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EDITORIAL.

STABLE WALLS AND VENTILATION.

In Mr. Grisdale's excellent article in "The Farmer's Advocate" of May 21st, describing five successful ventilation systems, the point is brought out strongly that well-insulated walls are essential where thorough ventilation and perfect sanitary conditions are hoped for. Ventilation, by admitting cold outside air to displace the warmer internal atmosphere, tends to keep down the temperature of the stable, and the freer the ventilation, the colder the stable will be, other conditions remaining the same. In order that the stable may not be rendered frigid, the walls should be so constructed as to minimize waste of heat by conduction through their material particles.

Many people fancy that if the walls are air-tight, that is enough. Nothing could be more fallacious. A closely-corked bottle is air-tight, yet see how soon a bottle of hot water will be converted into ice if set outside on a cold winter day. Glass is, as we say, a good conductor of heat. The heat of the water passes to the glass of the bottle by conduction, thence radiates into the surrounding atmosphere. In exactly the same way, heat may be lost through any other material, even though it be entirely impervious to air. Some materials are good or rapid conductors, and some are poor or slow conductors of heat. Glass, iron, stone, concrete and other substances belong to the former class. Asbestos is a striking example of the latter, which explains why asbestos is wrapped around furnace pipes. Wood is a poorer conductor, or, to state it conversely, a better non-conductor of heat than is an equal thickness of stone or concrete. A perfect dead-air space is a splendid non-conductor of heat. A wall constructed of several thicknesses of close-nailed boards and building paper will permit the escape of less stable heat than will a 12-inch wall of solid concrete or stone. In fact, solid masonry makes rather a poor wall for a house or stable. It wastes much heat by conduction.

Many are deceived by the fact that their basement stable is warmer than the loosely-constructed frame stable which it superseded. This is partly because it seals the stable up more closely, preventing exchange of air through the knot-holes and chinks, which formerly provided accidental ventilation, and incidentally kept the air drier, as well as purer, by permitting the foul, moisture-laden air to escape and be displaced by fresh air from outside.

Be it clearly understood that heat is lost from stables in two ways: (1) by conduction through the substance of the wall, which is uncompensated waste of heat; (2) by exchange of warm inside with cold outside air through chinks, crevices or ventilating flues. This latter is a necessary loss, as it could only be avoided by sealing up the stable, which would eventually suffocate the stock by the lack of oxygen, and charge the stable atmosphere with excessive dampness, water-vapor being one of the products of respiration.

Ventilation we must have. Loss of heat by ventilation we dare not prevent, except by expensive artificial means of warming the inflowing air currents—a method which is seldom resorted to. The loss of heat incidental to proper ventilation will not render a stable unduly cold, providing the walls, floor and ceiling are so constructed as to minimize waste of heat by conduction.

Not only the comfort of the animals, but the proper working of the ventilation system itself depends on well-insulated walls. Most ventila-

tion systems work more or less on the chimney principle, their efficiency being based partly on the tendency of warm air to rise and of cold air to descend, on account of its greater density and weight. The nearer the temperature of the stable atmosphere approximates to that of the outside air, the less rapid will be the movement of air through the flues (other influences, such as wind, being equal). Of course, a degree of ventilation will be obtained even in a cold stable by a properly-installed system of inlets and outlets, and it should never be forgotten that zero temperature, with dry, clear air, is better for the stock than a temperature of 40 or 50 degrees with a damp, vitiated atmosphere. Any breeder who neglects ventilation, does so at his peril. Every stable should be well lit and ventilated, even if it be a cold one, but, in order to make the ventilation thoroughly efficient, and at the same time maintain stable temperature at a comfortable point, without excessive periodic fluctuations, well-insulated walls are necessary.

HOW TO IMPROVE STABLE WALLS.

The importance of a well-insulated wall, and the shortcoming of solid concrete in this respect being conceded, the question is how best to improve such walls; for it cannot be denied that cement concrete possesses some distinct advantages on the score of durability, economy and incombustibility. The second claim may not apply in all cases, but for many districts it does, and the rising prices of lumber point to concrete as likely to become increasingly utilized in wall construction. Experience proves that such a wall may be very much improved by lining it closely with inch lumber. If this could be matched, and the space behind filled with shavings, it would be much better than to leave a loosely-encased air-space, for an air-space is of no value to a wall unless it is a dead-air space, and a perfect dead-air space is very difficult to secure. A packing of shavings has the effect of dividing the air up, thus making a large number of small air spaces. One objection to the use of shavings in this way is the provision of harbors for rats and mice. We have heard that the admixture of a proportion of salt will render the occupation of shavings distasteful to the rodents, but cannot vouch for the correctness of this.

Whatever the system adopted, lining with matched lumber is sure to be beneficial. In order to facilitate this, the suggestion has been offered that, when building the wall, horizontal shanking might be imbedded, one near the top, and one near the bottom of the wall, so placed that the face will be flush with the finished wall, or slightly projecting. To these the lining might be nailed quite easily. If the scantling were merely flush with the wall, strips would have to be nailed on them before applying the lining. Another way of improving a wall is to use hollow cement blocks in its construction, while even better are the large, hollow building brick which find favor in certain sections. The principal disadvantage of these is that they are not so strong as solid concrete, although, when tried, they appear to endure the strain quite satisfactorily. In the case of the cement blocks, much depends on how they are made and laid. Even at the best, they are somewhat porous, and special attention should be given to drainage, particularly where they have to be laid up against a bank of earth.

Yet another way of securing adequate insulation is to lay up the wall using a collapsible core box in the center, which, on being withdrawn, leaves a hollow space inside the wall. Particulars regarding the construction of such walls appeared in the current volume of "The

Farmer's Advocate," issues March 5th, page 395, and March 19th, page 489. The foregoing suggestions are well worth considering, and are offered just now for the especial benefit of intending builders.

FUTURE OF THE BACON-HOG INDUSTRY.

The communication from "Chronicle," published in "The Farmer's Advocate" of last week, is certain to attract attention, for the primary reason that it relates to a branch of Canadian agriculture periodically in the limelight because of its importance, and because of the irritating fluctuations in the price of hogs to the farmer. Our correspondent's presentation of the subject is evidently based upon a study of the industry from the standpoint of those directly concerned in the export trade, which admittedly is one of first-rate importance. Our correspondent's figures show a wane in the volume of our bacon exports, and the assumption seems to be that there is a corresponding falling off in hog production on the farm. But is the decrease in exports not partly accounted for by the increase in home consumption? As in the Old Country, so in Canada, fine bacon is becoming a more popular article of diet, and, with a growing population and increased activity in mining, lumbering and railway construction, a much greater volume of the output of the packing-houses will naturally be absorbed. That there is good ground for this view, would appear from the returns of the Ontario Bureau of Industries, which show the number of swine in the Province for the past three years to have been as follows:

1905	1,906,460
1906	1,819,778
1907	2,049,666

Looking back to 1897, the total number of swine on hand in the Province was 1,284,963. The values ran up from \$6,533,210 in 1897, to \$13,023,743 (high-water mark), in 1903, the figures for 1906 being \$12,770,708. When we turn to the tabulation of hogs "sold or slaughtered," we find the record as follows:

Year.	No.	Value.
1897	1,399,967	\$10,080,812
1906	2,222,758	22,501,028

Evidently, there has been an increase in hog-production, if we may rely upon these official figures, but the question naturally arises, might there not have been a still greater increase, at a profit to the farmer, so as to hold the position won on the high merit of our products in the British markets? It is self-evident that, if we allow Danish produce to displace Canadian, the position will be very much more difficult to regain, and without the safety-valve of such an outlet as the export trade affords, production would be necessarily diminished, profits probably contracted, and the effects of periodic gluts even more distressing than at present.

"Chronicle" suggests that sacrifices will have to be made to regain the lost ground, but by whom? The farmer alone? Or will it be shared by the packer? The packer claims to have lost money on this export business, yet sworn disclosures have shown great profits on the packing business as a whole, amounting to as high as 120 per cent., and a high average covering a period of 14 years. In the number of packing-houses and plants, "Chronicle" assures us that there is equipment for handling three times as many hogs as are now being produced. If the extra complement is not forthcoming, a lot of capital must continue to lie unremunerative. It would be interesting to know how the returns in