present knowledge of clover-seed production, it pays to cultivate the acquaintance of the bumblebees. In the absence of the old fallow ground on new lands, the hollow rails and the stone piles, etc., the plan I have suggested is a feasible one, I believe. I may say, however, that the bumblebee theory of fertilization has, in my mind, lost its old-time force this year, so far as my observation has gone.

Everyone is complaining so far of the apparent absence of the bumblebees this season. I have seen or heard very few, and yet in examining some red clover fields recently I have found abundance of seed in the first crop where the heads have turned a little brown. I have noticed the presence of some midge, yet it looks as though there would be plenty of seed in harvesting the first crop of clover for the purpose of seed production this season. It would be well for farmers, in districts where the clover crop has not yet been harvested, to examine into this question, as there is likely to be abundance of hay in most parts, and some of the first crop of red clover might make them more money if kept for seed. The weeding out of noxious weeds should not be neglected, though, on any condition, if kept for seed. T. G. RAYNOR.

HORSE MUZZLE.

Editor "The Farmer's Advocate":

I noticed last year in one of your issues an inquiry for a design of a horse muzzle, to be used on horse in scuffling corn when it is tall, and when reaping grain. I send description of one we have used for years, and which we find very suitable.

Procure two strips of galvanized sheet iron at any hardware or tin shop, 4 inches wide and 2 ft. 8 in. long; cross these in the middle and fasten with rivet; turn back the ends 1½ inches. Take a piece of leather 1½ in. wide and 2 ft. 8 in. long (a piece of old driving line will do); join the ends, and secure by a couple of rivets. Now bend up the ends of the strips, and slip up the leather band into the turned-down edges; then put a rivet through each end to hold them in place. A couple of pieces of stout cord to tie the muzzle to the buckles on side of bridle will complete the outfit. It is light, cool, and in no way annoying to the horse. The bottom of the muzzle should hang an inch or more below horse's lips. FRED FOYSTON.

Simcoe Co., Ont.

THE DAIRY.

DAIRY NOTES.

Keeping a record of his cows makes a better dairyman of any farmer.

If a cow is to be kept clean the stall where she stands must not be too wide.

A good cow should hold out well. She should give a good flow ten months out of the twelve.

Don't breed the cows to any sire that happens to be available. Remember the bull is half the herd.

The calf is a baby. Too many farmers forget this and treat the calf as they do the older members of the herd.

Dairying is a science that is being more thoroughly studied to-day than ever before. It has in it a great deal more than most people dream.

Dairying brings in constant income. The man who sells crops of any kind has to wait until he can market his product once a year. The dairyman has an income nearly or quite fifty-two weeks in the year.

The care that the heifer gets the first few times she is milked determines in a large measure whether she is going to enjoy the milking operation. The kicking cow is not born—she is made that way by the owner or milker.

As soon as the calf will eat dry ground feed begin to feed a small quantity, and increase it as the calf grows in the power to consume and digest it. At this point one must use his judgment, and no rule can be given.

The dairy steer does not make as good beef as the beef steer.

Keep down the dust in the stable during the milking operation.

It is more profitable to have four cows of great producing power than to have eight cows of ordinary producing power.—[Exchange.

A NOVEL DEVICE.

In many byres, especially those improperly designed, more filth is probably conveyed to the body of the cow by her tail than by all other agencies, and from there it is difficult to prevent it from getting into the milk. The Hollanders, in addition to the deep manure channels, have adopted another precaution in order to get rid of this source of contamination which deserves to be referred to, writes John Speir, in the 1908 volume of the Transactions of the Highland and Agricultural Society of Scotland. In all byres a wire, such as a fencing wire, runs along under the ceiling and above the cows' tails, yet sufficiently high for the people to walk under it. On this wire are a number of rings, ½ inch in diameter or so, corresponding to the number of cows in that part of the byre. After the cows are tied up in the stalls, a short leather strap is put on the tail, where the long hair begins to grow. This strap is loosely connected by a string with the ring on the wire. As long as the cow is standing she has liberty to switch her tail all over her body, but when she lies down the string holds it up out of the gutter, and prevents her from dropping it into her own dung or urine. The arrangement works well, and with some modifications might with advantage be adopted in this country (Scotland).

DAIRYING AS A BUSINESS.

Dairying is a cash business. The cow pays for her board every day if she is the right kind, and in this connection the wise dairyman is particular to note whether the cows do pay for their board or not, as he is not anxious to run a charitable institution. Milk, butter and cheese are always cash products, and the dairyman is not obliged to wait six months or longer for returns from his efforts; consequently, he runs no bills of any kind. He sells for cash and buys for cash, and gets the benefits of all discounts. He always has money, and many dairymen pay their hired men every Saturday night, the same as manufacturers do.

Dairying is not a good business, however, for the man who likes to be away from home part of the time, and who entrusts the management of his business in part to others. Dairying by proxy seldom proves satisfactory or remunerative, and men with many irons in the fire had better cut out dairying. They will do far better in some other line of live-stock farming that does not require the constant watchfulness and personal supervision demanded by the cow and her produce. Then, too, the by-product from the dairy has more value than that from other industries of the farm, and especially when butter is the only commodity sold, and the skim milk and buttermilk are fed on the farm. There is no feeding value or fertility in butter worth considering, it is all in the skim milk, and this, when rightly used, brings good results in many ways. There is no business of the farm that pays as well as dairying when right methods are in vogue in every detail of the business, and when the proprietor is wide awake and anxious to improve and take advantage of every condition that promises improvement in cows, feed and feeding, care of animals and marketing the products.

Half a Row at a Time—Slow Work.

If a dairyman is to know what each cow is producing, he must either churn the cream separately or test it, and the test is far the easier and much more accurate, and what farmer can afford to keep cows and not know what each one is producing? If he does not know their value for the dairy, from what shall he raise calves? Shall he guess at it? Then the poorest cow will, perhaps, have an equal chance to live and eat up the profit made by a good cow, and also perpetuate her kind. The great trouble with dairying is, as with many other things connected with farming, we are too apt to guess at results. We do not figure carefully enough. I know I do not in many instances, although in some things we try to arrive at practical conclusions. The average man is likely to think there is too much bother connected with estimating the cost of feed for each cow for him to consider the question seriously. He will say you cannot do it. I do not pretend to say that the farmer can estimate the cost of feed within a cent or two, but he can get it close enough so that he knows whether his cows are making him a profit or not, and whether one cow is better than another or not, and it is not so very much bother either. Suppose a man is feeding clover hay to his cows. If he feeds them carefully for several days he knows just about how much clover hay each cow will eat in a day. He feeds just about the same amount after he learns how much the cow needs, and he knows that one cow needs considerable more than another. Now, when this has been determined, weigh what each cow eats in one day and multiply this by the number of days that you feed clover hay. That will give, within a close approximation, the amount of clover hay the cow eats. If you feed cornstalks or timothy, make the estimate in the same way, and the same with corn silage. The man who feeds the cows day after day knows just about how much each cow eats from day to day. Then if he will weigh it for one day he will know practically the cost per cow. It is the same way with the grain ration. It is not necessary to weigh the grain every feed, when you feed as nearly the same amount as possible every time. Weigh it once, and then multiply by the number of times you feed. If you change the ration, then you must make the estimate again. In this way, with very little trouble, and it can be done in the winter time largely, when one is not pressed with other work, he can get an idea of the cost of keeping each cow. Then if he has weighed the milk and tested it for quality, he has data whereby he can distinguish between the poor cows and the good; between those which have brought him in a profit and those which have made a loss. I believe the most practical way to do this is to co-operate and organize a cow-testing association in the neighborhood.

Central New York. J. P. F.

A MODERN DAIRY COW.

Much has been said and written in regard to feeding and caring for the dairy cow, and how important it is that she get the very best of care. Perhaps this would be more impressed upon the general mind if we were to consider what an enormous producer she is, and the actual value of her production. We would then see that if progress be desired we must treat the cow well and give her every chance to do her best.

To take the selling value of her produce is not fair to the cow, because things do not always sell for the real value. We see a good example of this in the case of wheat bran. A few years ago millers, in order to get rid of it, burnt some of it in the furnace, and in other cases, where water-power was used, turned the wheat bran into the streams and let it float away. That was because the feeding value of bran was not known and appreciated. This is changed now, and bran is no longer a drug on the market at any time of the year, but sells for its full value, and sometimes, I think, for a little more. The same way with milk. Although prices have been steadily rising for milk and the products of milk, still the prices are not as high as the actual food value of the products should command.

The scientists tell us that a quart of milk has as high a food value as a pound of beefsteak. If a quart of milk would sell for as much as a pound of beefsteak, then most any cow would be able to show a good production, but she has to work under the discouragement of having her produce sell for a great deal less than it is worth, and we all know that if a man is poorly paid he usually does poor work, and also a good many do poor work when they are well paid, but a cow would not be so mean, and if the consumers would only pay us for milk according to its actual food value as compared with beef, the cows would surely feel greatly encouraged, and certainly the cow owner would be in clover, because the cow is the most economical producer of food of any animal known.

Let us compare the production of the cow with the beef animal. Take, for example, some of the high-record cows. One cow has produced in a year over twenty-seven thousand pounds of milk, or, in round numbers, 2,700 gallons, or 10,800 quarts. Just think, 10,800 quarts of milk, equal in food value to that many pounds of steak! It would be an exceedingly fine beef animal that would produce 10,800 lbs. beef in one year, or, indeed, in a lifetime. It is when we come down to figure it out we see what a grand producer the dairy cow is. Taking an ordinary cow giving 7,000 pounds a year, this would be equal in food value to 2,800 lbs. beef. Granting that the dairy cow is a great producer of food, although we have no means of knowing just how much energy she would have to devote to this production as compared with other animals, yet we can be sure that where so much is produced she must draw on her vital energy to a considerable extent. We, therefore, see how necessary it is if we want a large production to keep her in the highest degree of efficiency as regards vitality and healthfulness.

Not by extra feeding alone at the time the cow is producing so heavily can we make up to her for what she is producing. She produces quite as much from the care and feed she has had at other times, and all that has gone even from birth or even before to breed into her and feed into her vitality, energy, power. Such great work does not come through milking, but there are certain laws governing it, which, although we cannot understand them all, are there all the same, and we can but do our part in assisting the cow to do her best, by giving her the very best care and the most suitable feed to enable her to reach a high standard of production.

Taking a view of a modern dairy cow's great production from its actual food value, we will see how necessary it is to attain this end by breeding cows with as much vitality and energy as possible, and to