

but slanting along face of hills, partly in the direction that the mains run, at an angle of about 45 degrees with main. Will catch more water this way, and fewer drains will do.

Wentworth Co., Ont. JAMES MARSHALL.

### Drainage, Clover, and the Muck Heap.

Editor "The Farmer's Advocate":

I read the splendid editorial, "Raise Hogs," in your issue of May 20th, with much interest. When I got to the sentence, "The one thing needed to revive the Canadian bacon industry is about one to five good brood sows, and ten to fifty well-fed, growthy shoats on every farm," I smiled at the thought of the five brood sows on the average farm. Think of it—five! But when I turned over and read A. J. Russell's letter, I laughed, and I am laughing yet. I have been interested in your editorials on this bacon question, and at first rather favored the suggestion of sending a delegation to Denmark, but have changed my mind, as I believe it is not necessary, as a very little thought soon shows where the trouble lies. A good farmer, with hair streaked with white, said to me, some time ago, "The only salvation left to the farmer nowadays is drainage, clover, and the muck-heap." Now, let us add one more, and we won't have to go to Denmark—dairy cow.

Drainage! Think of it—24th of May, and thousands of acres of land in Oxford County is not fit to sow grain on yet. I have put in four crops now, and have never yet sowed a field that I have felt satisfied with. And if we can't get the grain in as it should be, is it any wonder we don't get the crops we ought to? I never knew, till a year ago, how to get the benefit out of clover, and I believe the majority of farmers don't know yet. Now, I ask, what in the name of common sense is the use of sowing clover, and then letting two or three crops of timothy take the last spark of vitality out of the soil that the clover has put in?

Muck-heap! Will I repeat it? Is it out in a field or a shed, or in the barnyard, where you can't get to the stables without getting your feet wet? If I could, I would be like the Chinaman—I would build a stone wall around it.

Dairy Cow! My mother milked cows when I was small that used to give milk; they were small red and brindle-colored cows. When any of them would freshen, it was common practice for everybody to admire the quantity of milk they would give. Alas, now, whose fault is it that a host of our cows won't give enough milk to feed their calves? I can easily tell you: a host of the smart leaders live over in Michigan. The gun removed some, and, to use an old saying, a great many of the old homesteads know a great many of them no more.

What are we to feed the pigs? Clover is all right, but how long does it stay green? Roots are all right, too, but where is the farmer who has time to grow sugar beets and mangels, and

do all the work on a hundred-acre farm alone. As for turnips, who harvested the bulk of turnips in Oxford County last fall—the farmers or the louse?

Now, there are just two things to be done: either we farmers have got to improve our drainage systems, our clover culture, muck-heap and dairy cow, or "The Farmer's Advocate" and our colleges will have to teach us how to feed mill feed plus H<sub>2</sub>O to hogs so as to give us a fair profit doing this; or, rather, if they could make it profitable, farmers would not hesitate in keeping hogs. But farmers want facts; these big stories don't go any more. Millers need their money, as well as other people, and debts contracted for feed are just as hard to pay as any others.

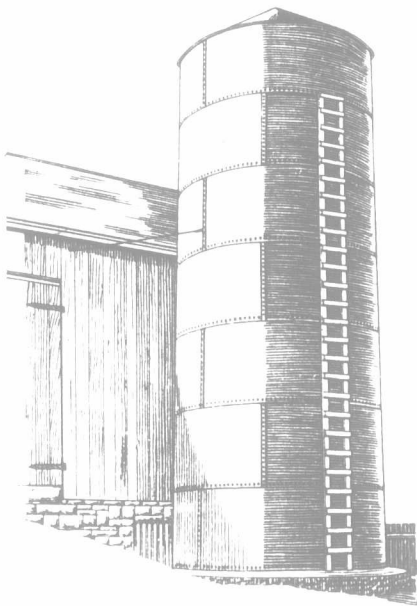
W. F. EDMISTON.

Oxford Co., Ont.

### Steel Silo Satisfactory.

Editor "The Farmer's Advocate":

I have a steel silo, size 12 x 37 feet; capacity, 200 tons; erected last September. Last winter the results were very satisfactory; the silage saved



Steel Silo.

On farm of James M. Boyd, Wentworth Co., Ont.

first-class, and did not freeze to any extent. The foundation was built of stone and cement, with ten bolts, 14 inches long, set in foundation, at equal distances apart, with an 8-inch steel ring fastened with the bolts, to commence the steel with. The steel part is of sheets 54 inches by 10 feet long, rolled and punched, and riveted together, with four sheets in one ring. It is 14-gauge steel, and I have a compound with which the inside is coated. This adheres to the steel, and is harder than cement.

The cost was \$165 for steel, \$21 for 6-foot

high foundation, and \$30 for labor. It cannot rust when painted and finished with the compound inside. As for durability, it will last forever, barring accident. If I were going to build another silo, I would certainly have none other than steel. I can highly recommend it to others.

Wentworth Co., Ont.

JAS. M. BOYD.

### Have Main Tiles Large Enough.

Editor "The Farmer's Advocate":

The chief benefits from tile draining are increased crop returns, and the fact that it takes less labor to work the land, and therefore makes it possible to keep weeds in check, especially sow thistle and twitch grass, as they seem to thrive best in land that needs draining. I have had experience with soils of clay-loam, tendency to clay in places, the subsoil being clay, with odd streaks of quicksand and hardpan. In these soils I make drains 2½ feet deep, and 4 rods apart. If they are deeper, it takes the water longer to get into the tile, and it costs more to dig than the increased distance apart would be worth. A 2½-foot drain will not draw more than two rods on each side.

Without taking into account the cost of outlet, the approximate cost per acre is: Tile, 600, at \$14.00 per thousand, \$8.40; labor, 15 cents a rod, 40 rods, \$6.00; total, \$14.10. I consider the draining will pay for itself in one to three years. We have had no experience with fall less than one-half inch per rod, though there is no doubt it can be done with less. Outlet should be protected by plank box size of tile, with cross wires if large tile. We have used nothing less than 3-inch tile. In a fairly level field, some run several small tile drains into an open waterway. We prefer running smaller tiles to main and laterals, as a drain will draw 2 rods, and you would lose 2 rods of tile and 2 rods of labor on each branch.

Ditching may be done at whatever season a person can get at it; if the land is dry, September is the best month with us. We use a digger made of old cultivator teeth (without plates), bolted to a plank, to loosen earth; 8-inch shovels and draining scoop, spirit level, and 200 feet of chalk line (O. A. C. drainage directions). We plow first, and use the digger with horses.

I have no trouble with the tile filling with sediment. We take care to cover all openings in tile with broken pieces of tile, and cover the tile over with 2 inches, at least, of surface mud, which will not wash into tile. I would advise most strongly anyone draining to have mains, where necessary, large enough, though the extra size may not be needed more than once in two or three years. A wet spring like this would more than pay difference in cost. Would advise having levels taken by experts from the O. A. C., as the cost of having work done by them is more than made up by knowing what grade you have in each drain.

J. C. CUNNINGHAM.

Wellington Co., Ont.

## A Township Road - improvement Competition.

SPLENDID RESULTS FROM THE USE OF THE SPLIT-LOG DRAG IN LINCOLN CO., ONT.

In sowing the seed of rural progress, one must expect to lose many bushels upon the stony ground of unresponsive minds, and many more upon the barren wastes of inactivity, content if here and there a kernel falls on fertile soil, to grow and reproduce.

In the Provincial split-log-drag competition, instituted in 1907 by "The Farmer's Advocate," in co-operation with the Ontario Department of Public Works, there were sixty-three competitors duly enrolled, although a large number of drags were built and used by men who did not enter the contest. This split-log-drag brigade, consisting of some two or three hundred farmers, more or less, have been the means of introducing, and to some extent popularizing, this matchless means of earth-road improvement here and there all over the Province, while residents of other Provinces have caught the spirit, and demonstrated the efficacy of the drag in sections of Quebec, New Brunswick, Nova Scotia and Prince Edward Island, and we understand that the Street Commissioner of Winnipeg has adopted it, with much satisfaction, as a means of keeping up the large mileage of unpaved streets in the outlying districts of that city. Thus the good work spreads.

It will be remembered by many of our readers that the second prize in the Western District of the Provincial competition was awarded by the judge, W. A. McLean, to W. B. Rittenhouse, of Clinton Township, Lincoln County, a cousin of M. F. Rittenhouse, the wealthy lumberman, of Chicago, who, among numerous other benefactions to his native neighborhood, donated to the Provincial Government the premises of the present Horticultural Experiment Station at Jordan

Harbor. W. B. Rittenhouse is a retired farmer of means, who, having some three years ago handed over the complete management of the farm to his son, was in a position to give special attention to the mile of road which he undertook to improve.

#### MADE A GOOD ROAD IN ONE YEAR.

In the spring of 1907 he commenced work on an earth road, consisting of clay at one end, running to sand at the other. This road was badly in need of grading and ditching, being almost flat in places, with tough sod shoulders. By means of plow, disk and drag, he graded this road in one summer almost to a perfect crown, and kept it throughout the summer in smooth, oval condition, making almost an ideal earth road. The writer of this article has driven over it on the three successive seasons during which Mr. Rittenhouse has been at work, and can personally vouch for the improvement that has been effected, and the admirable condition in which it is constantly maintained. Last summer it was underdrained, the township council paying for the tile, and Mr. Rittenhouse, with a few of his neighbors, doing the work. While the resulting bulge above the row of tile still interferes slightly with the contour of the road, it is not too much to say that this highway to-day is kept like a race-course.

But the improvement of this one mile of road was only a beginning. The most marked effect was not on the road, but on the road-maker. It converted him into a good-roads apostle. He has talked roads, written about roads, campaigned for good roads on the Farmers' Institute platform; and, not content with this, has gone far beyond his own beat, dragging stretches which needed attention, and trying to get neighbors interested.

Tile drainage and the split-log drag are the two means he emphasizes as the main solution of the earth-roads problem. Graveling and macadamizing are all right in their way, and, as evidencing his faith in metalled roads, he has drained and macadamized his farm lane, at an expenditure of \$500. But, for the great extent of our highway mileage, he believes, with "The Farmer's Advocate," that metalled roads are not yet to be recommended, they being too expensive, not only to build, but to maintain. With the split-log drag, the maintenance of earth roads is simplicity itself; the cost need not exceed \$10 a mile per annum, while the results are first-class roads throughout nearly the whole year, and in summer a better road for ordinary traffic than even ideal stone roads; better because not so hard, hence easier on horses and vehicle tires. Note, then, all who read this page, that tile draining and persistent dragging are THE TRUE SOLUTION of the rural-road problem throughout the greater part of Canada, save only on a few of the main-travelled arteries, which are better for hard surfacing.

#### A TOWNSHIP COMPETITION.

Example has its effect, and enthusiasm is contagious, but the contagion is not always so rapid as might be wished. As a means of stimulating the use of the drag, Mr. Rittenhouse hit upon the idea of a township competition, broaching it last winter at a local Institute meeting in Campden. His proposal was seconded by ex-Warden D. H. Moyer, who had built and used a drag, with very satisfactory results, in 1907. The meeting placed itself on record as favoring a grant of \$200 by the township council. In the end, the council, of which Mr. Rittenhouse is a