

trons, judging from a fairly long experience attending these meetings and discussing this question.

ACCURACY OF TEST.

A few have questioned the accuracy of the test itself, suggesting that it is difficult to make two tests of the same milk with like result. It can readily be demonstrated that, given glassware properly calibrated, any number of tests of the same milk may be made, the readings of which will be the same, allowing for a possible mechanical error of .1 of 1 per cent. The Federal Government has lately passed an Act that provides for all glassware used for the Babcock test to be accurately graduated, which eliminates error from this source. The Babcock test is simple, easily understood, has the approval of the scientific dairy world, has been in use for over twenty years, and there can be no question regarding accuracy when properly operated.

LOSS OF FAT IN WHEY FROM RICH AND POOR MILK.

Many patrons still seem to think that, when rich milk is delivered, a greater proportion of the fat is lost in the whey than from the poorer milk. "The loss of fat in cheesemaking is quite independent of the amount of fat in the milk" (Science and Practice of Cheesemaking, page 190), but depends almost entirely upon the sanitary condition of the milk and the methods followed in manufacture. Tests made by the instructors at the cheese factories of Western Ontario for four seasons show only a slight difference in the loss of fat in the whey during the month of May, when the average test of the milk is about 3.3 per cent—average loss of fat in whey, .217 per cent.—compared with the loss in October, when the average test of the milk is about 3.8 per cent.—average loss of fat in whey, .237 per cent. This would indicate that practically one-half pound (40 per cent.) more fat per 100 pounds milk goes into the cheese from the richer milk, and, with the increased casein, accounts for the well-known fact of the increased yield of cheese during the latter part of the season. In any case, milk low and high in fat content is at all times mixed, and reduces the average test for the season to about 3.5 per cent., thus keeping the loss of fat in the whey comparatively uniform, except for variations produced by unsanitary conditions of the milk and faulty methods of manufacture.

MISCONCEPTION OF PATRONS RE LAW OF YIELD.

A few patrons have evidently deluded themselves with the belief that during the fall months, when the milk increases in richness, that they are doing the factory operator a kindness by skimming off a portion of the fat, arguing that this extra fat goes to the whey tank. In fact, some people seem to imagine that this is good business any time in the season, perhaps consoling themselves with the same argument. I heard a prominent farmer state not long ago that if a portion of the milk fat was allowed to be taken off by each patron, the loss of fat in the whey could be reduced to the vanishing point. Imagine the effect on our cheese industry if this were literally followed out. These ideas show almost entire ignorance of the law of yield and the principles of cheesemaking, and should be emphatically corrected; yet, by our system of paying for milk by the pooling system, we leave an opening for the practice of some of these ideas.

"GETTING BETTER TEST" NOT ONLY REASON FOR PROPER CARE OF MILK.

Considerable stress has been laid on the statement: "The better care the milk is given, the better the test." This is important, and true to a certain extent, but "the getting a better test" should not be the only incentive for taking proper care of the milk, since it is pointed out that the increased yield and better quality of cheese is of great importance, and to obtain which demands sanitary handling of the milk at all times, whether it is paid for by the test or not.

MIXING NIGHT'S AND MORNING'S MILK.

Some patrons have raised the objection that when the night's and morning's milk was mixed the cream which had risen on the night's milk would not be thoroughly incorporated. It has been demonstrated that the night's and morning's milk, mixed and properly sampled, will give a fair average test of the two lots.

TAKING SAMPLE FROM WEIGH CAN.

Again patrons sometimes ask, "When the milk is poured into the weigh can, is the sample taken quickly enough that no fat has time to rise?" We have looked into this matter, and tests conducted at cheese factories in 1909, and repeated at the Dairy School in 1910, show conclusively that samples taken from the weigh can after the milk was at rest, from the bottom and top of the can, alternately, did not show any difference in the reading up to eight or ten minutes. The samples were taken every two minutes. This shows that, for all practical purposes, the usual method of taking samples from the weigh can, poured into the usual way, gives a fair average test.

MILK PAID FOR BY TEST NO EXCUSE FOR DETERIORATION.

I beg to here point out that, because milk is being paid for by the test, this does not exonerate patrons from liability when deteriorated milk is delivered at the factory. The law makes no distinction with respect to milk paid for by the test or otherwise. If the milk is deteriorated, legal proceedings may be taken.

ENFORCING LAW: PREVENTING DETERIORATION.

The system followed the past four years, of enforcing the law against deteriorated milk, has had a bearing on reviving interest in the payment by test, as the public begin to realize that the practice of skimming and watering milk has been more widespread than formerly supposed. The deterioration of milk can easily be detected, notwithstanding the doubts expressed by a few, some of whom have been convinced at considerable cost to themselves. We find, also, that systematic work is reducing the number of offenders, since, in 1907, 60 cases, while in 1910 only 27 cases, were found in Western Ontario.

MISTAKES OF THE PAST.

No doubt, in the past, some mistakes have been made through insufficient knowledge, careless methods, and a lack of backbone on the part of a few men who did the testing, and had something to do with creating some lack of confidence with respect to payment by test. This we now believe could be to a great extent overcome, as considerable assistance would be given by the dairy instructors.

THE WORK OF COW-TESTING ASSOCIATIONS.

The recent work of cow-testing associations has also been a great factor in establishing confidence among the patrons, with respect to the work of testing.

SPECIALLY-TRAINED MEN TO DO THE TESTING.

Having specially-trained men to do the testing should be theoretically correct, but difficulties might arise in practice, although, no doubt, it could be done, and would put the test (both fat and casein) on a strong basis from the patron's standpoint.

We have in Western Ontario about 15,000 patrons sending cream to creameries. The butter-makers do the testing. About the same number of patrons send milk to our cheese factories, and could these factories be placed in the same position as the creameries, in that they would all pay by test, then, by paying the cheesemaker for the extra labor, could he not do the testing? But if the casein test is to be adopted, in addition to the fat test, then it would become almost a necessity to have extra men do the work, as I cannot see how the average cheesemaker, with the small

amount of time at his disposal, could possibly be in a position to make these two tests. By having special men do the testing, employed either by the factories or by the Government, it would relieve the makers of a great responsibility, and the patrons, knowing the work was in the hands of interested men, complete confidence should be established. The makers would still have to take and care for the samples.

COST OF TESTING.

The question of cost comes in here, and, if assumed by the factories, would mean a direct increase in the cost of production; but, since the adoption of this method should insure a more just distribution of dividends, a better quality of milk and, therefore, better quality of cheese, together with a gradual reduction in the number of pounds of milk required to make a pound of cheese, the increased expenditure should be justified. It is a big problem, and should be viewed from a broad standpoint.

If all factories would pay by test, then it might be possible to have central testing stations, with one expert and a number of assistants, which staff could handle the samples from a large number of factories. The assistants could do the detail work, while the expert could do the sampling and reading of the tests. The station could be equipped with a large number of machines, which would allow a great number of samples to be handled.

Creamery and Cheese Meetings at Guelph.

Two excellent dairy meetings were held at the Dairy School in Guelph during the progress of the Winter Fair. One was a creamery and the other a cheese meeting. The former has for some years been an annual event. The latter was a new departure, having been substituted for the district dairy meetings which it has been customary to hold throughout Western Ontario in autumn. At the cheese meeting, Chief Dairy Instructor Frank Hens gave some interesting figures as to output of cheese in Western Ontario. In 1909 it was 17,883 tons, being an increase of 661 tons over 1908. For 1910, complete figures are not yet available, but, out of a total of 205 factories, 105 are expected to make more cheese than in 1909, 55 factories less, and 29 the same. The average yield in 1909 was 11.09, and in 1908, 11.083. The average per cent. of fat in the milk for 1910 has been 3.5, practically the same as for years back. The average loss of fat in the whey in 1910 was 21 per cent., being .01 less than in 1909. Nine factories made whey butter this summer, being one more than the previous season. Only ten factories are making casein. In all, there are twenty-seven factories paying by the test, or four more than 1909. Twenty-three fac-



Count De Kol Pietertje Paul 5446.

Sire of Inka De Kol Pietertje 44, 25 months of age, A. R. O., 19 lbs., Pauline Hengeveld, 36 months of age, A. R. O., 26 lbs., two other A. R. O. daughters. This bull and about twenty of his offspring will be offered for sale at Brown Bros' public sale, Wednesday, December 28th.