

MARCH 16, 1911

## Lincoln Red Herd Built Up by Milk Records.

Attention has been drawn before to the remarkable milk records of the Lincoln Red Short-horns, owned by John Evens, of Burton, England. Mr. Evens began weighing the milk from his cows as far back as 1890, and has kept it up ever since, so the extra work must have paid.

In the first year of the testing, there were 31 cows in the herd, and these averaged 740 gallons. During the past year, 51 cows were in the herd, and these averaged 838½ gallons, or 8,385 pounds per cow. This is a high average, and far above the general average of the country. Mr. Evens' highest record was in 1896, when 43 cows averaged 889 gallons. In last year's records, the highest individual yield was 12,213 pounds. This cow was 322 days in milk, and had the high daily average of 37.9 pounds. Another cow gave 11,863 pounds of milk in 308 days, and eight other cows gave over 10,000 pounds each during the year. To show how well Mr. Evens' system enables him to breed from heavy milkers, it may be noted that 12 of the cows were first calvers, and some of them gave over 10,000 pounds of milk for the year. This emphasizes the fact which has been so often insisted upon, that the keeping of systematic milk records enables the dairyman to raise more profitable milkers, and eliminate the "boarders," which are the bane of so many dairy herds.

The writer has frequently seen Mr. Evens' cows at leading shows, and always they can be relied upon to take the leading prizes for the breed. The keeping of milk records has paid Mr. Evens well, and would pay every other dairyman over and over again for the extra labor.

F. DEWHIRST.

## Co-operative Milk Depots in England.

In a country like England, where the great bulk of the milk produced is sold directly for use in cities and towns, the question of the disposal of the surplus milk during the heavy summer flow is a serious one. It is not an easy matter to solve, as the surplus of an individual farmer is not large enough to warrant him putting in butter or cheese making apparatus. In the winter time there is no surplus to worry about—rather the opposite.

A solution may be provided, it is hoped, by co-operative milk depots, and the farmers of Wiltshire have combined and erected a fine factory, costing £10,000, at Chipperham. The factory can handle 10,000 pounds of milk per day. Instead of farmers shipping milk individually to the towns, it will go to the central plant, and be handled in the most approved fashion, and then sent to the customers. During the surplus season, any milk not disposed of will be made into cheese. The milk will reach customers in far better shape from a central depot, and middlemen's profits will be eliminated—and these certainly take a considerable share of the profits.

As to the future, it is largely a question of loyalty amongst those contributing milk. No doubt efforts will be made by the present buyers to prevent the success of the new concern by temporarily offering more money than the factory will pay.

F. DEWHIRST.

## Allows Sale of Skim Milk and Buttermilk.

Editor "The Farmer's Advocate":

I beg to thank you for your kindly comments in the March 2nd issue on the Milk Bill now before the Legislature. As to your suggestion in reference to the sale of skim or butter milk, I desire to point out that it is already provided for. In subsection 2 of section 5 of the Act, copy of which I am enclosing, you will notice that no milk may be changed from its normal condition, unless this fact is duly advertised. This was drawn with a view to permitting the sale of skim milk, buttermilk, or any other special kind of milk, so long as that fact was made clear to the purchaser. The purpose of the Act was to deal only with what is generally understood as milk as it is bought daily by the average consumer.

JAS. S. DUFF.

## One of the Good Cheese Factories.

The attractive little photograph published herewith represents the White Lake Cheese Factory, Hastings Township, Hastings Co., Ont. The building is of cement, with living-rooms for the milkmen and the factory. About 180,000 lbs. of milk is received and manufactured into cheese here each season. It is one of the factories selling on the Belleville Board. It ranks as one of the best of the factories of the Madoc district, being kept in sanitary condition, and turning out cheese of excellent quality.

## APIARY.

### The Habitation of the Bee.

By Morley Pettit, Provincial Apiarist, O. A. C., Guelph.

Honeybees cannot live a solitary life. Essentially social in their habits, they live together in colonies or families composed of the mother queen and her children. Each colony occupies an enclosed home called a "hive." This may be a natural cavity in tree, rock, or other place, which the workers have cleaned out and fitted up to suit their taste; or an imitation of such natural dwelling which contriving man has made to keep them near him. In either case they make their own interior furnishing. The artificial hive may have frames and other fixtures, but the essential furniture must be made by the bees themselves. This

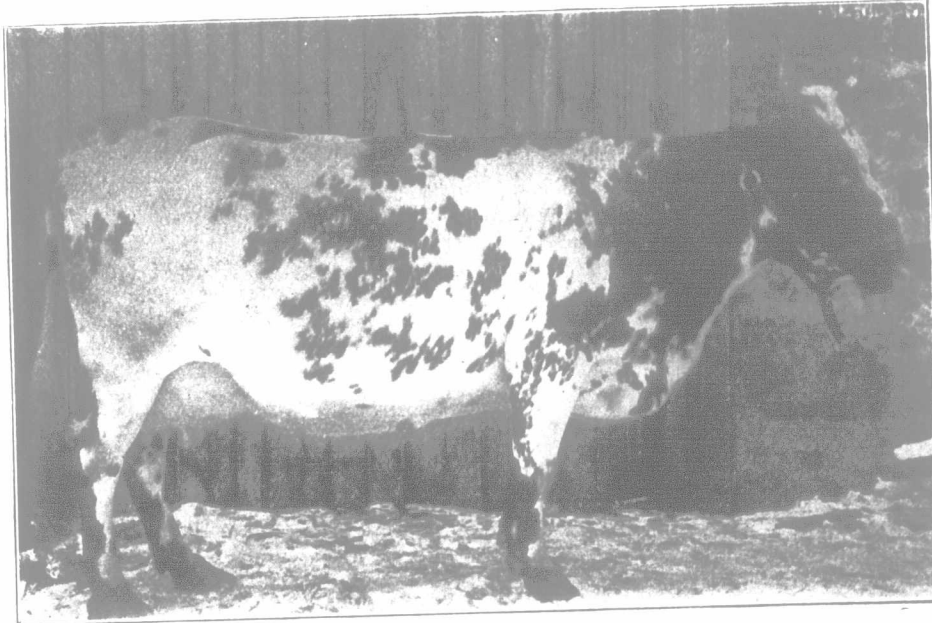


White Lake Cheese Factory.

is the comb they use for the storing of provisions and as cradles for the young.

### COMB.

Comb is always built of beeswax. Bees do not gather wax from flowers, nor make it of pollen. They secrete it just as naturally as crated poultry put on layers of fat. In fact, the conditions for its production are similar: high feed, bodily inactivity, and warmth. Under these conditions, wax grows in delicate scales in the wax pockets of the young workers. This wax is worked over with the mandibles, and built into the well-known honeycomb form. This is a delicate structure of six-sided cells, facing both ways from a wax partition, and separated by thin cell



Primrose of Tanglewyld—15943—

Ayrshire cow, eight years old. Milk production, 1909: 13,536 lbs.; fat, 529.08 lbs. 1910: milk, 16,195.5; fat, 631.64. Total for two years: Milk, 29,731.5; fat, 1,160.72. Owners, Wooddise Bros., Rothsay, Ont.

walls of the same material. Each cell of the comb is first made round; then, as more cells are crowded against it, the sides flatten, and it becomes six-sided. Worker cells are about one-fifth inch, and drone cells are about one-fourth inch in diameter. The same comb may be built partly of worker and partly of drone cells. The partition down the middle of the comb, formed by the bottoms of the cells on each side, is called the foundation.

The cost of comb-building depends on the time and material used. Bees only build comb when there is sweet of some kind being handled in the hive. In other words, they decline to prepare storage room for the honey flow until it is upon them. Then, when they come in loaded from the field, they must wait for wax to be secreted and comb built before they can store their load and

go for more. In temperate climates, cool nights delay the secretion and manipulation of wax and increase the loss of time, while the nectar in the blossoms is wasting for want of being gathered. It is as though the owner of a maple grove waited until sap weather in spring, then sent his men to manufacture wooden buckets for the sap while the days were passing, and the sap dripping from the spiles onto the ground. Add to this the discontent caused by the delay in the hive, and the overcrowding of fielders waiting to unload, greatly increasing the tendency to swarm, and you see some reasons why comb-honey production is so much more expensive than extracted honey, when the empty combs are returned to the hives to be refilled.

It is valuable to note, also, the conditions under which bees build worker or drone cells. These may be roughly classified as follows:

1. A swarm hived on empty frames always start building worker comb.
2. So long as the queen's egg-laying, keeps pace with the comb-building, worker cells are built.
3. As soon as the queen lags behind and is unable to deposit an egg in each cell as it is built, the workers change over to the building of drone cells. But if they get these filled with honey, so that the queen overtakes them again, they may change back into the making of worker comb. This explains how it is we find such a mixture of drone and worker comb in a hive where no artificial foundation has been used.
4. If from a hive containing plenty of comb any part of the comb is removed, the bees nearly always build drone comb.
5. A queenless colony will always build drone comb.

It will be seen by these general statements that the workers seem to show deference to the wishes of the queen, for they build worker comb whenever she is ready to occupy it at once with eggs; otherwise, they build larger cells, suitable for drones or storage.

### COMB FOUNDATION.

A study of these statements, coupled with the fact that drones are undesirable in honey-producing colonies, will show that it is not practical to depend on the bees to build their own comb unaided; there would be altogether too much drone comb and too many drones. This difficulty has been overcome by the invention of Johannes Meh-ring, of Germany, of a process of manufacturing an artificial comb foundation which bees will readily accept and build into nice straight, all-worker comb. It is simply pure beeswax rolled in thin sheets, with the bases of worker cells stamped on each side. These sheets are placed in the hives and used by the workers as foundation of comb. Machines for making this at home can be bought,

but it is generally considered more profitable to send the wax to a specialist to be made up at so much per pound.

Except in certain special cases, it is always an advantage to give bees full sheets of foundation for comb-building, instead of leaving them to build it to suit themselves. By its use, every comb is built straight as a board, and is interchangeable with every other comb in the apiary. The combs are entirely worker comb, with the exception of occasional drone cells, the bees will work in at edges or corners. All the wax produced by the bees and gathered by the apiarist from scraps, old combs, or cappings, can be returned to the bees in

this shape, and can be rendered again after years of use, none the worse for wear.

The apiary business is devolving more and more completely into the hands of specialists. Foul brood has played its part, for the beekeeper who will not adopt thorough measures to exterminate it is practically forced out of business. Incidentally, it may be noted that expert apiarists view with satisfaction the extinction of the careless amateur, whose continuance in the business is a menace to the industry.

Not only every apiarist, but every student of natural history, will be interested in Mr. Pettit's articles on the honeybee. The first one, on anatomy, appeared in "The Farmer's Advocate" of February 23rd.