

PLANT LICE OR APHIDS.

here given ; it is an entrance to a garden in Russia, more elaborate than would be attempted by many of our Canadian gentlemen, but giving some suggestions

well worthy of consideration. The picture is from the American Florist, and belongs to a garden at Norgorod, which is one of the finest in that city.

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IT is becoming more apparent every year that to be successful, the horticulturist must be familiar with the essential principles and facts of economic entomology. Every season has its especially bad insect pest, and, generally speaking, so little is known of the life histories and characteristics of even our common forms that they are often neglected till too late, or are fought with inadequate and ineffectual weapons. No better illustration could be given than the case of plant lice. We have had a scourge of these most injurious insects this year. I do not recall so bad a visitation for six years, and the damage done by them has been greater than that by any other insect, yet, in a very limited experience, I have heard of many cases, where afflicted gardeners and fruit growers have dosed the enemy with Paris green, and have been very much astonished and disgusted to find that it "didn't fizz on them." A very little insect lore would have saved them from such a mistake.

The question of why we get a big plague of this and that insect, and then are free from trouble for years is an extremely interesting one, but would take too long to enter into here. Climatic conditions are largely responsible, and the other main cause is the absence or presence of nature's checks, the parasitic and predaceous forms of insect life. A decrease in a predaceous species means an increase in its prey. After a

while the predaceous insects catch up, the oscillation is continued *ad infinitum*, and the balance of natural forces is thus maintained. It is, of course, comforting in a vague way to know that Nature is on our side ; and to feel that next year our special enemies of this year may be wiped out. The comfort is very considerably lessened by the fact that we are "getting it in the neck" meanwhile. We must forge our own weapons, but a knowledge of the foe's vulnerable points becomes indispensable, and so, *revenons à nos moutons*.

Plant lice are members of the family Aphidæ, belonging to the section Homoptera, and the order Hemiptera. This section or sub-order Homoptera, includes all the bark lice, leaf hoppers, plant lice, mealy bugs, scale insects, etc., and contains practically nothing but injurious forms of insects, some of them extremely difficult to fight. They are characterised in common with all the hemipterous insects, by the possession of a suctorial mouth apparatus, only taking their food in a liquid form, whether it be animal or vegetable. They are further marked by the general insignificance of their size, and the extraordinary rapidity with which they breed, dangerous characteristics as far as we are concerned. Of the family Coccidæ in this order one would like to speak, if time permitted. The Coccids or scale insects are lice that form over their bodies a protective, waxy scale of various kinds. The most injurious of