

their horses in idleness from one breeding season to another. One writer, in the discussion last spring, gives, in stating the expenses, "horse's keep and care, nine months, \$100." If stallion owners wish to indulge in this unnatural and expensive method, they should not be permitted to include it in stating their bill of expenses when complaining about injustice in competition. Were farmers to adopt the method of keeping their brood mares and their colts while preparing for market in idleness, it is doubtful if they could do it profitably. The best horse authorities tell us these are better working than idle, provided they are worked carefully and wisely, and why should it not be so with the stallion, also? In the light-horse breeds the stallion is expected to show his own ability on the track, but when we come to the draft breeds we are expected to judge them by their ability to bring up the beam of the village scales, and by their long pedigree, and some other requisites. Why should they not prove their efficiency to perform the duties for which their offspring is intended? If the owners of these fancy draft stallions would use a little more economy in their business, and make their stallions earn their keep during the nine months they keep them in a box stall and approach them as though they were bears or lions, it would be less expensive for themselves, and better for the horse industry at large. In conclusion, I would say the best way to judge the advantages of a license act in promoting the horse industry is by places where such an act has been in operation. Wishing your paper the success it deserves, and hoping, if this finds a place in your columns, it may at least prove effectual in stimulating thought, and in provoking discussion.

Russell Co., Ont.

J. W. SMILEY.

LIVE STOCK.

SOME REMARKS ON STABLE VENTILATION.

To the person whose business compels his frequenting country hotels, and who not infrequently visits the homes of farmers of all nationalities in this cosmopolitan country of ours, one of the most striking and most common peculiarities observed is the lack of provision for ventilation. That our people are, under the circumstances, so healthy and long-lived, speaks volumes for robust Canadianhood. That tuberculous affections are common is not surprising; that even more do not suffer therefrom is astonishing, since an appreciation of the importance of a constant supply of fresh, pure air seems to be strangely lacking.

Since our homes so frequently lack facilities for ventilation, it is not surprising that our stables often show the same condition. But this difference is noticeable: much more effort has been made to ventilate the stable than the home. My remarks on this occasion, however, have to do with stables only; the question of house ventilation is quite distinctive, and worthy an article in itself.

The absolute necessity of pure air in our stables of all kinds is to-day conceded by practically every stockman. Yet only once in many visits does one find things right. The causes of imperfect success where efforts have been made are various. One of the most common is failure to give proper attention to the system installed. Another often met with is imperfect installation, while ignorance of what good ventilation really is accounts for the most failures of all.

To spend good money and careful thought installing a ventilating system, only to neglect keeping it in operation, is criminal. No effective system ever devised for use in stables is automatic in adjustment to varying atmospheric conditions. Changes in temperature or variation in wind velocity will always necessitate some change in the arrangement of the controls or checks.

Neglect to open or increase the capacity once it has been cut off in some degree in a cold time, is the most common cause leading to the condemnation of what might otherwise have been a good system. Another quite frequent cause leading to the condemnation of a system is the too small capacity of the installation. The average carpenter is apt to gauge the requirements of the stable in the way of air by the coldest weather requirements. For this reason, installations are very apt to be too limited in capacity for average weather conditions, and much too limited for warm weather.

Then, again, an installation is often condemned unfairly because the owner of the stable expects it to do more than any system of ventilation could ever do. A common standard by which the effectiveness of a system is judged is its ability to keep the walls and ceiling free from moisture. This is frequently a most unfair test. Precipitation of moisture on walls or ceiling is due to the warm vapor or water-charged exhalations of the animals, rising and lying for too great a length

of time in contact with the cold wall or ceiling, as the case may be. If the construction of wall or ceiling be faulty, as, for instance, where only double boards, with paper between, constitute the wall, then no system of ventilation could keep them dry without lowering the inside temperature to practically the same as the outside. Walls possible of being kept fairly dry must have more or less insulation; that is, a dead-air space or a concrete core or shavings, or something to prevent too rapid conduction of heat. Then, with a fairly rapid circulation of air, the walls and ceiling may be kept dry. A ceiling protected by straw or hay overhead is the most satisfactory.

Walls with a dead-air space may usually be kept dry quite easily. Stone walls or solid cement walls must be lined to insure their being fairly dry. No system of ventilation would otherwise ever keep them dry in very cold weather.

The number of cattle in a given cubic space is quite an important factor making for the effectiveness of any system. Too many cattle make it difficult to ventilate in such a way as to avoid draughts, too few make it impossible to keep the temperature up to the comfortable point, and at the same time provide for sufficient air-circulation. Low temperature does not always mean pure air, and here is a point where a great many stablemen make a mistake. The air in a stable where the thermometer shows several degrees of frost may quite easily be most vile. From all which it seems important, in the first place, to so arrange matters that there shall be about the right number of animals in the given stable, allowing, say, from 600 to 800 cubic feet of air-space for each animal two years old or over. This condition existing, then there should be provided about 8 square inches of controlled outlet area, and about 6 square inches of controlled inlet area for each animal in the stable. For instance, a stable 36 x 30 x 10, which might be expected to accommodate 18 or 20 head, should have an outlet at least 13 inches square, or 14 inches in diameter if round, and the inlet should be at least 10 inches by 12 inches.

By controlled inlets and outlets is meant that it should be possible to cut off the whole or any part of the outlet by means of some kind of a damper or key.

The controls are necessary for the reason that very cold air being much heavier than warm air, compels a very much more rapid circulation or inflow and outflow of air in very cold weather than in warm. This must be controlled, or temperatures will fall too low in cold weather, and rise too high in warm weather.

The dimensions for shafts or outlets and inlets given above take little or no cognizance of friction, hence, while 6 to 8 square inches in area per head would be sufficient in a large stable, the same area in a small stable would likely be found faulty. Where warm, moisture-laden air flows over or in contact with a cold surface, very heavy precipitation is sure to result; that is, there will be a heavy drip from the shaft. Where the shaft is large enough to permit of a slower current carrying off all the foul air, then the air in contact with the walls of the shaft moves more slowly than does the air in the center of the shaft, where friction is very light, and, as a consequence, precipitation is very much less. In any stable, therefore, it is safe to make the outlet about 25 per cent. larger in cross-section or area than would generally be considered large enough; that is, for 18 or 20 cows, instead of allowing an outlet shaft about 13 inches square, it should be really about 15 inches square, or about 225 square inches outlet area, instead of about 170 square inches. The inlets need not be enlarged, since the same moisture-saturated condition does not exist in the incoming air as in the outgoing.

As already indicated, the methods of ventilating stables are various indeed, and in a subsequent article it is proposed to illustrate and describe some of the best and most easily-installed systems.

J. H. GRISDALE,

Central Exp. Farm.

Agriculturist.

THE GOLDEN-HOOFED.

Editor "The Farmer's Advocate":

I have been reading with a great deal of pleasure the articles in your paper about sheep-raising, so I thought I would give you my experience. I bought a pair of grade ewes in Feb., 1907, paying \$24 for them. I sold the wool for \$4.00. They raised three lambs. I sold the wether lamb, which weighed 150 pounds, at 5 cents per pound, \$7.50. The two ewe lambs weighed 250 pounds, which, if I had sold, would have brought me \$12.50. I won second prize at the fall show on the wether for fat lamb, \$1.50, making a total of \$25.50. I still have the two sheep, while the lambs, wool and prize-money have repaid the purchase price, leaving a balance of \$1.50. If all goes well, I should have four ewes to breed next fall, and another crop of lambs.

BRUCE FARMER.

A TRIP ON A CATTLE BOAT.

Editor "The Farmer's Advocate":

An account of a trip across the ocean on a cattle boat may be of interest to many of your readers. Many have the desire to travel the ocean and visit the land of their forefathers, but have not the money at hand to take them. The cattle boat is the way to solve the problem. I do not see any reason why anyone who has a little pluck and energy cannot have the trip. A trip such as this gives one good experience and courage to meet harder tasks in life. Two things on such a trip are especially a little disagreeable to the average person, namely the eating and sleeping.

At the beginning of our journey we were given a large tin cup—by no means bright—a plate and a time-worn knife, fork and spoon. We were expected to keep these articles clean and return them at the end of our voyage. After meals we had to wash our dishes in cold water, and use hay as a wash rag. This was rather a hard task, as the girls will know, especially after we had been using the dishes for soup and meat. At noon we got no tea, so we used our cup for soup and plate for meat. Our meals were by no means inviting, especially to a seasick man. They were brought by one of our crowd in a large bake pan, merely enough to go around, and for the first time in my life I saw an example of the survival of the fittest carried out in actual practice among the human race. I noted in my diary "The Englishman generally got it." This part of the journey may be readily overcome by taking enough provisions on board to last ten or twelve days. If one is apt to get seasick, not much will be needed, but I found I could eat as much, if not more, than I could on land. Some, however, in our company did not need as much.

When night came, it made me shiver. The bunks were in the back of the boat, where one imagines he is on a swing all night. Large waves roll along, the hind end of the boat goes up, up, up; the screw runs out of the water, a whiz and a rattle is heard for three or four seconds, then down it comes with a chuck, chuck, chuck (the screw coming again into the water), till one begins to wonder if he is going to the bottom of the sea. The sound of this screw alone is enough to keep one awake, even had he been out to see his best girl every night for a week. The compartments were close, and generally cold. We had two ticks and one blanket, when we could have done quite easily with four. We had to make the best use of what we had—slept on one tick, wrapped ourselves in the blanket, and put the other tick over us. We did not stay long in these bunks, as we found it more comfortable to lie on the hay beside the boilers.

The work was not very pleasant at first, as the ship was out of order, but it was soon cleared, and the work became rather a pleasure. We were divided into four groups, each group attending to 125 cattle. One of our number was night watchman, whose duty it was to go around the boat all night and see that the cattle did not get crossed or fall down so they could not get up. He began duty about dark, and finished by calling us about four in the morning.

To describe one day's routine will give you a good idea of what work there is on a cattle boat. We were awakened at 4 a. m., and were soon at work watering the cattle with pails (each beast getting about two pails), and feeding about ten bales of hay per group of 125 cattle. We then hauled up out of the hatches, by means of pulley and rope, enough hay and meal to last the rest of the day and the following morning. This work took us about two hours and a half. Breakfast at 8. After breakfast, we read, told stories, or did whatever we wished till nine o'clock, when we cleaned out the mangers and fed about five sacks of chop. This took about thirty minutes. Dinner at 12. At 3.30 we began work again, watering and giving a big feed of hay. This was done by 5. Supper at 6. After supper we swept the passages, which took about 15 minutes, and then we were through for the night.

This trip I would not advise one to take alone, unless he is used to much hardship. If his company is in the minority, and the majority are a little rough, it may go against his grain, especially if he is a student and has not roughed it much. Eight or ten make a very good company. There is no money in the job whatever. We were told we would get a return trip free, but when we arrived there we had to come back on the same boat on its return trip if we got back free, leaving us no time in England. If we wished, we could get back for thirty shillings when the boat we came on made its second return trip. The fare, third-class, on the passenger steamer, would cost about three pounds, and, for my part, I would just as leave return on the cattle boat.

There are some disadvantages on the cattle boat, as I have mentioned, but, on the whole, I think it is a first-class way for one to see a little of the world and get a lot of experience and information which the man who sits at home and never gets a start only dreams about.

A FARMER.