

account of the mixture of substances forming the pit. By making a recess on the side of the pit, outside of the enclosure wall and lower than the ground on which the pit rests, and placing a narrow vessel, or even a cask with one end knocked out, in this recess, you can obtain a lot of larvæ without mixture with anything. You can understand that there must be an opening in the enclosure wall furnished with a pipe for the passage of larvæ on a level with the ground of the pit. When the larvæ are fully developed, and are about to be metamorphosed into chrysalides, they escape by this opening and fall into the vessel placed there for their reception. This method has the advantage of making it possible to ration the hens, and nothing is easier than to mark a scale on each vessel to indicate the weight of larvæ necessary for each distribution. A number of these vessels can be placed around the pit.

*Distribution of Larvæ.*—The larvæ should be distributed on hard ground, because on loose soil many of them would make their escape. A weight of 2 ozs. 1.863 drachms to 2 ozs. 13 151 drachms of larvæ per day, according to the breed and size of the hens, is sufficient to well feed a fowl for twenty-four hours. A greater amount, though favorable for fattening, would injure laying; and with less the hen would need some additional food, not for nourishment, but to ballast its stomach.

#### OTHER KINDS OF PITS.

Brewery grains can be employed for making worm pits. This fresh residue, yet charged with moisture, soon begins to ferment, and before long the surface is covered with small fly larvæ; these last lot only go away from it when the fecula is exhausted. The mass then becomes dry and spongy. Perhaps, also, other kinds of straw than those we have mentioned might be employed for worm pits with success, but we have not sufficient information to express an opinion in this matter. We do know, however, that the refuse of starch works, and wheat and barley bran, damaged flour and grain, potato fecula, can be employed for their construction. In summer the limbs or pieces of dead animals suspended on trees quickly become filled with larvæ, which fall off when the time for their metamorphosis into chrysalides has arrived. It is worthy of note that fly larvæ are so much to the taste of hens that the latter present themselves at meal times and patiently mount guard under the trees to catch the worms which fall from the hanging meat. The larvæ which fall at night are lost.

*Enemies of Worm Pits.*—Fly larvæ obtained for hens' food have a formidable enemy, which destroys many of them for its food. This destruction of larvæ would cause great

loss were this enemy not known and killed. It is the *Silpha atrata*, a species of carrion beetle. This insect, of average size, discharged from the anus when caught a foetid liquid which it probably employs for its defence, and perhaps also for decomposing dead bodies, on which it feeds like its larvæ. Its length is 0.236 inch, and its width 0.157 inch. The body is black and granular, the corselet punctuated and brilliant. It has three raised ribs contracted on each elytrium, and the antennæ are small. The larvæ of this insect are flat, black, and composed of twelve segments, and are wingless. These larvæ are very nimble; they bury themselves in the ground to be metamorphosed into perfect insects. The larvæ and perfect insect live not merely on animal substances in a state of decomposition, such as employed for the pits, but both greedily attack fly larvæ and destroy large numbers. We even think that the odour they diffuse by the anus drives away carnivorous flies which come to deposit their eggs in the worm pits. This *Silpha* attacks and devours its own larvæ when deprived of other food.

Another variety of *Silpha* is mentioned by naturalists as attacking and destroying caterpillars or larvæ of the butterfly found on young oak leaves. Our *Silpha* resembles this last in its tastes, if not of the same variety. We have not yet invented a method for arresting these destructive insects in their invasion of worm pits; but their ravages are greatly limited by killing them as soon as they appear, because they remain at the surface, and penetrate very little into the thickness of the substances arranged as we described.

*Products of Pits.*—We found the expense for constructing a pit of the afore-mentioned dimensions to be 12s.; but from this 1s. 3d., the annual interest, is to be deducted. We may, however, leave this small sum for extraordinary expenses.

I.—*Expenditure.*—This pit produces an average of 1 quarter 3.005 bushels of larvæ; 2.751 bushels of larvæ weigh, without mixture of foreign substances, 1 cwt. 1 qr. 14.323 lbs., which we considered equal to the best grain in nutritive value. In order to establish a clear comparison we shall merely estimate the value as equal to the same weight of buckwheat, viz., the sum of 4s. 10d. per 1 cwt. 1 qr. 14.323 lbs. 12s.

II.—*Product of Larvæ.*—The annual cost of a hen fed on larvæ would thus only amount to 9d. A flock of 3000 hens thus fed would cost annually the sum of £112 1s.; maintenance expenses, £93 7s.; total expenditure, £206. The annual product being £570, the net annual profit would be £364. At 5d. per dozen eggs it would be £501 18s. 4d., and at 6d. per dozen £609 18s. 4d.

*Remarks.*—In summer a pit of the dimensions indicated