

great help in drying the sheep after the soaking.

If, after the dipping has been completed, new individuals are brought into the flock, it is always advisable to dip them or treat them by pouring before placing them with the other sheep. If this is not done, they may infect the entire flock with vermin or disease, and thus cause much trouble and loss by undoing the work of dipping the flock in the beginning. Too much care cannot be practiced in keeping the flock free from disease and insect pests, and dipping is the surest and easiest method of insuring success in this particular.

Care of the Dairy Heifers.

The season of the year is at hand when the young stock suffer a great setback in growth, through lack of proper protection and feed. The cold fall winds, often carrying rain or snow, have a penetrating quality which the youngsters are unable to resist. Their coats are not thick or heavy, or are their constitutions such that they can withstand these cold spells of weather without the animal being severely chilled. The dairy-type heifer is probably the most tender of any of the young farm stock, and suffers most from undue exposure. Dairy animals are all known to be very thin-haired and thin-skinned, and are not well adapted to face severe weather. Unlike her sister of beef qualities, which has a heavy, warm coating of hair and underlining of fat, the dairy heifer is more tender and prone to suffer from the cold. A few cold, wet days chill her to the marrow, and, for the time, growth and development are checked. Her back becomes humped; she is not inclined to rustle for food, and soon falls off in flesh, unless she is given shelter and feed. Many promising youngsters are stunted every year through neglect on the part of the dairyman or farmer, who knew of the danger and really intended to provide an early protection, but in the stress of fall work had neglected this important duty. It is a poor way to economize either time or money. Heifers or young stock of any sort should not be allowed to become chilled by fall winds. A little work and care now will do wonders towards making the animals able to resist the storms of winter. Don't neglect the youngsters.—[Farmer's Advocate and Home Journal, Winnipeg.]

THE FARM.

More Bait for Mr. Fish.

Editor "The Farmer's Advocate":

I have been reading an article in "The Farmer's Advocate" entitled, "Would Tax Horses and Exempt Autos," by J. O. Fish, and I must say that I think he is a man with a lot of nerve and very little knowledge of the subject under discussion. Weather conditions have a great deal to do with the state of our country roads. Clay or gravel are pervious to water, and any material which becomes softened by water or any other liquid will yield and spread when pressure is brought to bear upon it, so it naturally follows that when our roads are saturated by rain, any rig, no matter how light, will leave a track behind it, because, as the wheel goes forward, there is a forward pressure on the soft surface of the road which quite naturally spreads to both sides of the wheel as it passes along, thus forming a slight rut; then, as a natural result of gravitation, part of that will flow back, and, since water is thinner than clay, it follows that the water gets to the rut first. So the process of softening goes on, and the rut deepens as long as the weather is wet; but when the road dries those ruts become almost filled in again, except in places where it has been very soft, and a hole has become formed by an extra amount of clay or gravel sticking to rigs passing along and being carried away—slowly, it is true, but nevertheless surely.

Mr. Fish says they open a pit and send men and teams to draw out the gravel, so many trips to be counted a day's work, and that when they have so many drawn they may go home; and he says he has seen them going home at four o'clock. I wonder if he took the trouble to ask them at what time they started in the morning. If I understand the law governing statute labor, he calls for an eight-hour day, from 8 a. m. till 5 p. m., with an hour off at noon.

Now, Mr. Editor, I have done statute labor

more or less, for the last twenty-five years, and I know perhaps a little more than Mr. Fish how that work is done. I, too, have seen men on the home stretch at 4 o'clock, but I knew those same men were in the pit before 7 o'clock in the morning. Whose business was it if they were quitting at 4 o'clock? Had they not put in the required time? And just while talking on this subject, let me ask Mr. Fish to take into consideration this fact. There were probably six or seven or perhaps more teams in the pit when the four o'clock man left with his load; if he were to go for another load, it would be up to the other fellows to follow suit, which would mean that they would have to put out two loads of gravel after he passed along, which would mean six o'clock, instead of five.

Mr. Fish says they make no selection in the pit. Well, it's easy seeing he never was in one, or he would talk differently.

The traction engine, he says, displaces the whole surface of the road. But it is only the surface; the wheels are made wide to carry the extra weight, and you do not see them throw mud and dust off the road as does the auto.

Mr. Fish asks the question, "When you get a man to work a day for you, do you let him go home at four o'clock?" Why certainly not, but circumstances alter cases. When you engage a man for a day, you expect him to work a day; but if you engage a man to do eight hours' work, you do not expect him to do ten, do you? If I engage with you to draw eight loads of gravel and receive credit for a day's pay, you would not expect me to draw ten loads for the same pay, if I started to work early enough to get through by four o'clock, would you?

He says, further—and this is where he shows his nerve—"If there is any extra taxing to be done, tax the traction-engine man \$5 per annum per horse-power, and the farmer a dollar for every horse he has on his farm. Gee whiz! Does Mr. Fish think the farmer is made of money? Does he not know that the farmer is already taxed for the use of the roads, and that he has to pay for all the bridges, etc., thereon? And the traction-engine man, on an engine of twenty horse-power (which is very common) would have to pay \$100 for the use of the road each year to get to the farmer's place, where he is a necessity; he comes to do work that the farmer cannot afford to do himself, whereas the auto, so far as the farmer is concerned, is unnecessary on our country roads.

Any man of ordinary common sense can see that a motor-car running at high speed displaces more of the material on the road surface than either a farm wagon or traction engine, and yet Mr. Fish would have the auto exempt from taxation. "Let the automobile man alone until you can give him something decent to drive over," says Mr. Fish. There have been roads in this country that were decent to drive over before the advent of the motor car; but when the motor, with its high speed and wide tires, flattened and gripping on the material of the road surface, and the suction caused by that high speed displacing and casting to the four winds of heaven all the smaller and lighter particles in the road surface, is it any wonder that the road soon becomes unfit for decent travel. If Mr. Fish does not think that the motor grips the road more than a rig drawn by a horse, let me ask him to try an experiment with his own or his neighbor's buggy in this manner: Catch hold of a wheel at the top and move the rig backward; now catch the same wheel close to the ground and move it backwards, and see if there is any difference in the power required to move it. I think you will become aware that there is a difference between drawing and propelling by friction.

As to that four dollars a year that the auto man has to pay, I think most of them are persuaded in their own minds that there is something due to the government for the damage they do, and there is not much kick coming on that account. I understand that four dollars is paid over to the Good Roads Association for the building and improving of main roads through our country. If the auto man wants good roads, it's up to him to pay something towards the making of them. There is no doubt the automobile has come to stay, and quite likely some farmers may use it. I have no particular grudge against the automobile, but I have against the autoist who thinks he owns the road, or, at least, acts like it. He comes howling along, and at sight of a rig on the road commences to toot his horn, as much as to say, get off the road and give me right of way. I've got an auto, and want the road. If those driving autos were a little more careful to choose a wide place in the road, and give the man with the horse a chance, instead of roaring well-mell, as though life and death were dependent upon getting there, and meeting a horse on a narrow road, where there is only room for one rig, so that, of course, the horse must take second place, because he gets scared, and the auto driver, of course, would be less hard feeling against the horse.

Earth (C. M. G.). "LONG TOM."

Water Pressure on Dam.

Editor "The Farmer's Advocate":

What is the rate for estimating pressure of water on sides of a vessel, both upper and lower part of wall. I am building a cement dam. What thickness of wall, from base to top, would you recommend. The water is from three to nine feet deep; length of wall, 100 feet; deepens in center; water in brook never freezes; flows from 5 to 20 square inches per day (size of trough). Do you recommend cement, or just an earth bank?

F. M.

To find the total pressure in pounds of any given wall of a vessel, find the depth in feet of the center of gravity of the wall; also find the area of wall in square feet, multiply the two together, and multiply the result by 62½. Thus, the total pressure on the wall equals the depth of the center of gravity times the area of the wall times 62½. This rule holds for any given portion of the wall, either top or bottom. If the dam were a rectangle, the center of gravity would be one-half the depth of the water. However, the water being deepest in the middle of the stream, the center of gravity cannot be so readily found. If the water were 3 feet deep at each end of the dam, and if the bottom sloped down in a straight line on either side, so as to make the water 9 feet at the deepest part, then the center of gravity would be that of a rectangle 3 feet deep, and an inverted triangle 6 feet in altitude, which, being calculated, gives the center of gravity 3 feet 3 inches below the surface, or 3¼ feet. The area of the rectangle and triangle together would be 600 feet, so that the total pressure on the dam would be 3¼×600×62½=121,875 pounds, or nearly 62 tons. However, as the bottom probably does not slope in a straight line, but in a curve on either side, the center of gravity would be a little lower down, and the area a little greater, probably making a total pressure of say 65 tons.

The dimensions of your dam would depend somewhat on the nature of the bed on which it is to rest; also on the kind of material used. If the bed is rock, the bottom thickness of a cement dam at the deepest part should be about 5 feet, and the top thickness about 18 inches. If it is a hard-clay bed, the bottom width should be 6 feet, and if a soft clay or sand, 7 feet. The slanting side of the dam should be down stream, as, by this plan, the dam is more stable. Provision should be made for leading overflow away from foot of dam, so as not to undermine it.

As this is a small stream, it is probable that the circumstances will not warrant the expense of a concrete dam. A clay dam of twice the dimensions given for concrete would prove ample. Or, if clay is scarce, a core of clay might be built, and then coarse material, such as gravel or stone, used to build dam thicker to get the required strength.

WM. H. DAY.

Harvesting the Root Crop.

On most stock farms, the last crop to be harvested is the root crop, and the season for this work is again at hand. Mangels and turnips are the most extensively grown of these crops, although not a few stockmen grow a small acreage of sugar beets for feeding purposes.

Mangels being more susceptible to injury by frost, require to be harvested earlier than the turnips, from the tenth to the fifteenth of October being a very suitable time to commence. Of course, this depends upon the locality and the season. Light frosts do no damage to the crop, but a frost which affects the roots turns them black, and the keeping qualities are injured, rot setting in soon after storing.

Several methods of harvesting are practiced, but most of the mangels are pulled by hand, four rows being placed in one. This leaves space enough between the pulled rows for a team and wagon to pass, making it very handy to load the roots. Some twist or jerk the tops off, while others cut them with a turnip knife. It was formerly believed that cutting off the tops injured the keeping qualities of the roots, but many growers now use this method exclusively, and with good results. Some growers are now topping with the hoe and using the harrow to pull the roots, and many claim that it is not only an easier method, but that it is much quicker, and the injury to the roots is not serious. To harrow out, the globe or intermediate varieties are best, as there is more danger of breaking the longer varieties. Harrowing often bruises the mangels considerably, causing small spots to take on a dry, bitter rot which injures the palatability and keeping qualities of the roots. It is a question whether or not harrowing out is not in the end a rather expensive practice, and, where it is practiced, only a very short, dull-toothed harrow should be used.

It is important that hauling be done each day, as fast as they are pulled, because, if left lying