

gramme with an address on "Dairying in Canada."

The speakers on the last day was Mr. C. H. Everitt, who spoke on "The Cow," beginning with it as a calf at birth. He gave his method of curing clover hay, and of cultivating corn in Wisconsin, urging shallow cultivation for the latter.

A resolution was carried that laws be enacted to compel cheese factories to brand all cheese with the date of its manufacture.

Messrs. Harold Eagle, H. White, T. B. Miller, and J. Johnston were appointed a committee to arrange and prepare topics on practical cheesemaking for discussion at the next convention.

Prof. Robertson made a short address on bitter taste in cheese and cream. He attributed it, in the case of cream, to the fact that it was kept in improper temperature of from 50 to 53 degrees for three or four days. And the same conditions were true of bitterness found in cheese. This, of course, was due to microbes. They lived in that temperature, but if it was made colder than that, or warmer, they could not live. If proper care was taken of the milk and curd, there would be no bitter cream and no bitter cheese.

Officers for 1895 were elected as follows: President, Andrew Pattullo, Woodstock; first vice-president, A. F. Maclaren; second vice-president, Harold Eagle, Attercliffe Station; Division No. 7, John Prain, Harriston; Division No. 8, J. N. Paget, Canboro; Division No. 9, J. F. Williams, Ingersoll; Division No. 10, George Robertson, Lucknow; Division No. 11, Thomas Ballantyne, Stratford; Division No. 12, J. S. Pearce, London; Division No. 13, Harry White, Hawkesville; representative to Industrial, Toronto, J. W. Wheaton; Western, London, J. S. Pearce and John Gilmore; Toronto Farmers' Institute, Thomas Ballantyne; auditors, J. C. Hegler, Ingersoll; J. A. Nelles, London; Z. A. Leach, Chatham.

For The Canadian Live Stock and Farm Journal. Rusty Milk Cans.

For the conveyance of large quantities of milk by rail or road, or for use as milk buckets or milk-pans, there are probably no better utensils than those made of tinware, so long as they are kept in good order and thoroughly cleaned. When, however, the coating of tin wears off, and the sheet iron below gets exposed, the latter rusts at once when water or milk is introduced into the can. Good dairymen discard such rusty tins, well knowing that they affect the milk injuriously. How much they affect the milk would, probably, surprise many people.

A case reported in a western paper shows to what an extent it spoils the milk. A Chicago establishment had received from a creamery some milk which had a half-rotten smell and a horrible taste. It was not sour, although it was three or four days old. The milk was carefully examined, and an agent was sent to the creamery, who examined the milk in bulk from the patron who had supplied the milk. The can was found to be scrupulously clean, and came from a patron who had a good reputation for cleanliness, but the inside of the vessel was very rusty, and the milk only about half filled it. As the agent had met with a similar taste and smell in milk received at another creamery in a rusty can, he induced the manager to buy a new can and send it to the patron, with the request that he should use it instead of the old one. The patron was offended at the

suspicion that his milk was not good, and sent back the new can unused, but bought a new one himself, and put half his milk in the new one and half in the old one, and sent it that way. That in the new can was found to be perfectly unobjectionable, while that in the rusty one had the same old taste and smell. The agent wished to borrow the rusty can to experiment with other milk, but the patron refused to lend it, and he had to give him the price of a new one for it. Further experiments with other milk in the can produced the same result, a fearful smell and a tallowy taste, and butter made from the milk also tasted of tallow. An analysis revealed the presence of a considerable quantity of iron in the milk. The taste and smell were worse when the can was half full than when it was filled.

To show conclusively that the rust was the cause of this state of affairs, and not bacteria remaining in the can, this was steamed for an unusually long time, and yet, when milk was again poured into it, the odor and taste were still apparent, thus establishing without doubt that rust was the cause. The moral is to discard rusty cans, and also to purchase only such as are made out of good tin, as these will long outlast those of a cheaper make. G.

Questions and Answers.

Butter Fat in Relation to Cheesemaking.—C. E. A., Stanstead: Does the same proportion exist between the amounts of cheese made from milk containing different amounts of butter fat per 100 lbs. as exists between the amounts of the butter fat, other things being the same? Would it make any difference in the results if one sample of milk was very low in butter fat and the other very rich?

Ans.—By Prof. Dean, Guelph: Your correspondent C. E. A. asks a question that is being discussed at the present time with considerable vigor. I presume he means, "Does the yield of cheese increase in proportion to the fat?" We have not found it to do so. A pound of fat in normal milk containing from 3 to 3.5 per cent. of fat has made more cheese with us than a pound of fat in milk testing 3.5 to 4.5 per cent. of fat. The question is an important one at the present time, as a number of factories are undecided whether to continue paying by test, or to discard the system. The plan advocated by the dairy department of the Ontario Agricultural College, of adding a per cent. to the fat reading, appears to meet with favor. The two represents the percentage of casein in milk, which we find to be fairly constant. The matter is being fully discussed at the dairy conventions, a report of which your correspondent should secure, if he could not attend.

The Apiary.

Ontario Beekeepers' Association.

The eleventh annual convention of the beekeepers of Ontario met in the city hall, Stratford, on the afternoon of January 22nd. A three days' meeting was held, and there was a good attendance of those interested in apiary matters.

Mr. A. Pickett, Nassagaweya, the president, in his address spoke of their experience during the past year. While the spring had opened earlier than usual, and bees had come out strong in numbers, and with but few losses, and the prospect had been good, yet beekeepers had met with disappointment. Bees gathered some nectar from the willow and soft maple, after which they did but little more than live on what was left of their winter stores. The rain and cold weather kept them in till the stores were exhausted, and the bees died from starvation before they could gather any nectar. Those living were so lessened that very little clover honey was taken, and the increase of colonies in many places was very small. He referred to the death of their late secretary, S. Cornell, and asked the

association to pass a resolution of sympathy with the family of deceased.

The cost of producing a pound of honey was one of the questions raised at the meeting. Mr. Holmes thought that it cost him about four cents.

Mr. Pettit, Grimsby, spoke of the work done by him in urging the passage of "The Pure Honey Bill" in the House of Commons, and of its rejection by the Senate. A motion was carried that efforts be made to have the bill reconsidered.

Mr. Darling read a paper on "Some Difficulties in Bee Raising," in which he asked several questions that he would like answered.

Mr. Gemmill, in speaking on "Marketing Comb Honey," said that he preferred selling honey in the comb to selling extracted honey, as better prices were obtained for the former.

Prof. Fletcher's report on experiments on foundation conducted at the Ottawa Experimental Farm showed the advantage of using good wax as against bad. A vote of thanks was tendered to him and also to the Dominion Government for carrying on experiments in beekeeping.

Mr. Allan Pringle's paper on "Education" went thoroughly into the matter and met with approval.

At the evening concert held Prof. C. C. James, Deputy-Minister of Agriculture, delivered an address on agriculture.

The election of officers resulted as follows: President, J. B. Hall, Woodstock; vice-president, J. K. Darling, Almonte; Board of Directors—District No. 1, W. J. Brown, Chard; No. 2, J. K. Darling, Almonte; No. 3, M. B. Holmes, Athens; No. 4, Allan Pringle, Selby; No. 5, J. W. Sparling, Bowmanville; No. 6, William Couse, Streetsville; No. 7, A. Pickett, Nassagaweya; No. 8, F. A. Rose, Balmoral; No. 9, S. B. Pettit, Almonte; No. 10, A. E. Sherrington, Walkerton; No. 11, F. A. Gemmill, Stratford; No. 12, W. A. Chrysler, Chatham; No. 13, J. Hughes, Barrie. William McEvoy, of Woodburn, was reappointed foul brood inspector; F. A. Gemmill, Stratford, sub-inspector; auditors, John Myers, Stratford, and R. H. Smith, St. Thomas; delegate to Toronto Industrial Fair, R. F. Holtermann, Brantford; delegate to Western Fair, R. H. Smith, St. Thomas.

The *Canadian Bee Journal* was voted as the representative journal for the year.

Under the Swarming Impulse.

By R. F. HOLTERMANN, Brantford.

The question is asked, Are all queen cells raised under the swarming impulse equally good?

In reply, I would say to "Subscriber" that there is yet a good deal of discussion going on about the methods adopted by the bees and queen when the colony is under the swarming impulse. Some claim that the queen does not deposit the eggs in the cells, but that they are placed in the queen cells after the queen has deposited them in worker cells. I have no doubt that the queen deposits the eggs in the queen cells when the colony is under the swarming impulse, whatever may be done when the bees supersede the queen. Now, the theory is that a great many cells are started, and, a number of young queens emerging at the same time, a royal combat takes place, and the strongest and most vigorous queen becomes the mother of the colony. In this way we are supposed to get a natural selection perpetuating the strongest and best of the race. Some claim that there is a great

difference in the size of the queen cells reared under similar conditions. There may be some difference, but some cells have that appearance externally, whilst upon closer inspection it will be found that a portion of the cell is buried in the comb. I have generally noticed but little difference between a batch of young queens reared under the swarming impulse, yet the plan in nature appears to favor a selection pointing towards the survival of the fittest. We generally consider one worker bee the same as another, and yet when the queen is not of a particular breed, or is not mated with a drone of her own breed, we find a good deal of difference in the markings of the bees of the same parentage, showing that the same laws hold good in these as in other animals. I should say that the more fixed the strain the more likely the queen is to breed true to type, and for that reason a purebred bee of average good blood is more desirable than a cross, which has shown itself even superior. The question probably is, Do bees tend and care for one cell more than another, all being under similar conditions? This question, I think, should be answered in the negative. Next, I would say that the best way is to let the bees rear the brood, and to select, under natural conditions, whichever queen is the best. But this is not a method which can be made practical by the queen breeder. The best method which can be made practical is to let the bees rear queens under the swarming impulse, treat all cells as equally valuable, and separate by means of a coil queen cage, and cell protector the cells before the queens emerge and destroy other cells. In this way all practical purposes will be served, and from the right mother a batch of good queens will be secured. Great care must be observed in handling queen cells, either on the comb or separated therefrom. If the bees are shaken from the comb, the cells attached, especially if this is done several days before they are ripe, may never hatch. If the combs are turned upside down the same thing may result. The cells are also easily chilled, and, if they are cut from the combs and put into other hives, they should be placed in a basket and put between warm flannel. I have several times had an entire batch of queen cells destroyed through the effects of a violent thunderstorm in the vicinity. While upon the subject, I would say that there is a great deal of carelessness in connection with making small hives for the reception of queen cells. My plan is as follows: I take an eight-frame Langstroth hive and put in it two solid partitions, giving three compartments suitable for holding two ordinary Langstroth frames each.

These compartments will, of course, have their entrances in the front. They are too close together, and, therefore, I close the centre entrance and bore a small entrance at the bottom and back of the hive, which makes an entrance for the centre compartment, one of the three being in the back and two on the outer sides of the front. A piece of cotton is nailed on top of the solid partition, spreading, at one side, over one of the outer compartments, and, at the other side, over the centre. Another piece of cotton is nailed on the other partition and made to cover the remaining outer compartment. As early as queen cells can be reared and are ready for nuclei (the name under which these small hives go), I take a fair colony, previously made queenless, and remove it from the stand, putting in its place one of these three-compartment hives with the two entrances in the front. The two best combs of brood, with bees, old and young,