

Bees and Pollination of Blossoms.

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(Concluded.)

It is a curious and suggestive fact that all of the four covered blossoms that I actually saw the bees visit while uncovered and under observation, have up to this date large, fine plums. The apricot tree is a curious exception. The number of blossoms on each twig, under experiment was 32. The twig covered all the time of bloom showed last Friday, ten fine apricots. The one where I put the bees inside the sack, six; and the uncovered only five. Here the cover would seem to have been an advantage, but we can hardly see how this could be true. It seems certain that this variety of apricot at least does not require cross pollination.

Another fact observed makes these experiments all the more interesting. I saw many thrips on all the blossoms, especially on the oranges where I saw ten at once on a single blossom. These minute insects would almost surely have carried the pollen from the anther to the stigma of every blossom, and without doubt in some cases from the anther of one flower to the stigma of another close by. Yet all the blossoms to which no bees had access, if we except those of the apricot, failed to develop, and were presumably non-pollinated. This seems to demonstrate, or at least strongly indicates, that these fruits require cross-pollination, and that some agency is required to accomplish it.

As already stated I am not ready to report on the orange. Several of my students and myself are experimenting with orange-blossoms. The pollen is applied artificially by hand

and each stigma receives exclusively either the pollen from its own blossom, or that from other blossoms of the same tree, or that from other trees of the same variety, or again that from blossoms of other varieties. We are waiting results with great interest. It is a pretty well settled law that nectar, showy blossoms and fragrance in bloom are all indications of the necessity of cross pollination, and are so many invitations to nectar-loving insects to come to the aid of the needy and waiting blossoms. In this view we should expect to find the orange one of the most dependent of fruits—one that without the aid of bees and other sweet-loving insects would be barren and unfruitful. It goes without saying that the settlement of this question experimentally is of great moment to Southern California.

EXPERIMENTS OF THE DEPARTMENT OF AGRICULTURE.

After commencing this essay I received Bulletin No 5, of the Division of Vegetable Pathology, from the United States Department of Agriculture, on the "Pollination of Pear Flowers," by Merton B. Waite. I much regret that I did not receive this in time to fully describe the many valuable experiments, or at least to give a full summary of the important conclusions reached. The experiments seem to have been very carefully planned, very ingenious, and from our knowledge of the men who had them in charge, we know that they would be very carefully executed. The experiments were conducted at Brockport and Rochester. N. Y., at Chestnut Farm, Virginia, and at Washington, by Mr. Waite; and at Geneva, N. Y., by Mr. D. G. Fairchild.

Thirty-six varieties of pears were under experiment, of which 22 were found self-sterile. Under the head of insect visitors we note the following: "The common honey-bee is the most regular, important and abundant visitor, and