

## Home Course In Tree Preservation

By JOHN DAVEY,  
Father of Tree Surgery.

### IV.—Errors in Transplanting Trees.

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AMERICA was "the land of forests," but mountain, dale, hill and plain are now about denuded of her trees, thereby destroying both wealth and glory. I was recently called to Phillipsburg, Pa., to give a lecture on "The Salvation of Our Trees," and in going from Tyrone to Phillipsburg it nearly made the heart sick. The beautiful hills on that part of the Allegheny mountains were entirely stripped of trees, and even the young growth, six inches in diameter had been cut away to be used as "mining props." The coal mines are nearly exhausted, and many people told me they would not live on the lands just for paying the taxes, for they would starve to death. And yet on those hills forty years ago were growing the most magnificent specimens of pines, hemlock and other conifers. It is with sadness that the people have seen the pristine forests fade away.

There is an instinctive love of the tree in man, and as he looks upon the barren bleakness of treeless expanse he sighs for something to relieve the dreary, monotonous bareness of the soil and commences to realize what it means to be without shade in the heat of summer and no trees to break the fury of the blasts in winter; hence he readily saw that there should be shade trees by the highway, clumps or groves around the home, as well as the fruit trees in the orchard and garden. He



NO. 7.—WEAKENED AND LEFT A PREY TO STORMS.

goes to the woodlot and hunts for the young maple or elms and, having found them, proceeds to plant. One of the commonest mistakes he makes is to plant too close together, but the one mistake above all others is—well, "Whack!" off goes the top.

Very often the shade trees come from the nurseries with this same grave error committed on them.

By cutting off the top in order to live at all the growth is forced out from the twigs, and as the stub gradually decays a weak point is made right in the center, so that as soon as the branches are of any considerable size the strain of the windstems rends it open at that point where the greatest strength is required. Every storm that comes along is weakening it still more, and the larger the branches the greater the leverage of the wind.

A storm had just passed and taken off one-third of the farthest tree in illustration No. 7. It had also split the other two limbs. In other words, the tree was ruined. In illustration No. 8 just one-half of the tree is wrenched off in a violent storm, and this tree also is ruined.

The mistake generally lies in selecting too large a tree, and being too large, the height also is objectionable, and the winds would be apt to blow it



NO. 8.—TRUNK WEAKENED BY CUTTING OFF TOP; SPLIT BY WIND.

over. Knowing this, the top is taken off, with the result that has been described.

The best size for common planting is a tree about as big as a broom handle. The proportions of the length of such a tree, say a maple or elm, would be almost twelve feet, and a good stake would hold it in place. A small tree would almost invariably grow, because it has its "feeding roots."

## SWEET CLOVER

### Is It a Useful Plant or Weed?

(By C. W. Pugsley, Professor of Agronomy and Farm Management, Nebraska Experiment Station.)

All readers of this article who have lived in any of the eastern states are familiar with the white sweet clover—*melilotus alba*—which grows in abundance along the roadside. It has usually been regarded as a noxious weed and many have been the laws passed by various states requiring the road supervisors to cut the weed before it had a chance to seed. In spite of the war which has been waged against it, we find it, in many places occupying land which would otherwise be taken by sunflowers, hemp and other weeds. It has always been a wonder to me why people would insist that the sweet clover be killed in order to leave a place for weeds of a ranker sort which had no use what ever.

The statement has often been made that sweet clover will take meadows and pastures, as well as cultivated fields. I have never seen, nor have I collected any accurate evidence that sweet clover has bothered in properly cultivated fields. It occasionally gets into the edges of pastures and of meadows which are not properly cut. The statement has also been made that sweet clover is a hard plant to get rid of. This is not the case when its habits are understood. It is a biennial, seeds the second year, and if kept from going to seed will die. For this reason, it is easily killed in meadows or in pastures.

#### Possible Uses.

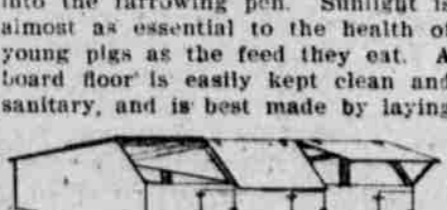
It is undoubtedly one of the best plants we have for enriching soil. It will probably put the soil in as good condition in as short a time as will alfalfa or clover. It is a legume, takes its nitrogen from the air by means of bacteria working on the roots, rather than from the soil, as do many other plants, and for this reason is classed among the nitrogen gatherers. It will grow on alkali soils where other clovers will not grow. It is very hardy and will very often secure a foothold on the soils most lacking in organic matter, such as the banks of railroad cuts and points of clay hills. My experience teaches me that it is much easier to get a stand of sweet clover than it is of alfalfa. For this reason there is presented to my mind the possibility of its being a forerunner of alfalfa in the western regions of this state.

There are many people in the United States who are using the plant for pasture and hay. In some instances, stock have to learn to like it by being starved to it for a few days, but, ordinarily, horses, sheep, hogs, and cattle will take it readily if cut at the proper time. It has not been tried experimentally in a large way, although the experiment station at the present time has about fifty co-operators working with the plant in the western part of Nebraska. I would advise that it be tried in a small way at first. I think no farmer who is not thoroughly convinced that the plant is of use to him should try more than one acre to start with. He can then cut it for hay, use a portion of it for pasture, and try feeding it green or cured. The station will be glad to correspond with anybody who contemplates a trial. We do not recommend its use where alfalfa and red clover do well.

#### HOW SHALL I SHELTER MY HOGS?

By Department Agricultural Engineering, University of Nebraska.

1. The hog house should always face the south and the roof must be so constructed as to admit sunlight into the farrowing pen. Sunlight is almost as essential to the health of young pigs as the feed they eat. A board floor is easily kept clean and sanitary, and is best made by laying



the boards on top of four to eight inches of sand. A floor thus constructed, inside of cement foundation, is rat proof and always warm.

2. The Hull hog house has a floor as above described. The sides are made three feet high. The house is eight feet wide and the north roof extends within two feet of the south side, and raises to a height of six feet from the floor. The south roof is a succession of short doors, three boards wide and hinged to the main roof. When these doors are thrown open it leaves a space of two by three feet to admit sunlight. The farrowing pens are six feet wide, which makes a pen six by eight feet. This house can be made any length to accommodate herd.

A more convenient, though more expensive house is being used by many successful breeders. Made by the above plan except the house is twenty feet wide with a row of eight-foot pens on each side of a four-foot alleyway. The north roof in this house extends within eight feet of the south edge and the steep roof of the south side is constructed with doors three boards wide, hinged on side so that one door folds upon another.

Hog houses with windows to admit sunlight are usually very expensive, but have the advantage over the door that sunlight is admitted, while wind or storm is kept out.

There are many points to commend the individual hog house. Each sow is kept by herself and any disturbance will not put the entire herd in an uproar. The large hog house is more

convenient. The entire herd can be taken care of in small amount of time, and the attendant is sheltered from the weather. The large house can be artificially heated during cold weather to better advantage.

A dirt floor covered with an electric weld woven wire makes a cheap, warm and dry floor. There is nothing to rot, the floor is easily disinfected and there is no chance for wind to get under. The front of the pen where the feeding and watering is done should be floored with cement or boards.

Cement feeding floors are economical. Use your space between your double cribs or vacant shed, keep this in mind when arranging your farm buildings.

Summer Shelter. Some people think hogs do not need shelter in the summer— "and some people have never given this subject any thought. Shade from the hot summer sun is essential to the comfort of the hog. The large hog is built close to the ground and is subject not only to the direct rays of the sun, but also the heat intensified by the reflection from the ground. Natural shade is best and the man who intends to grow hogs on a large scale can well afford to plant trees to furnish shade for the comfort of his hogs. If artificial shade must be erected they are best made by placing a rather broad tight roof on posts at least six feet from the ground, and leave building open on all sides. The runway between corn cribs placed north and south furnishes a very effective protection.

In constructing a hog house the matter of summer use should be kept in mind and it should be made cool in the summer as well as warm in the winter.

#### Spraying as an Essential Part of Profitable Apple Orcharding.

The Nebraska experiment station has just issued bulletin 119. It contains the results of some experimental spraying tests in Nebraska apple orchards extending over a period of five seasons. Direction and conveniences for mixing the spray materials are discussed at some length, as well as how to apply them. A comparison of the lime-sulphur sprays with Bordeaux mixture in russetting the fruits is given.

The spraying experiments were conducted primarily to determine what it costs to spray under Nebraska conditions, what sprayed fruit yields, and what it is worth in comparison with unsprayed fruit from the same orchard. In order to make the results applicable to the eastern third of the state, the work was done under varied conditions. Twenty-two orchards were selected, representing eighteen localities in thirteen counties. The trees varied in age from ten to twenty-eight years, and averaged about eighteen years. Some of the orchards had been well pruned, while others had been wholly neglected in this respect. In some cases the spraying was hindered by the closeness of the trees, while in others the trees were conveniently spaced. Some of the orchards had almost every convenience for mixing and applying the spray materials, while others were almost completely without such conveniences. The work was done in some of the orchards with efficient power outfits with three leads of hose, while in others a hand pump was used where it was barely possible to maintain pressure for one nozzle. The cost of labor and materials was taken at the actual prices paid by the orchardists.

The following statements give a summary of the results obtained from the first four years' work:

#### Cost of Spraying.

Number of orchards sprayed, 16.  
Total number of trees sprayed, 3,300.  
Average age of trees, 18 years.  
Average number of sprayings per year, 4.

Average quantity of spray per tree each year, 13 gallons.

Average quantity of spray per acre (50 trees), 650 gallons.

Average cost of spray material per 100 gallons, \$0.87.

Average cost of applying spray per 100 gallons, \$0.98.

Average total cost of spraying per 100 gallons, \$1.85.

Average annual cost of spray material per tree, 11.3 cents.

Average annual cost of applying spray per tree, 12.7 cents.

Average total annual cost of spraying per acre (50 trees), \$12.00.

#### Results of Spraying.

Average annual yield and value per acre (estimated on basis of 50 trees)—

#### Sprayed Trees.

Marketable fruit..... 220 bu. \$114.40

ulls and windfalls.... 55 bu. 3.31

..... 275 bu. \$117.70

#### Unsprayed Trees.

Marketable fruit..... 99 bu. \$56.90

ulls and windfalls.... 85 bu. 4.25

..... 175 bu. \$41.15

#### Summary.

Difference between sprayed and unsprayed trees..... \$76.55

Average cost of spraying..... 12.00

Average net gain per acre (50 trees) from spraying..... \$64.55

How to mix Bordeaux in small and large quantities is discussed at some length. The importance of having a proper mixing device, in order to lessen the labor cost, is emphasized. A spraying calendar showing the proper time to make each application is given.

This bulletin shows that lime-sulphur may be used as a summer spray for apples with as little danger to the foliage and fruit as Bordeaux. It shows that the russetting caused by Bordeaux can be prevented by substituting one of the lime-sulphur preparations at the second spraying.

## HOW TO PREVENT WORMY APPLES

### Spraying Death to Codling Moth

(By R. F. Howard, Department of Horticulture, University of Nebraska.)

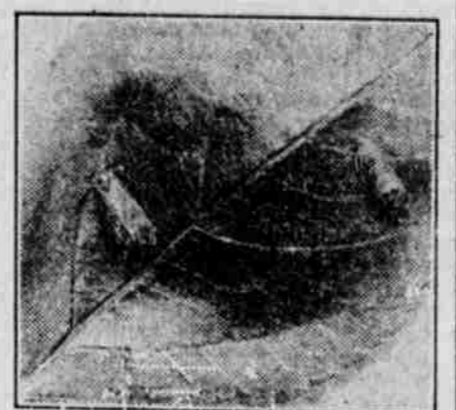
The codling moth has reached such a stage of development in Nebraska that it is no longer possible to grow apples free from worms without the trees are given some care. One may expect neglected trees to have anywhere from 20 to 85 per cent wormy



Codling Moth Eggs on Upper Surface of the Leaf.

fruits. Half of the crop may drop before it reaches maturity and the greater part of the remainder will be rendered unfit for market by the codling moth worm.

Spraying with some sort of arsenical poison is the only feasible way of controlling the codling moth. Arsenate of lead may be used at the rate of two pounds per fifty gallons of water. The first application should be given as soon as the flowers begin to drop, the second about three weeks later and the third about the 20th of July. The first application should be direct



ADULT CODDLING MOTH.

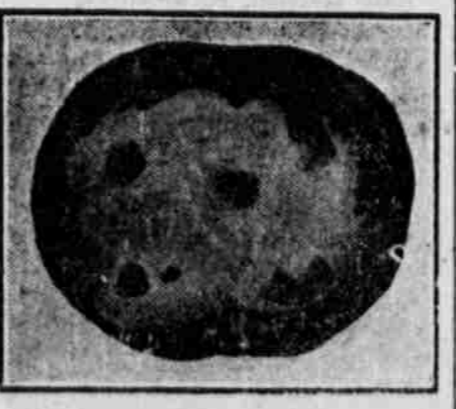
ed downward in order to get the poison into the calyx cups. High pressure is essential for the first spraying, though the department demonstrated in a Columbus orchard last summer that it was possible to control the worms to 5 per cent with a hand barrel outfit by doing the work thoroughly.

Apple scab is the most troublesome fungus disease we have in Nebraska apple orchards. It begins growth in the early spring and causes a scaly, brown growth on the outer surface of



WORK OF CODDLING MOTH WORM

the apples. Some of our prominent varieties, like the Jonathan and Winesap, are particularly susceptible to this disease. Either Bordeaux mixture or one of the commercial lime-sulphur sprays may be used in preventing its development. Bordeaux mixture can be made by using four pounds of fresh stoneware, four pounds bluestone and fifty gallons of water. Slack the lime in a small quantity of water, dissolve the bluestone, dilute each with twenty-two gallons of water and pour together. The lime-sulphur sprays are put on the market in concentrated

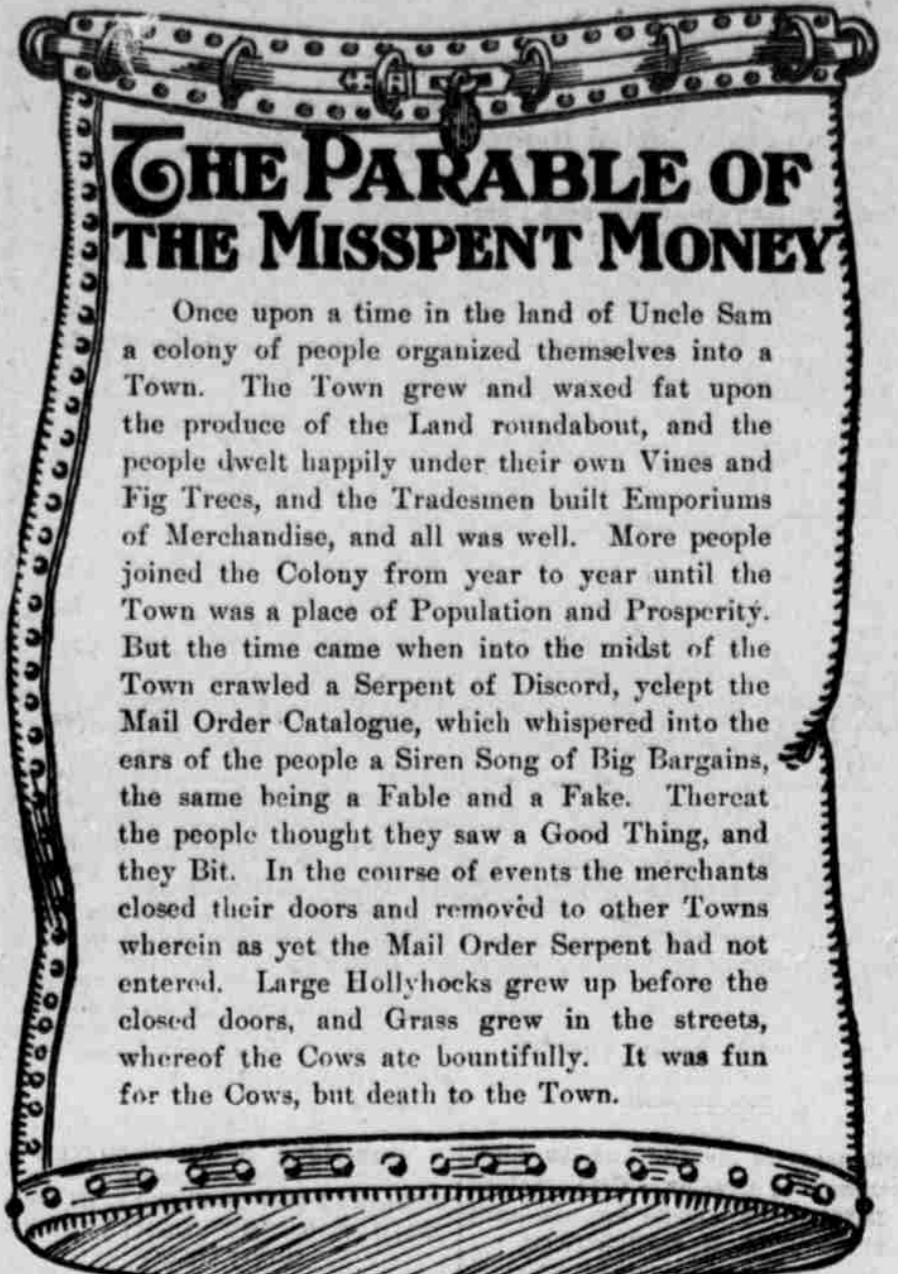


APPLE AFFECTED BY SCAB.

form and all that is necessary to prepare them for use is simply to add about thirty gallons of water (this will depend upon the brand used) to one gallon of the concentrated.

Spray first for apple scab just before the individual flower buds open; second, as soon as the flowers begin to fall; third, three weeks after the flowers fall. Since the second and third application for apple scab come at the same time as the first and second application for codling moth, the arsenate of lead can be added to the Bordeaux or lime-sulphur, thus reducing the labor to half.

## UNITED STATES MAIL (ORDER) BAG



### THE PARABLE OF THE MISSPENT MONEY

Once upon a time in the land of Uncle Sam a colony of people organized themselves into a Town. The Town grew and waxed fat upon the produce of the Land roundabout, and the people dwelt happily under their own Vines and Fig Trees, and the Tradesmen built Emporiums of Merchandise, and all was well. More people joined the Colony from year to year until the Town was a place of Population and Prosperity. But the time came when into the midst of the Town crawled a Serpent of Discord, ye!e!pt the Mail Order Catalogue, which whispered into the ears of the people a Siren Song of Big Bargains, the same being a Fable and a Fake. Thereat the people thought they saw a Good Thing, and they Bit. In the course of events the merchants closed their doors and removed to other Towns wherein as yet the Mail Order Serpent had not entered. Large Hollyhocks grew up before the closed doors, and Grass grew in the streets, whereof the Cows ate bountifully. It was fun for the Cows, but death to the Town.



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