

NOTE ON FLOUR AND GRAIN BEETLES.

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Among the insects which prove unwelcome visitors or dwellers in our houses are species of beetles which are almost universally distributed over the world, and which cause, sometimes, immense loss through their attacks on stored grain, or on its products. It is not my intention this evening to give any extended history of these obnoxious insects, but merely to mention the principal ones which occur here, and to call attention to the longevity of one species. The grub which is so frequently found in flour and meal is the larva of *Tenebrio molitor*, a beetle belonging to the Tenebrionidae, several members of which occur in, or about, houses, and are known as "black beetles." The insect, in its several stages, is more abundant about bakeries, mills and flour-ware-houses, than in ordinary dwellings, and is also destructive on shipboard. The grub is cylindrical in shape and about an inch long, burrowing and living in the flour. The beetle is of a blackish-brown colour, of moderate size, flying abundantly at night, and coming in at open windows. The grain beetles are very much smaller and belong to the Calandridae, a family of the Rhyncophora or "snout beetles." They especially frequent granaries and flour mills, and in the former sometimes work great damage. Two species occur here, viz.: *Calandra oryze* and *C. granaria*, but not so far as I am aware in sufficient abundance to be very destructive, as they are in more southerly portions of the continent. The life history of these weevils is briefly as follows: The females bore with her long beak a minute hole in a grain of wheat, barley or rice, &c., in which she deposits an egg, from which hatches a little stout footless grub, or maggot, which burrows into the grain, feeding until fully grown on its substance, and then undergoing its transformations in the empty shell, which is all that remains when it comes forth as the perfect beetle. The mature insects, or beetles, also feed upon the grain, but do not so rapidly consume it. As you are aware, the duration of the life of the majority of insects is very brief, especially after they have reached the imago, or perfect state. Larvæ may live for several months, or even years, but their final transformations undergone they enter a brief existence, measured by weeks, days, or even hours.

Certain species, however, such as some bees and wasps live for almost a year, while some ants are said to live for several years. The specimens of *Calandra granaria* which I exhibit this evening are, when the average longevity of insects is considered, genuine patriarchs; their days have been long in the land. They were given to me on 4th July, 1885, by Mr. Litchford, who found a great number of them in a flour