

I am asked, how I keep the sheep from gnawing and injuring the trees? This is a pertinent question. Sheep should have plenty of water. They first learn to gnaw trees for the want of drink, but after the habit is once formed, like all bad habits, it sticks. But the trees can be protected by the use of what is called "chicken wire," simply wire cloth with meshes from one and a-half to two inches in diameter. Use that which is three or four feet wide. Cut pieces long enough to go very loosely about the trees, twisting the ends of the wire together. Where this is applied the sheep will not even rub against the trees. We want full crops of apples. We want good apples, free from worms and scab, and in order to get these we *must* restore the fertility of which we have robbed our orchards. To do all this we can have no more efficient assistants than the sheep.

There is no danger of getting our orchards too rich. In addition to the methods for enriching them which I have indicated, we should aim to make all the manure in winter which we can, which should be applied at least every second year. Here, again, sheep will be found our most available assistants. By the proper selection of stock, proper quarters and by feeding proper food—those rich in plant elements—you cannot fail in making large quantities of manure, and that of the very best kind for our orchards.

So I close by saying long live the sheep. May their numbers in the apple growers' hands steadily increase.

MERCURIC CHLORIDE, AS AN INSECTICIDE AND FUNGICIDE.

BY FRANK T. SHUTT, M.A.

Some few months ago the Editor of the *Canadian Horticulturist* forwarded to the Central Experimental Farm, Ottawa, a letter from one of his correspondents who asked of what value this chemical was as an insecticide and fungicide? We had had no experience with it, nor could any literature on the subject be found, with a view, therefore, of obtaining an answer to the question a series of experiments were inaugurated, the results of which are here given. These experiments have necessarily been of a preliminary character, but they have given some interesting results, and serve to indicate the direction of future work. One of the essential characteristics of a successful fungicide or insecticide is that it shall not be injurious to the foliage to which it is applied. The first step, therefore, was to investigate the effect of solutions of corrosive sublimate of different strengths on the foliage of certain plants and trees.

Mercuric Chloride is a white crystalline salt, soluble in about fourteen, times its weight of cold water. In its physiological action it is irritant, corrosive and highly poisonous. These properties would lead us to suppose that solutions approaching saturation would be highly injurious to foliage as well as destructive to insect life. It is an antiseptic of great value and its well known power in preserving animal tissues from the growth of moulds and bacteria would suggest it as a useful agent in destroying or preventing the development of parasitic fungi.

Solutions of two strengths were made and experimented with, A. 1 part of corrosive sublimate to 1000 parts of water by weight ($2\frac{1}{2}$ drm. to 1 gall.); B. 1 part of corrosive sublimate to 1000 parts of water by weight ($1\frac{1}{4}$ drm. to 1 gall.

FIRST SERIES OF EXPERIMENTS.

The following plants were selected: Hydrangea, Abutilon, Coleus, Geranium and Fuchsia, which at the time of experiment, were in the green-house. An atomizer which made the solution as fine as mist was employed for the spraying.

HYDRANGEA sprayed with solution A. Shortly after drying it was noticed that both leaves and flowers were becoming brown. The sprayed parts soon shrivelled and died, presenting in the course of a few days a burnt and scorched appearance. Solution B was then tried, on drying from the first application no injury was apparent, the plant

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