

on generation, there are so few males in comparison with the females. Sometimes, after carefully examining a tree, you will not find one male to a thousand females.

Q. They must naturally have some connection?—A. Not necessarily. It appears in some insects, as, for instance, some saw-flies, they have been known to produce young without the males being known. This is the case, Dr. Packard says, of the gooseberry saw-fly, and although the larch saw-fly has devastated thousands of acres of tamaric swamps, and the females may be caught by the millions, I have never seen a male. There is a process which takes place amongst plant-lice called gemmation or budding. Only in the last brood in the autumn of the apple aphid are males produced. Although there may be twenty generations during the summer, it is only in the last that males are produced and copulation takes place. Eggs are then laid, and in this state the winter is passed. Early the next spring plant-lice hatch from these eggs, which are mature in a few days, and give birth to four or five young every day while they live. These again are ready to have young in four days, and so on throughout the summer; but there are no males till the autumn. This process is analogous to budding in plants, and is called gemmation or parthenogenesis, which means birth from a virgin.

Fungous
diseases of
fruits, remedy
for.

Another important branch of my work at the Experimental Farm has been the study of fungous diseases. The experiments are of more recent origin, and consequently the study of fungous diseases has not developed so far as economic entomology. The instruments necessary are very expensive. It requires a good microscope for examining the different diseases, and special apparatus and books which I have not at the farm. The work has, therefore, been pushed more in other branches for the present, but there are certain fungous diseases which have demanded attention. Amongst these, and upon which Mr. Craig, the horticulturist, has published a bulletin, is that termed the Black Spot of the Apple, a disease due to a parasitic fungus, which can be reduced very materially if people will but follow the directions given in that bulletin. The disease can be very easily treated, sufficiently well, at any rate, to increase materially the value of the crop by the expenditure of a few cents to each tree.

The value of the apples treated may, as a matter of fact, be always increased to more than double what they would have been without treatment. The mildew of the grape, which has been a great trouble to grape growers, and has done great injury in the Southern States, has, within the last three or four years, come into Canada, and as it may unless checked give us a great deal of trouble for a good many years, it has been thought well to try experiments for controlling it. We have been able to take advantage of the studies of Professor Scribner and Mr. Galloway, of Washington, and the results they have arrived at. The treatment recommended for this is: Carbonate of copper, 2 oz.; ammonia, $1\frac{1}{2}$ pints to 25 gallons of water. Three or four applications, two weeks apart, sprayed over the vines from the time the flowers show. With regard to some diseases, as rust of wheat, oats, &c., we are not much further advanced towards a remedy than we were a hundred years ago. We know the life history of the plants; we know the various stages of its growth, but so far no satisfactory remedial treatment has been hit upon.

By Mr. Trow:

Q. Has not the state of the weather much to do with the rust?—A. It has a good deal to do with the development, but not with the actual origin of the rust, which is derived from minute spores, each one of which is capable of producing disease in the plant, upon