

FARM & GARDEN

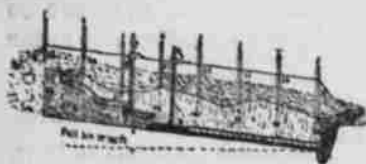
DRAINAGE.

How to Lay Tile So as to Secure a Permanent Improvement.

The following device, illustrated in the cut below, is the best means that John M. Bloss, director of the Oregon experiment station, has found for securing a perfect grade in laying tile without an engineer to test the work as it is completed:

It will be observed that there are eight stations. The survey shows the depths of each grade as follows: Station 0, 30 inches; station 1, 40 inches; station 2, 33 inches; station 3, 40 inches; station 4, 43 inches; station 5, 33 inches; station 6, 45 inches; station 7, 30 inches.

At the side of the grade stakes, stakes about 4 feet in length are driven into the ground, which have the station marked above them. On the side of these stakes is a hook. The first stake at O is driven into the ground until the hook is just 53 inches above the grade stake. This makes the bottom of the tile just 65 inches below the hook. The second is driven into the ground until the hook is just 25 inches above the grade stake, making the bottom of the tile just 65 inches below the hook. The other



A PERFECT GRADE.

stakes, it will be observed, have each been driven into the ground until the hook is just 65 inches above the bottom of the tile.

Then a wire (a fine steel wire of the kind used for holding stovepipes in place) is stretched very taut on the ground between the two inclined stakes, and when fastened it is then lifted into the hooks on the stakes. This wire must be, if the survey is correct, a straight line and parallel with the bottom of the ditch and just 65 inches above it. The wire is on one side of the ditch, but not over it. In the illustration the line Y is a level or horizontal line, the line X is the grade line, and the space between these lines indicates the fall.

The difficulty in constructing a ditch for a tile drain on a grade may be seen in the cut. The upright stakes are 25 feet apart, but a different depth is required at each point. The tendency is to make the ditch at all points about the same depth below the surface. In that case the bottom of the ditch would be parallel with the surface. Thus in the illustration the first cut, the depth of one spadeful, about 15 inches, will have a bottom parallel with the surface of the soil, as seen at D. The second may be made in the same way, provided it does not reach the grade of the tile. In the illustration the bottom of the second cut, at C, is placed on a grade parallel with the line X by means of the measure at F. The third cut is made in the same way, but is made so that it lacks about 1 1/2 inches of being to the grade at which the tile is laid, as indicated in the figure. Then with the bottoming tool, or spoon, the bed for the tile is cut out carefully until the grade line is reached. This will be determined by the measure indicated at F.

These measures are constructed as follows: The upright piece is 6 feet long and 2 1/2 by five-eighths inches. This is laid off in inches. Attached to the upright is a movable arm, Z, about 18 inches in length, having a thumb screw for fastening it at any point on the upright. This arm is fastened at right angles. A plumb is attached to one end of the movable arm. The movable arm in this case is fastened just 65 inches from the bottom of the upright. Hence when the measure is placed vertically on the bottom, if the grade line has been reached, the arm ought to touch the wire. In this way the bottom on which the tile rests may be made a perfect grade and parallel with the wire.

It is important that the tile be placed in soil which has not been disturbed, that the alignment may not be affected by the tile settling. The tile should be laid so that the ends are brought as close together as possible, and so that the tube will be continuous. By the method above indicated short lines of tile may be laid on a perfect grade without any survey being made by first determining the depth of the ditch at each end and then adjusting the wire an equal distance above each end and in a straight line between these points. The height of the wire above the surface of the soil is immaterial, but it must be placed parallel with the grade on which the tile is to rest. Those who are interested in the subject of drainage will find much of interest in works devoted to that subject by such authors as French, Manly, Miles, Kilpat and Warring.

"Big Head" Cabbage.

J. J. H. Gregory, excellent authority, writes as follows to Rural New Yorker: As every farmer knows, if cabbages on the eve of splitting are started a little either by being pushed over on one side or pulled just sufficiently to start the roots, the heads will continue to increase and grow much larger than the size normal of the variety. I have known the Early Jersey Wakefield under such treatment to make heads of nearly the size of a two gallon water pail. Perhaps the philosophy of it is that while a rapid growth favors the pushing of the seed shoot and the consequent bursting of the head, a slower growth with plenty of plant food at hand has not the power to develop the shoot, and all the vigor goes consequently into the head. Those with me that grew largest were started two or three times. We usually push first on one side sufficiently to start the roots slightly; in a week or fortnight push over from the other side, and finally half pull perpendicularly from the ground.

Professor Voorhees of the New Jersey station speaks of scarlet clover in high terms.

Advices from Chino, Cal., state that new and latest improved machinery is being added to the beet sugar refinery at that place.

Buckwheat is often a profitable late crop. It is also excellent for cleaning land.

This is the way that The Farm Journal treats squash bugs: Pick off and kill the bugs and destroy the eggs that will be found in clusters on the leaves. Cut off some of the lower leaves and lay on the ground. The bugs will congregate under these and can be trapped in this way.

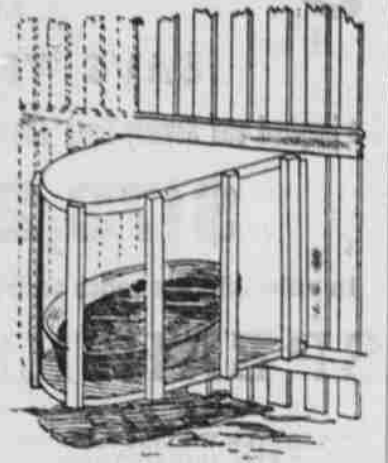
In planting a kitchen garden herbs should form a conspicuous place.

IN THE POULTRY YARD.

Drinking Dishes For Fowls—A Keg Drinking Fountain.

The drinking dish illustrated in the first two cuts is used in the yards of the editor of Farm Poultry, who describes it as follows:

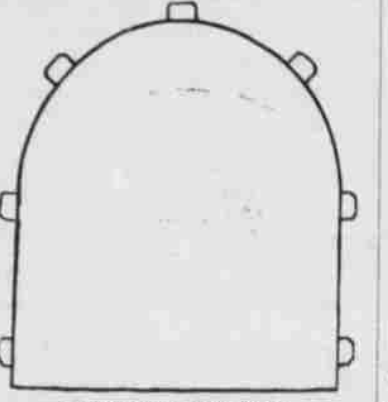
It is simply a two quart pan set in a recess and with slats all around it to protect it from flying scratching material. The illustrations show how it is made and how set into the partition



DRINKING DISH.

between walk and pen, the pan extending into the pen beneath the droppings board. The top and bottom boards are cut the exact size of top edge of pan, half round, and extend back, square, to and through partition, so the pans can be drawn out into the walk to be rinsed and refilled.

The bottom board is about four inches above level of pen floor, and the space between the boards is eight inches. The slats are three-quarter inch square, slightly rounded and made smooth so they won't catch and tear the feathers of the head and neck and are set 2 1/2 inches apart. Two tiny rails one-quarter inch high, four inches apart, are tacked to the bottom board for the pan to slide on so any pieces of sand or gravel won't grind (wear) the bottom of the pan.



TOP AND BOTTOM BOARDS.

A drinking fountain that will hold a large quantity of water may be made of a watertight keg. The design is explained in the illustration here reproduced from Farm and Fireside. A being a tin or zinc monthpiece, on a line with the top of which (or half an inch below the line) is a hole one inch in diameter, bored into the head of the keg. The keg is also filled with water at this hole by standing the keg on end. B is a handle for conveniently lifting the keg in order to carry it from one location to another, and it may be made of wire, hoop iron, leather or rope. The keg is supported on two short legs or pegs, which are



A KEG DRINKING FOUNTAIN.

placed near the ends. This fountain should not cost over 50 cents, and will hold a supply of water sufficient for a large flock of fowls.

Oats For Working Horses.

The hull of the oat gives this grain more bulk in proportion to weight, and this is one reason why it is the best feed for horses. Another quite as important reason is that the kind of nutriment it contains is rather for giving strength than for making fat. But whole oats are not perfectly digested, and to give most good, according to The American Cultivator, should be ground with equal bulk of corn and fed with cut, moistened hay. This is the standby for working horses. It is quickly eaten, easily and thoroughly digested, and if care is taken not to leave some to stand and sour then teams can be kept on this cut feed for weeks and be in better heart at the end of their work than when they begin.

Worth Knowing.

According to recent investigations of the Minnesota legislature, pine lands worth at least \$5,000,000 have been stolen from the state by timber "kings" and "barons."

Sorrel or sour grass is an evidence of an impoverished soil—a soil that needs one or another of the several plant foods. Lime may be helpful, not in eradicating the sorrel directly, but in supplying directly or indirectly needed food to other plants. Cultivation and food will easily exterminate it, affirms Rural New Yorker.

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In planting a kitchen garden herbs should form a conspicuous place.



A FRIEND

Speaks through the Boothby (Mo.) Register, of the beneficial results he has received from a regular use of Ayer's Pills. He says: "I was feeling sick and tired and my stomach seemed all out of order. I tried a number of remedies, but none seemed to give me relief until I was induced to try the old reliable Ayer's Pills. I have taken only one box, but I feel like a new man. I think they are the most pleasant and easy to take of anything I ever used, being so finely sugar-coated that even a child will take them. I urge upon all who are in need of a laxative to try Ayer's Pills. They will do good."

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Every Dose Effective



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Dr. Miles Medical Co., Elkhart, Ind.
DEAR SIR: For 20 years I was troubled with heart disease. Would frequently have falling spells and smothering at night. Had to sit up or get out of bed to breathe. Had pain in my left side and back most of the time; at last I became dropsical. I was very nervous and nearly worn out. The least excitement would cause me to faint. I was also much troubled with fluttering. For the last fifteen years I could not sleep on my left side or back until I began taking your New Heart Cure. I had not taken it very long until I felt much better, and I can now sleep on either side or back without the least discomfort. I have no pain, smothering, drowsy, no wind on stomach or other disagreeable symptoms. I am able to do all my own housework without any trouble and consider myself cured.
Elkhart, Ind., 1908. MRS. ELMIRA HATCH.
It is now four years since I have taken any medicine. Am in better health than I have been in 40 years. I honestly believe that Dr. Miles' New Heart Cure saved my life and made me a well woman. I am now 62 years of age, and am able to do a good day's work.
MAY 19th, 1902. MRS. ELMIRA HATCH.
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