

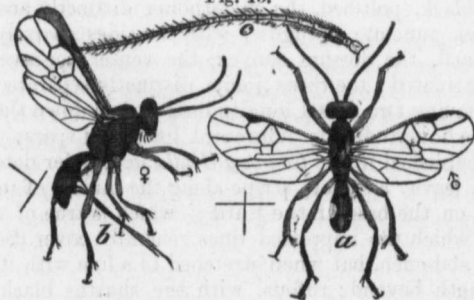
"To be brief, Dr. Fitch's *Sigalphus* is a true parasite on the plum curculio and I have bred hundreds of the flies from curculio larvæ. The first bred specimens gave me much pleasure, for as soon as I saw they belonged to the same genus as Dr. Fitch's fly, I felt assured that another disputed question was settled, but to make assurance doubly sure, I repeatedly half filled large jars with pure earth, finely sifted so that no living animal remained in it. Into these jars I placed curculio larvæ from day to day as they issued from peaches that were thrown into another vessel, and in due time the parasitic flies began to issue from the ground along with the perfect curculios. Nay, more than this, I soon learned to distinguish such curculio larvæ as were parasitised, and after they had worried themselves under the ground—seldom more than half an inch—I would uncover them, and on several occasions had the satisfaction of watching the gnawing worm within reduce

Fig. 14.



its victim until finally nothing was left of him. As soon as the curculio larva is destroyed by the parasite, the latter (Fig. 14 a) encloses itself in a tough little yellowish cocoon of silk (Fig. 14 b.) then gradually assumes the pupa state (Fig. 14 c.) and at the end of about the same length of time that the curculio require to undergo its transformations and issue as a beetle, this, its deadly foe, gnaws a hole through its cocoon and issues to the light of day as a black four winged fly (Fig. 15 a, male; b, female). In the vicinity of St. Louis, this fly was so common the past season that after

Fig. 15.



very careful estimates, I am satisfied three-fourths of all the more early developed curculio larvæ were destroyed by it. On the 17th and 18th of April, in that locality a severe frost killed the peach buds on all but a few of the young and most vigorous trees of Hale's Early and Crawford, so that instead of a large and abundant crop of peaches to depredate on, the little Turk had to concentrate his attacks on the few peaches that were left; and no one expected any fruit would be saved. Yet, the work of this little parasite was so effectual that, where-

ever fruit set, a fair crop was gathered even by those who made no effort at all to protect their trees.

"While visiting Dr. Fitch last August, at his house in Salem, N. Y., I compared my bred specimens with his species, and found them identically the same; but a full description will be found below, and it is not necessary at present to dwell upon its characters.

"As Mr. Walsh bred this same parasite from the larva of his little plum-moth, it doubtless attacks other soft-bodied insects, and does not confine itself to the plum curculio. This is the more likely as it would scarcely pass the winter in the fly state. The female, with that wonderful instinct which is exhibited in such a surpassing degree in the insect world, knows as well as we, great lords of creation, what the little crescent mark upon the peach or plum indicates; and can doubtless tell with more surety, though she has never received a lesson from her parents, whether or not a curculio larva is drilling its way through the fruit. When she has once ascertained the presence of such a larva by the aid of her antennæ, which she deftly applies to different parts of the fruit, and which doubtless possess some occult and delicate sense of perception, which, with our comparatively dull senses, we are unable to comprehend—then she pierces the fruit, and with unerring precision deposits a single egg in her victim by means of her ovipositor.

"Now there is, as I shall shew in the description, a variety (*rufus*) of this parasite, with the ovipositor nearly one-fifth of an inch in length; but in the normal form the ovipositor is only twelve-hundredths of an inch long, and the curculio larva must be reached soon after it hatches, or while yet very young. Consequently we find that the earliest curculio larvæ or those which hatch while the fruit is yet small, are the most subject to be parasitised, and while from larvæ obtained early in the season, I bred more parasites