

existence of these animals is extended to four years, and as their food is not accessible during the cold weather, they bury themselves sufficiently deep in the soil to be safe from the frost, and pass the winter in a state of torpidity. When the spring restores them to animation and activity, they revisit the upper stratum of the ground, having at each annual awakening undergone a change of skin. At the end of three years they have acquired their full growth as larvæ. —they then cease eating, and void the residue of their food. If opened at this period, the skin is found to be completely filled with a mass of white, oily matter, resembling cream, apparently destined as a reserve for the alimentation of the insect during the period of its remaining in the form of a nymph, which is scarcely less than six months. To undergo their final change, these larvæ bore into the earth to the depth of two feet or more; there, by its motions from side to side, each grub forms an oval cavity which is lined with some glutinous substance thrown from its mouth. The larva being thus secured, passes into the pupa state by bursting its skin, coming forth as a soft whitish nymph, exhibiting the rudiments of elytra, antennæ, &c. The insect then gradually acquires consistence and colour, becoming of a brownish hue, and thus it remains until the month of February, when the thin fibre enclosing the body is rent, and three months afterwards the perfected beetle digs its way to the surface, escaping from its grovelling mode of life, to soar through the air and disporting in sunshine and shade. From this circumstance the German name *Maikaefer*, and the English *May bug* or *beetle* has been given. From Kirby and Spence we learn that the larvæ of the cockchafer will destroy whole acres of grass. They undermine the richest meadows and so loosen the turf, that it will roll up as if cut with a turfing spade.\* These grubs did so much injury to a poor farmer near Norwich, that the court of that city allowed him £25, and the man and his servant declared that they had gathered eighty bushels of the beetle. It was for the destruction of these grubs that the Government of France and the Society of Arts in London offered the premiums as mentioned above in the introduction to this essay. Attempts have been made to turn these insects to good account, by procuring oil from them. M. Breard, Mayor of Honfleur in France, and proprietor of an oil mill, having offered one franc per bushel for cockchafers, procured seventeen bushels, from which he obtained twenty-eight quarts of good lamp oil. A kind of grease has also been made from them in Hungary.†

In their winged state, these beetles, with several other species, act as conspicuous a part in injuring the trees, as the larvæ do in the destruction of herbage, young wheat, and other plants; after escaping from the ground in their perfect state, they pass the greater part of the day upon trees, clinging to the underside of the leaves, in a state of repose. As soon as evening approaches, they begin to buzz among the branches, and continue on the wing till near midnight. Their flight is very irregular, darting hither and thither, hitting against objects in their way with a force that often causes them to fall against the ground. They frequently enter houses at night, attracted by the lights. The boldness with which they will rush against objects, seeming to threaten an attack without the power of causing harm, has caused them to be called *dors*, that is darers; while their seeming blindness and stupidity have become proverbial in the expressions "blind as a beetle," and beetle headed. The ravages they commit amongst the leaves of trees and shrubs is sometimes so great as to resemble a visitation of locusts, and is the cause of much misery to the inhabitants of those districts infested by them. Mouffet relates that in the year 1574, such a number of them fell into the river Severn, as to stop the wheels of the water mills; and in the Philosophical Transactions, it is stated that in the

\*Kirby and Spence. †Ibid.