A Modern Dairy Barn

An Article Describing the Layout and Fittings of the Barn on the Indian Industrial School Farm at Brandon Man.

The question of building a barn is one which deserves particular consideration. It is not a question today of putting up a structure which will do until times improve and a better building can be afforded. The aim, instead, is to plan on a building which will be first of all the best possible one that can be built for the money available, one that will be convenient, light, sanitary and, in addition, allow of being added to when the occasion demands without materially altering the original layout. Dairy barn construction has wonderfully developed of late years, and a great many new barns have been built thruout the country. Perhaps one of the best ways to get ideas on modern barn construction is to visit, or if this is not possible, at least to read as full a description as possible of one or more up-to-date barns. Such a one has recently been built and equipped on the Indian Industrial School at Brandon, and the object of this article is to take the place of a personally conducted trip thru this modern dairy barn.

The barn was put up in 1914 and thoroughly modern ideas were embodied in the construction, not for their own sake, but because modern ideas make for better results from the milking cows, greater efficiency in handling them, and greater profits for the owner.

The farm is run under the auspices of the Methodist Church, assisted by the Dominion Department of Indian Affairs. Outside of capital work account it is practically self sustaining. No financial assistance is rendered by the church. A word about the purpose of the farm and an understanding of the high general efficiency of its work will lead to a better appreciation of the efficiency of the modern principles of construction followed in building the barn.

Run by Indian Children

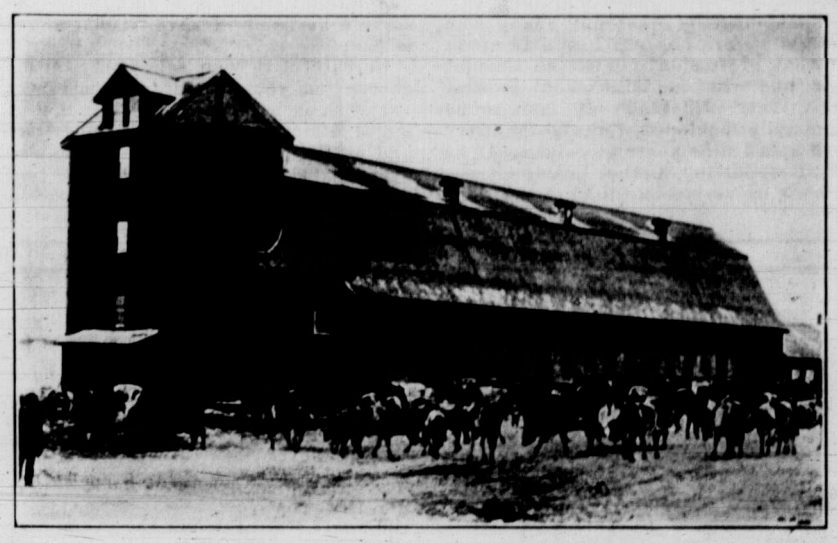
The farm serves as a training school for Indian boys and girls. The Rev. Thomson Ferrier, who is superintendent of Indian missions for the Methodist Church of Canada, has the farm under his own personal supervision and resides on it. All work outside and about the barn is done by the boys, and there are classes for the Indian girls who do their work under supervision. The farm is one of the most productive in Manitoba. Last spring they had 2,000 bushels of seed wheat and 1,000 bushels of seed potatoes, for which they got a doller per bushel right on the farm.

The crops for the years are: 50 acres in meadow, 40 acres in fodder corn, 90 acres in wheat, 170 acres in oats, 30 acres in barley, 22 acres in potatoes, 10 acres in roots and 5 acres in garden produce. Mr. Ferrier says that the weather has been very dry, but that the outlook for crops is very good, with the exception, perhaps, of the hay.

The herd of dairy cattle consists of Holsteins, pure-breds and grades. There are two bulls, "Pontiac Prince" and "Indian Pontiac Prince." The first was purchased in Ontario, the latter was born on the farm. In the beef stable, which has not yet been refitted, there are Aberdeen Angus and Shorthorns. No milk is shipped. The farm makes all its own butter, and all the produce of the dairy is used by the institution, for there are 140 people on the farm.

Size and Layout of the Barn

The barn, built in 1914, is 125x44 feet without the silos. Including the silos it is 150 feet in length. The silos are placed at the end as in the photos. The essential features of the plan are as follows: The first is the rectangular type of construction. Rectangular barns have been found to be better, particularly for daiy purposes, than the old square type of barns so well known in older Canada. They permit of better ventilation and increased sunlight. The central parts are not dark and damp. Instead of having a number of rows of stalls and a number of passages all running crosswise, there are only two rows. These are very long, for each includes twenty-seven stalls. There is less space required for passages than in square barns. Feeding and cleaning are simplified. It is but the work of a few moments to run the feed truck down the central passage and feed the cattle in both rows. There is no confusion in tying and releasing the cattle. There is a big bull pen at each end, two calf



The dairy barn at the Indian Industrial School, Brandon

pens and a long row of box stalls in the basement beneath the cow stable.

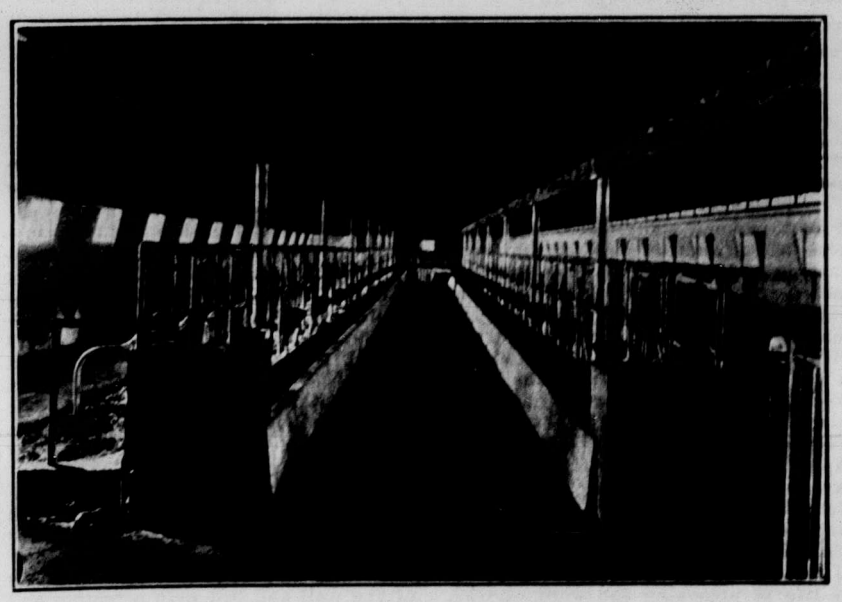
Here are the measurements of the plan. The stalls are 3 feet 6 inches in width; the cattle stands, 4 feet 8 inches long; curbs 6 inches wide and 8 inches high; mangers are cement and 2 feet 9 inches wide; gutters are 16 inches wide. Central passage is 6 feet wide and the passage on each side 6 feet 9 inches. For the barn of the length that this is the dimensions are ideal. Smaller barns can be built 36 feet wide, outside measurements. The mangers, curbs, cattle stands and gutters would be the same, but the central passage need only be 5 feet 10 inches, and the passage on each side 5 feet. A long barn needs the increased width for the sake of proportion, appearance and strength under wind stress. The cattle stand and the outside passages slope half an inch to the gutters. Gutters are 7 inches deep on the stall side, 4 inches deep on the other side and slope out towards the passage to drain off when washing out.

Ventilation

The comfort and health of the cows was one of the main considerations kept in mind in building this barn. They are provided with as much fresh air as they could get out doors. The cows' vitality is not taxed by forcing them to breathe the same air over and over again until it has become saturated with moisture and foul with poisonous carbon dioxide gas. Fresh air inlets with a maximum capacity of 48 square inches were installed. These can be controlled by reducing the opening if some of the cows are removed, or increasing them when the barn is full. One of these inlets is placed every 14 feet on both sides of the barn and the ends. There are six large foul air outlets, about 18 inches square, thru which impure air quickly escapes, and the atmosphere of the stable is changed over and over again every hour. The outlets are staggered, that is, they are not placed opposite each other. In this way a thorough diffusion of the air in every corner of the stable is secured. Each outlet is controlled by a damper, which can be operated from the floor with a string. This is the Rutherford system, and the farm people say it works very well indeed.

Lighting

A three foot window is placed every four feet. The stable is bathed in sunlight. There is not a dark corner to harbor germs of disease. Old traditions were in favor of dark barns. The impression evidently was that windows made barns colder. As a matter of fact, a well lighted barn is warmer at any time of the year than a poorly lighted one, other conditions being equal. A well lighted barn is better for the eyesight of the cows. In the old fashioned barn, the cattle grow accustomed to the dark stable, and when turned out into the bright sunlight the sudden change paralyzes the optic nerve, thus seriously affecting eyesight. In this barn the cows face with heads in. The strong sunlight is not in their faces but is on the "business end" of the cow. This is an important consideration for the sake of sanitation and milking in dusky winter evenings.



Interior layout of the barn. Economy of space, ease of feeding, sunlight, ventilation and sanitation have all been amply provided for.

Feeding and Management

The cows are fed with a big feed truck which can be run along the central passage in a few moments and the feed speedily shovelled into the cement mangers. Corn silage, cut straw, cut hay, turnips, mangolds and ground oats are fed. The feed room is situated at the end of the barn next the silos. It is 7 feet 6 inches wide and occupies, with one 10 foot box stall, all that end of the barn. A hay chute leads into it from the loft above. Below it is the root cellar. The big stave silos appear in the photo.

A complete water bowl outfit keeps an ample supply of fresh water constantly before the cows. They do not believe at the farm that it pays to drive animals out on bitter winter days to drink at a cold spring or icy trough. They know the animals will not drink enough water for the maximum production of milk, and that the little cold water they do get will harm their digestion. It is found best to keep them indoors in winter, only turning them out for exercise on fine days. There are 14 water bowls in each row, one for every two cows. Each row of bowls is controlled by a regulating tank fed from a storage tank. The bowls are of the deep type, capacious and strong.

Cleaning is done by a litter carrier running along an overhead track behind each row. This is a much simpler and easier method than cleaning with wheelbarrows. None of the liquid manure is allowed to slop over and waste. The manure is run out into the yard and dumped on a pile. The heart of the pile, after it is well rotted, is taken directly to the field. The other is turned and rotted before distributing.

Scrupulous Cleanliness

Scrupulous cleanliness is observed in the barn. The stalls and equipment are very clean. They are 2½ inch galvanized steel stalls, which never rust. They do not soak up manure or harbor lice, vermin or germs of disease, and their open construction allows the sunlight to flood thru them. The cement floors are clean and easy to keep clean. The stanchions are clean, and have the further advantage of being very comfortable for the cows. They allow the cows to turn their heads and card themselves, and at the same time keep the cows clean by lining them up evenly over the gutter. The barn is fitted with 5½ inch steel supporting columns, which like the other equipment are very durable and do not interfere with the sunlight. There are two sanitary steel bull pens and two steel calf pens. The stanchions of the calf pens are all opened and shut with one lever, which saves time. The calves are tied for milking and each is fed what it should get. Mr. Ferrier states that the sanitary equipment is perfect. Not a cobweb can be seen in the stable. There are no places for dust to collect. The separator room is kept spotless.

This care and cleanliness enables the farm to produce for its people No. 1 cream and the very sweetest, cleanest milk and butter.

The cost of a barn like this is fully compensated for by the results which can be accomplished in it. It is not costly when one considers that it is permanent and will last for generations without changes or repairs. No barn could be built of wood for twice the cost and have all the modern, money-saving and time-saving advantages which this one contains.