

duty. Some one, however, has to break the ice, and I will do my best to do the subject justice, availing myself freely of the experience and discoveries of others where it may seem necessary.

The subject is one of paramount importance to the farmer, and this season of the year is, of all others, the most appropriate for its introduction: the commencement of winter being the time when advice given and remarks made would be of most benefit.

First in order of discussion stands the housing of animals. We all know, or at least ought to know, the great advantage there is in properly housing stock, but perhaps the true reason for the necessity of so doing is not known to every one; it is this:—The air we breathe is composed of two gases, oxygen and nitrogen, in the proportion of 20 per cent of the former, and 79 per cent of the latter, in bulk. When inhaled, the oxygen enters into combination with the carbon with the blood, and is given off in the form of carbonic acid gas,—a portion of it also combines with hydrogen gas in the system, and is given off in the vapor of water. Now, as the carbon and hydrogen are supplied by the food, it is obvious that increased respiration requires an increase of food to supply the waste, which is the reason a fattening animal should not be allowed to take exercise. The combination of oxygen and carbon is attended by the production of heat, and it is this that produces the heat of the animal frame. Cold weather therefore acts in two ways; it first of all, on account of the increased quantity of respiration, creates a demand for an increased quantity of food, which is consumed and burnt up in the animal furnace, as it were; and it also more rapidly abstracts the heat caused thereby from the frame, calling again in another way for a greater increase of food, to supply the heat. It follows therefore, as a matter of course, that the less waste of food there is produced by increased respiration and cold, the more will be enabled to remain, and add to, the system. Upon this great yet simple fact, rests the necessity, the imperious necessity, of providing suitable accommodation for cattle in winter, with the view of economising food, some instances of the efficacy of which I may perhaps allow myself frequently to quote. As regards the humanity of providing shelter for cattle, and the difference in the feelings produced by the sight of stock under cover, when contrasted with those in the open air, in a snow storm, I do not fear any opponent. We have therefore to consider at present the most economical and perfect way of sheltering cattle from the effects of the weather, so as to ensure their maintaining a healthy and growing condition on the smallest possible portion of food. It is, in the present state of the pocket of farmers in general, difficult to provide shelter perfectly enclosed from the effects of wind and weather for each animal, yet I would submit that the nearer our barnyards approach to this state, the more flourishing and healthy will be our stock, and that the wretched condition of much of our Canadian cattle is owing to the system of starvation and exposure being so ruthlessly pursued as it is in many places. The first thing that suggests itself is a log shed, which is

most easily obtained. A little labor in the woods cutting logs, a few neighbors to assist in rolling them up six or seven feet high, a few rails and a little pea or other straw for thatch and to chink the logs with, and you have at all events some shelter for your cattle. Six men with a yoke or two of cattle would build such a shed in a day, and the labor would be most amply repaid. But I hope we would possess more ambition than to be content entirely with such edifices, useful as they may be as temporary substitutes for better things, so we will turn our attention to the more regular and artistic style of building, viz: Frame, for bricks are unfortunately as yet unobtainable, however desirable they may be. How often do we see barns standing by themselves, or at least with a shed or two just projecting from one end, as if it were necessary to have it as far from the barn as possible; is it not much better to use the barn as one of the sides of the shed, the double thickness of the walls thus assisting in a great measure in preventing draughts of wind from rushing through the shed, for frame sheds are but draughty places of rest for cattle, unless the joints are carefully battened. A shed built against one side of the barn and divided into three partitions, in the centre one of which would open the large doors of the barn, would hold a great deal of stock. On one side might stand the cows (for cows ought always to be kept separate from the rest of the stock), on the other the oxen and grown-up male animals, in the centre young ones. Sheep and hogs should have a separate place provided for them, as their offensive smell might be injurious to cows in calf. Another style of building I would recommend would be a double-storied barn, which would be particularly applicable when a slope of the ground existed, which would serve as gangway to the upper part; but even without it, the principle might be applied. I would proceed after this fashion: having chosen a place at the foot of a declivity, I would proceed to clear out a place for the foundations of the barn, in such a way that when the foundations are built, (it would not do to have them less than 8 feet high, they would be better 9 feet,) the top of them would be in one place on a level with the ground. The foundations should be built of stone, well put together, and should form three sides of the square, the south side being left open; upon which foundations I would place my barns; the frame of which would of course differ in size, &c., according to what was required of it. The floor would be well laid with two inch plank, so as to prevent anything from falling through upon the cattle below, which would of course be fed from above through openings made for that purpose. The lower part would be appropriated to cattle, of course, and very warm they would be with solid stone on three sides of them; indeed, the fourth might be made to close up when required, when they would be comfortable indeed. A corner could be built up as a root-house, to be filled from above, but with a door in the side, for convenience in taking the roots out. The upper floor would be approached from the sloping bank, and be used as barns generally are, viz.:—hay-barn,