

milking in a newly arranged shed, said to me: "It is a pleasure, now, to go and milk! It is all so clean! It is as warm as in the house!" I like to believe that the young people will consent willingly to the expenditure of the money they now employ in the purchase of objects of luxury in the erection of useful buildings.

Let us now see how we ought to proceed in application of the improvements I have been proposing to our farm-buildings, in such a manner as to form a complete whole, an economical system adapted to the wants of the dairy-industry.

SECOND PART.

I could, Gentlemen, leave you under the impression that I am the author of these plans that I lay before you: the modesty of Mr. Barnard would not allow him to assert his right of paternity; but I cannot be deaf to this legal axiom: "*Res clamat Domino*;" which, freely translated, means: The plans are Mr. Barnard's; and this is one reason why they should demand our serious attention. They are improvements I am proposing, and not a revolution, which upsets and destroys without rebuilding. I address myself to all farmers, rich or poor, since they are all equally called upon to supply the demands of the creameries and cheese factories, convinced as I am, that all, if only animated by a little earnestness, can make these improvements; if not wholly, at least in part.

In order to be clear, to suggest to all and each of them a plan that may suit them, I will divide farmers into four classes.

First, those who are obliged to build entirely anew.

Then, those who wish to increase their buildings and to have a manure-pit.

Thirdly, those who having a manure-pit already, want to increase and improve their buildings.

Lastly, those who can only afford to construct a boiler-house, or a manure-shed.

I will only lay down the principal lines, leaving to each the care of the details, which will vary indefinitely, according to the conditions and circumstances in which each farmer finds himself. Before beginning, it is important to have an idea of the whole system, to proceed with order in accordance with the means at each man's disposal.

1. To the farmer obliged to build entirely anew I propose this first plan:

A building 18 feet up to the roof, 96 feet long and 38 wide. You will have a manure-pit at least 8 feet high; a stable and cowhouse of the same dimensions; in the south-part of the building a boiler-house and a poultry-house; under the floor next the pit a piggery; and space to build a silo, and to set a horse-power to work a threshing-machine and a chaff-utter. If the stable and cowhouse are too narrow and do not come up to your ideas, it is easy to build, on the east-side, a lean-to, which will serve for a piggery, in the lower part, and for a boiler-house and poultry-house in the upper, so that the whole space below the floors may be reserved for the sheep, the carriages, and the implements. If the land is on a slope, you will be spared the expense of making raised approaches; you might, possibly, be able to enter with your loaded wagons by the gable-end of the barn, and this would enable you to drive in as far as the hay-loft, an immense advantage. These plans you will modify according to your wants; in taking them for your starting point, you will certainly have a building both simple and convenient.

2. In the second place, I produce plans belonging to an old barn which has been improved to suit a dairy-farm. The proprietor wished to preserve this building, because, though old, it was in good repair; he wanted to enlarge it and to have

a manure-pit. This is the barn in its original state; that is it in its modern dress. You will perceive at a glance that it has been raised 4 feet from the ground: an operation easily performed by aid of the *screwjack*. Being raised like this, there is room for a manure-pit of great size under the cowhouse, a piggery under the floor next the cowhouse, and very deep bays. Aided by this heightening, an annex of 14 feet wide has been built towards the south, the whole length of the building; another of the same sort, but facing the cowhouse, on the north side; the lower part of this latter becoming a part of the manure-pit, while the upper storey serves to enlarge the cowhouse. In the annex on the south-side, there is a part retained for the horses; another for the working-oxen; in this last place, that is, for a width of 12 feet, only 6½ feet have been left between the two floors of the stable, so that the boiler-house can be placed in the upper part of the stable. The raised path, leading from the stable to the cowhouse, is 3½ feet high by 13 feet long. By means of large bars solidly fixed, like stairs, the cattle surmount it with ease. Between the two great dormer-windows, there is a space of 20 feet, intended for a silo. Behind the barn, there is a shed sheltering the wheel that moves the threshing-machine and the chaff-utter. The original poultry-house has been put in communication with the stable and the manure-pit. An examination of the interior plan gives an exact idea of the bottom of the pit, made in basin-form, that the centre of gravity of this enormous mass of liquid and solid matters may not injure the walls of the pit. Below the stable is an inclined plane, allowing the descent of the liquid matters into the pit. The bottom, whether of the dung-pit or of the manure-shed, should always be covered with a layer of beaten clay, 5 or 6 inches thick, whereby the manure is prevented from *leaching* into the cellar, and into the well, which is generally situated close by, and sometimes is in the cellar itself. You observe four ventilators terminating in one cupola; two lead from the cowhouse, a third from the boiler-house, and the fourth from the cellar. An air-hole having its orifice below the roof, passes above the floor of the stable and ends in the cowhouse. Pure, fresh air is constantly replacing the hot and unwholesome air, which, departing through the ventilators, maintains a temperature of nearly 50° F. The ground plan shows how you can observe the temper of the horses and cattle, all of which are fed with ease from a passage in front of them. The cleaning is managed by means of trap-doors placed in the gutters behind the animals. The dung from the stable is thrown into the cellar by two openings in the partition between the stable and the cellar.

This, I presume, is enough to give you an idea of the whole building; a more attentive examination of all the plans will teach you the exact dimensions and the other details. All these buildings should be put up with precaution, that is, in regard to warmth. If they are rooms (*pièces*) they should be well panelled and caulked; if in clear frame-work, they should be double-boarded with a stuffing of saw-dust, to keep out the cold and damp. Those whose buildings rest on a firm sloping surface can make a dung-pit beneath their cow-houses, without being obliged to raise them, provided they can manage to admit into it a little light and air.

3. Let us examine a third case: that of the Nuns of the Hospital of the Sacred-Heart of Jesus, at St-Sauveur de Québec. These ladies possess a fertile and extensive property at L'Ancienne Lorette, and are now busy in improving an old barn under the direction and after the plans of the Director of the Journals of Agriculture. In this barn, there is already a manure-cellar, but the cowhouse and stable want enlarging, a silo has to be made, a boiler-house, &c. On the south-side, the roof extends about eight feet beyond the barn, forming a shelter. To utilise this part of the roof, it is pro-