

I had considerable capital, and wanted a "change," I would attend the O. A. C. Otherwise, I think a correspondence course would be equally efficient, especially if I could obtain personal assistance occasionally from some ex-student or other capable person who could explain the scientific technicalities. This, in connection with practical work, and a little experimentation on my own farm, would be a fair mental equipment for actual production on the farm. But the business side of farming is too much neglected by the average farmer. I do not think it necessary to take a commercial course, but I would want to have enough knowledge about bookkeeping to keep a simple set of books, in order to know what I was about. This, too, may be well learned by correspondence. Then, if I were specializing (and the tendency is to emphasize some particular branch), I would want a special short course in that branch. The foregoing is the amount of education which I consider economically necessary for a farmer under modern conditions. If he has not capital to afford that much education, he had better not engage in farming at all—stay at something on wages or salary. As for the O. A. C. course, I look upon the last two years (B. S. A. degree) rather as an accomplishment for the young farmer; desirable if one can afford it and is willing to spend something for polish, but not necessary to financial success. The associate course is excellent, and for many may be preferable to the correspondence method, but anyone taking it should first get all he can out of the public school. I do not think that the public school should be made a place for teaching agriculture or any other subject pertaining directly to any particular occupation, except so far as it may assist the teacher in imparting the underlying principles of general education. Let each scholar study his chosen occupation after he leaves the public school; otherwise it would not be a public, but a special school.

The special courses at the agricultural college are not sufficient, because they largely ignore theory, and anyone engaged in any rural pursuit needs a knowledge of the underlying principles of agriculture.

J. H. BURNS. (A. O. A. C.)

To Sharpen a Disk Harrow.

First get a crank of 15 to 20 inch stroke, that will fit solid on the end of the disk journal of axle. Then take off seat and lever and turn disk upside down. Block so the crank will easily turn it, and with two hammers, one heavier than the other, straighten out all kinks around edges of disks. Then while one man turns disk slowly with the crank, have another man hold a good flat file, or a piece of a grindstone, against the inner or convex edge of each disk, one at a time, of course. The file and the man at the crank does the work.

DAIRY

Good Heifers from Good Cows.

No really good milkers should be sold, except for a very high price, provided it is possible to breed her to a dairy bull of a good milking strain. Every farmer should make an attempt to raise enough first-class heifers for his own use, and to do this he will have to refuse to listen to the voice of the tempter when he has the opportunity to let go of his best milch cow for a few more dollars than the next best would bring. In the light of a mother that cow is worth more to him than she is to the man that intends to buy her, milk her for a few months and send her to the butcher. It is a bad policy to try to buy cows from others. One never knows what he is getting in such a case. It takes time for a man to learn that the cow he bought has faults, and during the time he is finding this out he may be losing money. Heifers raised on the place are of more interest to the farmer and his family than are the cows that are purchased from no one knows whom.

Milking on Time.

It seems very hard on some farms to do things on time. One morning very early rising is the rule, and on another, generally Sunday, the reverse is the order. The dairyman who follows that rule never makes much money. Regularity in every department of the farm counts for a great deal, but it is a question if it counts for as much anywhere as it does in the dairy in regard to the time of milking. If you have a young cow that gives promise of becoming a large milk producer, milk her at seven o'clock five mornings of the week and at nine on the other two. If you do you will very shortly make a cow boarder out of a milk producer. In the large dairy it is, of course, more important to milk on time, and where there is a lot of one thing to be done it is generally easier to adopt a regular system of doing it. It is, nevertheless, attention to the little things that counts in every department of business, and on the average farm where only a few cows are kept they ought to be milked as nearly as possible on time, if they are going to pay a profit at the end of the year.

Western Ontario Dairymen's Convention.

The Dairymen's Association of Western Ontario held its annual convention at Stratford, Ontario, on January 17th, 18th and 19th. Stratford has a distinct advantage as a convention town for Western Ontario, as it is a focus point of the industry in one of the greatest dairy districts of Canada.

It would not be expressing the opinion of the great majority of the dairymen who attended the convention to say that it was an unqualified success. Like many other conventions of a similar character, it was too largely given up to subjects far removed from the actual work of the average dairyman, and too little time was devoted to the reading of papers by practical men, and the discussion of the same by those in the business. It was also unfortunate that valuable addresses prepared by Professors Harrison, Harcourt, Dean, and others, had to be very much curtailed, and the discussion upon their few remarks practically quenched for want of time. Conventions of this nature must be made more helpful to the everyday dairyman, and this can be best done by reducing the number of addresses from the platform, and encouraging the more informal interchange of opinion among the audience. The executive of the Western Ontario Dairymen's Association are not alone sinners in the arrangement of their programme, the same criticisms might be passed upon other conventions held within very recent years, and we earnestly hope that in the future there will be an effort made to conduct such functions in the manner indicated.

PRESIDENT'S ADDRESS.

Mr. J. N. Paget, President of the Association, opened the convention with the address of the chief officer. The year of 1904, he said, did not compare favorably with its immediate predecessor. To dairymen, it will be considered a poor year. There has not alone been low prices, but the make of cheese has been much less than in 1903, aggregating 300,000 boxes less for the Dominion, or, in money, \$7,000,000 less. The situation in butter has been more encouraging, the total output of butter for the Dominion being some two million dollars increase over the previous twelve months' operations. The other branch of dairying, bacon production, suffered a shrinkage of some \$6,500,000 in 1904. These unfavorable conditions make more prominent the necessity of increasing the general average productiveness of our cows. The cow that does not give over three thousand pounds of milk per year must be retired from the dairy business. In the conduct of his business, the President stated that he had made a practice of estimating the production of the district in which he lives at about twenty pounds of milk per cow per day in the milking season, a ridiculously low average, but one below which the cows in his district frequently fall. During the past year, the work of the instructors had covered about two-thirds of the factories in Western Ontario. In the future, it is to be hoped the patrons of factories will make more effort to utilize the instructors. They are not detectives, but are employed to assist in the production of better grades of butter and cheese. Last year the general average of the quality of our dairy products was higher than ever before. Especially is this true of butter. A special plea was made for a more enthusiastic spirit of co-operation.

DIRECTORS' REPORT.

Mr. Robert Johnston, of St. Thomas, read the report of the directors. Causes of low prices and small makes were attributed to the excess of cheese carried over from 1903, and of unfavorable weather conditions to the production of milk. The season closed much more satisfactorily than it had opened, so that prospects are much brighter. During the season, two new districts were organized for instruction purposes, but difficulty was experienced in getting good men to carry on this work. Considerable fault can be found with our cheese boxes, due to faulty make and the popularity of cheap boxes.

COUNTING COSTS.

Mr. J. H. Gridale, of the Central Experimental Farm, Ottawa, emphasized the necessity of raising the average productiveness of our cows. There is more for a cow to do than to convert a certain amount of rough feed into milk or flesh. When keeping cattle we might just as well care for large-producing cows as for the very mediocre animal that is too common on our farms. There are a lot of good cows in the country, and farmers should cultivate an instinct for recognizing them. Mr. Gridale illustrated the value of knowing each individual cow's tastes, and of giving each cow just what her peculiar tastes demand. In the speaker's experience, the great majority of cows are underfed. They should not be fed to an excess, but the standard of a cow's ration is generally too low. Records should be kept, and when once a man begins to keep them, he not only learns the value of his cows, but increased interest is lent to the business. It is a continual competition between the different

cows of the herd. It also calls attention to variation in production, and starts investigation into the same, which is sure to result favorably. Ontario has about one million cows, and there is nothing formidable in the task of raising the annual returns of these cows by several dollars each. At Ottawa, at 5.30 a. m., the cows are given a feed, about fifty pounds, of ensilage, roots, straw and meal (bran, oil meal and oats). After this they get a small feed of clover hay. Then, nothing more is given until about 3 p. m., when they get the second feed. This system has been found both more satisfactory and more profitable than feeding oftener each day. It has also been found, by alternate experiments, that a dry-food ration returned about twelve per cent. less milk than did a succulent ration.

FROM FOUNDATION UP.

In the absence of the Hon. John Dryden, Minister of Agriculture for Ontario, Prof. C. O. James, his deputy, filled his place on the programme, and said that there was an ideal in the minds of the gentlemen at the head of the Agricultural Department of Ontario, and that was to have all branches of agriculture, dairying fruit-growing, etc., harmoniously working for the purpose of economy of production and increased output. He took occasion to call attention to the erroneous impression that 1904 was a bad year for dairying. He wished to submit the opinion that it was due to the very good years preceding. Nineteen hundred and four was well up to the general average, and would not have the effect of discouraging the dairy industry. The progress of so great an industry does not stand wholly upon the result of one year. Its great importance is due to forty years of work and effort. Dairying begins with the crop of the farm, and ends with the product on the British market. Between these extremes there is a great variety of workmen who all must contribute their share to the success of the industry. Should there be a break in this great chain of operations the whole business of dairying is discounted, and profits reduced, and the man who desires to be a first-class dairyman must give attention to all the links in the chain. In recent years the Dairymen's Association gave particular attention to the matter of transportation, while now, and for the immediate future, the cow is to receive their attention. The cow has now come to be regarded as a delicate machine, and the most successful dairyman will be he who has the best machinery, and behind these machines there are the fields, which must be most carefully studied for economy of production. Farmers are beginning to be more discriminating in the use and value of grass, hay, corn, etc. It is not sufficient to get crops. One must get the best and biggest crops. The first work of every progressive dairyman is to endeavor to plant or have planted only the best grains, the best grasses, the best roots, etc., and by this operation alone the productiveness of our farms would be increased at least one hundred per cent. Following this with a general weeding out of our herds until all our cows would be in the first class, there would be no off years in dairying. Canada has attracted the attention of the whole world, which is not due simply to the fact that the Northwest has produced a few extra million bushels of wheat, but also because there is a great army of dairymen in Ontario who are building this great industry from the ground up.

TOO MUCH FAULT-FINDING.

A pertinent subject was referred to by Prof. Dean, of the O. A. C., who raised the question of the lack of attendance of farmers at these conventions and at Farmers' Institute meetings, and said he believed it was due to the continued fault-finding indulged in by the average speaker with the methods of farmers.

In connection with dairy stables, the Professor said every stable wall should have a dead-air space, plenty of light, clean, sanitary floors, and continued to describe the construction of a model stable.

Evening Meeting.

NEW METHOD OF CHURNING.

On the evening of the first day of the convention, Mayor Ferguson, Mr. A. F. MacLaren, and Mr. G. H. Douglas, President of the Board of Trade, and a most capable orchestra, gave expression to the feelings of hospitality which the City of Stratford had to extend to the dairymen of Western Ontario. These exercises were followed by an address from Professor G. L. McKay, of Iowa, on cheese and butter making as a business. Success in dairying, as in any other business, depends entirely upon the exercise of intelligence and hard work. A young man must first know what he is best qualified to do, and then he should devote himself energetically to his work. In Iowa, most dairymen follow butter-making as a profession, in preference to cheese-making. Wages in Iowa vary from fifty to one hundred and twenty-five dollars per month.

The Danes skim a thin cream, heat it to 195° F., cool it down to about 65°, and add from a five to a ten per cent. starter. The cream is