

Stock and Dairy.

American Dairymen's Association.

ABRIDGED REPORT.

Prof. Arnold began by remarking upon the commendable exertions which had been made to secure the erection of a suitable building for the exhibition of dairy products at the Centennial, and which had resulted in the construction on the grounds of a model butter and cheese factory, with a complete outfit of apparatus necessary for the manufacture of butter and cheese, and ample room for their display. The cost of the structure was \$10,000, of which amount the Canadian Government had contributed \$2,000. After giving its dimensions and interior arrangements, he remarked that while the room for the display of butter was fitted up with the necessary means of refrigeration, that for cheese was minus this precaution, notwithstanding his protest, and in direct violation of a pledge made by D. L. Pope, chairman of the Committee. In the hottest part of the summer this omission had had a bad effect upon the cheese exhibited. This building had not been finished in time to receive many of the foreign exhibits, which were located as well as possible in the Agricultural Hall and elsewhere on the grounds. The Dairy Department had on the whole proved to be a creditable and successful exhibition of dairy products. The display of products connected with the dairy which were submitted to the judge of group four for examination, comprised butter, cheese, condensed and preserved milk, and butter-coloring, cheese-coloring, preserved rennets and rennet extracts. Of butter there were shown a total of 292 packages, having a total weight of 9,150 pounds. Of this number 226 packages, weighing 7,051 pounds, were from the United States; 23 packages, weighing 1,749 pounds, were from Canada; and 42 packages, weighing about 350 pounds, were from other countries. This amount was presented in 149 exhibits, of which 123 were from the United States, 16 from Canada, and 10 from other countries, including Portugal, the Argentine Republic, Brazil, the Netherlands, Germany, Italy and Denmark. There were 31 awards for exhibitions of butter recommended by the Committee, with which he (Prof. Arnold) was connected, 22 of which were for exhibits from the United States, 5 for Canada, and one each for Portugal, the Netherlands, Germany and Denmark. The display of cheese was much larger than that of butter. In all 2,086 packages were exhibited, weighing 55½ tons, which were presented in 411 exhibits. There were from the United States 1,012 packages, weighing over 26 tons; from Canada 1,003 packages, weighing over 29 tons; from other countries 65 packages, estimated at 500 pounds. These were from Portugal, the Argentine Republic, the Netherlands, Brazil, Victoria, Italy, Norway, Turkey, France and England. The cheese from the United States and Canada was mostly the product of factories. Over 100 awards were recommended for exhibits of cheese. Of these 45 were for the United States, 49 for Canada, and the remainder for other countries. Prof. Arnold then gave an explanation of the method adopted in judging butter and cheese. A scale of points was prepared, to be rated by numbers, the sum of whose numerical value should be in each case a 100. The following is a scale of points for judging butter on a basis of a total of 100 as perfection:—Positive qualities—flavor 25, agreeable, clean, nutty, aromatic, sweet, pure, distinct and full; keeping quality 20, inclined to slow changing, indicative of stability in retaining good qualities; solidity 10, stiffness of body, firmness; not easily getting or becoming soft-textured 15, compactness, closeness of grain, breaking with a distinct fracture like cast-iron, fat globules unbroken and perfect, sticking little to trier; color 15, pleasing, natural, not appearing artificially bright, even; make 15, includes all not included under other points, as cleanliness, perfect separation of buttermilk, &c. The following were the definitions of positive qualities for cheese:—Flavor 25, agreeable, nutty, buttery, fine and full; keeping 15, preservation, inclination to slow changing, retention of good qualities; quality 20, mellow, salty, pasty, flaky, stoky, rich, soluble, melting on the tongue; texture 15, solid, close, firm, compact; color 10, pleasing, natural, not appearing artificially; even make 15, includes all not included under other points, as use of rennet, proper manipulation, ripening curd, salting, pressing, curing, perfect rind, &c. The cheese exhibits of both countries in the October display was generally fine, and than some of them he had never seen finer anywhere. They were

absolutely faultless. The very best had one peculiar feature in their manufacture, and that was that those in which the flavor was the most pure and nutty, and which appeared the richest and most meaty, had the whey removed from the curd at the earliest period. This was the essential point in what was called the Cheddar process. The cheese shown by the United States was not very uniform in quality, and the same of the Canadian exhibits. Canada's average, however, was higher than that of the United States. This superiority he attributed to the fact that the Cheddar system was practised more in Canada than in the United States. The cheese presented in October by Thomas Ballantyne, M. P. P., of Stratford, in which this peculiarity of make was most successfully carried out, was the finest shown during the exhibition, and was graded at 100 plus. To it was awarded the sweepstakes prize for best Canadian cheese. (Applause.) The October exhibits of Mr. D. Chalmers and Mr. Alex. Mackenzie differed but very little from the best. The percentage of perfection in the October exhibits of cheese from the individual States, and the United States collectively and Canada collectively, were as follows:—Connecticut, 50 per cent.; Ohio, 60; Wisconsin, 76; United States, 76.82; New York, 79.05; Pennsylvania, 83.22; Canada, 87.36.

Mr. Casswell inquired about certain articles in the newspapers written by one Oliver who charged that there had been a dairy ring at the Centennial.

Hon. Mr. Lewis said that Wilkinson, the inventor of the sub-earth duct, was one of those at the bottom of that charge. Among the others who had joined in the cry were A. Willard and O. S. Bliss, who felt sore because they were not appointed judges. Last, and not least, was this Mr. Oliver, who had circulated the charge through the press. Mr. Lewis said that there was not the slightest foundation in fact for the rumored existence of a dairy ring. The judges had done their duty conscientiously, and the cry had been raised for a purpose by disappointed parties.

LEAKS IN THE DAIRY.

Mr. C. H. Sheldon, of Lowville, N. Y., delivered an address on the above subject. Addressing himself to his subject, he remarked that poor and insufficient food and bad water were among the worst and most common leaks in the dairy. A food that would keep the supply constant and the cows in good flesh, would pay in the long run by giving the largest percentage to sell when the market was the highest. Large and comfortable barns were important factors. It was the dictate of prudence to stop up the cracks in the stable. Ventilation should not be neglected. If the Creator had intended the cow to be kicked and pounded, He would have provided her with a coat of armor. Every kick and stroke was a leak in the dairy. Every dairyman should not only be kind and gentle himself in the treatment of his cows, but for moral as well as financial reasons he should see that he had no brutal hired men in his employ. The problem of successful cheese dairying in years to come must be solved by the consumer, as the Americans were not a cheese-eating people. The interest depended almost entirely at present on the foreign trade, though the Dairymen's Association was educating the taste of the people for a good article. Statistics showed that the consumption of cheese among dairymen themselves was greatest when they considered it cheap, whereas if cheesemakers, patrons, and all concerned would themselves use larger quantities of a good article, the price would be raised throughout the whole interest. The careless or imperfect curing of cheese was a great leak, for it not only affected those producing the inferior article, but the whole trade. The object of manufacturers should be to put their cheese into the hands of consumers as soon as they wanted it; and in all cases the keeping quality of the cheese should not be lost sight of. A high and uniform temperature was that adapted to the preservation of the best qualities of cheese.

DAIRYING AND FERTILITY.

Prof. E. Stewart addressed the Convention on this subject. Deducting the cows used simply for breeding purposes and furnishing food for their calves, there would remain in the United States and Canada about 10,000,000 cows, producing an annual product, at \$40 per head, worth in the market \$400,000,000. In view of the extent of this interest, it became important to consider the effect of dairying upon the fertility of the dairy farm. Milk contained about six-tenths of one per cent. of mineral matter, and 1,000 pounds of milk would contain six pounds of ash, composed of phosphate

of lime, carbonate of lime, soda, sulphur, magnesia, &c. A cow, therefore, that gave 4,000 pounds of milk while in pasture, would remove from the soil twenty-four pounds of these mineral constituents. Different systems of dairying, however, had different effects upon the soil. With regard to butter dairying, the Professor remarked that what was sold from the products of the farm, not what was raised and fed to be returned to the soil, impoverished it. Butter was composed wholly of carbon and water, and if pure took no valuable constituents from the soil. All its elements, carbon and water, might be derived from the atmosphere. The best system of dairying to preserve the fertility of the soil was butter-making. When the refuse milk was fed to animals, the mineral constituents went back to the soil in the highest state of organization, and might even increase its fertility. He advised the feeding of the milk to pigs, as these animals had a less weight of bone in proportion to their carcass than calves, and then a larger amount of fertilizing matter was returned to the soil than by feeding it to calves. If, however, the milk of the dairy was sold, the mineral and nitrogenous constituents were lost to the soil. In the manufacturing of cheese or delivery of milk to the factory, all that was brought back was the whey of the milk, or carbon and water containing no mineral matter except the small amount of casein and albumen that might have floated off with it. Whey had therefore little manurial value, the casein of the curd containing nearly all the mineral matter. It was true that the skilful feeder might profitably use the whey as a food by mixing with it other food rich in albumen oils, such as oil, meal, pea-meal, fat or barley meal, and thus add to his income. He did not wish to alarm dairymen, but it behooved them to look the facts square in the face, and if their present system was faulty, the sooner they mended it the better. Dairying for long periods has been found to deplete the soil of the phosphate of lime.

In reply to questions, Prof. Stewart stated that if a dairyman had abundance of food from other sources than his pastures, and fed his cattle liberally, he might keep his pastures in good order for a length of time. His remarks had been based on the supposition that dairymen kept all the cows their land would support, without foreign compensation to the soil. If, however, the farmer used commercial fertilizers, such as bone dust, superphosphates, etc., he could keep the soil in good condition for about \$2 per acre. German potash salts were also very valuable in replenishing the soil. Extra tillage might indefinitely postpone the impoverishment of the soil, but it would on that account be all the more marked when it did come. The Germans had found that by cultivating the sugar beet, which sent its roots down to the subsoil and brought up the fertilizing elements, and feeding the refuse of their sugar manufactories to their cows, they could make their profit on the sugar clear without apparently impoverishing the soil. He spoke very highly of the value of pea-meal and oil-meal in feeding cows. Leached ashes were a tolerable substitute for superphosphates, provided the land was not permanently wet. Gas lime was also good, but it should be composted with muck and earth and allowed to stand for a year or two, or even a few months.

A vote of thanks was unanimously tendered Prof. Stewart for his address.

MANUFACTURE OF CHEESE AND HANDLING OF MILK.

Mr. Thos. Ballantyne, M. P. P., delivered an address on this subject. He said that the proper condition of the milk on commencing the process of manufacture, was the first requisite in order to make good cheese. Cleanliness could not be overrated. The utensils should be carefully washed and scalded in the first part of the season. Cheese should be manufactured with a view to early maturity, and the sooner it was ripe the better. He accomplished this by a free use of rennet, sufficient to coagulate the milk until the cutting of the curd in twenty-five or thirty minutes. The heat should be applied as gradually as possible. He drew the whey on the approach of the slightest acidity, allowed the whey to pack at the bottom of the vat, used salt very slightly, and followed the Cheddar process generally. As the season advanced he used less rennets, sufficient to coagulate it in forty minutes. The ascertaining of the right degree of acidity could only be learned by experience. In summer he used 2½ pounds of salt per 1,000 lbs. of curd, but when he was anxious that cheese should be soon ripe for the early market he used about 1½ lbs. of salt. He reiterated that there were four agencies in the manufacture of cheese, to