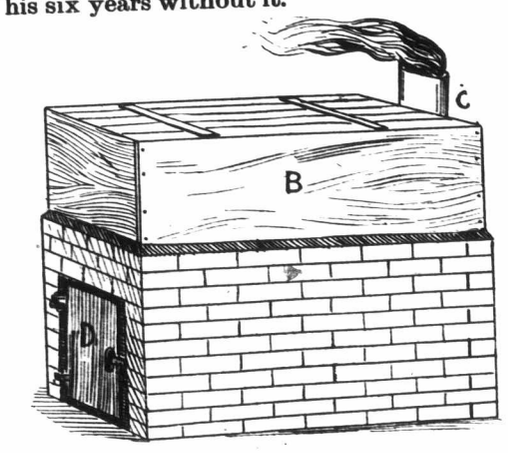
A Home-Made Cooking Furnace.

The accompanying illustration represents the feed-boiling furnace in use by Mr. J. E. Brethour, the widely-known breeder of Yorkshires, at Burford, Ont. The upper portion or box represents a plank box with heavy sheet iron bottom, which is nailed securely to the bottom of plank sides with screw-nails, or three-inch wire nails would answer. The box is two feet wide, six feet long and eighteen inches deep. The lower portion of sketch represents brick masonry four inches narrower on the inside than the box, so that when the box is in place the fire will not come in contact with the wooden sides. Iron bars should be placed across the top of masonry to take the strain off the bottom of box, and a piece of iron, three inches wide, should be placed across the back where the smoke enters the chimney to keep the fire from the box. To fasten the sheet iron bottom to the wood sides have holes punched in the sheet iron about two inches apart all around where it comes in contact with the planks. Mr. Brethour suggests that a strip of asbestos placed between the woodwork and sheet iron would do doubt be a benefit, but he has used his six years without it.



BOILING FEED.

Mr. Brethour writes:—"I boil a great deal of feed for my hogs, although I am aware that eminent writers claim there is no benefit from cooked food. I find that I can convert a lot of food that would otherwise be wasted into palatable food for hogs. Potatoes, pumpkins and roots of various kinds are relished and made more easily digestible by being cooked. They should all be put through a root pulper, as they boil more readily and mix better with chopped grain, which I stir in with the cooked food, and allow the mixture to stand a few hours before feeding."

Making the Best of Short Food Supplies--From an English Farmer's Standpoint.

Having in view the short root and straw crop of Britain this season, and a very moderate supply of hay, the *Farmer and Stock Breeder* tenders its readers the following advice, from which a few suggestions might be gleaned of service on this side of the Atlantic :—

"The devices which the feeder had to practice to spin out his slender stores of fodder should be of considerable service in a year like the present. We are thankful indeed that feeding stuffs are so cheap, and in this the feeder will find some consolation. True, the price of beef is not very high, but prime Scotch is quoted at 42s. per cwt. live weight in the Metropolitan Market. If, therefore, the feeder has purchased his stores at 27s. or 28s. per cwt., there is every prospect, so far as we can see, of reaping a very fair profit. One of the benefits which a year like the present will confer upon the farmer is to make him value economy. Far too many are slipshod in their feeding. We do not mean to infer anything by this term, other than that the chaff-cutter (cutting-box) is too sparingly used. It is becoming increasingly evident that stock feeding, like other branches of the agricultural industry, must be done economically if it is to pay. Where fifty or a hundred head of cattle are concerned, a saving on each one means a considerable sum in the feeder's pocket. Our advice is to chaff more, pulp more, and use more treacle. The root crop being much below average, and mangels, to a considerable extent where unsecured, damaged by the frost, the feeder may with advantage turn to the popato crop as affording a solution to his difficulty. At present market price—a great quantity of only slighlty damaged tubers may be had at from 20s. to 30s. a ton—they will certainly appeal to the feeder as this crop has never yet done during its wonderful history. Owing to the amount of starchy matter which they contain, caution must be exercised in the feeding. The albuminoids in the potato are deficient, but, in the balancing of the ration, flesh formers might be supplied by some other food. The fat-forming element predominates, but a judicious combination with cotton cake, bean meal, or pea meal, would place the farmer in a much better position to meet the exigencies of the times. Potatoes slightly diseased may be profitably employed for feeding, especially in the case of swine. Disease attacks the albuminoids, *i. e.*, the flesh-formers, which are converted into ammonia, or some similar volatile substance, which accounts for the unpleasant smell. If cooked by steaming or boiling, and then tightly packed into flour barrels or casks, with an occasional sprinkling of salt throughout, the tubers will keep in eatable condition for some time. It is necessary, however, to exclude the air. If fed raw, as some people who object to cooking prefer, caution must be exercised, as colic may result. It is also worth noting that water should not be given till some time after each meal. The results obtained by feeding potatoes in France warrant the belief that they might be more extensively employed by British feeders."

DAIRY.

The Dry Cow.

BY F. J. S.

On the handling of the milch cow while dry, the success or failure of the dairy herd largely depends. There is a tendency among farmers toward the opinion that when a cow is not giving milk she should exist, if not on the wind, at least on very little more. Of course, the farmer himself who does not work on the Sabbath eats little or nothing during that day, feeling that it would be a waste of food. Ha, ha! Yes, methinks so! Is the comparison not a relevant one.

Now, what is really the position. Our most profitable cows milk within four to eight weeks of coming in. Even a very moderate quantity of milk is a very considerable drain on the system for such a length of time, and the period while dry is a necessary resting period in which she is to recruit her wasted energy. But wherein comes the recruiting or building up if the ration is insufficent or unbalanced? Straw and turnips, for instance, are very good fodders in their places, but to confine a cow to these while dry is plain evidence of a total lack of understanding of the first principles of herd development. Corn stover is a good fodder if properly saved, but this and straw, without any grain addition, is an unsatisfactory ration upon which to build hopes of a satisfactory milking season. We believe that where a cow milks ten or eleven months per year, that she should be fed as rich and satisfying a ration during her resting period as while milking, if the best returns are to be had. We never knew a farmer do this who was not a successful dairyman. The cow thus handled comes to paturition period in a well nourished condition, and will, if it is in her, give a good account of herself, while her famished sister will spend the first three months of her milking period in an attempt to regain her lost condition physically, and if, as is a too common practice, she comes in in the spring, by the time she is in normal condition pastures are failing, heat and flies do the rest, and she is fast drying up; and at the end of six or eight months she is on the "dry" list. But the trouble does not end here. The longer she is dry the worse is she fed as a rule, and thus the evil grows.

But, further: the effect of low feeding, of feeding coarse, innutritious fodder is disastrous to the offspring, The fœtus of a cow thus fed comes into the world with an imperfectly nourished system, and with an inability to digest and assimilate large quantities of fodder—a prime essential in a profitable cow. Many of our present dairymen have been feeders of beef and need no information relative to the possibilities, or rather impossibilities, of feeding at a profit an animal that as a calf had not been well fed. And this is not alone bad. If the cow, by bad feeding and worse management, tends to go dry early in the season the calf will do likewise, and this despite even good feeding. And this leads us to the fact that this system, so common among us, is a *continuing* injury, and the herd subjected to it will of necessity deteriorate. And what of the males we use that are the offspring of such cows; truly he is in a pitiable condition whose herd is thus headed.

But a look at another side of the subject—the cost of butter and cheese production. The cow that milks but seven or eight months of the year will produce butter at a cost of at least three to four cents more than the cow that milks ten or eleven months, other things being equal, and cheese in proportion.

What, then, might be considered a safe practice to follow in the feeding and management of the dry cow? First we must discriminate between the cow that takes on flesh easily and readily, and the cow that really cannot be fattened, but after the usual needs of the system have been met, puts the rest in the pail. In the former case, while dry, we would reduce the grain ration sufficient to avoid a very fat condition before parturition, leaving the coarse fodder ration much as usual. Silage, if from well-eared corn, and straw for our beef breeds and their grades will frequently be sufficent, while in some cases a slight admixture of grain will be necessary. In the case of the representatives of the dairy breeds, as we have stated, when they milk to within a short period of parturition, they should be fed almost or quite as liberally as when milking. In the cases of cows inclined to milk fever, they will, of course, be fed more sparsely of heating food and more fully upon roots and such laxative and cooling fodders. Barnyard quarters are not to be recommended for the dry cow. Where the cows have to be "lifted" in the spring, better sell half the herd and feed all the fodder available to the rest.

Bacteriology in the Dairy.

Among the various phases of the study of bacteriology, there are none which affect our life and well-being more intimately than those connected with dairying. Milk is one of the best media for the growth of germs, both harmless and disease-producing. It contains bacteria when drawn from the cow's udder, and the condition of most stables is such that contamination in various ways takes place in the process of milking and immediately thereafter. The influence of the germs on milk, cream, butter and cheese is a matter of vital interest to all consumers of dairy products. Our knowledge of the various classes of bacteria and the effects which they produce, although largely increased of late years, is still meager and very much scattered.

The importance of bacteriology to dairymen is just beginning to be recognized. The application of the knowledge already acquired to the butter industry of Denmark has done much, within the last few years, to improve the quality and increase the uniformity of the product of Danish dairies. The result has been achieved largely by pasteurizing the milk and cream and then introducing the desired kind of bacteria known to scientific men as *pure cultures*. This method, so useful and satisfactory in Denmark, has found favor in the United States also. Over 100 creameries on the other side of the line are introducing pure cultures. So it may now be stated as a fact, that the science of bacteriology is furnishing information which enables the buttermaker to make butter of superior flavor, more uniform character, and better keeping quality; the milkman, to have his milk sweet and free from disease-producing germs; the cheesemaker, to understand and control to a large extent the ripening and flavor of his cheese.

It is true that the methods of applying our present knowledge of lacteal bacteriology are still imperfect; but by patient study, persistent effort, and unswerving perseverance, the bacteriologist may eventually do for dairying what he has already done in the field of medical science.

We are pleased to learn that provision has been made at the Ontario Agricultural College, Guelph, for giving second and third year students in the regular course, and all dairy students, instruction and practice in the pasteurization of milk. As announced in the last issue of the ADVOCATE, Mr. Harrison has charge of this important department.

Care in Milking.

It is claimed by good authorities that a certain system should be adopted in the act of milking a cow. The teat is held closed by the contraction of the sphincter muscle, which is relaxed by gently squeezing the tip of the teat when commencing to milk, after which the milk should be drawn as rapidly as possible. It is also claimed that the pair of teats commenced should be milked thoroughly before commencing the others. When this system is adopted the same pair of teats should not always be commenced, because the first quarters emptied have the assistance of the compression made by the remaining distended quarters, and the last quarters milked have no assistance from this source. If, therefore, the same teats are always selected in the same order, the teat first milked would develop that quarter of the udder to increased capacity, while the last half would correspondingly diminish in capacity. A deficient quarter can therefore be brought up by always milking it first.

Thorough and careful milking should always be practiced. If for any reason cows are milked imperfectly there is danger of converting them into worthless dairy animals. The milk that remains in the udder is held by the small pouches or milk veins high up in the bag, and will form curd that will excite inflammation and destroy the secreting function of its lining, and tend to cause the adhesion and entire closure of the small cavity or vesicles. When care is taken for the cow's comfort while milking she will evince a feeling of relief and pleasure when the distended member is being relieved. This is not only a valuable assistance to the milker, but perfect milking cannot be done without this co-operation of cow and milker. The present advantage of clean milking is obvious when the richness of the strippings is taken into consideration, besides the permanent benefits above referred to.

Kingston Dairy School.

The Kingston Dairy School will open its doors to students on Dec. 10, 1895, to continue till March 26th, 1896. The season's work will comprise eight courses of two weeks each. The subjects taken will be those of last year, with the addition of lectures on bacteriology by Prof. McConnell, of Queen's University. The special course in cheesemaking commences Feb. 15th and continues until March 26th. The staff is to be the same as last year: General Director of the School, Jas. W. Robertson, Dominion Dairy Commissioner; Resident Superintendent, J. A. Ruddick.

Conditions of admission.—Any person over sixteen years of age, who has worked at least one season in a butter factory, is eligible for admission to the *Ordinary Courses*. Admission to the *Special Course* in cheesemaking will be limited to those who have had at least two years' experience working in a cheese factory. The fees are very light.