

that she could give her owner progeny like herself. "Many cows come from no where, make a good record, yet they go no where," said Mr. Mallory.

He preferred a fair cow with three generations of reasonable producing capacity behind her rather than an individual with great capacity and with poor ancestry. The speaker admitted that his greatest knowledge regarding cows came from the milk scales and the Babcock Test, and that was the only way he could be positively sure of a good cow.

Going more deeply into the principles of breeding the speaker advised against harsh crosses, and illustrated by referring to a cow too dark in color being crossed with a strain which was very light, the resultant of this cross would possibly be to get a very badly-colored individual. Similarly with regard to production. If a strain giving 40 pounds of milk and testing 4 per cent. be crossed with a strain giving 100 pounds testing only 2½ per cent., the cross would be just as likely or more likely to give an offspring with a record of only 40 pounds testing 2½ per cent. Breeders should work up to rather than jump at high production.

G. G. PUBLLOW'S REPORT.

The Convention always awaits with interest the report of G. G. Publow, the Chief Instructor of Dairying for Eastern Ontario. The condition in which the industry is found each year is detailed in the Instructor's report. According to the speaker's records the total number of cheese factories in operation during the last season was 846, being 36 less than one year ago. Of these 846 factories 8 were destroyed by fire during the summer, and 5 were closed owing to the shortage of milk supply. The sanitary condition of most of the factories has continued to improve, and it was necessary to close only one, and that for only a few days, to enable them to clean up and make the required alterations.

During the last season 435 factories have expended a total of nearly \$70,000 for the purpose of repairing or improving. This expenditure is considered quite satisfactory considering the present state of financial institutions.

Special attention was directed by Mr. Publow to the great shortage or decrease in the total milk supply. This was considered due to one or more of three things. First, a very much lessened number of cows there being over 33,000 less than last year; second, the dearth of grass, green fodder and water, and third, the continuance of the cheese factory patrons to yield to the inducements offered by creameries and ship their cream to the city. The latter reason may perhaps seem more real if note is made of the fact that there were 2,339 less patrons in 1914 than there were in 1913. The actual number of pounds of milk delivered to the factories between May first and November first was 843,629,539. From this milk 77,085,587 pounds of cheese were manufactured, and those who follow the figures of cheese production will recognize at once that there has been a big falling off in this regard. The actual shortage is 9,014,796 pounds, and allowing 85 pounds per box these figures represent a shortage of over 107,000 boxes. One redeeming feature in connection with this shortage in the production of cheese is that the production of milk has shown an increase of 170 pounds of milk per cow, which in spite of dry weather is certainly encouraging. Still another indication that the dairymen are appreciating the need for better business methods and better feeding, is shown by the large number of silos built during the year, there being nearly 900 new ones, and, if this form of improvement continues, another year should show a greater increase in the average of milk per cow.

It seems, however, that the question of the percentage of fat in the milk is being neglected too much, for during the season of 1914 the average test for Eastern Ontario was lowered by .02 per cent. According to Mr. Publow's report it required two-tenths of a pound more milk to make a pound of cheese than it did the previous year. Weather conditions and the regular circumstances of the season also entered into this reduction in the quantity of cheese from a pound of milk.

Strides have been made by many patrons in caring for and cooling their milk, but their labors have been partially lost by other patrons of the same factory failing to do likewise. The better patrons are, therefore, asking "what is the use of cooling our milk when our neighbors do not and it all goes into the same vat?" This is something the Dairymen's Association and dairy instructors must endeavor to solve.

With regard to creameries it may be said that 35 regular creameries operated in 1914, 3 new creameries were built since 1913, and in addition to these 33 combination factories made butter during the spring and fall, and 123 factories manufactured butter from the whey. During the six months, May first to November first, the 35 regular creameries made a total of 3,091,823 pounds of butter which sold for an average price

of 24½ cents per pound; this being about one cent per pound less than for the previous year.

Owing to the short time which elapses between the manufacture and sale or consumption of this butter, very little of it is inspected, yet from what the instructors and experts know of its character they are of the opinion that its general quality could be improved. This has been demonstrated when Ontario's butter has gone into competition with butter from Quebec and some of the Western Provinces. The greater source of defects lies in the generally poor quality of the cream supply, and so long as the present methods of purchasing cream are continued very little improvement can be hoped for, even although our butter makers are as capable as those of other provinces. As a remedy for this Mr. Publow said, "If a system of grading cream and butter were adopted it would seem to be the proper method of overcoming the difficulty, and while such a plan may have its difficulties at first others are already reaping its advantages, and what others can do we also can."

THE SEDIMENT TEST.

The milk sediment test as a means of further improving the cheese-factory milk supply was discussed by Frank Hens, London, Chief Dairy Instructor for Western Ontario, who said that in his mind how best to get further improvement of the milk supply is a problem worth looking into. The report of the dairy instructors, made on their regular visit to each factory, asked the question, "Condition of milk as to sediment." "The answer often is 'considerable,' 'some,' 'too much.' The appearance of the milk strainers in many of the factories indicates that the instructor's judgment is not overdrawn. The speaker remarked that he had no desire to see imposed on milk producers any unnecessary or unreasonable restrictions, yet he further remarked that there was no reason why the comparatively small percentage of those who deliver over-ripe or tainted milk should not be expected to produce milk equally as fit for cheese making as the majority. In justice to the careful, painstaking patron every effort should be made to have all milk arrive at the factory in equally good condition.

Bacteriologists have shown and frequently call attention to the fact that large numbers of bacteria may be carried into milk by clinging to substances such as bits of straw, hairs, road dust, stable dust and fecal matter, and that some definite relation exists between the keeping quality of the milk and the amount of sediment it may contain.

Relative to the curd test the speaker said, "It is a useful factor in determining the special milk that is producing a bad flavor in the cheese, and its use should be continued." However, the weak point in the Curd Test is that the average patron finds it difficult to recognize abnormal flavors, because he has not been trained to understand the significance of the odor and appearance of the curd.

During their experiments and trials with the disk method in Western Ontario, many patrons at the different factories did come in and watch the instructor make the test. When presented with the "disk," on which was shown the quantity of sediment filtered from a pint of milk delivered by them, they were astonished and could hardly believe that such an amount could possibly be there. The test appeals to the producer's sense of pride, and in nearly every case they expressed a desire to have their milk arrive at the factory in a cleaner condition.

Mr. Hens explained the advantages of the sediment test in the following summary:

The presence of sediment indicates careless methods in milking, and, therefore, the probability is, that the milk is seeded with a large number of undesirable organisms.

The test is a simple method of accumulating in one spot where it may be seen the amount of sediment contained in a pint of milk, and thus enable the operator to judge approximately from the appearance of the "disk" the total sediment in the can of milk.

If the milk is not sufficiently cooled this condition will usually be indicated by the appearance of little clots of dried cream on the "disk." This means loss of cheese making material.

Used in connection with the curd test it makes a combination more effective than the curd test alone.

It places the responsibility on the individual patron and leaves little chance for argument on his part.

The patron with few exceptions take a reasonable view of the test, as it is something they can see and understand. They look upon it as a test that indicates not only the better methods of the careful patron, but reveals the shortcomings of his careless neighbor. Personal pride in the clean, satisfactory condition of the milk when delivered is awakened.

Good judgment must be exercised by the operator in making use of the test, offensive comments withheld and an effort made to get the patron to understand that, all that is intended, is to point out the facts, with the desire of get-

ting his co-operation. Simply let the appearance of the "disk" do most of the talking at first, as it will eventually appeal to the patron from a logical standpoint.

Improvements have been secured through cooling of the milk, the installation of cool curing rooms, the pasteurization of whey, in better methods of manufacture and in more sanitary factories. "The milk sediment test I believe to be worth trying out in order to see if it is not possible to promote further and continued progress in sanitary methods of milk production."

DAIRYING IN SWITZERLAND.

Dairying in Switzerland was treated in an interesting manner by J. A. Ruddick, Dairy and Cold Storage Commissioner for Canada. By the use of slides interesting features of Swiss Dairying were thrown upon the canvas, and the pleasing language of the speaker in explaining these views made a very interesting lecture. Mr. Ruddick visited Switzerland as an official delegate from Canada to the Swiss International Dairy Congress, which was held in Berne, Switzerland, June 8th to 12th, 1914, and in addition to the convention visited many other points of interest in Europe.

The manufacture of cheese and condensed milk are the two most important branches of the dairy industry in Switzerland. A form of co-operation in the manufacture of cheese has been in operation since the twelfth century. Cow testing has been systematically practiced by some Swiss dairymen for over forty years. Their method of cheese making calls for no special mention, but the production of milk, especially in the matter of yield per acre, has been carried to a point far beyond that which has been generally reached in Canada. Where the cattle are stabled the utmost care is taken to preserve every ounce of manure, the liquid is drained into concrete tanks from which it is carried on wet days and sprinkled over patches of recently cut grass. The number of dairy cattle kept per square mile of arable land for the whole country is just about 100, but in the less mountainous cantons like Berne the number is as high as 256 per square mile.

The real alpine pastures begin at an altitude of about 2,500 feet, and extend upwards nearly to the limit of the vegetation, or somewhat over 8,000 feet. Goats are pastured in some places as high as 9,000 feet above sea level.

PAYING FOR MILK.

The first real stand regarding the way milk and cream should be collected and paid for was taken by Geo. H. Barr, Chief of the Dairy Division at Ottawa. During his remarks he said, "Patrons of the factories will average up as dairymen just about as well as makers will average up as makers," and advised that manufacturers or factory owners should endeavor to get a better class of men in the factory. Cheese will not go wrong if the right man is in the factory, for he has more influence in a district than a dozen instructors. He is in touch with the men, and by using his influence with them he can get them to do better work than the instructor can do. Patrons should be paid for improvements they make relative to this.

Mr. Barr drew attention to remarks which had been made regarding progress in Alberta, where it is claimed that grading of cream had done more in two years than preaching and exhortations and abundant literature had done in ten. The speaker could not denounce too strongly the pooling system as a method of dividing funds. In this system the man with a low-testing milk is simply getting the money that belongs to his neighbor who is sending milk with a high fat content. By the use of charts several methods of paying for milk and experimental results were explained, namely, the fat and casein method, the straight fat method, fat - 2 method, and the fat and calculated casein method. He objected very strongly to the pooling method, but said he would be willing to adopt one of the four previously mentioned and stand by it.

Several references were made to the status of the butter industry of Ontario by L. A. Zufelt, Superintendent of the Dairy School at Kingston. For some years there has been a migration from the cheese factories to the creamery. Formerly the butter business looked good, but now Mr. Zufelt declared "The butter situation is in a critical condition."

We have practically no foreign market. For some years British Columbia consumed a large quantity of Ontario's butter, but this Province could not supply them with sufficient quantities and importations from foreign countries was the result. In this competition Ontario's products suffered severely. The speaker declared that the system of dairying in Eastern Ontario was verging on socialism rather than on co-operation. All patrons wanted the same price for their milk and all factories wanted the same price for their cheese. They were not only pooling milk in the factories, but the cheese were being pooled when sales were made. Mr. Zufelt was in favor of patrons being paid for their milk on its merits and selling cheese in the same way.