The Day of the Cellar Stable is Happily Past.

The day of dark underground stables on the farm in Ontario is happily past, experience having proved that, besides their not being necessary, they are not desirable. Sunlight and abundance of pure air are as much essential to health in stables as in dwellings, and where these are best obtained, the most satisfactory results will be secured to stockmen.

During very moderate weather, by opening doors and windows, there is little difficulty in getting into a stable wholly above ground abundance of pure air and creating a draft which will carry impurities out of the building; but with the thermometer down in the neighborhood of zero, with every opening closed, the important question of a proper system of ventilation forces itself upon our attention, more especially in cases where no provision has been made for it. The volume of air in a stable, to be changed, depends wholly upon the number of animals it contains and the temperature it is desirable to maintain. The lower the ceilings, the sooner the air becomes vitiated and the more difficult to keep pure; so that in stables filled to their capacity, a continuous supply of fresh air is absolutely necessary, and where not provided, strong animal odors will exist, and ceilings will be found damp, even dripping. Particular corners may be found always damp, or only so when a strong wind blows in a certain direction, as by experience in my own stable I have discovered that the winds will, imperceptibly, coming through a cement wall, force the foul air in the direction whichever it is blowing, and openings in the ceiling should be made for its escape. In my cattle barn, which is 125 feet long and (excepting 25 feet at each end) 56 feet wide, 10 feet between floor and ceiling, there are six-inch tiles laid under the floor of the 8-foot passage running full length of the building. Connecting with these tiles at intervals are iron pipes, which distribute the fresh air from the outside. This appears sufficient, and does not keep the stable steamy, as when in frosty weather, when the air is admitted by an open door or window. For ventilators, there are eight openings, 3x10 inches, running from ceiling floor to roof, besides six chutes, which are always open, excepting when the weather is extreme. Without these chutes, the ventilators would be altogether inadequate for eighty head of cattle, mostly full-grown. As the width of buildings is extended, the greater the necessity of a proper system of ventilation and the size and number of windows increased. There is no danger of the windows being too large, and by all means have them extend downwards from the ceiling rather than, as we usually see them, lengthwise of the wall. Where ceilings are about 10 feet high, fanlights over doors are very desirable.

Middlesex Co., Ont. ROBT. McEWEN.

Breeding and Care of Draft Horses.

[An address to the Horse Breeders' Association by Alex. Galbraith, Janesville, Wis.]

It may be broadly stated that for the average farmer the heavy draft horse is the most suitable to raise, for these reasons: It is a safer business, more money in them, more easily raised, more readily broken than are light horses. The injuries liable to occur in horses do not affect the value of a heavy draft horse to so great an extent as it does his relative of the lighter breeds. *To be successful, the breeder must study the market.* While the get, weighing 1,100 to 1,200 pounds, of a heavy draft stallion used to be classed as a draft horse, they are now classed as chunks, a weight of 1,600 pounds or up being necessary in order to qualify for the draft market classes.

Success in breeding draft stock will depend largely on the selection of the parent stock, the mare being of good family, 1,600 to 1,700 pounds in weight, and *sound*. Always choose animals with good hocks. Select a stallion that will nick well with your mare. This is very difficult with the average farmer, as mares differ. Stallions must be up to weight, and yet not overgrown. The extremely big horses, being accidents themselves, tend to breed accidentally. Have the stallion typical, about the size of his immediate ancestors, and of a good disposition. Points mentioned worthy of careful consideration: Have the head of fair size: do not buy a horse with a pony head. A wide forehead is a good indication in a colt, the poll being not so wide, as the ears tend to droop; such horses often being of a stubborn disposition. The eye prominent and the throat-latch clean, with a well-muscled neck; do not ask for a coach horse neck on a drafter. The shoulder should be somewhat sloping; upright shoulders tend to make the gait stilted. While good width in front is necessary, the legs should not be placed to the outside of the body; such horses lack the straight-away gait and tend to roll. The knees should be broad and the tendons at the backs of the legs well defined. The pasterns should be lengthy and set well back; the foot large, tough, with *no* sidebones. At the heart-girth the horse should be deep and full, with a short back and broad loin. A fault of the Clydesdale was a slackness of the shortribs; horses having such a conformation going to pieces in the hands of poor feeders. The quarters should be long and level, with heavily-muscled thighs. Especially important are the hocks, which should be clean, broad, and free from fleshiness, close together. No good draft horse goes wide at his hocks. A colt going wide will tend to go wider with age, consequently loses propelling power. The limb from heel to fetlock should be perpendicular—no curby hocks. The skin should be clean and the hair fine, of the model draft horse, who must not paddle, turn the toes either in or out, and should show the sole of the foot at each step. Horse judges should always have the animals sent straight away from them; the circling around of a class by a judge gives him little on which to base his awards.

It is advisable to work the mare right up to, but *not* after, foaling; feed reasonably well with nutritious food. Beware of blood poisoning through the navels of colts. Teach colts to eat oats early. Do not feed corn, as it does not build up muscle. Oats, bran and roots are a satisfactory diet. Give close attention to the feet of the colts. Water before feeding grain.

Two methods of weaning may be followed: separate gradually or at once, the latter preferred, when the colts are five to six months old. Put two or three together or else with an old horse, and thus avoid fretting. Colts are fed whole oats once a day; crushed oats, bran and cut hay once a day; boiled oats and barley, half and half, once daily. The use of roots is to be commended. Fall breeding is nice in theory, but not so satisfactory in practice.

In the discussion, the following facts were elicited: Sugar beets and turnips keep well. Feed potatoes raw. Colts die from constipation when the mares run milk before foaling, owing to the lack of the purgative first milk, the colostrum, a condition common in brood mares not worked. Lack of exercise before foaling increases the tendency to difficult births. Boiled pigweed seed is as good as flax in its digestive effects.

The Ventilation Problem.

To the Editor FARMER'S ADVOCATE:

SIR,—In order to the preservation of the good health of the live stock of this country, it seems to me you have done a wise thing in taking up the subject of ventilation in stables. To keep the stable air pure, free from dampness and not too low in temperature in winter, is a serious and difficult problem. In my observation, the best plan is to bring in a supply of fresh air, through say a five- or six-inch tile, down the feed alley, with openings to the mangers or manger posts. If the main in-take pipe simply opens through the end wall of the feed passage, the opening must be above ground and unobstructed with rubbish or snow, as I have sometimes seen, so that no sort of air could get in. The sub-earth duct plan, with a cowl over the pipe where it comes up through the ground, to catch the air from all points, should "fill the bill" on that score. Next, with regard to stable interior. If that plan is to work right, there must be no open windows, cracks or spaces under doors to let in cold air. The supply of fresh air should come in through the duct and tile provided. The entrance of cold air from other sources being shut off, the air of the stable will soon become heated from the animals, and rise. For its escape, ventilating shafts must be provided. Some depend on one or two feed chutes, but these are not sufficient, and, being large, naturally allow a downward rush of cold air. To prevent this, they have to be closed with hay, etc., and then the stable air becomes foul. It seems to me the best place for the ventilating shafts is extending up from the stable ceiling, inside the barn wall, and through the roof two or three feet, with a gable cap above to keep out rain or snow. Where they come through roof, finish off with zinc or galvanized iron, like a chimney. These ventilators are made of inch boards or galvanized iron, and about 4x10 inches, inside measurement. The posts of the barn frame should not be used as one side of the shaft, as the dampness will rot the timbers. Some have not run their shafts through the roof, but simply made them open sideways under the eaves; but that plan does not work. (Tiles through the basement walls, near top, are not serviceable ventilators, and one generally sees them plugged with straw or old rags.) There should be one shaft every 10 or 15 feet along side of barn. These will let off the damp, heated air, and the cold air will flow in through the duct to take its place. Someone may ask: How about the heavy carbonic acid gas which the animals throw off in breathing and settling to the floor? The law of the diffusion of gases overcomes that difficulty. The in-coming fresh air mixes with the foul air near the floor, which, as it becomes heated, also rises and passes off. The reader will readily see that to have this plan of ventilation work, the conditions must be correct, but, these secured, it is a success.

FRESH AIR.

FARM.

Prof. C. D. Smith on Successful Sugar Beet Cultivation.

To the Editor FARMER'S ADVOCATE:

GENTLEMEN,—A loam, tending rather toward a clay loam than a sandy loam, but deep, rich and friable, is most suitable for growing sugar beets.

A proper rotation for beets is, follow beets with rye the same fall, follow rye with two crops of clover, then beets again.

Manuring—Barnyard manure applied on the rye, if turned under for clover, as it should be, is the general practice.

The beets should be sown as early in the spring as the land is in condition, using a machine which sows two rows at a time and no more, unless the ground is extremely level. Either the Moline or the Gale Manufacturing Companies' seeders are good.

Prepare the soil like a garden, except subsoil the year before sowing the crop if possible, and always plow in the fall if possible.

Cultivate always level and shallow.

In thinning, do not block the rows with a hoe, as we used to do, but put in the hands of each person thinning, a 7-inch weed cutter. Thin as soon as the beets show the fourth leaf, and never postpone this operation.

Harvest when the leaves turn yellow, using either one of the modern makes of best lifters. Personally, I prefer the form of lifter which is used also for a subsoil plow.

Varieties—For heavier soils, the Mangold, Hoerning Improved, and Kleinwanzlebener, in order of ripening. For better location, and excellent cultivation, Vilmorin's Improved is preferable.

A fair yield is 12 tons per acre, costing $30. A fair price for the beets is $5 per ton.

When ordered by the factory, usually four deliveries are made: October 1, November 1, December 1, and January 1. Growers do not expect to haul farther than three miles to factory or railroad.

Regarding the value of pulp for fodder, our experiments are not yet concluded. They indicate, however, about half the value of corn silage.

Michigan Agr. College. C. D. SMITH, Director.

Spring is Coming.

ECONOMY IN FARM WORK.

The ordinary hundred-acre farmer has to economize in acres as well as dollars, in how he does his work as well as what he does this work with. True economy connot be always counted by savings. It has often to be counted in earnings. In other words, well-done work will give a better return than poorly-done work, and, of course, is true economy. Our remarks at this time refer chiefly to clay farms, and it is real economy not to touch, but to keep off clay land in the spring until it is really in workable condition. Almost any farmer can tell when this condition has been reached, but how many, year after year, begin the spring work too soon! It is true economy not to go over a whole field. If the field contains ten acres, get half of it ready and sow it and finish it up. A good way to do this is to disk at a slight angle to the ridges, and cultivate with a spring-tooth or other cultivator, lengthways of the ridges. We never cross harrow, disk harrow or cultivate across the ridges; it is the poorest economy. It opens up the furrows as they lie lapping on one another, and you can never get the fine, compact, springy tilth you can by avoiding this. Many will not believe this, but we have seen the evil effects of it very often. True economy in finishing part of one's field is found when a heavy shower comes during seeding; perhaps a ten-acre field ready to drill—in a few hours it would be done—but the showers often come, and all this work is partially to do over again, while the half field would have been finished, the showers assisting in its growth. Done in this way, the drill can carry enough, in three good bags and the drill-box full, to sow the day's work. This can be regularly repeated, and a great comfort to any farmer to feel that his work is finished as far as it goes. Economy thus practiced is not the end of the economy. It comes in again when harvest arrives, and we find our fields ready for us just as we are ready for them. A ten-acre field ripening, with perhaps two days between the sowings, is pleasant to manage. One is never chased with a dead-ripe field, taking two days and perhaps an extra hand, but can take the sowings in fine shape, and complete them before the next piece is any more than ready. Economy comes in taking it to the barn also. Many hundred-acre farmers have no help but their own family, often just one boy. To such a one this procedure is true economy, and it is almost incredible what the farmer and his half-grown son can take care of when done in this way. The grain is seldom exposed too long to the caprice of the weather, but can be drawn in sections, at the proper time, thus giving everything the best chance to be properly cared for. We have practiced it for years, and cannot give our method up; we are always gaining by it.

Lambton Co., Ont. STOCKMAN.