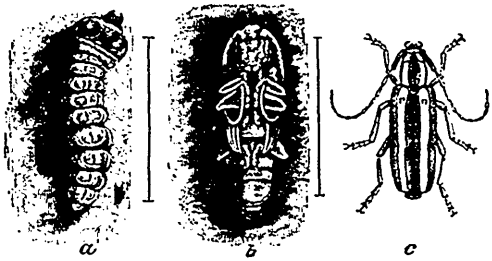
with one gallon of boiling water, and while still hot add two gallons of kerosene. This may be used diluted as wanted with ten parts of water, and sprayed over the whole trees about the first week in June, when the young lice are first hatched out. Some are afraid to use kerosene for fear it will destroy the bark of the trees, but diluted as above described there is not the slightest danger. To test the danger of its use, we applied clear kerosene with a brush to some trees affected with bark lice, giving one application to one tree,



a *b* *c*

FIG. 46.

and three to another, in the month of June. The former tree was not injured in the least, while the bark of the latter was destroyed in several places. From this it is evident that when diluted no injury need be feared.

THE BORER is much more troublesome in our orchards than we like to admit. We find that where trees are situated on unfavorable soil, or are for any other reason somewhat stunted in growth, the borer is especially destructive, and treatment should not be neglected. A good preventive is made as follows: One pint crude carbolic acid, one quart soft soap and two gallons hot water. Thoroughly mix and apply with a cloth to trunk and large branches, two weeks after blossoms fall, and again three weeks later. Another, recommended by Prof. Saunders, is simply soft soap reduced to the consistency of a thick paint by the addition of a thick solution of washing soda in water. Apply in the morning of a warm day, and it will soon dry, and not be easily dissolved by the rains. The treatment should be given early in June, and again during the early part of July.

There are two kinds of apple tree borers—the round-headed, and the flat-headed, the latter of which we described in vol. xi., p. 147. The former is known scientifically as *Saperda Candida*, and was first noticed as destructive to our apple orchards in the vicinity of Albany, New York State, in the year 1825. Our readers may be able to recognize the full grown beetle from fig. 46-*c*, which is about three quarters of an inch long, and pale brown on the back, with cream-colored stripes. While the flat-headed borer deposits its eggs very often on the upper side of the large branches, this one chooses only the trunk, near the surface of the ground, and usually upon the south or south-west side. These are laid singly during those months, and hatch out within a fortnight into a whitish larva, with a chestnut brown head, with black jaws about an inch in length, and without feet (see fig. 46-*a*.) In this destructive stage it remains about three years, the first just beneath the bark, and later excavating through woody portions of the tree until ready to transform into a chrysalis (see fig. 46-*b*), and two or three weeks later into a perfect insect.