so permeated and matted with their webs that the whole of the meal could be raised in one thick felted mass. When the caterpillars get into the complicated machinery, which is used for bolting and cleaning flour, their chief injury arises from these webs which they spin all over the surfaces, but also from their eating holes into the gauze through which the flour is sifted. When full-grown, if possible, they leave their food and crawl to some corner where they spin a close cocoon of silk into which they also weave particles of flour or dust. Some of the caterpillars which I have had in my study since September have remained as caterpillars in a semi-torpid state for four months; but most of them have changed to chrysalises and moths. From the fact, however, that some remained torpid in my room which was kept constantly at about 65 degrees of heat, I believe that under ordinary circumstances many would hibernate as caterpillars. Miss Ormerod thinks that where there is warmth as in a mill that there is no definite succession of broods; but that the pest is present constantly in all stages. In Rep. xii, p. 69, she writes: "The attack may be considered as going on constantly where temperature is suitable, for we have notes of appearance of the moths in May, June, July, November and December; and intermediate observations of larval or pupal presence point to