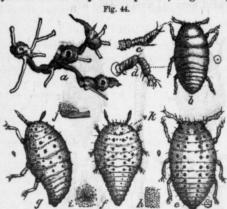
"TYPE RADICICOLA OR ROOT-INHABITING.—We have seen that, in all probability, gallacola exists only in the apterous, shagreened, non-tubercled, fecund female from. Radici-



bright yellow

ng, the eggs

ale yellow is

n the course

over the vine,

in the downy

nd appropriat--consisting of

scarcely to be

ichyma of the

surious change

growth being

er side bulges

on the upper

ind the louse,

t as it recedes

pening cavity. vded that two

om the premaher cause, the being comckened down pansion of the

c) to tell the

herwise, in a nd the inheld

its way into

rowing apace,

ernity by the

as her immee egg follows

ivels, and the

the summer

hich soon be-

s about 200 ; be relied on,

en supposing

e figures, the

y frequently and tender h resembling

lly, however,

ine ceases its

itable leaves,

d, and those

n and decay.

is hibernate,

Indeed, too

an agamie

sential to the damage. It

fera, riparia, d cordifolia;

the Clinton

3 (radicicola)

known there

with long,

cola, however, presents itself in two principal forms. The newly-hatched larvæ of this type are undistinguishable, in all essential characters, from those hatched in the galls, but in due time they shed the smooth larval skin, and acquire raised warts or tubercles; which at once distinguish them from gallæcola. In the development from this point the two forms are separable with sufficient ease: one (A) of a more dingy greenish yellow, with more swollen fore-body, and more tapering abdomen; the other (B) of a brighter yellow, with the lateral outline more perfectly oval, and with the abdomen more truncated at tip." *

"The first or mother form (Fig. 44, f, g,) is the analogue of gallecola, as it never ac-Type Radiciolla.—a, roots of Clinton vine, showing relation quires wings, and is occupied, from adoof swellings to leaf-galls, and power of resisting decomposition; lescence till death, with the laying of eggs,
b, larva as it appears when hibernating; c, d, antenna and leg of
same; e, f, g, forms of more mature lice; h, granulations of skin; which are less numerous and somewhat larger
i, tubercle: j, transverse folds at borders of joints; k, simple eyes, than those found in the galls. I have counted
in the spring as many as two hypothesis.

in the spring as many as two hundred and sixty-five eggs in a cluster, and all evidently from one mother, who was yet very plump and still occupied in laying. As a rule, however, they are less numerous. With pregnancy this form becomes quite tumid and more or less pyriform, and is content to remain with scarcely any motion in the more secluded parts of the roots, such as the creases, sutures and depressions, which the knots afford. The skin is distinctly shagreened (Fig. 44, h,) as in gallecola. The warts, though usually quite visible with a good lens, are at other times more or less obsolete, especially on the abdomen. The eyes, which were quite perfect in the larva, become more simple with each moult, until they consist, as in gallecola, of but triple eyelets (Fig. 44, k,) and, in the general structure, this form becomes more degraded with maturity, wherein is bows the affinity of the species to the Coccidae, the females of which, as they mature, generally lose all trace of the members they possessed when born."

"The second or more oval form (Fig. 44, e,) is destined to become winged. Its tubercles when once acquired, are always conspicuous; it is more active than the other, and its eyes increase rather than diminish in complexity with age. From the time it is one-third grown the little dusky wing-pads may be discovered, though less conspicuously than in the pupa state, which is soon after assumed. The pupse (Fig. 45, e, f,) are still more active, and after feeding a short time, they make their way to the light of day, crawl over the ground and over the vines, and finally shed their last skin and assume the winged state. In their last moult the tubercled skin splits on the back, and is soon worked off, the body in the winged insect having neither tubercles nor granulations."

"The winged insects are most abundant in August and September, but may be found as early as the first of July, and until the vines cease growing in the fall. The majority of them are females, with the abdomen large and more or less elongate. From two to five eggs may invariably be found in the abdomen of these, and are easily seen when the insect is held up

to the light, or mounted in balsam or glycerine."

"As fall advances the winged individuals become more and more scarce, and as winter sets in only eggs, newly-hatched larvæ, and a few apterous egg-bearing mothers, are seen. These last die and disappear during the winter, which is mostly passed in the larva state, with here and there a few eggs. The larvæ thus hibernating (Fig. 44, b) become dingy, with the body and limbs more shagreened and the claws less perfect than when first hatched; and, of thousands examined, all bear the same appearance, and all are furnished with strong

^{* &}quot;It is not to be understood, in making these distinctions, that these differences of form are so constant that they can always be relied on; for the form of the body varies, so that the wingless mother may present the more perfect oval of that destined to become winged."