

ing the extreme heat of the day it stands in the shade. I have planted it for years on the same piece of land, a heavy clay loam, well manured.

Yours truly, W. M. KOUGH.

Scientific.

PLANT LOUSE ON SPRUCE.

SIR,—By referring to page 125 (June Number) of the current volume it will be seen that I received from Mr. John Sailles some spruce twigs which seemed to be effected by some parasite. Being desirous of ascertaining the true nature of the trouble, I sent the specimens to Prof. Comstock, of Cornell University, who replied that the twigs had been infested with some insect that had then passed into the pupa state, and that when the imago appeared he would report thereon. I wrote to Mr. Sailles and obtained some fresh twigs, which were also sent to Prof. Comstock, who has favored me with the following reply.

Your obedient servant,

D. W. BEADLE.

St. Catharines, Oct. 11, 1886.

MY DEAR MR. BEADLE,—Your letter of the 9th inst. was received during my absence from Ithaca. This morning is the first chance I have had to study the plant louse on spruce. I think it is *Adelges abieticolens*. But there is no good description of this species. See Packard's Guide, fig. 520 (p. 523), and Bulletin No. 7 of the United States Entomological Commission, p. 234.

As to remedies, try solution of soap, quarter pound to one gallon of water. It would be well to try the kerosene emulsions recommended by Riley in his reports. But be careful in the application of these, lest the kerosene injure the trees.

Very sincerely yours,

J. H. COMSTOCK.

Ithaca, N. Y., 22nd Sept., 1886.

THE RUSSIAN MULBERRY.

DEAR SIR,—I herewith enclose you two leaves of the Russian Mulberry, which are taken from trees growing on my grounds. This variety is dioecious. The leaves are cordate, one, you will observe, is only serrated, which is the female, or pistillate, tree bearing fruit; the lobed, or oak-leaved, is from the male or staminate tree, blossoming profusely, but not fruit-bearing.

Seedlings, therefore, planted singly cannot be relied on.

Of course, the practised eye of the botanist will soon detect this.

I am, yours truly,

SIMON ROY.

Berlin, 22nd Sept., 1886.

IRON FILINGS ABOUT PEAR TREES.

SIR,—Regarding the use of iron filings in promoting the fruitfulness of pear trees, I would hesitate to give all the credit to their use in the case referred to. The presence of iron is necessary to the production of chlorophyll, one of the most important compounds in the leaf.

This is the chief agent at work in the decomposition of carbonic acid, an important source of food for plants, by supplying carbon which enters largely into their structure. The green color of leaves is owing to the presence of chlorophyll. Plants that grow in soil containing no iron do not become green, and the production of this constituent ceases, and the plants perish.

The analyses of the ash of plants shows iron, but the quantity is small compared with other ingredients, such as potash, etc., and thus though very important, still the quantity required is not much and usually found in soils. However if the soil where the trees referred to was deficient in iron, no doubt a ready response would be given in a more vigorous and productive tree;